Hashemite Kingdom of Jordan – Ministry of Water and Irrigation

Water Accounts

Ministry of Water and Irrigation

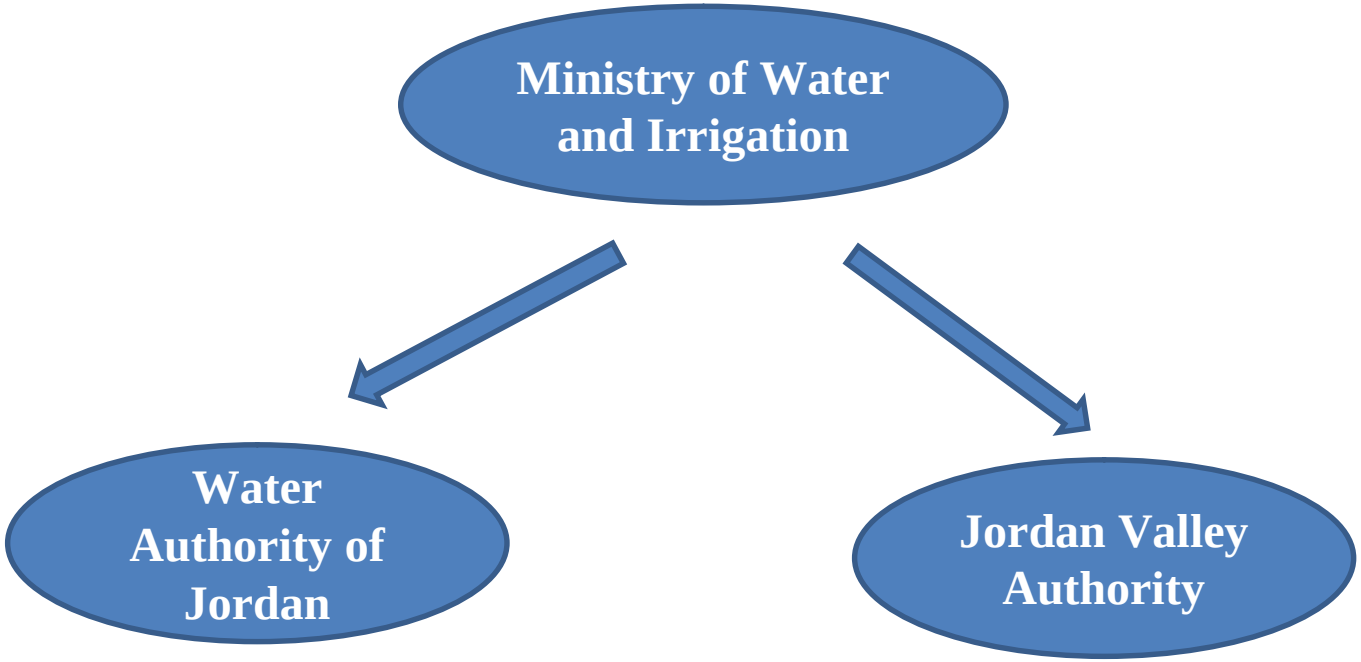
Department of Statistics

JORDAN

"Our water situation is a strategic challenge which can not be ignored, and we have to make balance between the domestic, industrial and agricultural needs, while keeping the domestic water issue the fundamental and most important."

King Abdullah II Ibn Al-Hussein

Legal Framework



Legal Framework

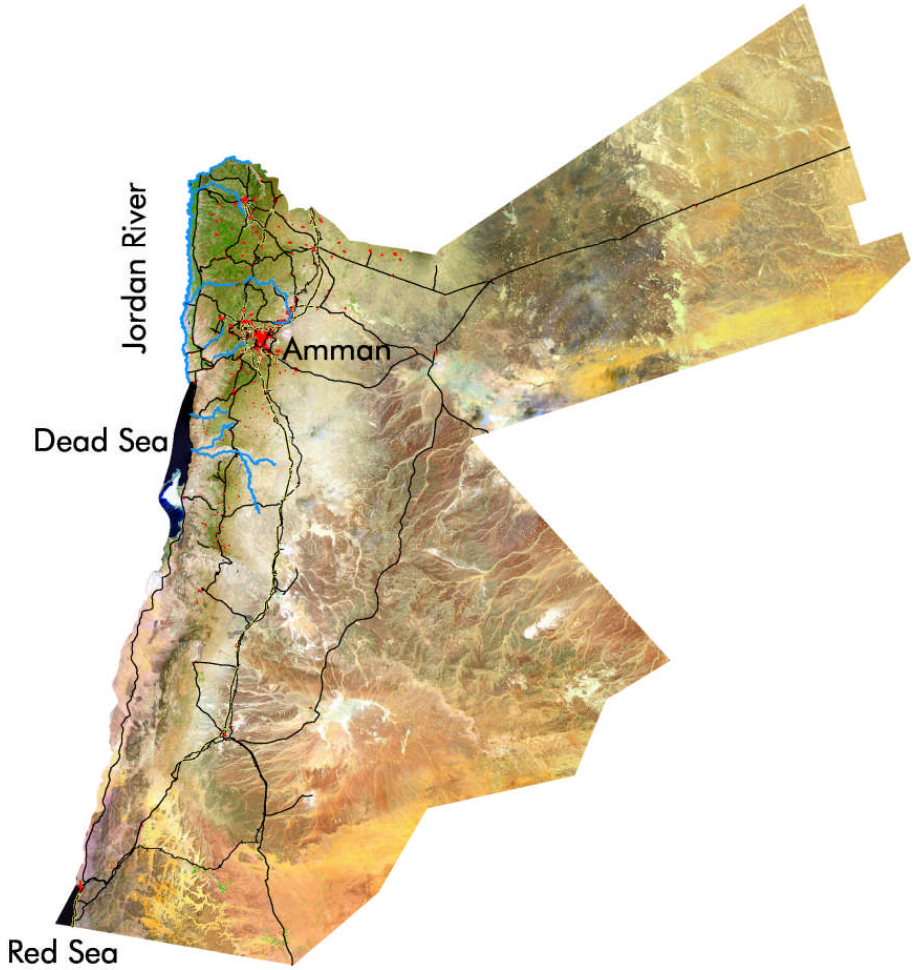
Set of laws, regulations, instructions and specifications on water constitute all the water legislations in force in Jordan. These legislations can be classified as legislations devoted to the water issues, such as the water Authority law, the Jordan Valley development law, system of administrative regulation of the Ministry of Water and Irrigation, as well as other legislations related to water; The Public Health Law, The Agriculture Law, and the Environment Protection Law

Legal Framework

The Ministry of water and irrigation was established in 1988, its ADMINISTRATIVE ORGANIZATION REGULATION was issued in 1992 according to article 120.

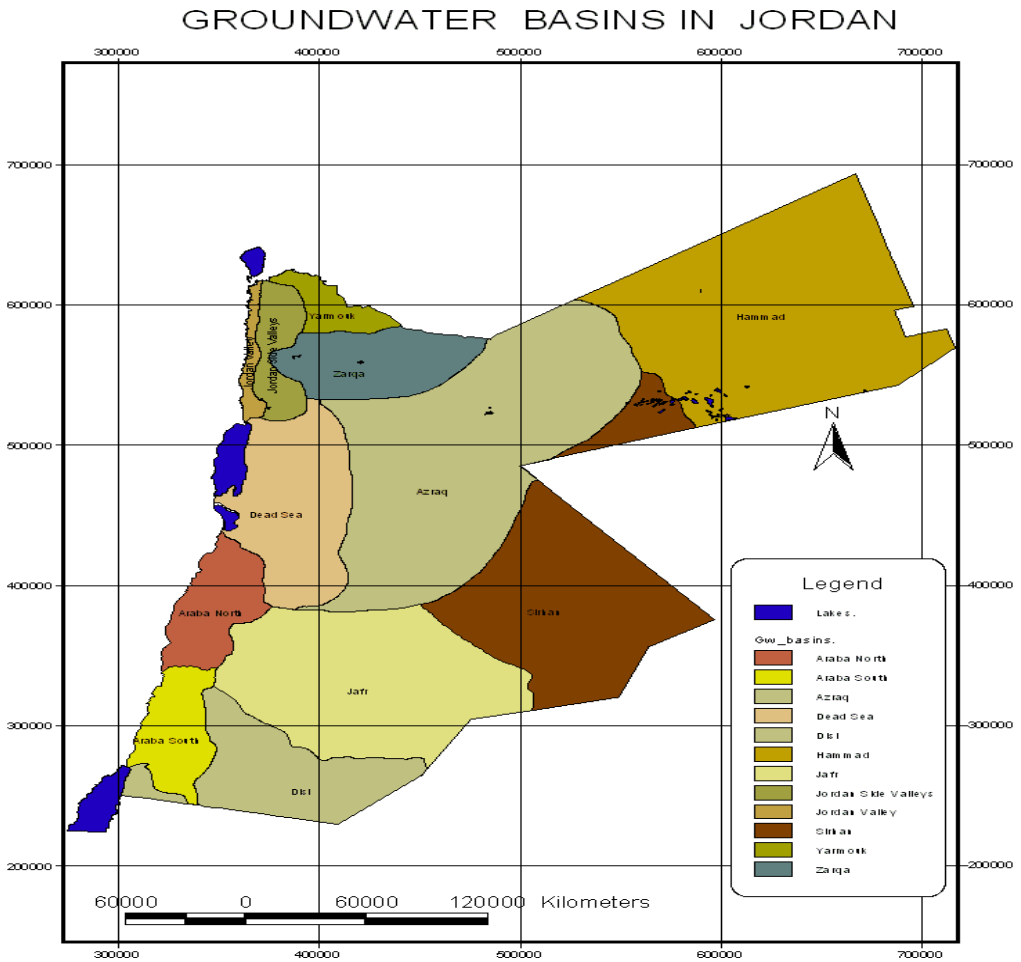
Ministry of Water & Irrigation, Water Authority, and Jordan Valley Authority are linked to the Minister of Water & Irrigation.

General Information about Jordan



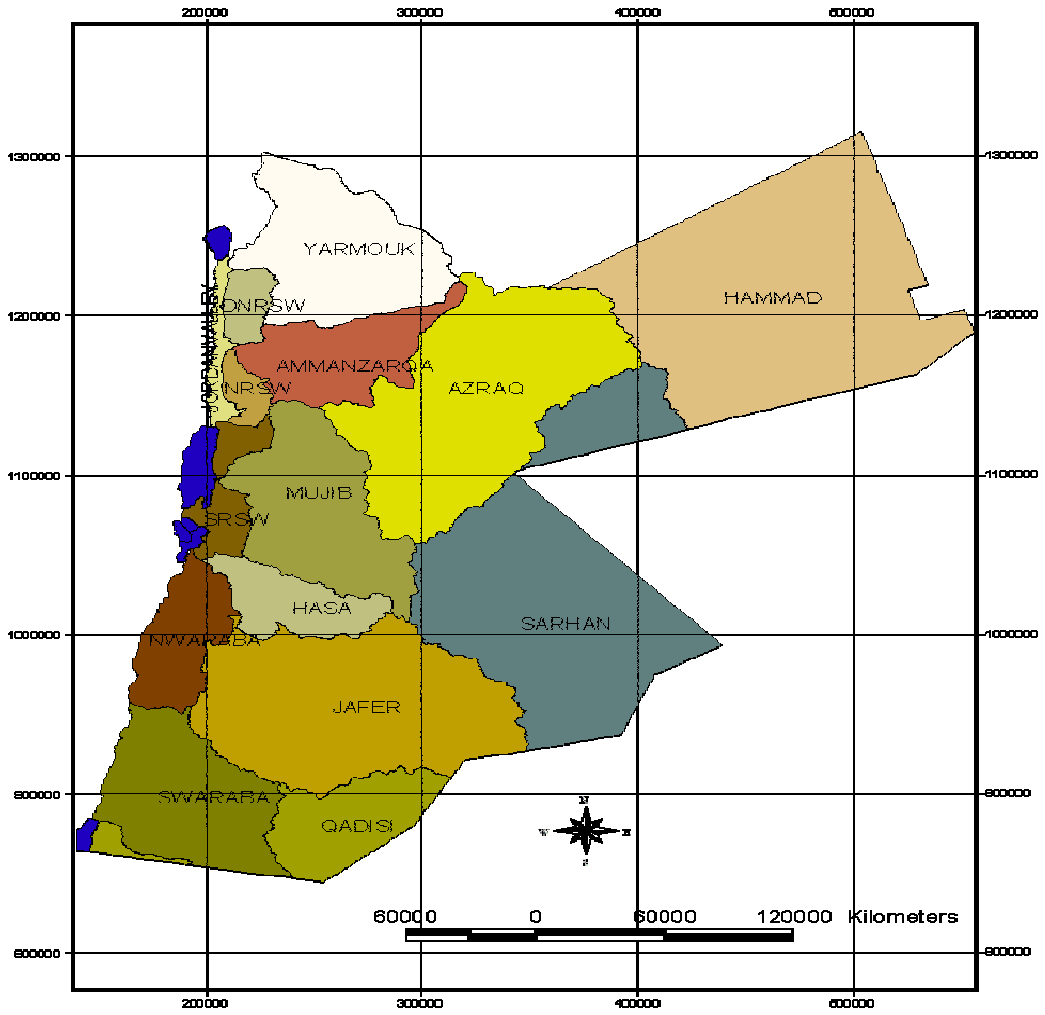
- The Hashemite Kingdom of Jordan covers a land area of 90,000 km².
- Population 6.26 million in 2011 (Growth rate=2.2%).
- Average household size (person) 5.4
- 98% of the Jordanian population is connected to water supply systems, while 64% is connected to central sewage systems.

General Information about Jordan

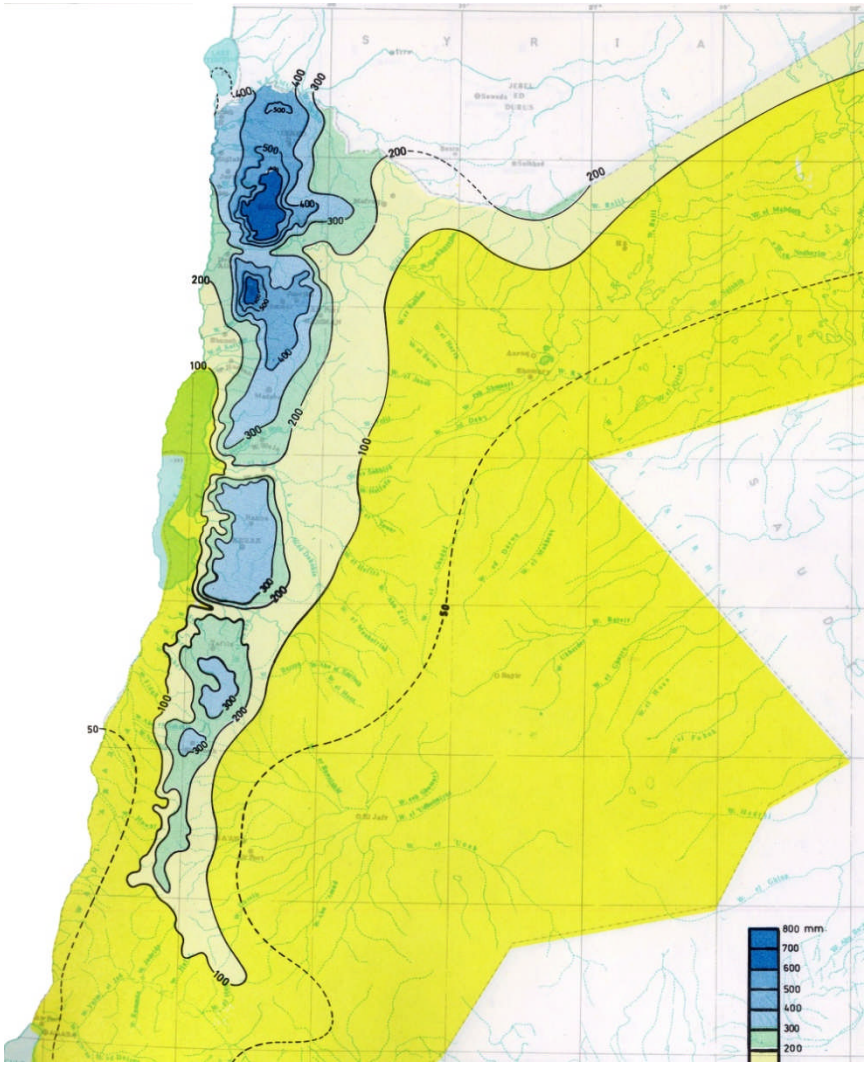


General Information about Jordan

Surface water Basins in Jordan



Spatial Distribution of Rainfall in Jordan



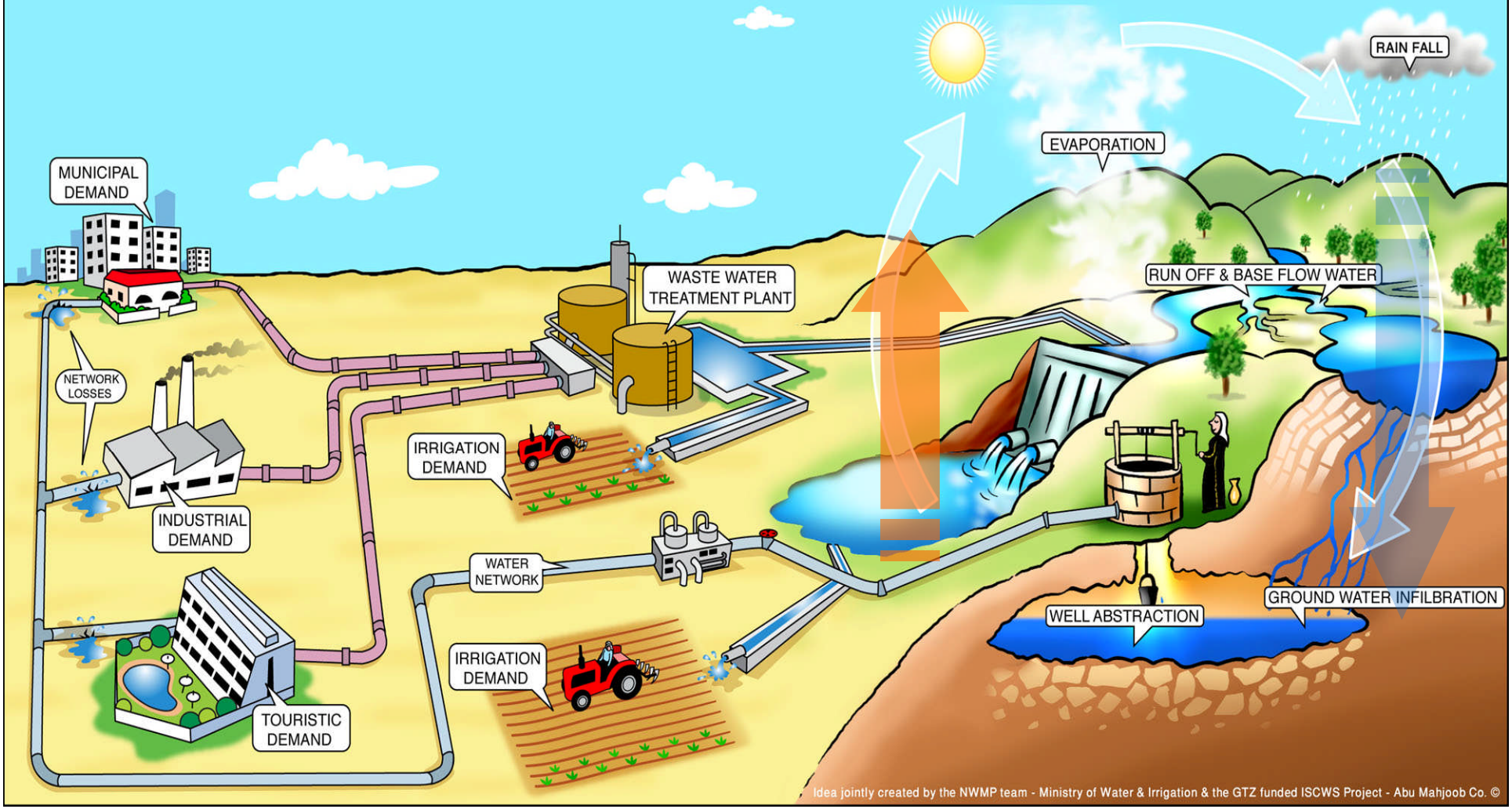
- Seasonal rainfall is the main source of water in the kingdom and It is highly variable.
- Annual rainfall ranges from 100 mm in the desert regions to about 400-600 mm in the western mountains.
- More than 80% of the area of Jordan is indicated as desert with rainfall < 100 mm/a

Total Rainfall Amounts

- ***Wet Year:*** *11 Billion Cubic Meters*
- ***Average Year:*** *8.3 Billion Cubic Meters*
- ***Dry Years:*** *5.8 Billion Cubic Meters*

92% Evaporates

Only **8%** is available in the form of flood flow & groundwater

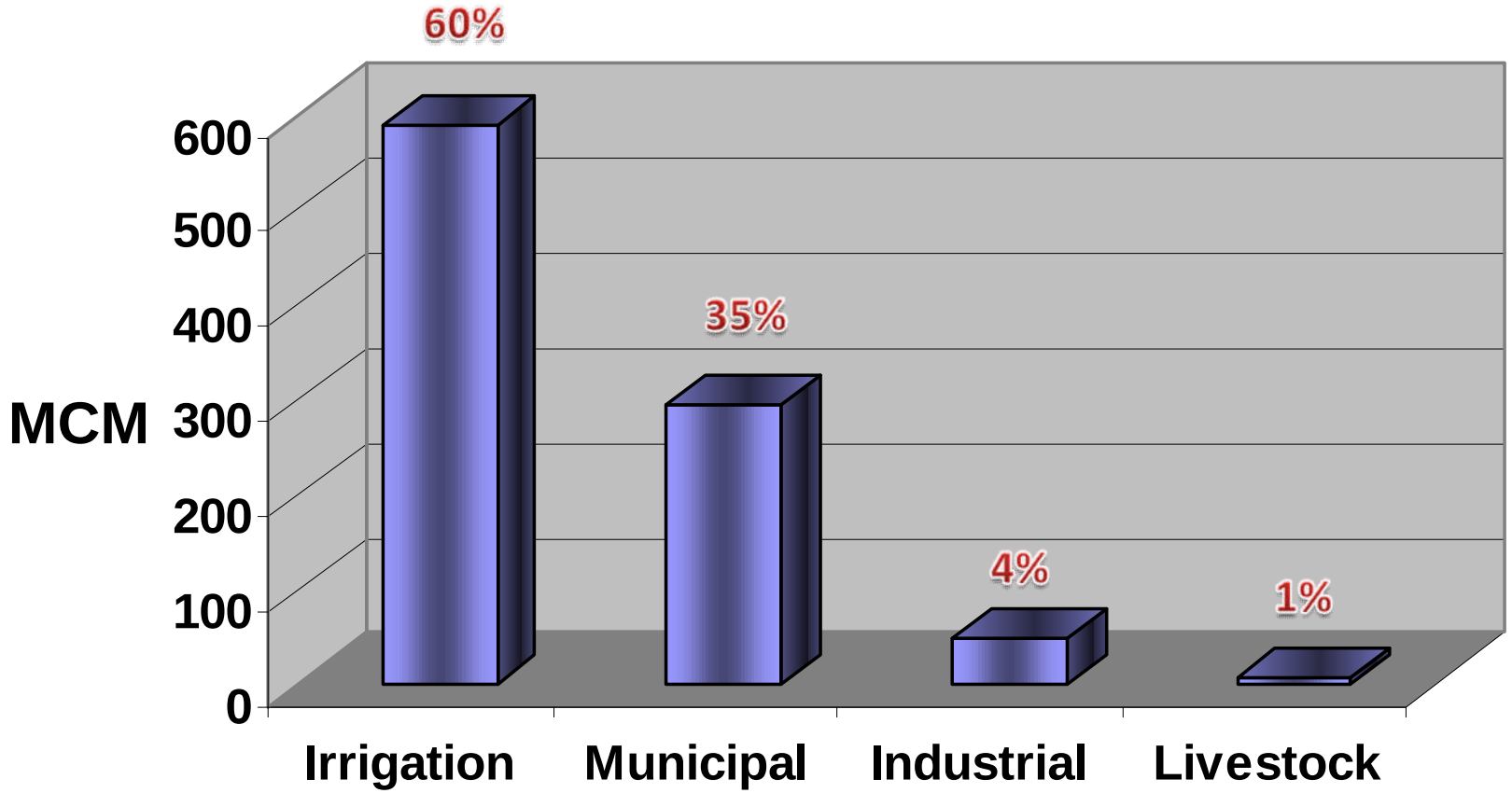


Available water resources

- **The average annual renewable fresh water resources**
  - 275 MCM is GW
  - 505 MCM is usable SW
- **Other sources of water are Nonconventional water resources:**
  - Nonrenewable water = 140 MCM
  - Treated WW = 110 MCM in 2010
    → 207 MCM in 2020

    Almost 100% will be reused
  - Desalinated water = 10 MCM

% Water uses per sector



Jordan's Water Sector

- Available water resources per capita is very low at a level of **145 m3/capita/year** compared to international standards of **1000 m3/capita/year**.
- Competition between demands on limited fresh water quantities is ever increasing.
- Groundwater levels have been dropping yearly due to extended over – withdrawal of water.
- Currently Demand Exceeded supply by over 500 MCM.
- Limited Financial Capacities.

Jordan's Water Sector- Future

- The severity of the problem will increase with the increase of:
  - Population (will continue to grow from about 6.26 million in 2011 to around 8.5 million by 2025.)
  - living standards
  - economic development
  - potential impact of Global Warming

Water for Life: Jordan's Water Strategy 2008-2022

Jordan's vision for a water strategy is one whereby 2022, we have:

- Adequate, safe and secure drinking water supply ;
- Greater understanding and more effective management of groundwater and surface water;
- Healthy aquatic ecosystems;
- A sustainable use of water resources, and implemented fair, affordable and cost - reflective water charges;
- Adaptation to increased population growth and economic development across the water sector and water users

Water for Life: Jordan's Water Strategy 2008-2022

The following are the main pillars of the strategy:

- Water Demand Management.
- Water Supply.
- Institutional Reform
- Wastewater
- Irrigation Water
- Non Conventional water resources.

Water Information System (WIS)

Objective:

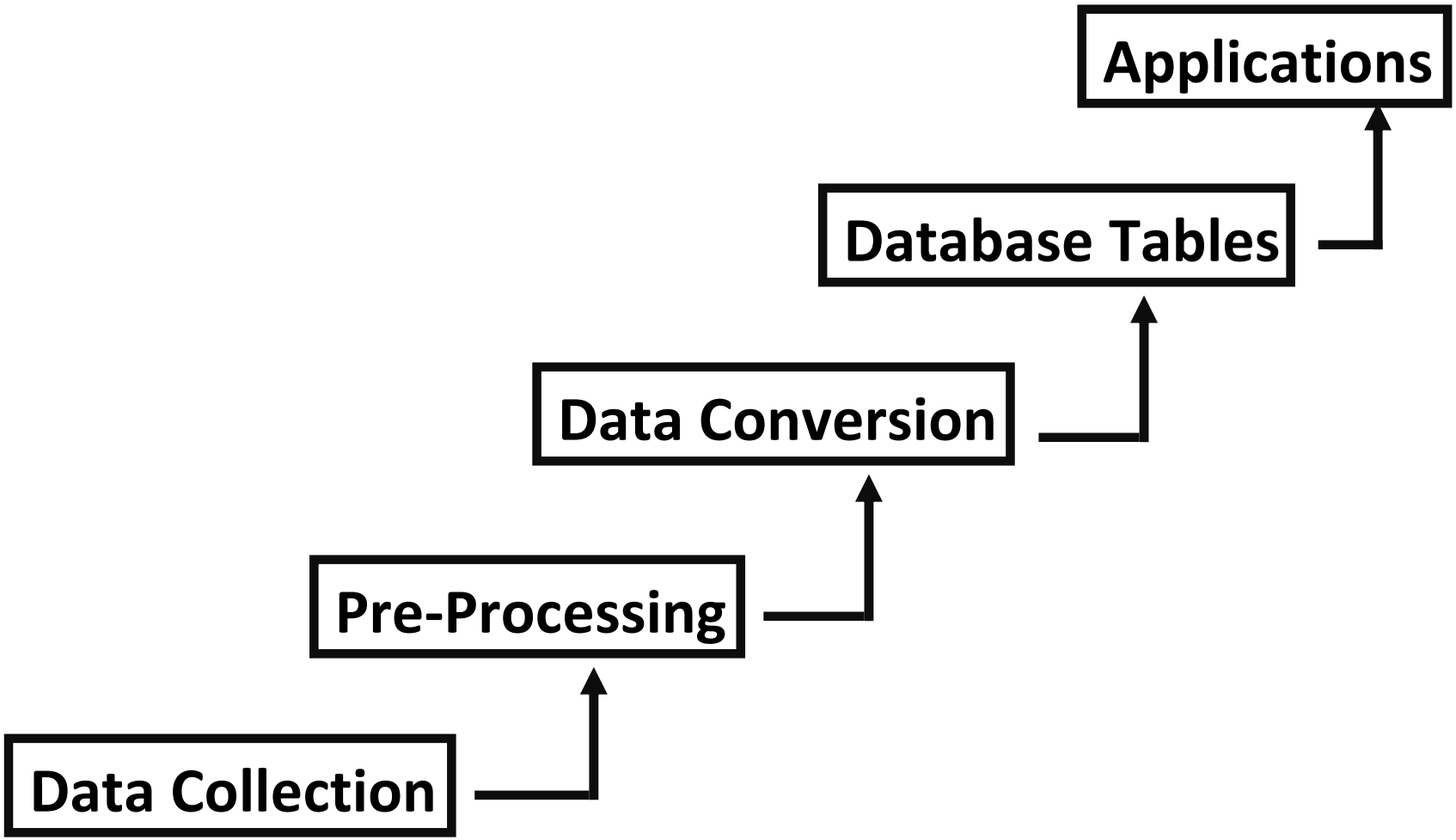
Offers a methodological framework, databases and tools to manage relevant water data and provides water specialists (MWI, WAJ, JVA, universities, research institutes ….etc) with reliable managed data and information for water sector monitoring, management and planning.

WIS Database Elements

Include:

- GIS Spatial Databases
- Water Sector Database
  - *Water resources monitoring system (WMS):* Water resources/water quality monitoring data collected from WMS networks.
  - *Monitoring data for municipal and industrial facilities with wastewater discharges.*

WIS Conceptual Data Flow Diagram



Water Information System (WIS)

- *Data Exchange Relationships*: Regular Data exchange relationships exists or will be developed with MWI, WAJ, JVA and others Institutions (DOS, MOA, WAJ Lab, RJGC, MOTA, RSS, Water Companies.....etc)

Thank You

HASHEMITE KINGDOME OF JORDAN

WATER ACCOUNTS

- MINISTRY OF WATER & IRRIGATION (MWI)

- DEPARTMENT OF STATISTICS (DOS)

14 أيار، 12

National statistic system response:

The department of statistics was established in the late 1949 and assumed its activities in accordance with the statistics law no. 24 for the year 1950 which identified its responsibilities and duties.

Main duties and responsibilit

- Data collection saving and analyzing disseminating formal statistics including surveys related to social, demographic and economic areas, etc.
- conducting general census every 10 years on families and household and population, agriculture industry, construction, and others area chosen by cabinet.
- Coordinating the stat work and organizing it through cooperating with Gov. entities to

SOURCES OF DISSEMINATED DATA:

- **Statistical data dissemination, GSSS of IMF & SDDS.**

INTERNAL

- **Censuses and repetitive surveys and non repetitive surveys conducted by DOS.**

External:

- **Statically data collected by dos from Gov. entities and organizations as central bank, ministry of labor, transportation ministry ,Jordan oil refinery,….etc.**

THE PROVISIONAL STATISTICS LAW NO. 8 OF 2003

- It was endorsed and published in the official Gazette.
- It came into force as of 16.2.2003.
- It is now under approval process.

The main items of the new statics law:

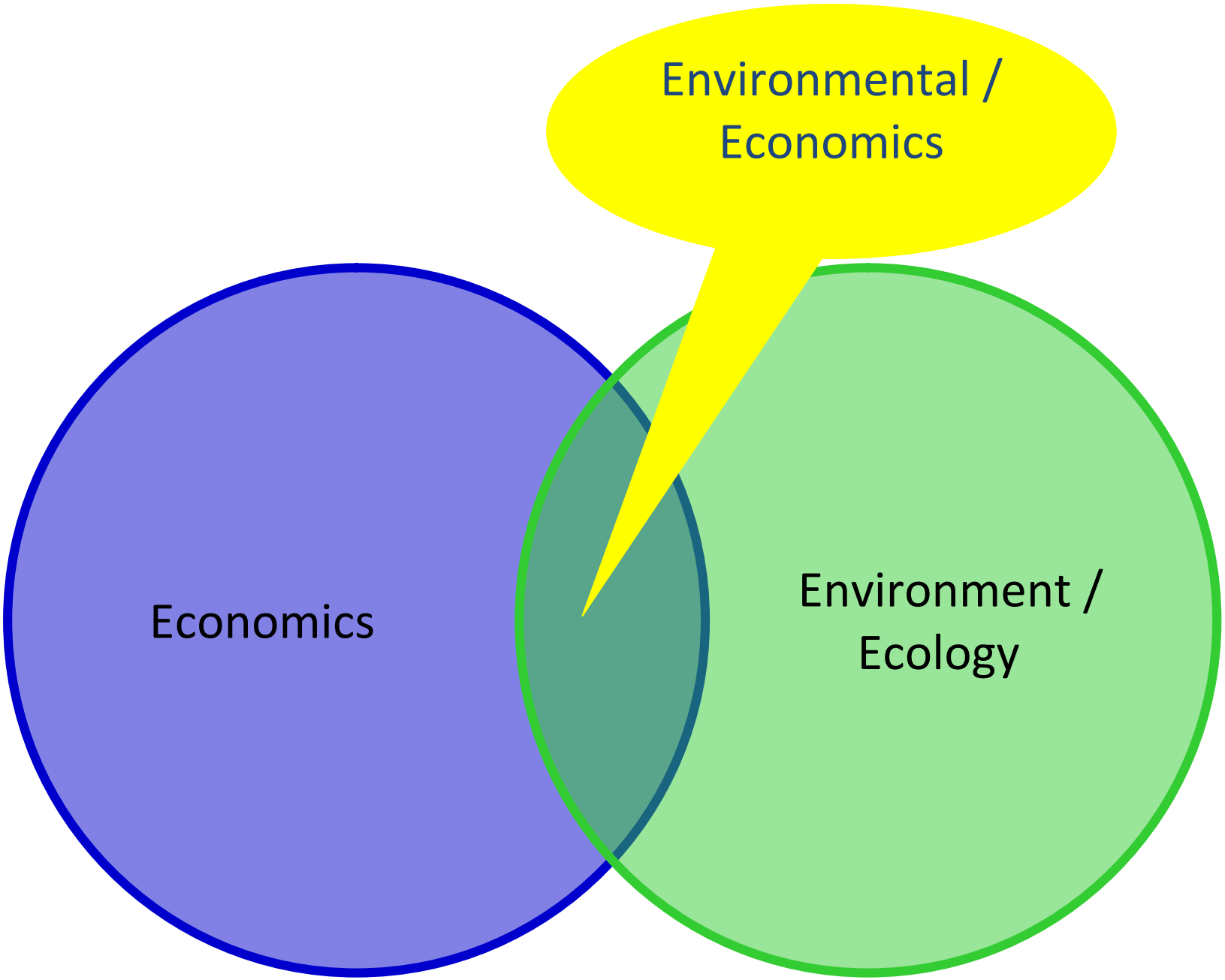
- Restricting stat operations to DOS or DOS approval.
- Cooperation of private and Gov. entities and individuals with DOS employees.
- Data confidentiality.

The main items of the new statics law:

- Forming a consultative committees.
- Establishing a statistical training center and preparing plans and training programs necessary for this goal.
- Encouraging the related entities to use statistics in decision maker.

Water Account

Environment Division


Environmental /
Economics
Economics
Environment /
Ecology

Introduction

- Work on water account started in 2006
- Work in progress on the tables related to emission account and values and cost of water and sewerage system
- In addition to break down of physical water supply and wastewater between economic units
- Work in progress on updating the previous tables 2008 to 2010 (WA tables)

Pilot Water Account Tables

- Stock Assets for water resources (Natural resources, surface water, groundwater, export and import)
- Physical data for flows of water within the economy and from economy to environment
- Data on flows of waterborne emissions from the economy to the environment
- Values and cost of water and sewerage in addition to assets and investment

Availability of data

- Inland water resources
- Physical data items for water flow and into-out of territory (Country)
- Natural transfer of water between inland water resources
- Flow of water from environment to economy (estimated by uses - MWI)
- Physical data for water flow within economy (special survey)
- Monetary data for (ISIC 36 & 37).

Gaps and Data Needs for Water Account

- Physical data for water flow from economy to the Environment (special survey,)
- Details of Losses in distribution (water supply) and Losses of wastewater sent to the treatment.
- Flow of water born emission in the economy (e.g. Ghabawi)
- Flow of water born emission to the environment.

Gaps and Data Needs for Water Account

- Data Availability, in water account data is available for some economic activities

-we need more coverage to include each sector and activity.

- Details for flow of water from economic units to ISIC 37

- Coefficient factors of associated wastewater and emissions by industry type.

- Cost of new surveys, financial support is needed to ensure the necessary details coverage and the missing data.
- Effort is needed to incorporate the concept of environmental account within the national account.

Gaps and Data Needs for Environment Account

- Capacity building is needed to enhance the stuff work to complete the environmental account.
- In order to overcome these gaps coordination between national institutions and organizations to provide accurate data in consistent format with IRWS on yearly bases should be a priority.
- Finally, training, workshops, integrated research and education about Environmental Account issues are required to insure work sustainability.

WA and Input-Output

- Consumption (water, energy, Natural resources)
- Emissions (Impact)

1. Wastewater
2. CO2
3. Waste

- Sustainability (growth & efficient use)

Water Statistics in Dos Surveys

- Industry activities
- Hotels and Education (pilot)
- Hospitals
- Public Environmental Expenditures (Ministries)
- Public Environmental Expenditures (Public Universities)
- NA: produces value of intermediate consumption (water & wastewater)
- NA: produces output & value of intermediate consumption (ISIC 36&37)

Water Statistics Data

External data

- Water Budget
- Rainfall Volumes with Long-Term Averages by Water Basin
- Water Supply
- Quantity and Usage of Ground Water
- Results of Chemical and Physical Analysis of Drinking Water and sewage water

Internal data

- Quantity of used water by source for different activities (Industry, services, construction)
- Quantity of sewage water and disposal methods
- Environmental expenditure on waste treatment plants

Water and Wastewater Intermediate Consumption value and Gross output by Economic Activities, 2009

Sector	Intermediate consumption (000 JD)	Gross output (000 JD)
Insurance	99	90506
Banks	779	1398743
Industry	31785	10558216
internal Trade	8698	2143764
Transport, storage and communications	2675	4122345
Construction	5350	2102967
Services	16566	2053296

1. Quantity and value of used Water by Source

ثانياً: المياه

(201): كمية المياه المستخدمة حسب المصدر ($م^3$)

4	3		2	1
[illegible] (^{3}[illegible])	[illegible] ([illegible])	XX	[illegible]	[illegible]
			شبكة عامة	-1
			صهريج	-2
			بئر	-3
			ماء مقطر	-4
			أخرى	-5
			(المياه الكلية)	المجموع

2. Quantity of used water by type of using

(202): كمية المياه الكلية المستخدمة حسب نوع الاستخدام

1	2					
كمية المياه الكلية المستخدمة ($م^3$)	نوع الاستخدام للمياه(م3)					
.....	1	2	3	4	5	6
	عملية الإنتاج	التسخين	التبريد	استخدام الإدارة	ري	أخر

3. Quantity of Wastewater by disposal Method and cost of disposing

كمية وتكلفة المياه العادمة حسب أسلوب التخلص

1	2		3	4	5
الرقم	أسلوب التخلص	XX	الكمية ($م^3$)	تكلفة التخلص من المياه العادمة (دينار)	سعر وحدات المعالجة (دينار)
1	□				
2					
3					
4					
5	„œ				
6	(ÕÕ) , œ¿				
7	◊				

4. Number of Employees for Environment Protection and Treating wastewater

(204) أعداد العاملين في حماية البيئة ومخصصاتهم

1	2		3	4
fiœf	fl في حماية البيئة	XX	العدد	fl حماية البيئة (دينار)
-1	fl في حماية البيئة			
-2	fl العادمة			
-3	المجموع			

5. Fixed Assets and Related to Water & Wastewater

(الموجودات الثابتة خلال العام:

1	2		3	4	5	6	7	8	9
الرقم	النوع	XX	القيمة في بداية العام (دينار)	الإضافات (دينار)	التالف (دينار)	اهتلاك رأس المال الثابت خلال العام (دينار)	القيمة في نهاية العام (دينار)	المياه المنتجة داخل المنشأة	
								مستهلك ($م^3$)	مباع للغير ($م^3$)
1	«								
2	وحدة المعالجة								
3									
4	«								
5									
6									
7									

6. Environmental Expenditures related to Water & Wastewater and RD, fines and taxes

خامساً – الإنفاق لحماية البيئة خلال عام 2011

507	506	505	504	503	502	501
	النفقات الرأسمالية		النفقات الجارية			
المجموع	مصادر أخرى	ذاتي	مصادر أخرى	ذاتي	النفقات البيئية (دينار)	الرقم
					إدارة النفايات	**1**
					منع التلوث من خلال تعديل عملية الإنتاج	11
					جمع ونقل النفايات	12
					معالجة وطرح النفايات الخطرة	13
					أنشطة أخرى	14
					إدارة المياه العادمة	**2**
					منع التلوث من خلال تعديل عملية الإنتاج	21
					وحدات معالجة المياه العادمة	22
					معالجة مياه التبريد	23
					إجراءات وتحكم ومختبرات وما شابه	24
					أنشطة الأبحاث والتطوير	**6**
					دراسات لحماية الهواء المحيط	61
					دراسات النفايات	62
					دراسات للحد من الضوضاء والاهتزازات	63
					أبحاث ودراسات بيئية أخرى	64
					أنشطة حماية البيئة الغير مصنفة في مكان أخر	7
					غرامات وضرائب بيئية	71
					أنشطة إدارية عامة للبيئة (ISO 14000)	72
					أنشطة بيئية أخرى	73
					المجموع	74