



EEAA



Arab Republic of Egypt



Workshop on Water Accounts and Statistics in Mediterranean Countries

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Introduction



- ❑ One of the major challenges facing the water sector in Egypt is to close the rapidly increasing gap between the limited water resources and the escalating demand for water, which is created because of development in various economic sectors.
- ❑ To meet the increasing demand and at the same time ensure the sustainable use of water resources, Egypt has to optimize the use of conventional resources and make the use of non-conventional resources more feasible.
- ❑ At present, Egypt is addressing the issue of limited water quantity by managing the demand side. MWRI formulated a water master plan in 1981. The Water Master Plan is updated through the National Water Resources Plan (NWRP) project. The NWRP has been operated since 1998.

Water Policy Themes



Optimal use of available water resources:

- ❑ Minimize water losses.
- ❑ Irrigation improvement project.
- ❑ Cost recovery.
- ❑ Groundwater development strategies.
- ❑ Reuse of agricultural drainage water.
- ❑ Reuse of sewage water.
- ❑ Cropping pattern shifts.

Water resources development:

- ❑ Increase Egypt's share of the Nile water.
- ❑ Desalination of Brackish water.
- ❑ Harvesting of rainfall and flash floods water.

Water Policy Themes



Water quality protection and pollution abatement:

Policy theme:

The policy theme is realized through preventive measures and long-term policies. The preventive measures are carried out through the regular assessment of the water quality status and suitability for various uses. Moreover preventive measures include law enforcement to protect water resources from pollution and Cleaner Production, EIA, EPAP, Env. Inspections, Water Quality Monitoring programmes, Public Awarenesses, ect.

Water quality management:

The MOE and MWRI in coordination with the other concerned ministries and authorities are implementing a long-term strategy for preventing pollutants from discharging to the Nile and other water bodies.

Water Policy Themes



Water quality protection and pollution abatement:

Economic instruments:

Using economic instruments is a powerful tool for proper utilization of water resources. Some implemented and suggested economic instruments include:

- ❑ Encouraging private sector participation in the environmental management.
- ❑ Adopting the polluter pay principle.
- ❑ Introducing incentives and tax exemption for promoting the adoption of clean technologies.
- ❑ Removing of subsidies for agrochemicals.
- ❑ Encouraging recycling efforts.
- ❑ Reducing fresh water pollution resulting from industrial effluents.

Water Resources in Egypt

- Nile River (55.5 BCM/Y)
- Shallow GW. (6.2 BCM/Y)
- ☼ Deep GW. (2 BCM/Y)
- Rains (1.8 BCM/Y)
- ★ Flash Floods
- ◆ Agriculture Drainage Reuse (12.8 BCM/Y)
- ⤿ Sewage Treatment (4.7 BCM/Y)
- ⊘ Desalination (0.2 BCM/Y)

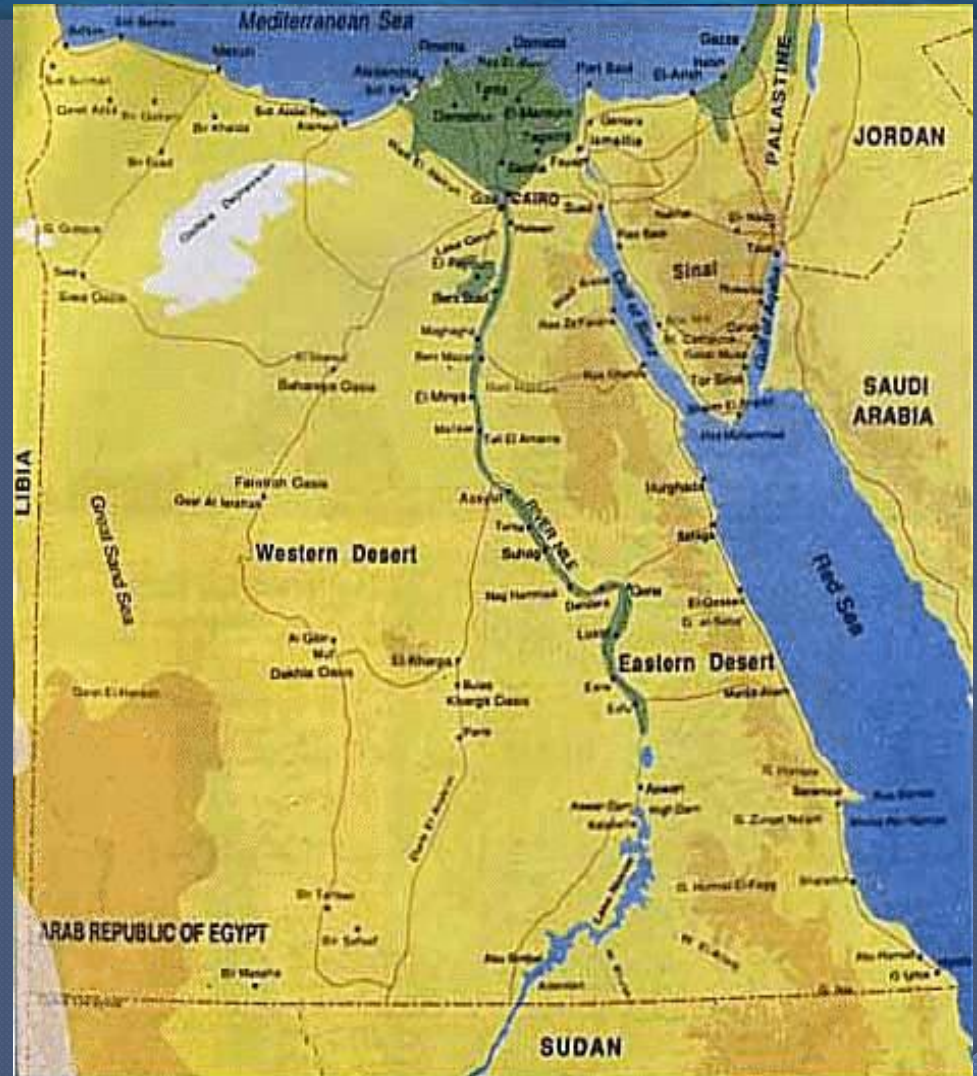


Available Water Resources (2012)

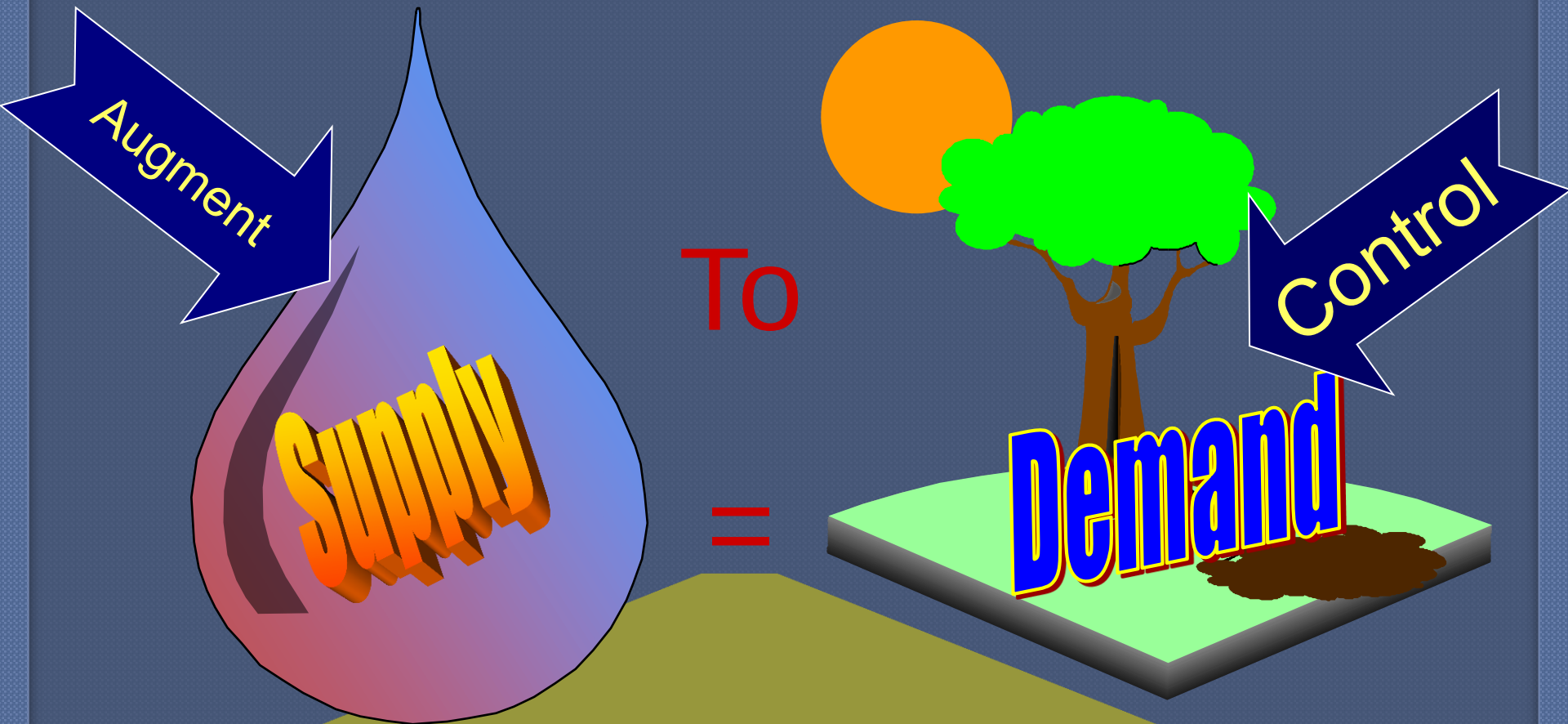
1	Rainfall	10	BCM/Y	
2	Rainfall harvesting	1.8	BCM/Y	2.8
3	Surface water (Nile Shear)	55.5	BCM/Y	85
4	Renewable G.W.	6.2	BCM/Y	9%
5	Non-renewable G.W.	2	BCM/Y	3
6	Desalination	0.2	BCM/Y	0.2%
7	Surface Evaporation	3	BCM/Y	
8	Net recharge = (2+3+4+5+6)-7	65.7	BCM/Y	100%
8	Continuous flow	55.5	BCM/Y	
	Re-use drainage and sewage water	12.8	BCM/Y	

Egypt's Water Uses

- Agriculture
- Industry
- Domestic
- Hydro-Power
- Thermal Power
- Navigation



National Water Resources Plan



Conserving the Environment

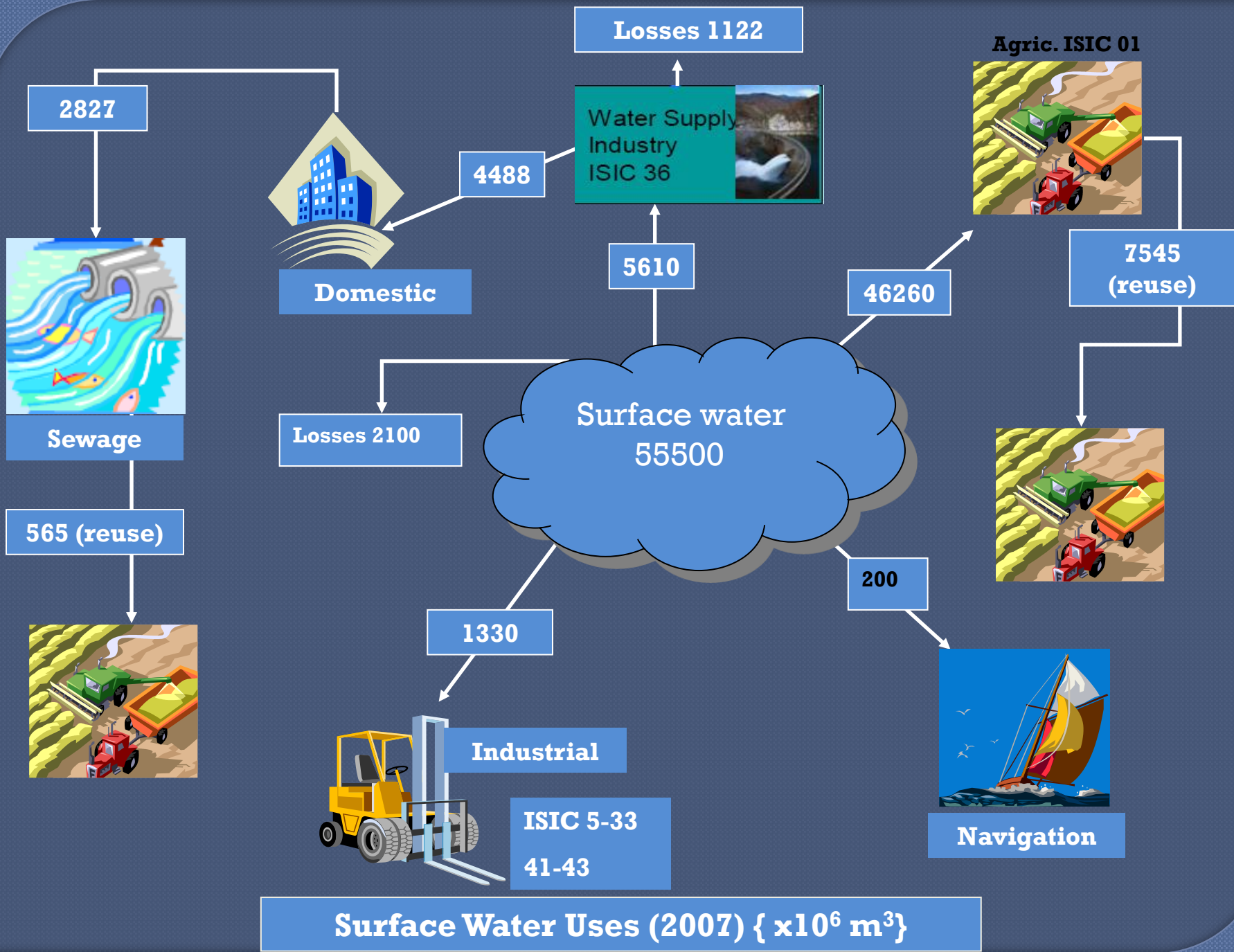
Water Demand Management Perspectives

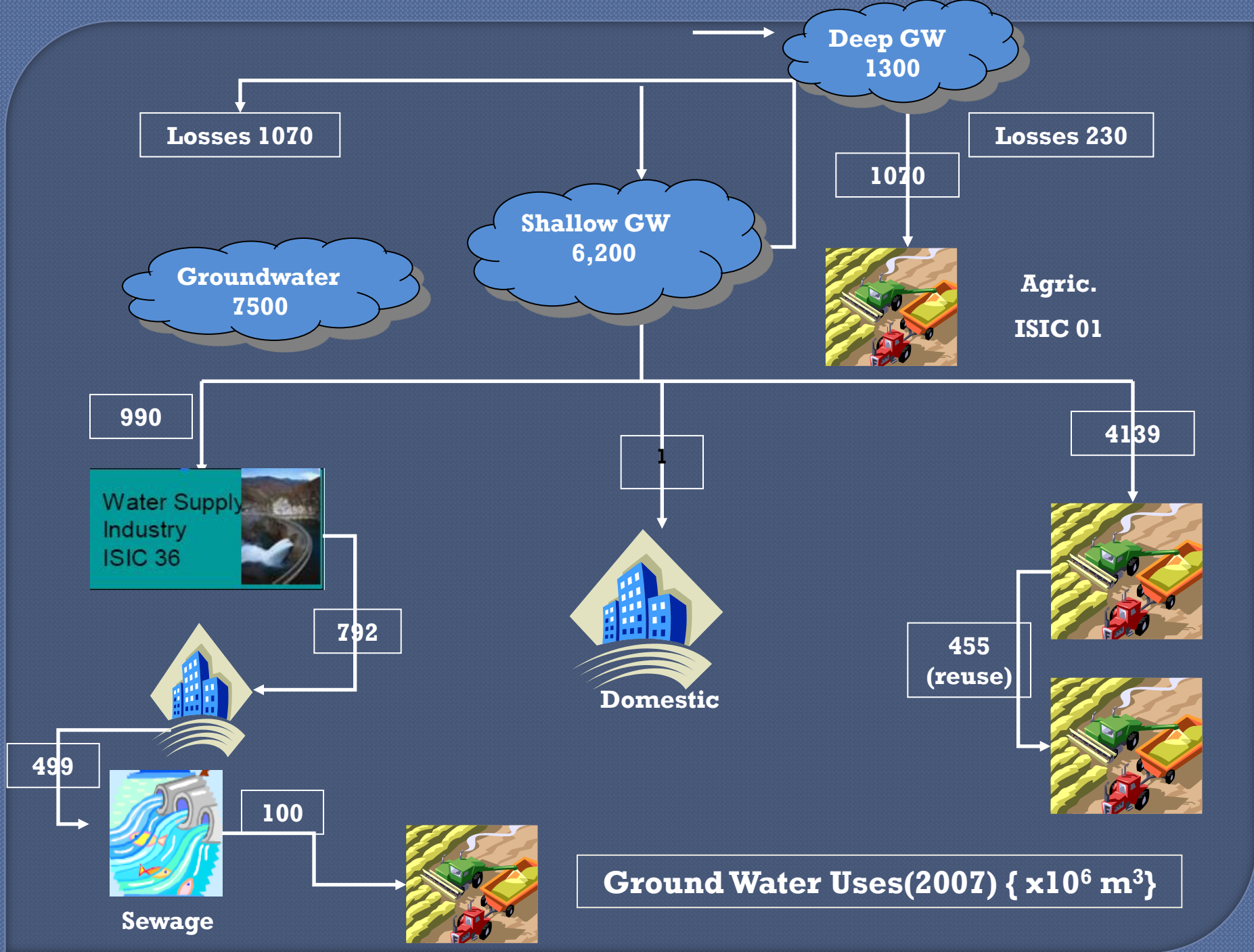


Demand Management

Water Management =

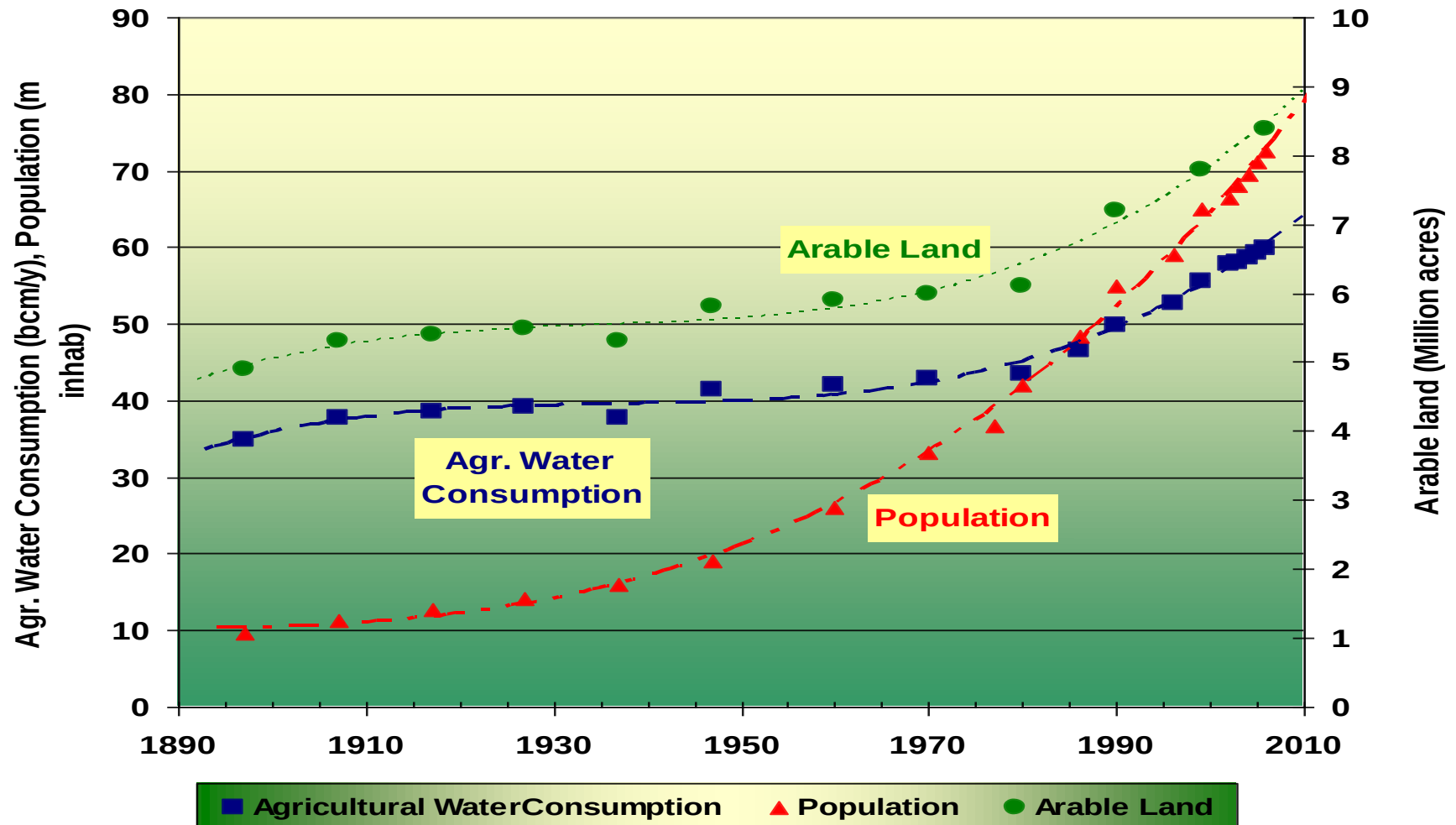
Supply Management ~+ Demand Management



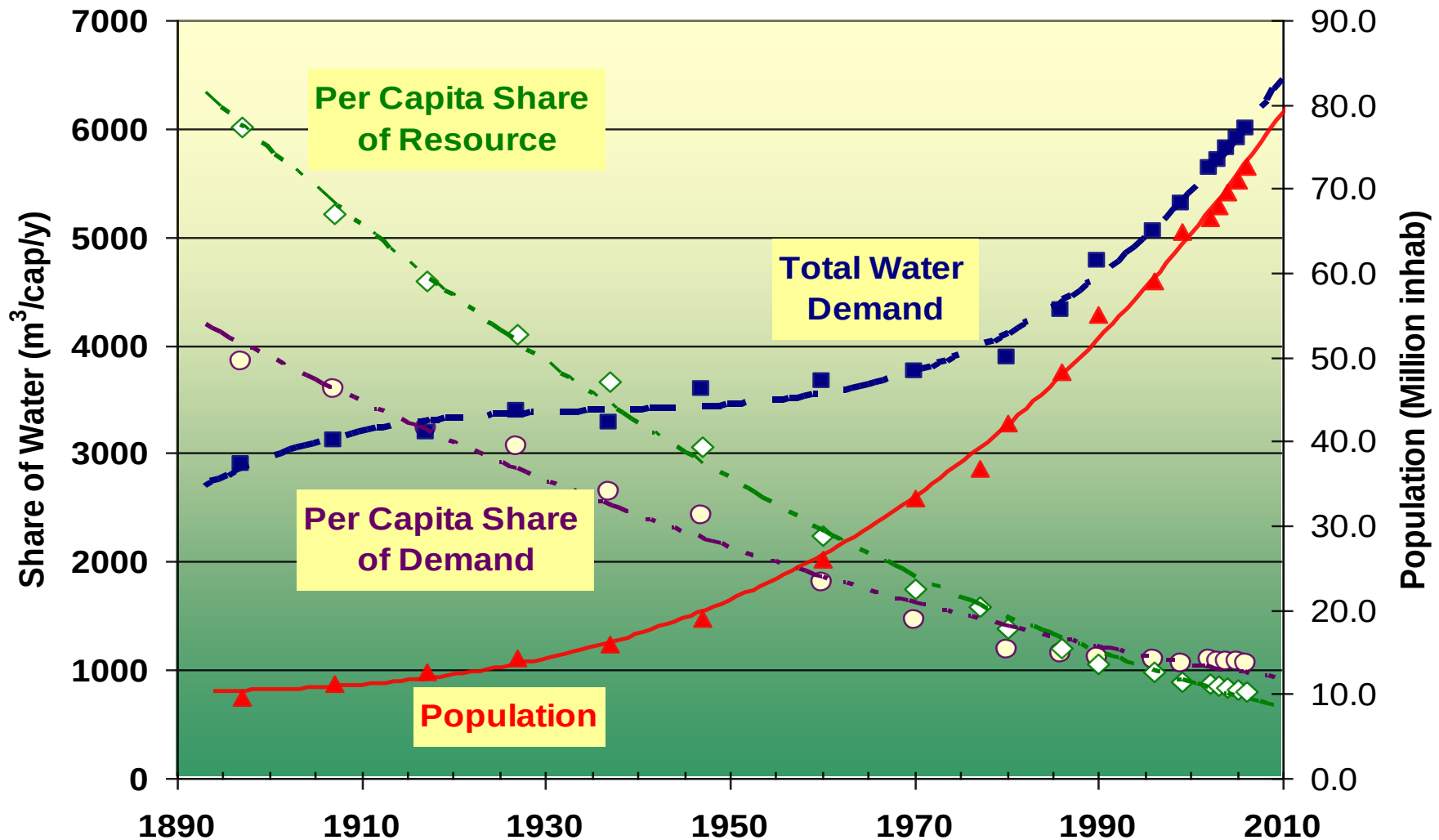


Agricultural Expansion

Agricultural Water Demands throughout a Century



Shares & Trends through a Century

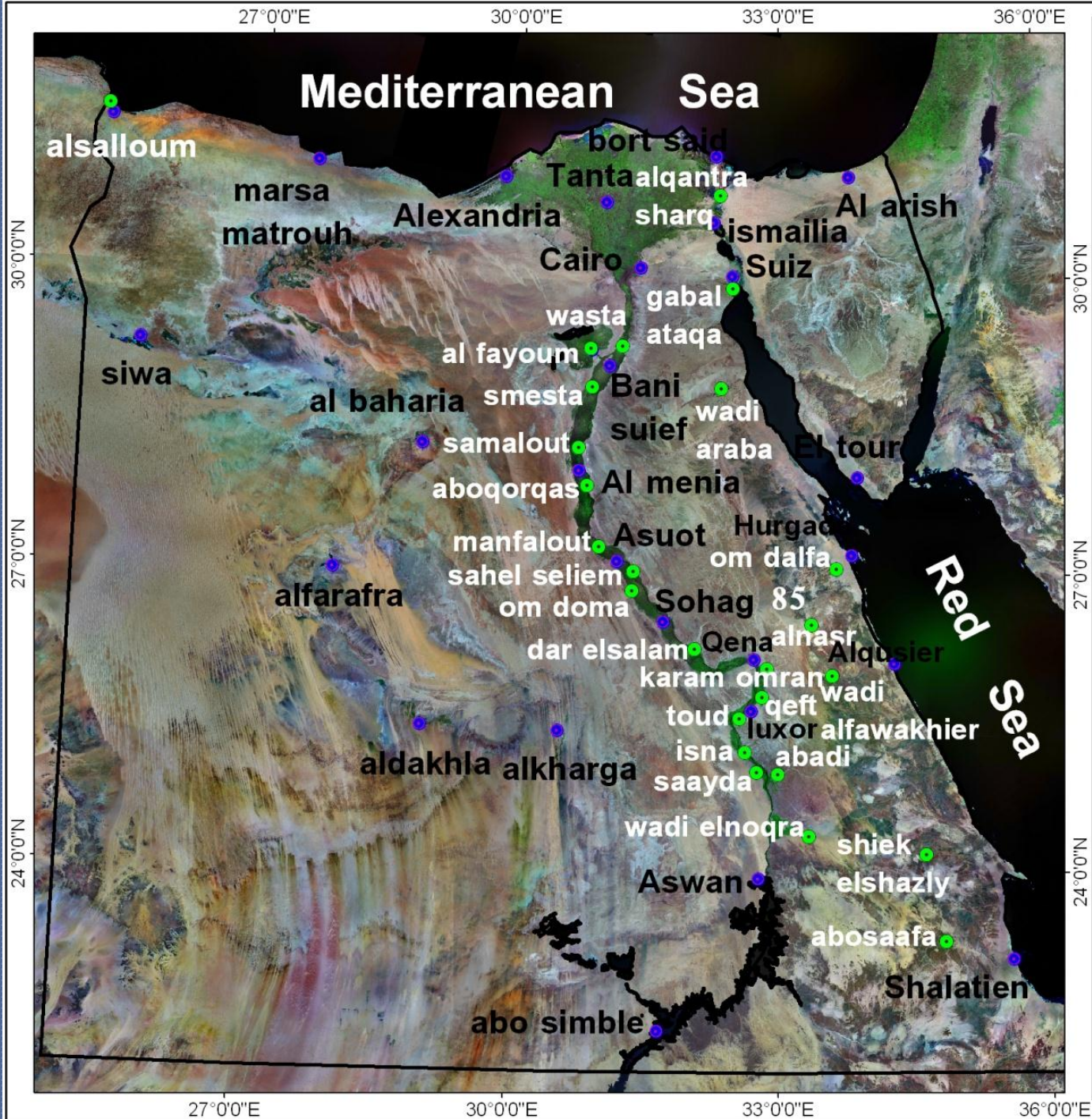


○ Per Capita Share of Demand

■ Total Water Demand

◇ Per Capita Share of Resource

▲ Population

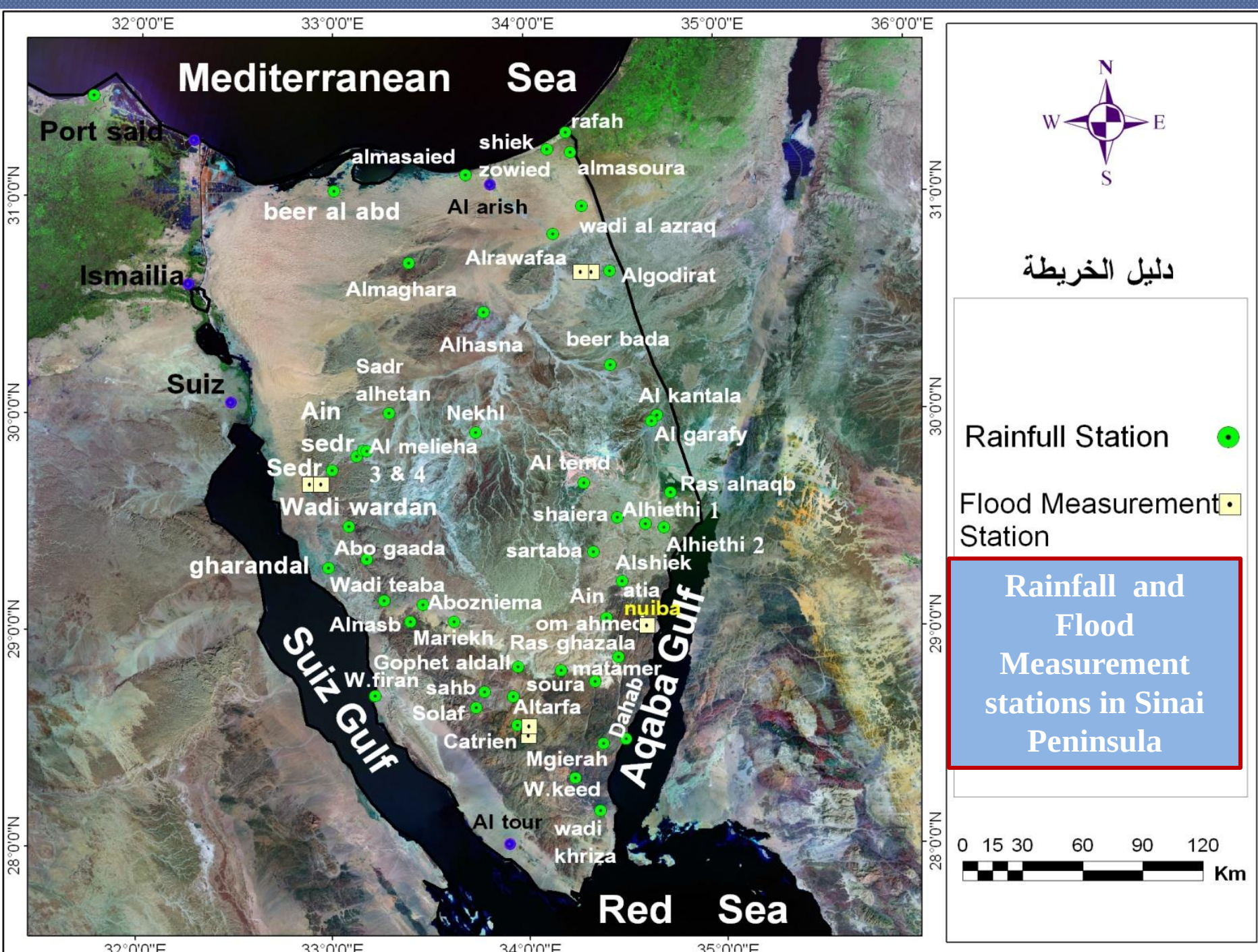


دليل الخريطة

محطة قياس أمطار

مدن

**Rainfall and
Flood
Measurement
stations in Egypt**



Measure to be taken when using treated wastewater.



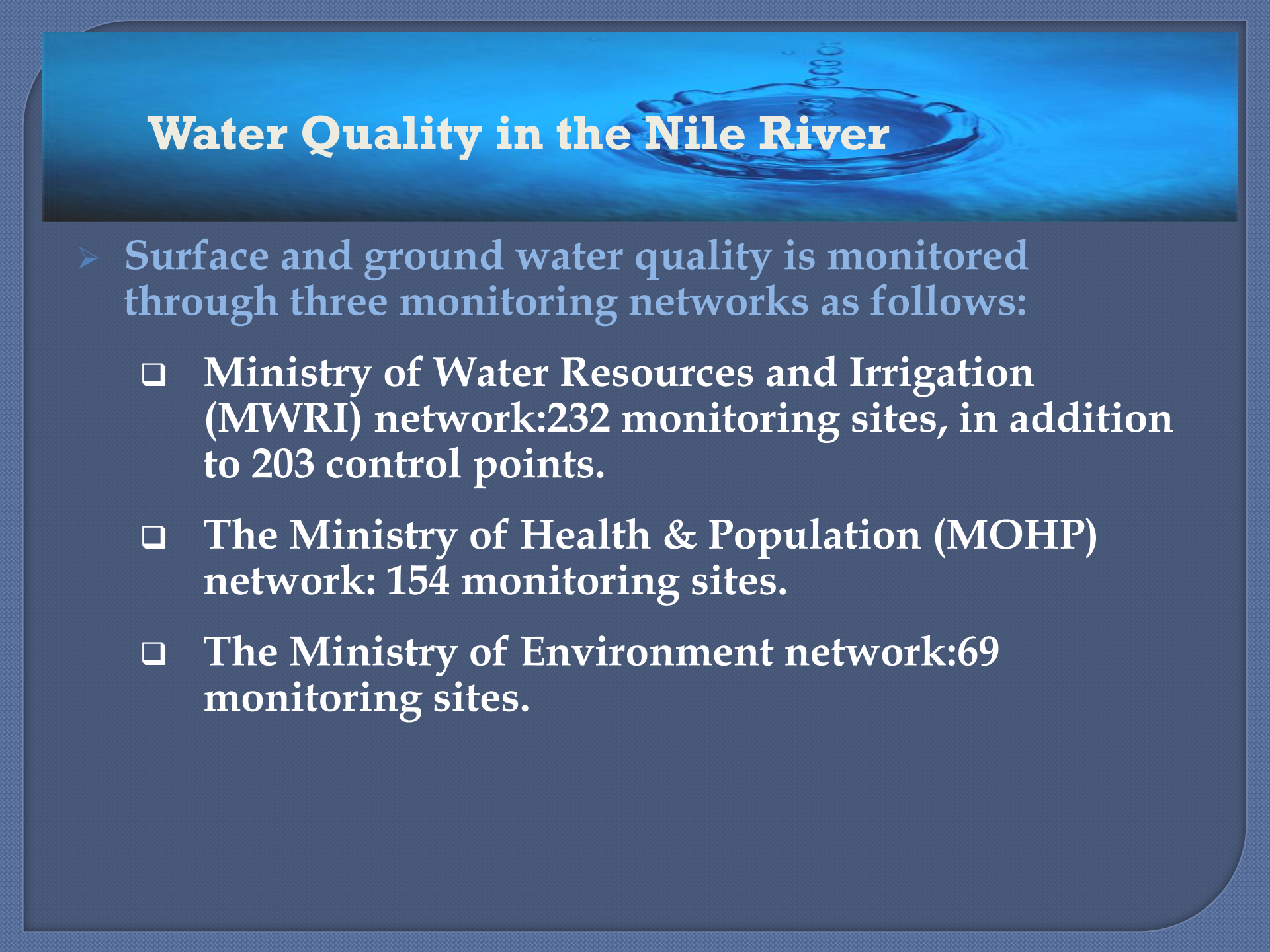
Options include:

- ☐ Minimizing risks by applying suitable irrigation techniques and selecting crops that are less likely to transmit pathogens to consumers.
- ☐ Human exposure control.
- ☐ Preventive medical care programs.
- ☐ Post-harvest handling.
- ☐ Conjunctive management of wastewater and canal water.

Drainage Water Reuse Policy

- ☐ Increase Drainage Reuse to Meet Demands.
- ☐ Maintain Minimum Outflow to Sea.
- ☐ Reuse at the Intermediate Level.
- ☐ Prioritize According to Water Quality.
- ☐ Don't use Drains for Sewage Disposal → Treat Before Discharge.
- ☐ Restrict Unofficial Reuse



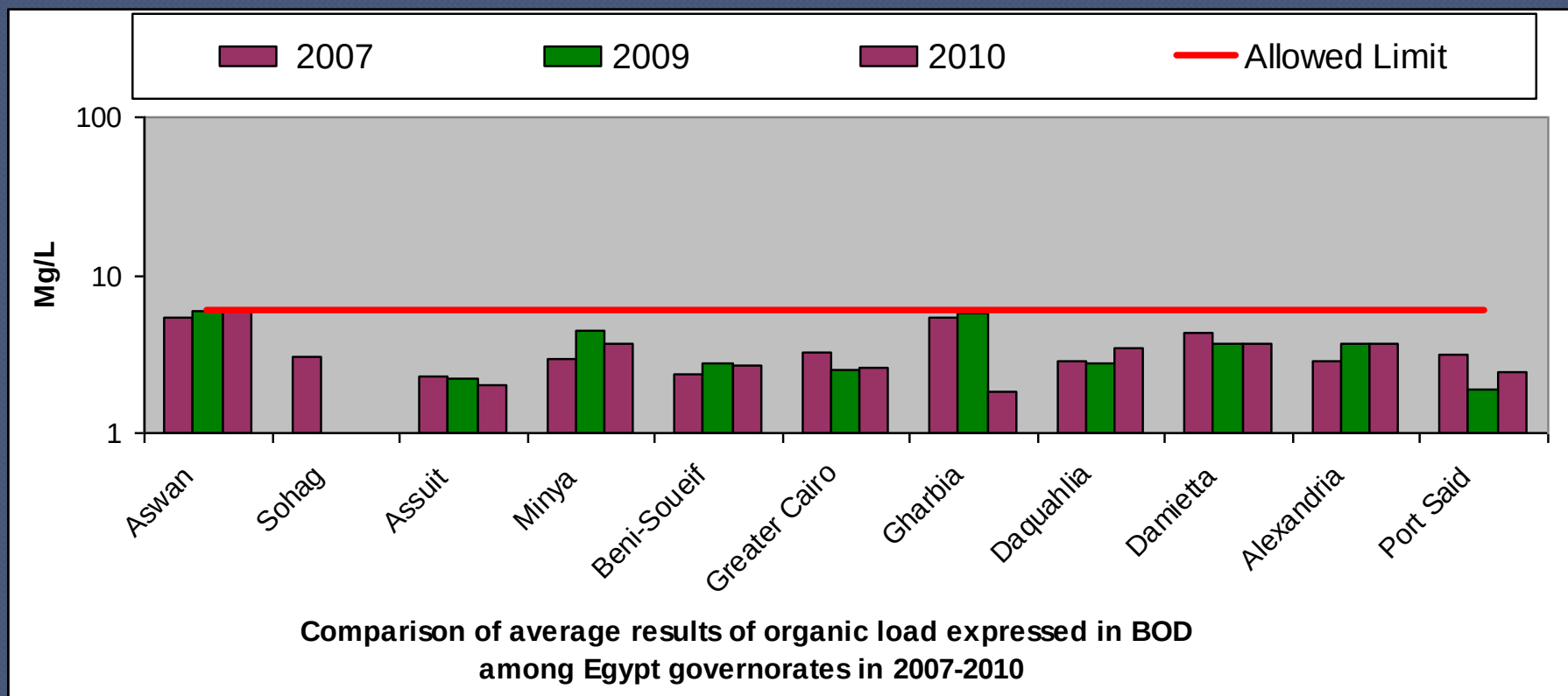


Water Quality in the Nile River

- Surface and ground water quality is monitored through three monitoring networks as follows:
 - ❑ Ministry of Water Resources and Irrigation (MWRI) network: 232 monitoring sites, in addition to 203 control points.
 - ❑ The Ministry of Health & Population (MOHP) network: 154 monitoring sites.
 - ❑ The Ministry of Environment network: 69 monitoring sites.

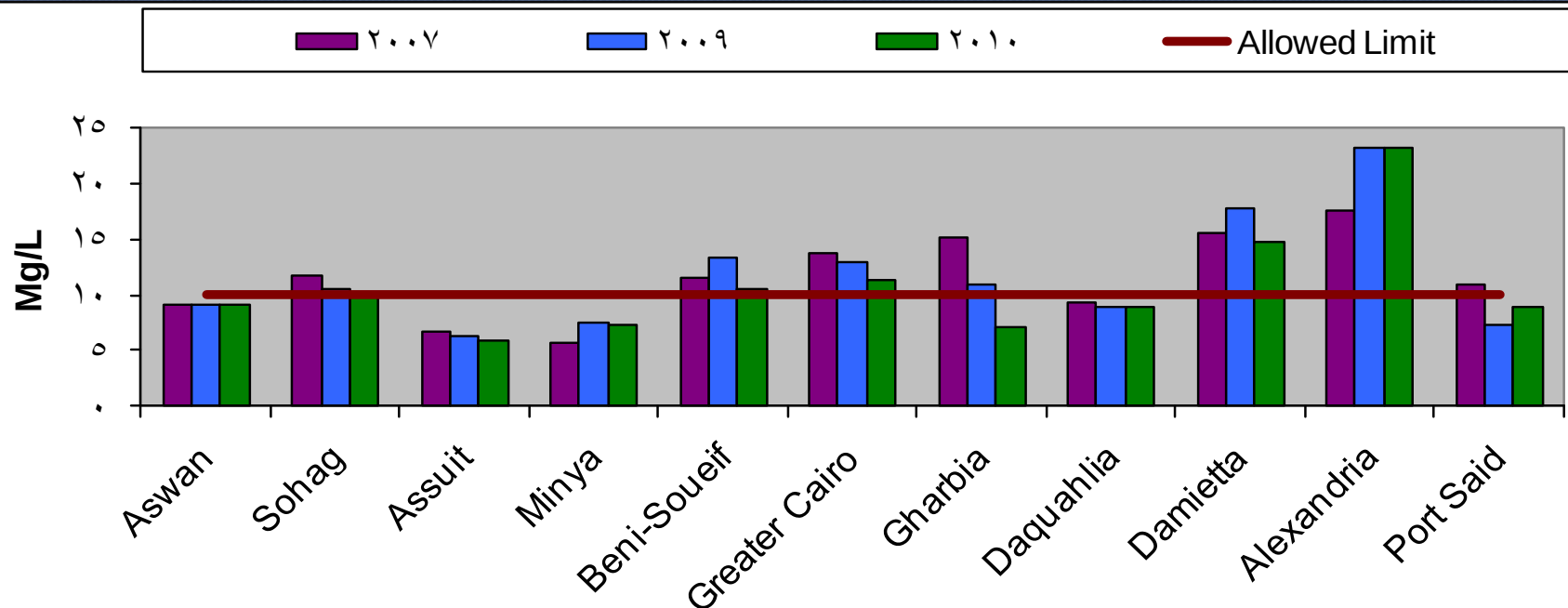
Indicators of Water Quality in the Nile River and branches

1. BOD was less than permissible limits (6 mg/L) in all governorates.



Indicators of Water Quality in the Nile River and branches

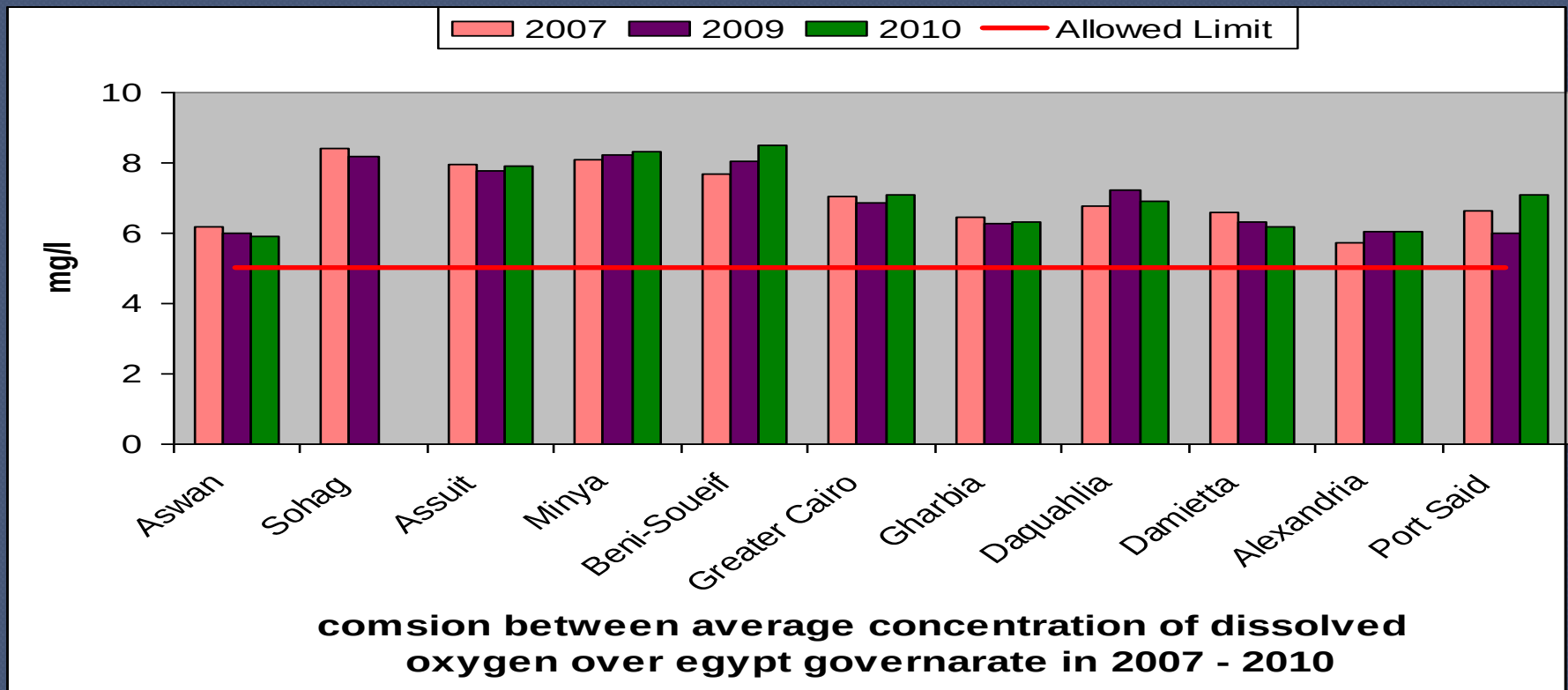
2. COD decreased in most of the governorates compared to last year:



comparison between the average of chemical oxygen demand (COD) among Egypt governorates from 2007 to 2010.

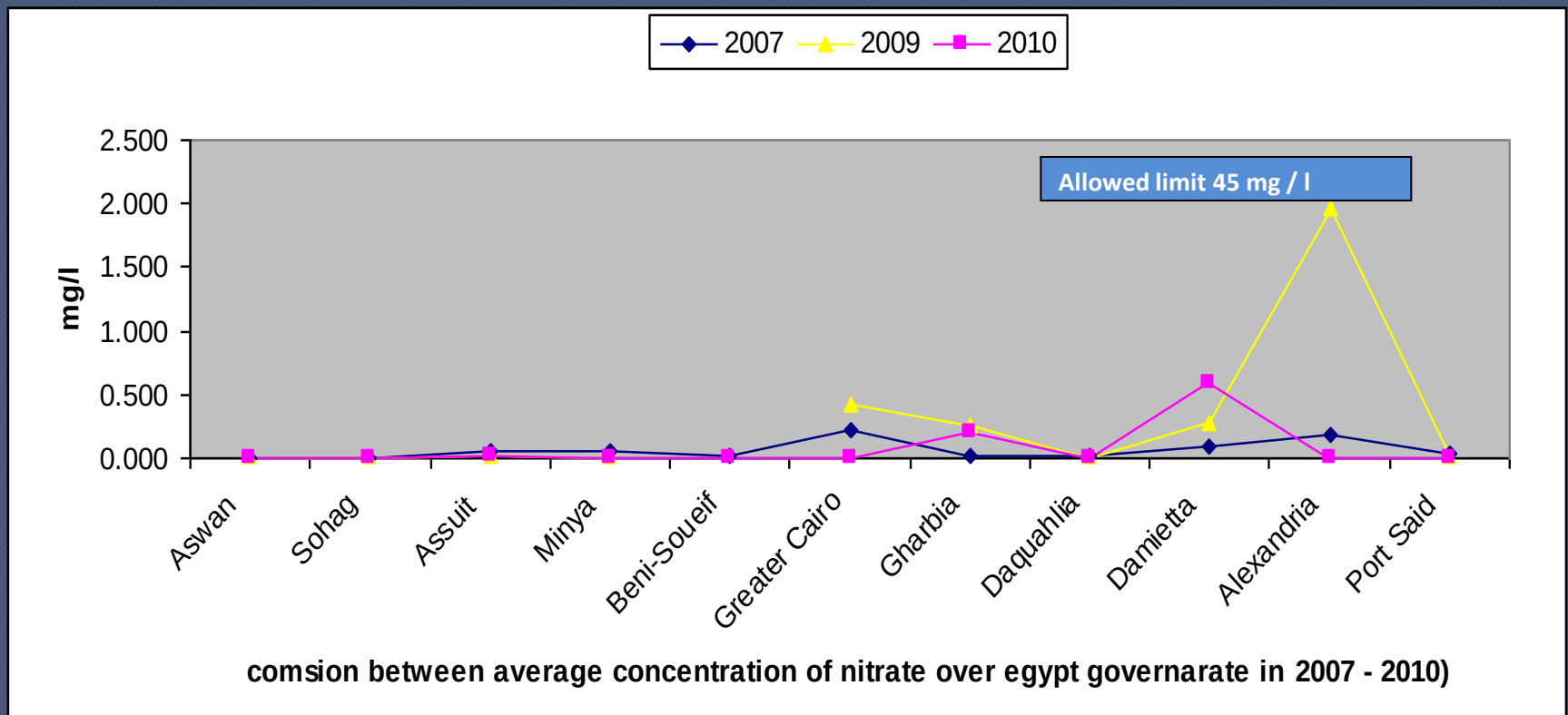
Indicators of Water Quality in the Nile River and branches

3. DO concentrations are still above the minimum allowed limit for Water quality (5mg/L):

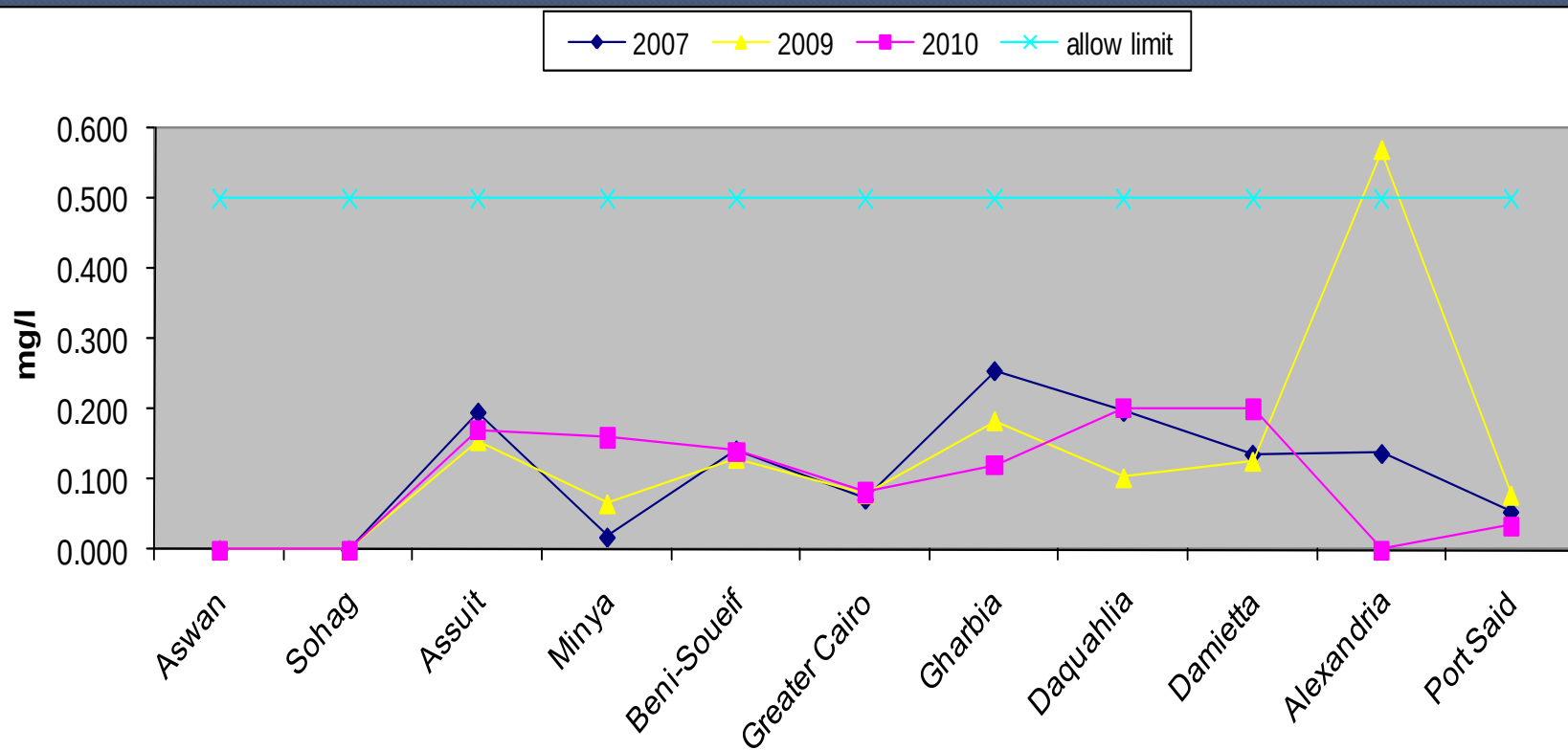


Indicators of Water Quality in the Nile River and branches

4. nutrients concentrations (ammonia, nitrate and phosphate)

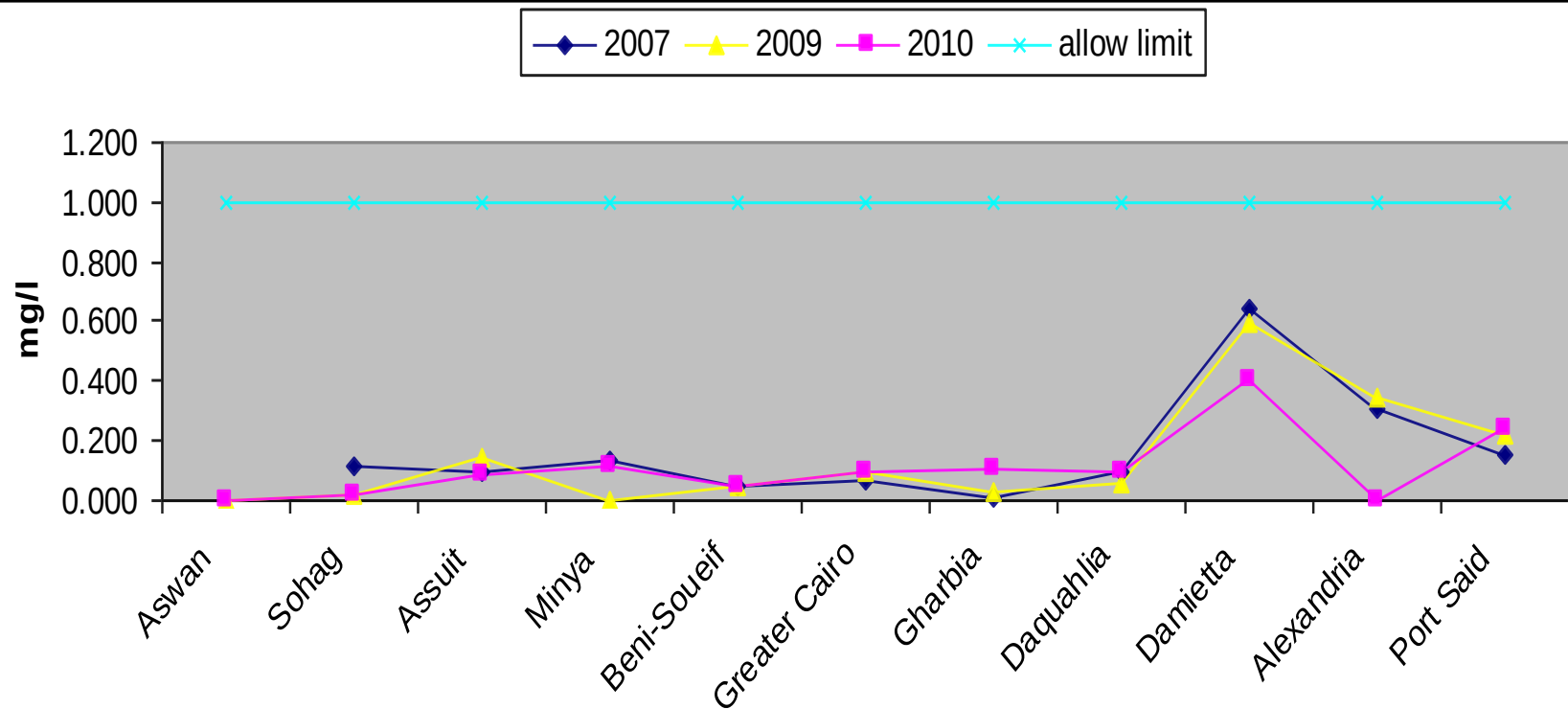


Indicators of Water Quality in the Nile River and branches

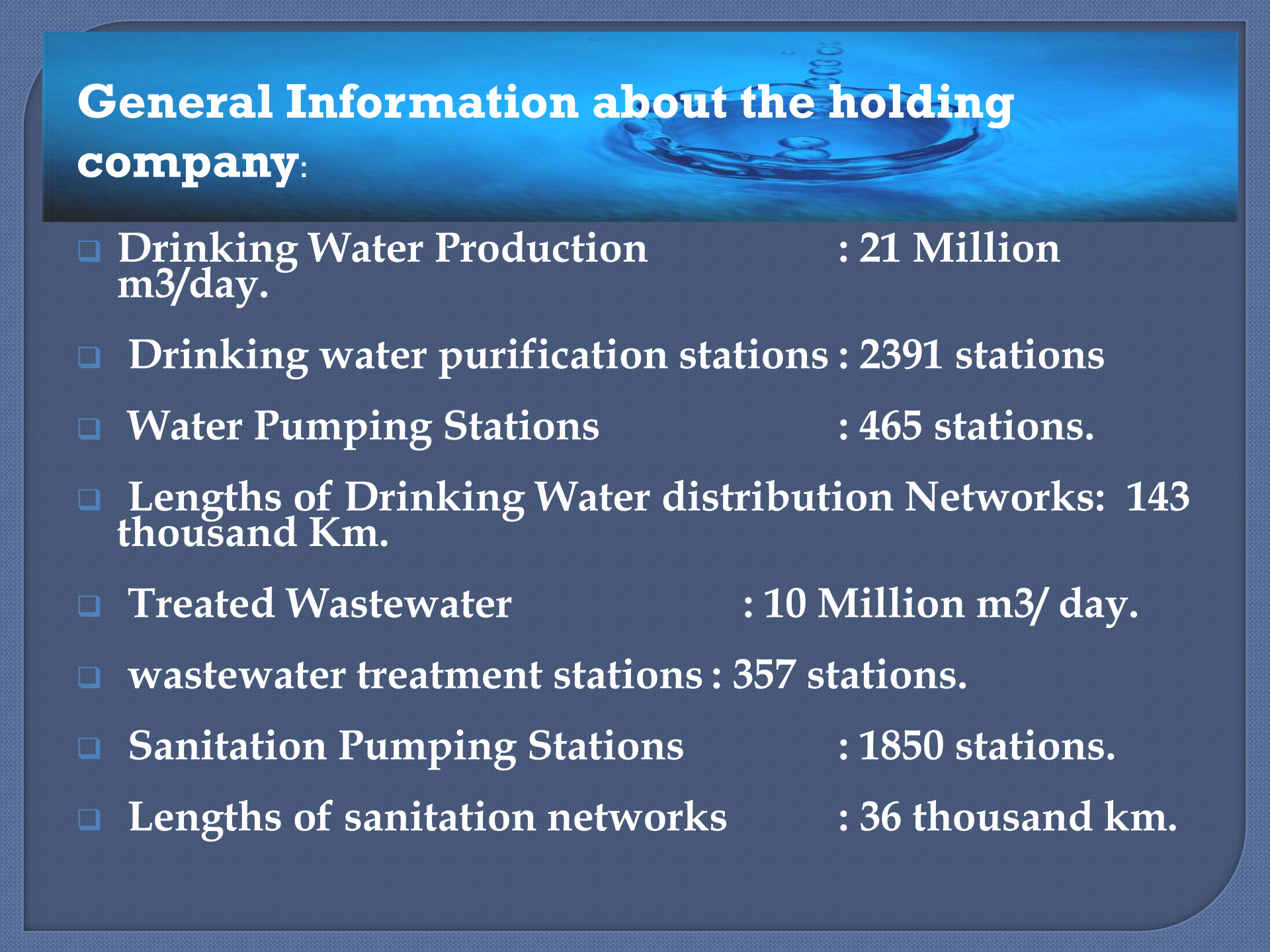


comsion between average concentration of ammonia over egypt governarate in 2007 - 2010

Indicators of Water Quality in the Nile River and branches

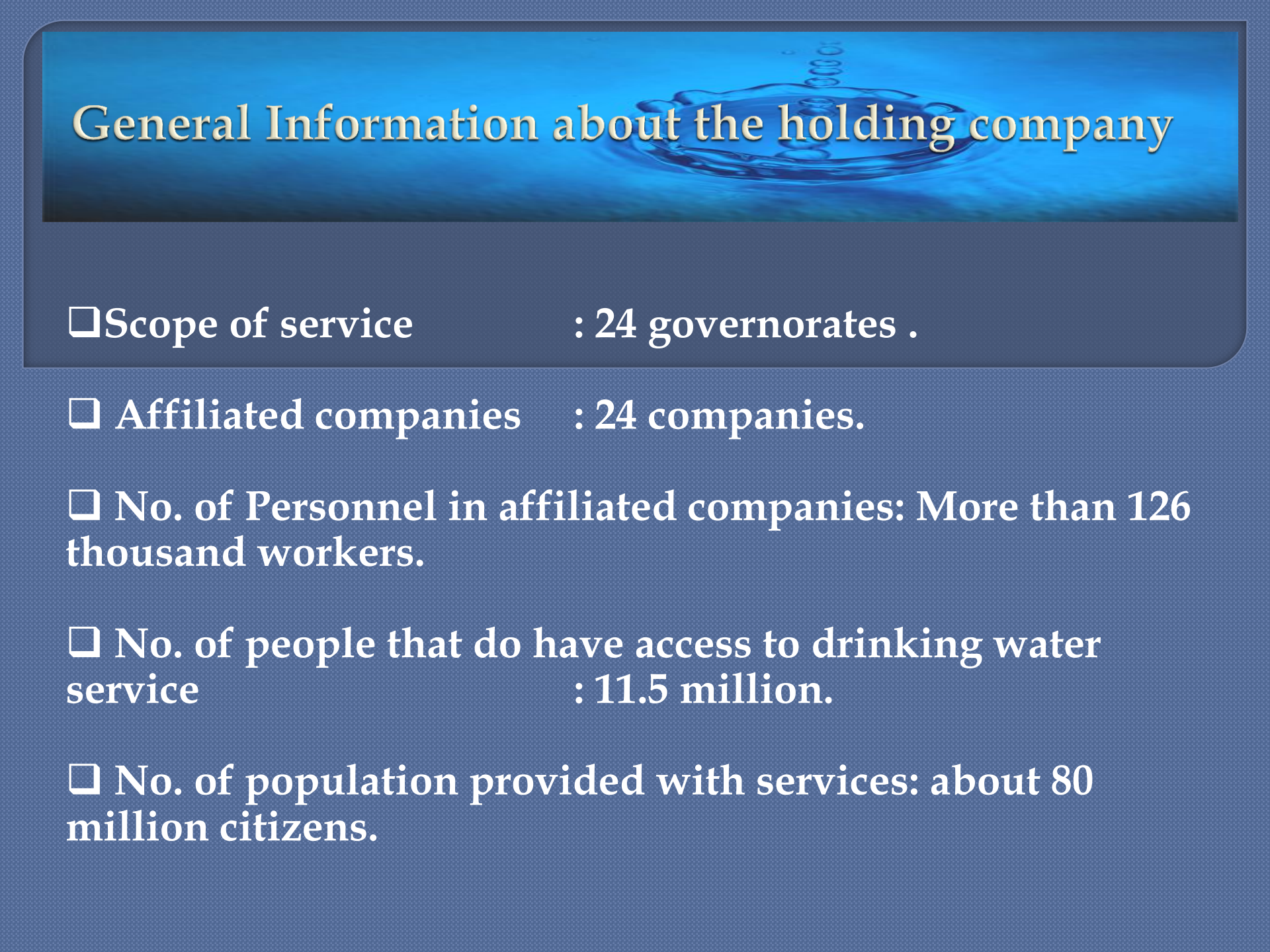


comsion between average concentration of phosphate over egyt governarate in
2007 - 2010

A blue background with a water splash effect in the upper right corner.

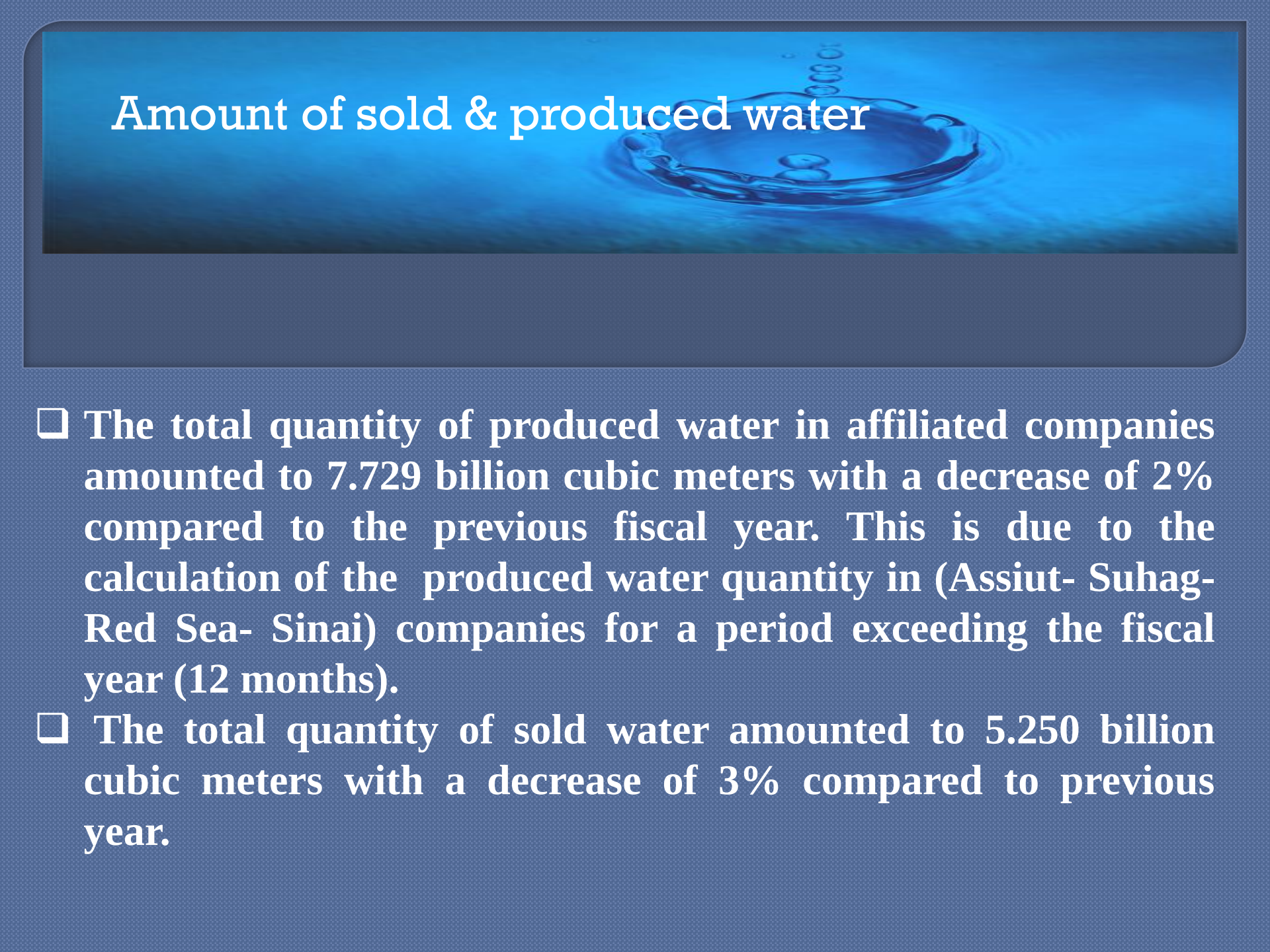
General Information about the holding company:

- ❑ **Drinking Water Production : 21 Million m³/day.**
- ❑ **Drinking water purification stations : 2391 stations**
- ❑ **Water Pumping Stations : 465 stations.**
- ❑ **Lengths of Drinking Water distribution Networks: 143 thousand Km.**
- ❑ **Treated Wastewater : 10 Million m³/ day.**
- ❑ **wastewater treatment stations : 357 stations.**
- ❑ **Sanitation Pumping Stations : 1850 stations.**
- ❑ **Lengths of sanitation networks : 36 thousand km.**

A blue background with a water splash effect in the upper center, creating a ripple pattern.

General Information about the holding company

- ❑ Scope of service : 24 governorates .
- ❑ Affiliated companies : 24 companies.
- ❑ No. of Personnel in affiliated companies: More than 126 thousand workers.
- ❑ No. of people that do have access to drinking water service : 11.5 million.
- ❑ No. of population provided with services: about 80 million citizens.



Amount of sold & produced water

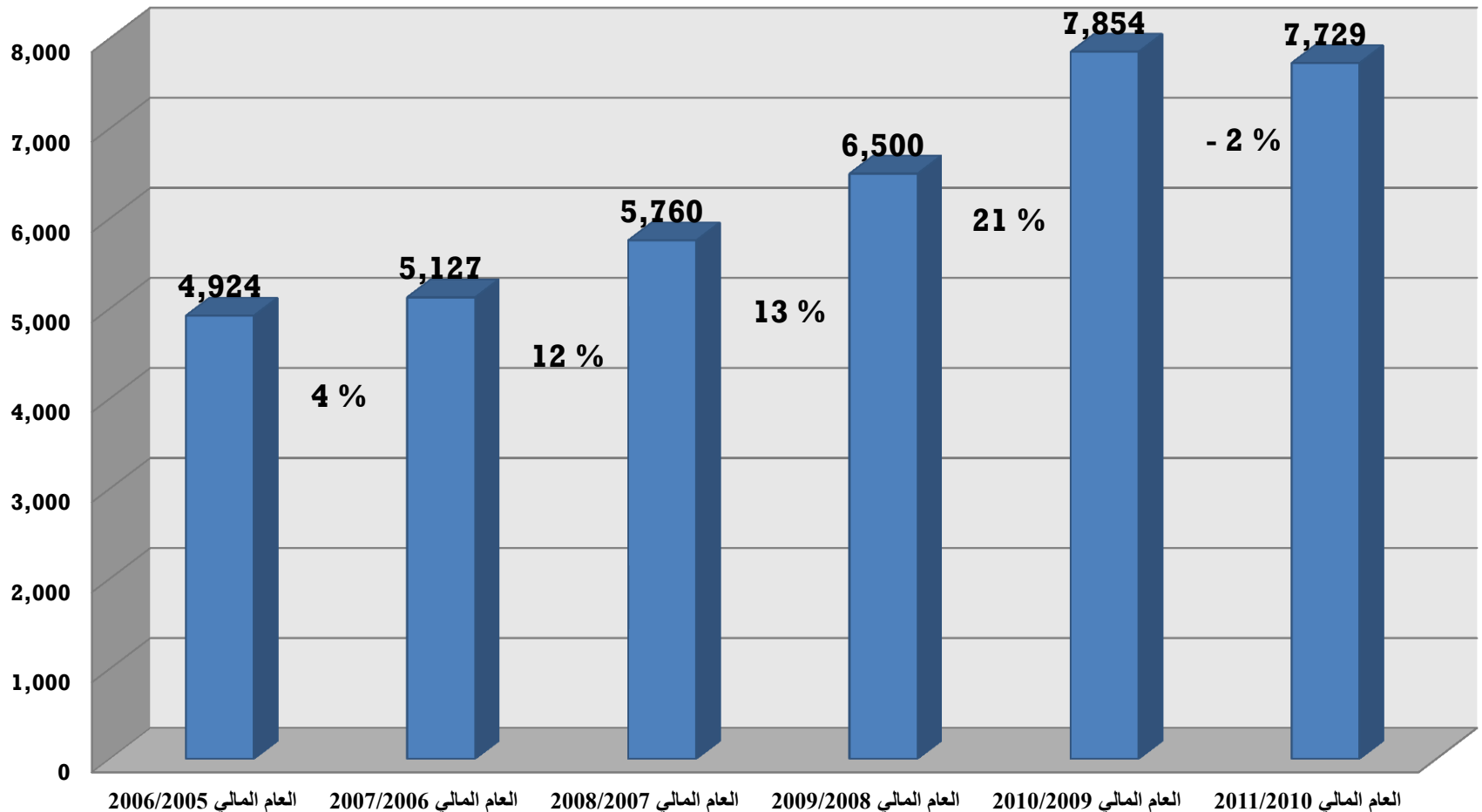
- ❑ The total quantity of produced water in affiliated companies amounted to 7.729 billion cubic meters with a decrease of 2% compared to the previous fiscal year. This is due to the calculation of the produced water quantity in (Assiut- Suhag- Red Sea- Sinai) companies for a period exceeding the fiscal year (12 months).
- ❑ The total quantity of sold water amounted to 5.250 billion cubic meters with a decrease of 3% compared to previous year.

Technical Data

Total Amount Of Water Production (Million Cubic Meter)



تطور كمية المياه المنتجة الإجمالية بالشركات التابعة (مليون م3)

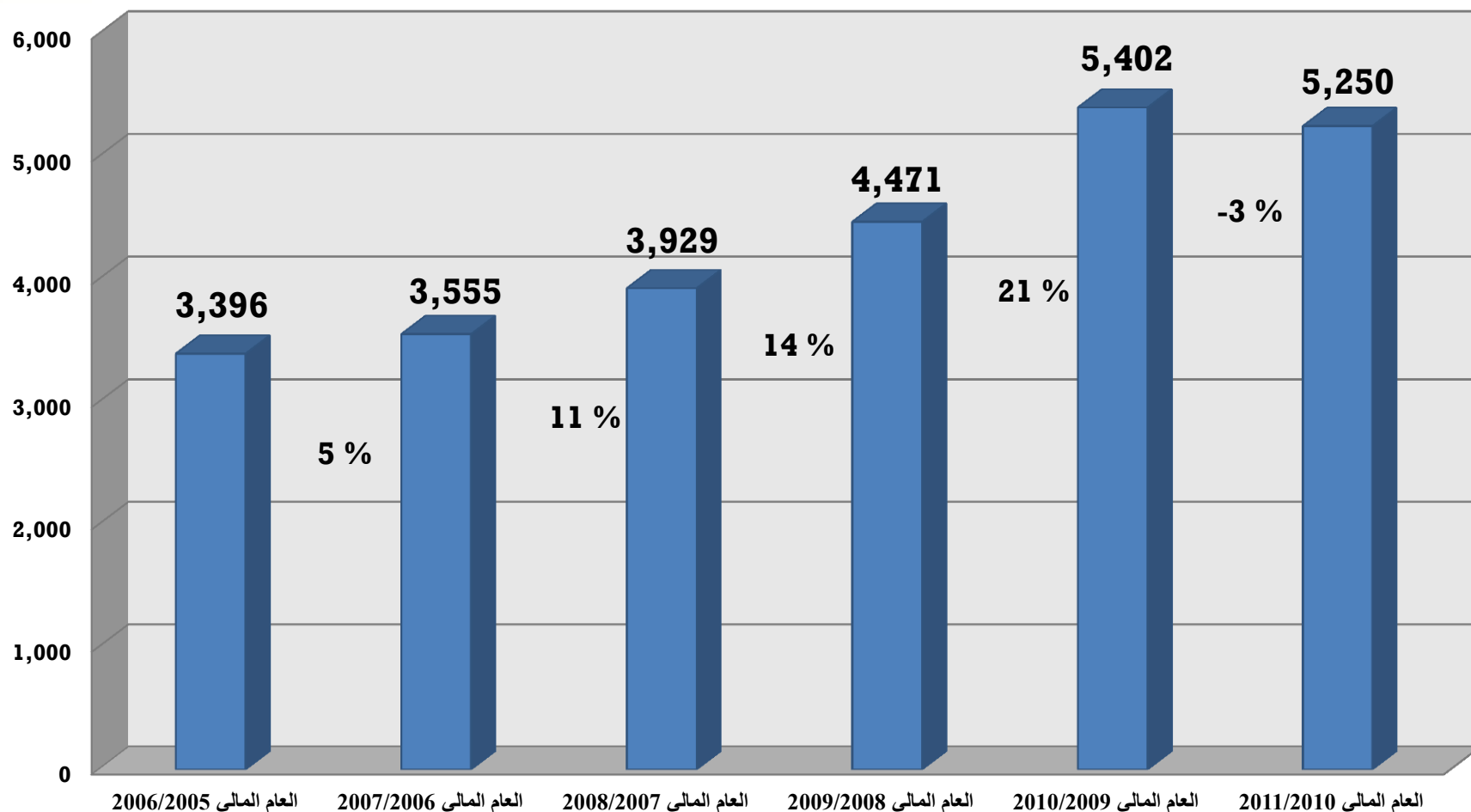


Technical Data

Total Amount Of Water Sold by Companies (Million Cubic Meter)



تطور كمية المياه المباعة الإجمالية بالشركات التابعة (مليون م3)



Financial Data



The Costs:

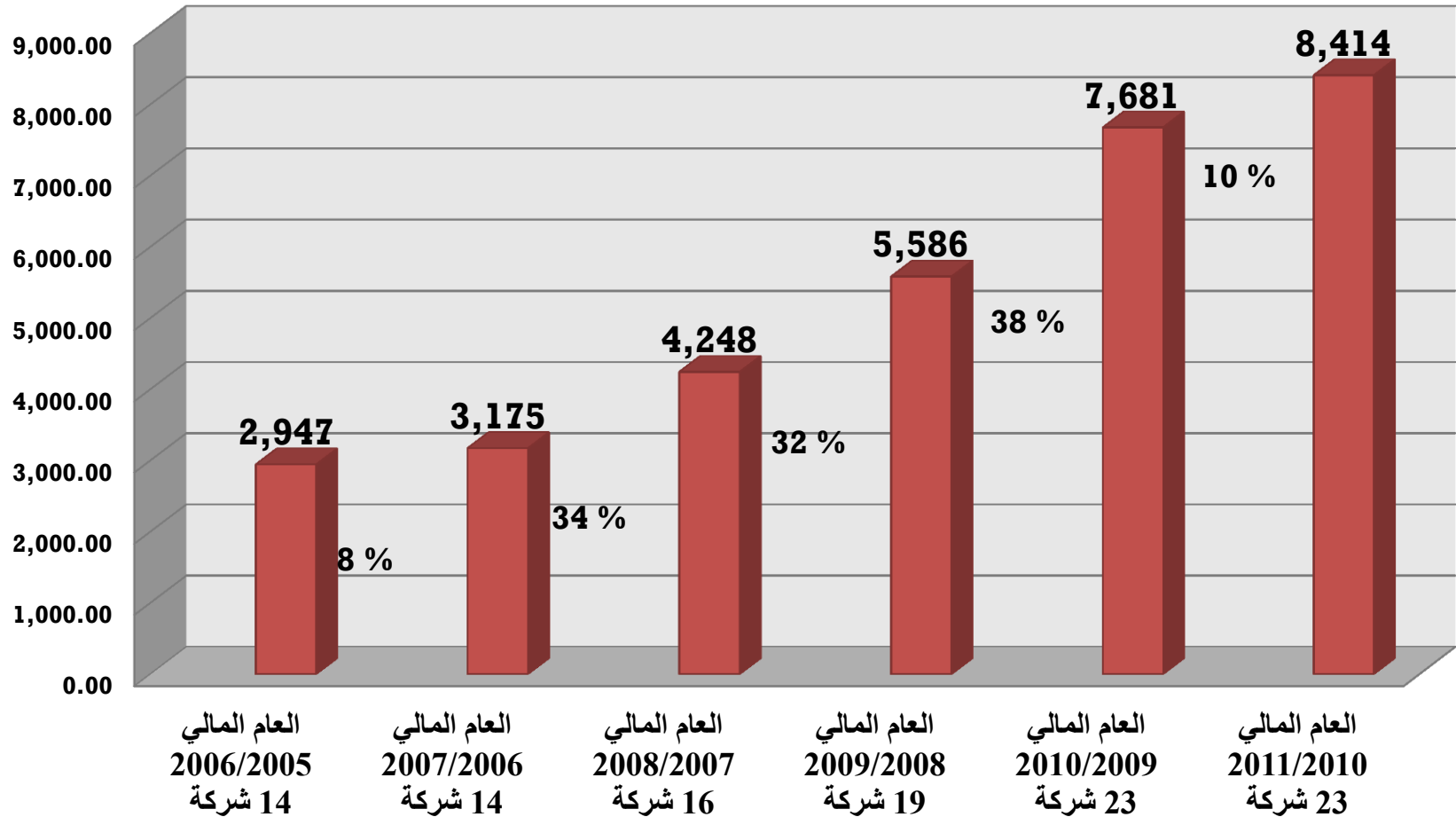
- ❑ Total of costs for affiliated companies is equal to 8.414 billion pounds divided into:
- ❑ Total of operation & maintenance costs are worth to 7.181 billion pounds (85%).
- ❑ Other costs equalize 1.233 billion pounds (15%).

System of operation & maintenance costs:

- ❑ Wages, damages & electricity represent about 85% of the total operation & maintenance costs:
- ❑ Total Value of wages is equal to 3.164 billion pounds representing 44% of the total operation & maintenance costs.
- ❑ Total Value of damages is worth to 1.804 billion pounds representing 25% of the total operation & maintenance costs.
- ❑ Total Value of electricity is worth to 1.126 billion pounds representing 16% of the total operation & maintenance costs

Total Costs and expenses (Million LE)

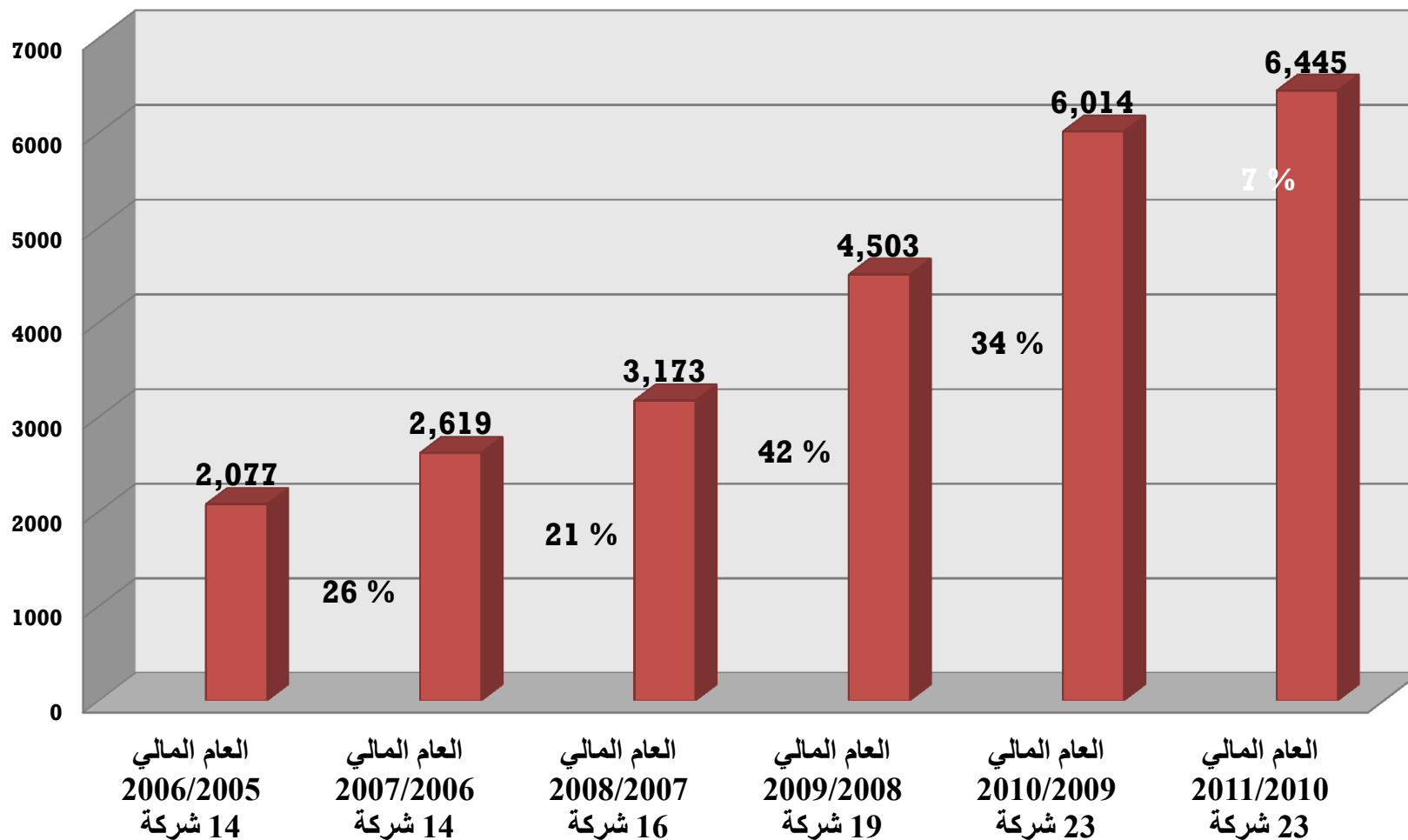
تطور إجمالي التكاليف والمصروفات بالشركات التابعة (مليون جنية)



Costs Data

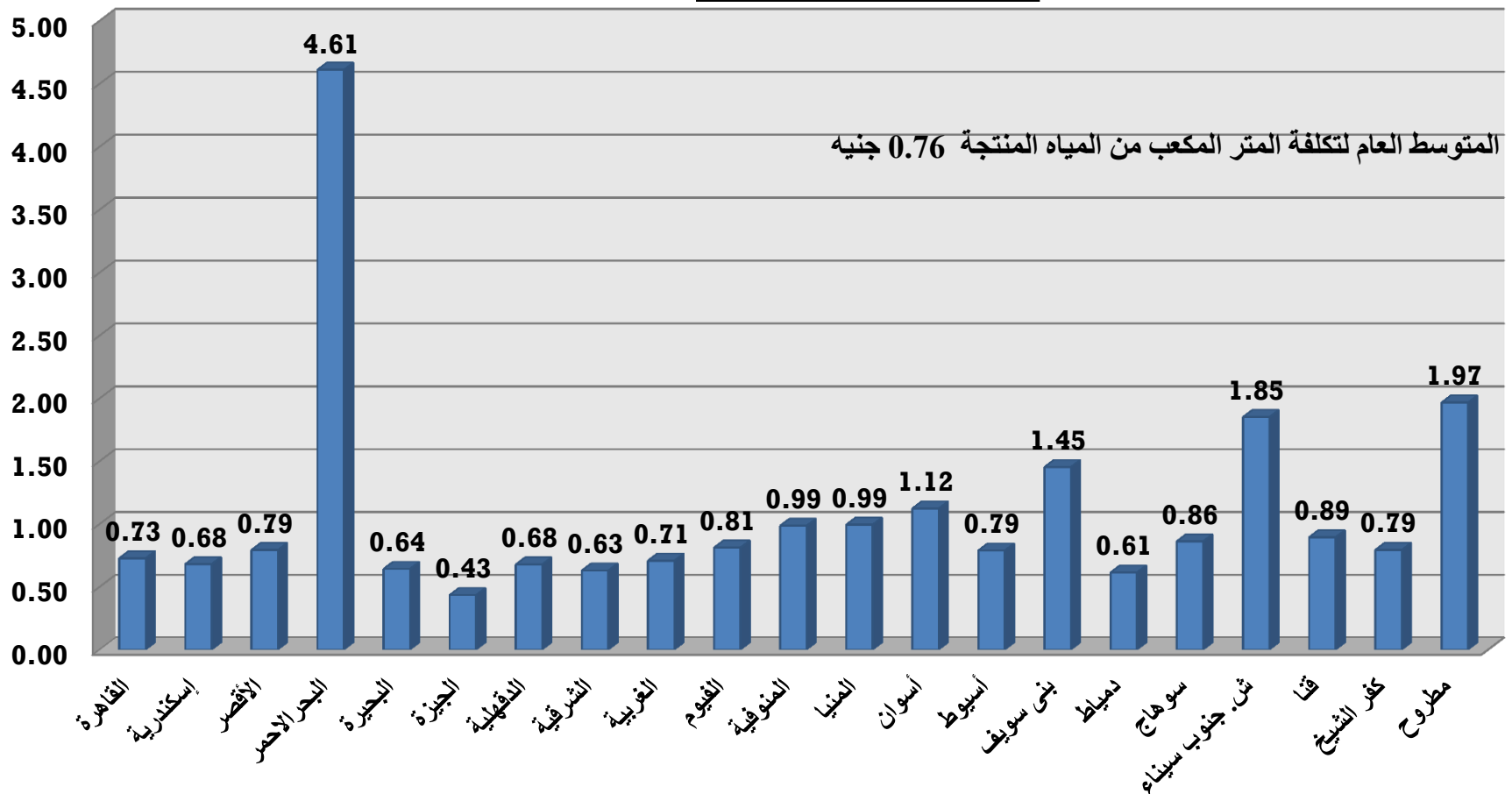
Total incomes and expenses (Million LE)

تطور إجمالي الإيرادات بالشركات التابعة (مليون جنية)



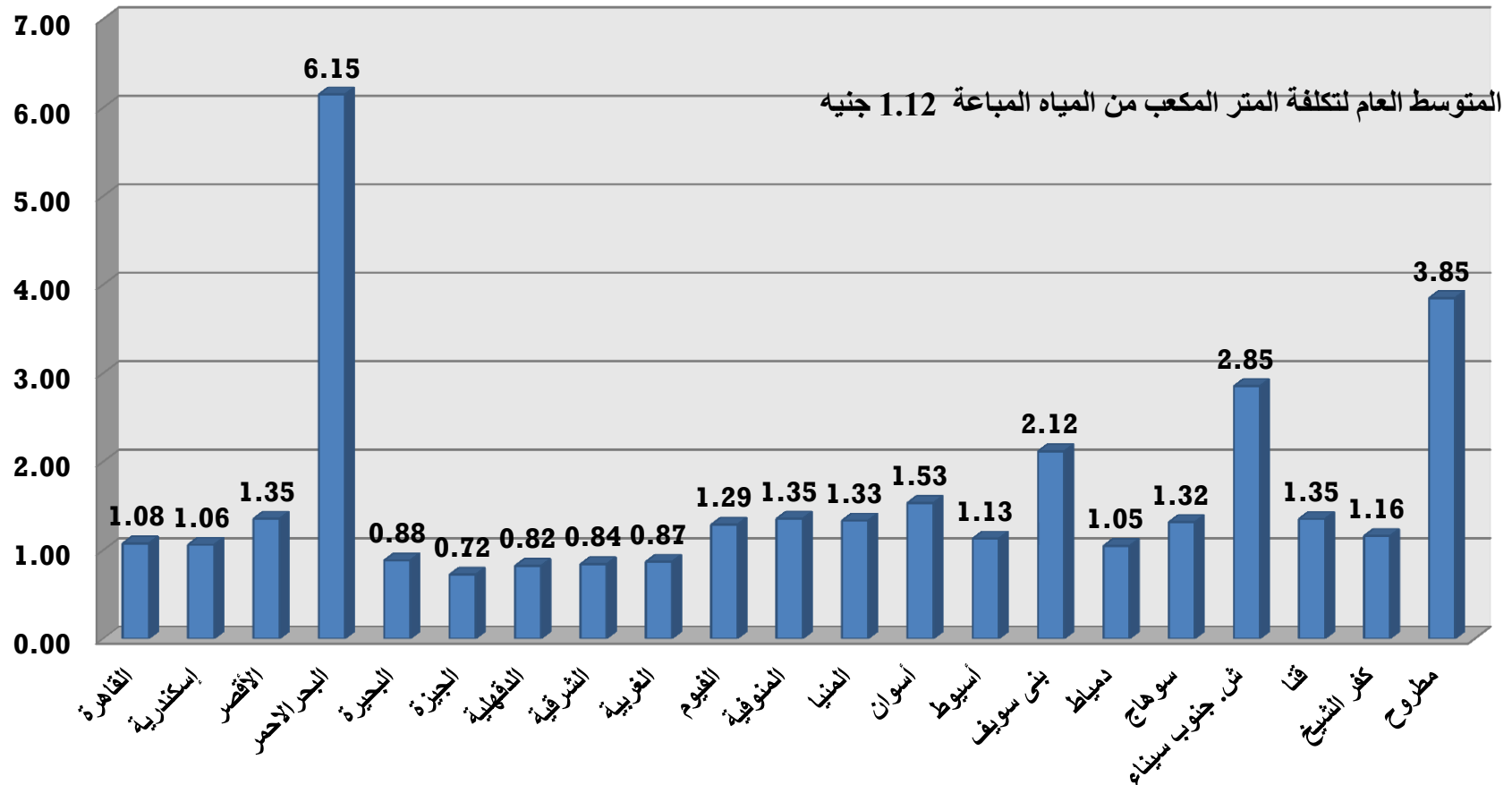
Average cost of the cubic Meter of produced water for the financial year 2010/2011 (LE)

متوسط تكلفة المتر المكعب من المياه المنتجة بالشركات التابعة عن العام المالي 2011/2010 (بالجنية)



Average Cost of sold cubic meter in 2010/ 2011 (LE)

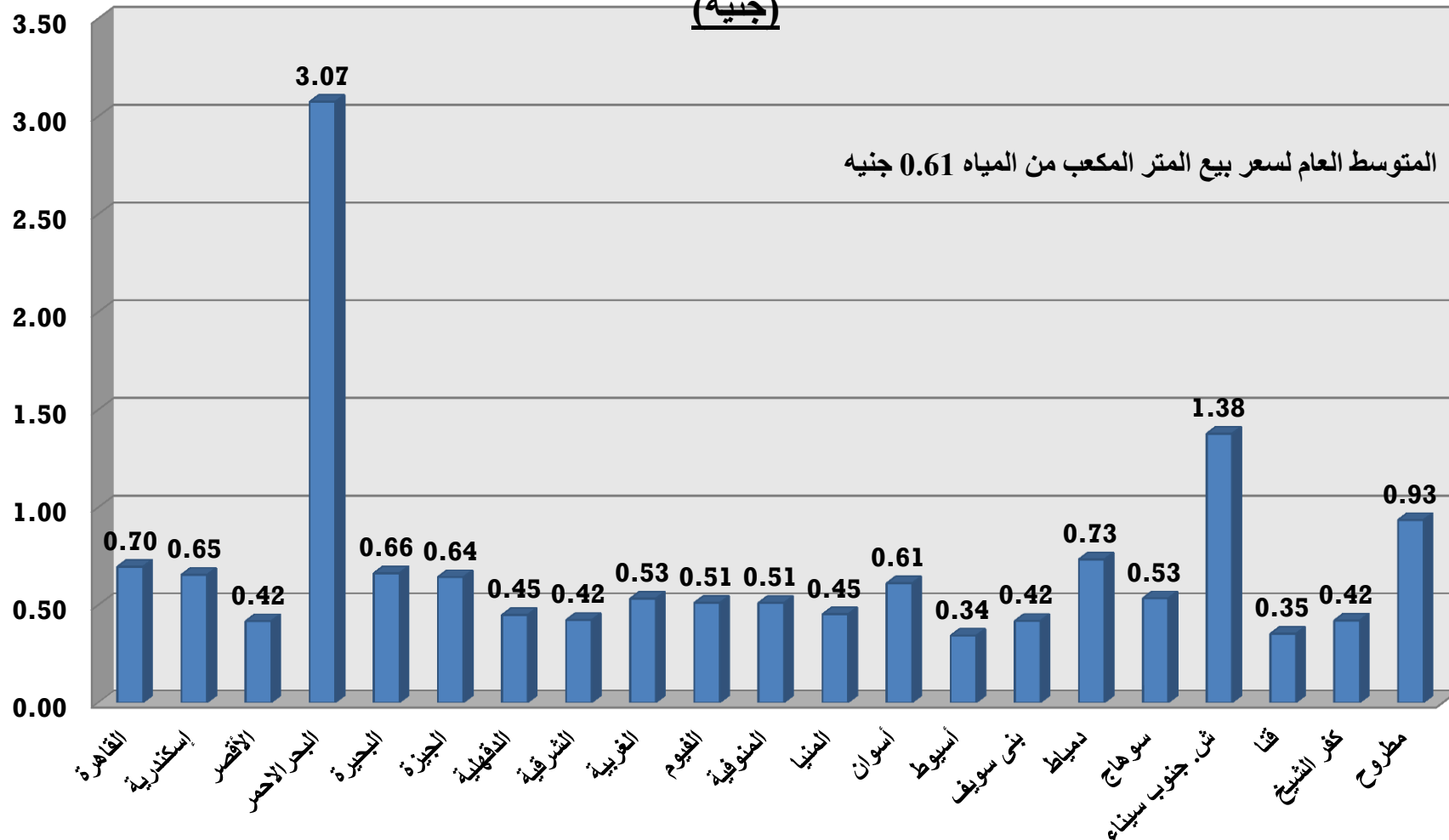
متوسط تكلفة المتر المكعب من المياه المباعة بالشركات التابعة عن العام المالي
2011/2010 (بالجنية)



Average sold price for cubic meter of water during 2010/2011 (LE)

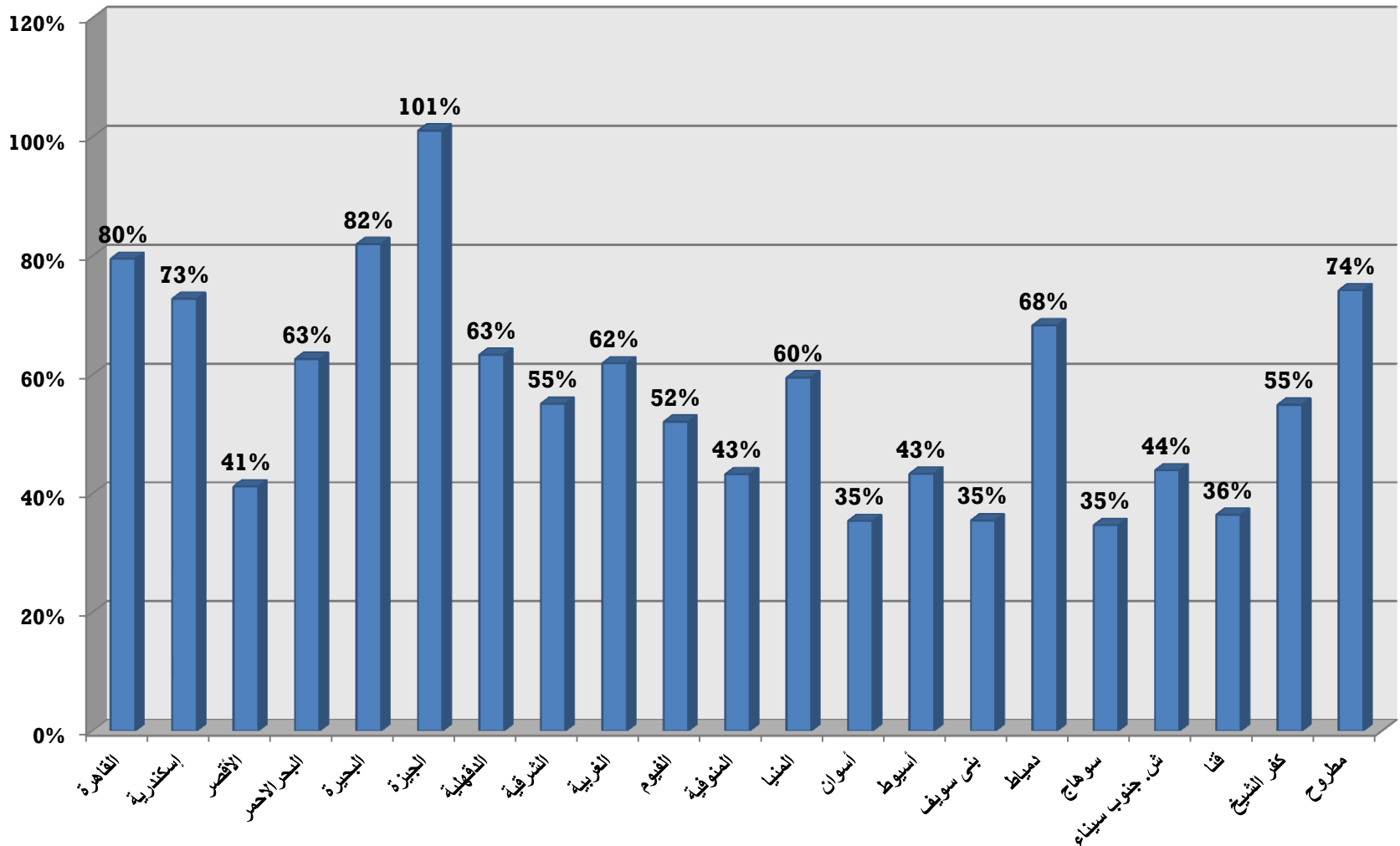


متوسط سعر بيع المتر المكعب من المياه بالشركات التابعة عن العام المالي 2011/2010 (جنية)



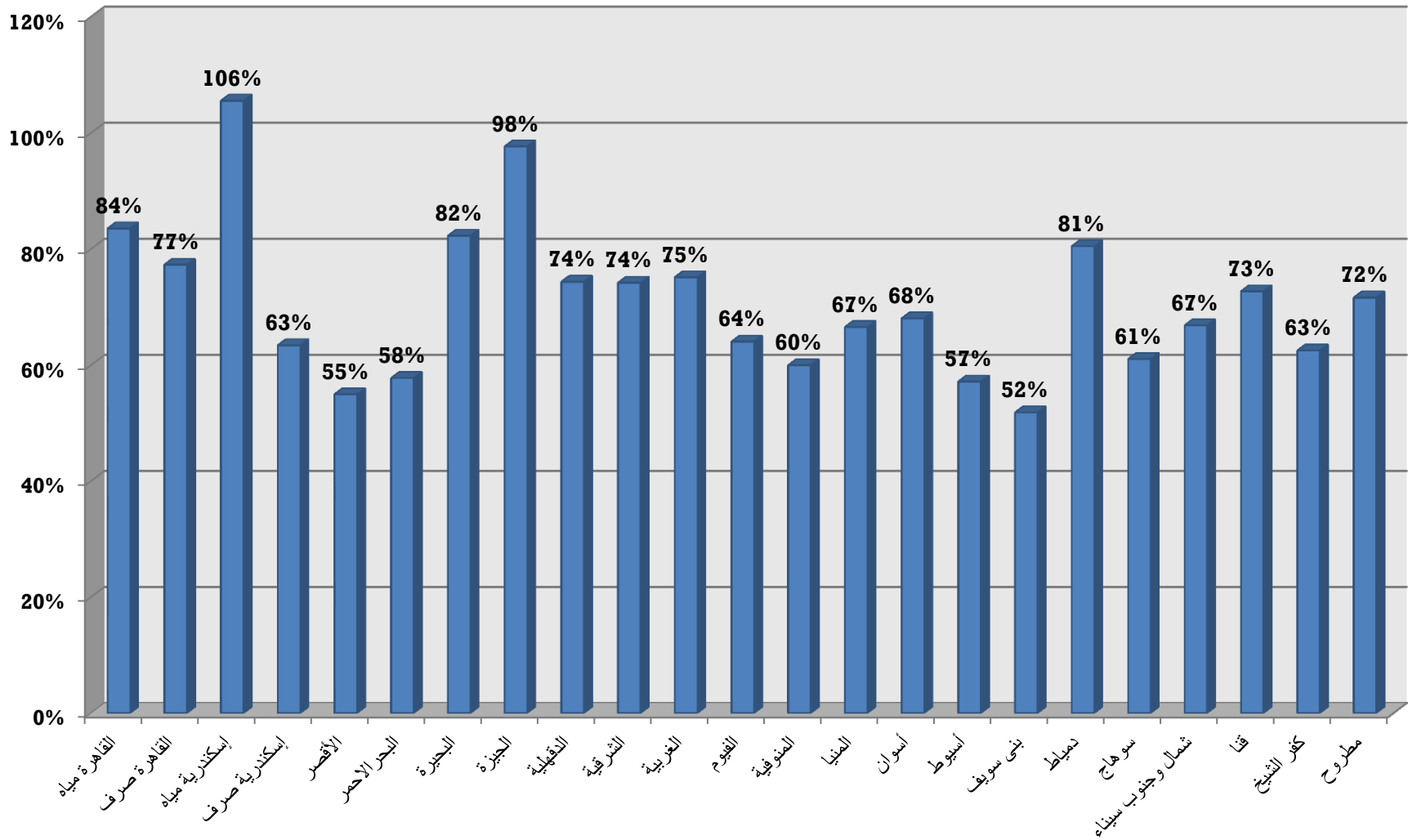
% cover for operation and maintenance through activities income

نسبة تغطية تكاليف التشغيل والصيانة بإيرادات النشاط



% of total expensive cover in 2010/2011

نسبة تغطية التكاليف الكلية بالايرادات الكلية للعام المالي 2011/2010



Revenues



- ❑ **Total of revenues for affiliated companies amounted to 6.445 billion pounds divided into:**
 - ❑ Total Activity Revenue: 4.798 billion pounds (75%).
 - ❑ Subsidy value :804 million pounds (12%).
 - ❑ Other revenues: 843 billion pounds

Vision & Message



Our Vision is:

- ❑ Reaching the level of global industry in managing drinking water & sanitation companies.

Our message is:

- ❑ Managing drinking water & sanitation companies to provide services in accordance with the Egyptian standards on economic, developing and sustainable basis.

Strategic Objectives



- ❑ Providing the best services for consumers
- ❑ Developing Citizen's awareness of water issues
- ❑ Upgrading the level of institutional performance.
- ❑ Preparing leaders & cadres to reach financial independence
- ❑ Protecting & developing investments

A close-up photograph of a water droplet hitting a surface, creating a series of concentric ripples. The image is in shades of blue and white, with the droplet itself being a bright white highlight.

Difficulties faced sector at the beginning of company's work

Technical difficulties:

- ❑ Lack of produced water- Lack of technical employment- High loss rate- unequipped labs.

Financial difficulties:

- ❑ lack of credits- low tariff- reduced collections.

Administrative difficulties:

- ❑ Deficiencies in organizational structures.

Drinking water needs according to the Egyptian Code



2010 Census

Urban population: 34.5 million People

Rural population: 45.5 million people

**Per capita consumption in Cairo : 490
liters/ day.**

**Per capita consumption in Alexandria:
475 liters/day**

} According to the public plan

**Per capita need in urban areas: 210
liters/ day**

**Per capita need in rural areas: 140
liters/ day**

**Per capita consumption in Germany :
90 liters /day**

} According to the Egyptian code

Developing drinking water quality organization

Item	2005	2010	2011
Development of samples analyzed annually (sample)	100,000	3,700,000	2,700,000
Development of Chemists (Chemist)	1,101	2,457	2,487
Development of labs in drinking water stations (lab)	120	249	318
Development of central labs in affiliated companies (lab)	3	14	14
Development of mobile labs (lab)	0	243	243
Development of reference labs (water lab-sanitation)	0	1	2

Modern Meters of drinking water

- ❑ Companies productive capacity up till now is 1 million meters annually.
- ❑ Companies productivity starting from 2010 (2 million) meters annually.
- ❑ Companies need 7 million meters.

Development Organization

Current Status

importing & installing 1.7 million developed meters in 23 affiliated companies with a cost of 425 million pounds

Planned until 2010

Resuming the installation of 2.36 million developed meters with a cost of 580 million pounds

A close-up photograph of a single water droplet hitting a blue surface, creating a series of concentric ripples. The droplet is in the center, and the ripples spread outwards. The background is a solid blue color.

Reuse of Waste water in Agriculture

Current amount of waste water is about 3.6 billion m³/ year (allow for planting 450 thousand feddans, 3.6 billion m³/year are treated:

- ❑ 80% secondary treatment .
- ❑ 20% primary treatment

Approximately 6% of Nile River Revenues

Geographical Information System GIS

Preparing centers equipped with the latest equipments & programs



Setting Geographical Database in all sector facilities



**Connecting with Holding
Company'
headquarter**



Updating information periodically

Participating in maintenance programs and systems for issuing invoices

Thank You ...

