



Ministry of Water & Irrigation

# Jordan Water Sector Facts & Figures



2015

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# Opening Statement

**H.E. Dr. Hazim El-Naser**  
**Minister of Water and Irrigation**

Jordan suffers from water scarcity, which poses a threat that would affect all sectors that depend on the availability of water for the sustainability of activities for their development and prosperity.

Water is an essential element for the uses of households, industry and agriculture, the growing water deficit from one year to another and increasing challenges in light of the increasing population because of Syrian influx to Jordan poses a serious threat which will leave its impact on all sectors.

The availability of information is one of the most important determinants of dealing with the situation and the development of strategies, policies and plans. The information availability contributes to making the right decisions and helps all concerned sectors to understand and accept the decisions that will have an impact on the sectors development and growth. Consequently, the Ministry of Water and Irrigation is issuing this bulletin to provide information to stakeholders in the water sector such as individuals, the public and private sectors in addition to the funding and donors agencies of the water sector. We hope that the published information will be of assistance to all stakeholders and other parties that may have an interest in the water sector, provided that we continue to provide such information in the future and on a periodic basis by all available channels.



## Opening Statement

**H.E Eng. Iyad Dahiyat**

**Secretary General - Ministry of Water and Irrigation**

The Ministry of Water and Irrigation has the mandate to develop studies, strategies, policies and plans for the water sector, in collaboration with the Water Authority of Jordan, the Jordan Valley Authority and the water companies operating throughout Jordan.

These studies and strategies are made available to the decision makers to be used in the most optimal manner for water resources management, directing them to demand areas, according to the priorities to ensure provision of water to various users; domestic, industrial and agricultural.

Within the interest of the water sector to implement the principle of transparency in providing the water sector facts and figures to the stakeholders and those interested in the water situation of Jordan, the ministry is publishing this information bulletin that aggregates and describes the water sector.

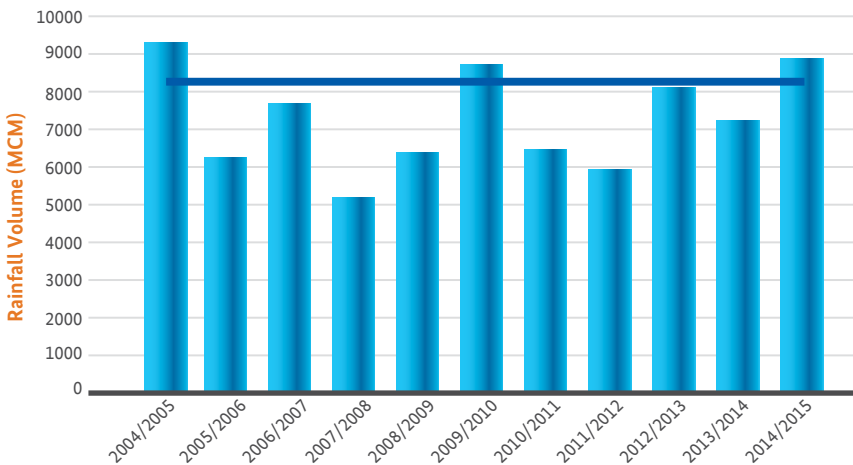
The information herewith is the result and outcome of the efforts of the Ministry of Water and Irrigation staff who work to serve Jordan and its citizens. The ministry intends to publish this information and update it periodically. This publication is intended to facilitate access to information for all. Hence, we welcome any positive feedback to improve this bulletin in the future.

**Rainfall Volumes from (2005-2015)<sup>1</sup>**

Year	Rainfall Volume (MCM)	Long-term average (MCM)	Deviation from Long term average
2004/2005	9304	8352	952
2005/2006	6258	8322	-2064
2006/2007	7683	8313	-630
2007/2008	5194	8269	-3075
2008/2009	6379	8243	-1864
2009/2010	8728	8249	479
2010/2011	6477	8225	-1748
2011/2012	5943	8195	-2252
2012/2013	8120	8194	-74
2013/2014	7228	8181	-953
2014/2015	8884	8191	693

**Rainfall volume compared to Long-term average (MCM)**

■ Rainfall volume (MCM)  
 — Long-term average (MCM)



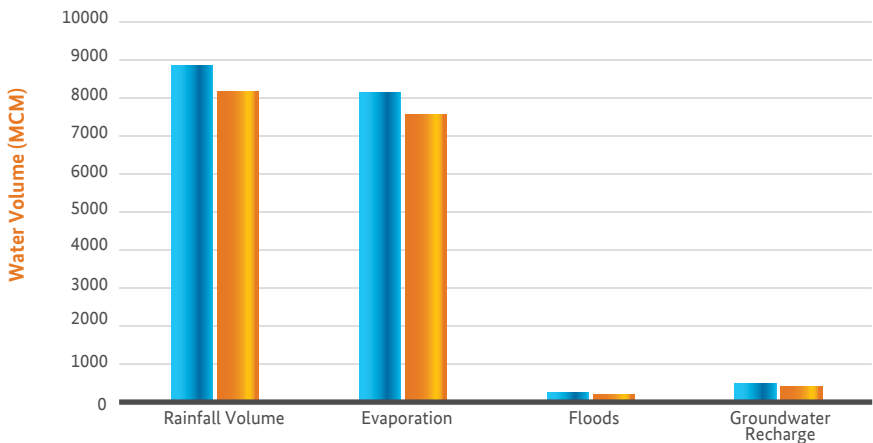
1 Source: Water Budget 2014/2015

## Surface Water Budget 2015

	Million Cubic Meter	Percentage to Rainfall <sup>2</sup>	Long-term average	Percentage to Long term average
Rainfall Volume	8884		8191	
Evaporation	8154	92%	7582	93%
Floods	245	3%	195	2%
Groundwater Recharge	485	5%	419	5%

Comparison of Surface Water Budget 2015 with long-term average

■ Water Elements 2015  
■ Long-term average



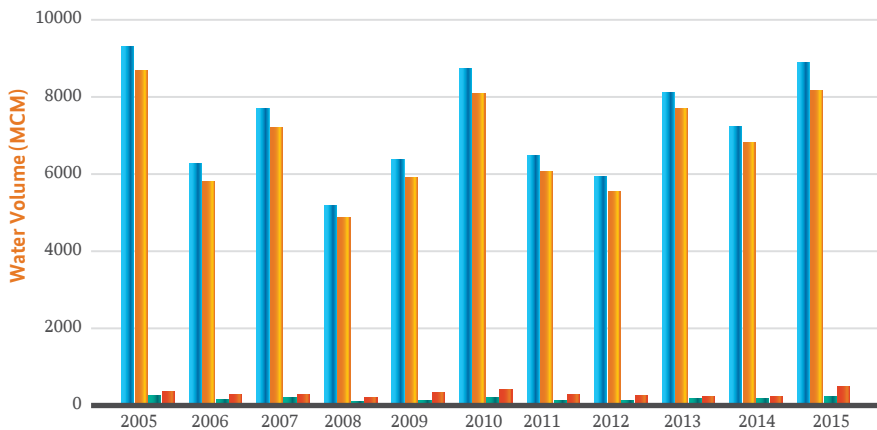
<sup>2</sup> Water volume for each element divided by total rainfall

**Surface Water Budget in Million Cubic Meter (2005-2015)**

Year	Rainfall	Evaporation	Floods	Groundwater Recharge
2005	9304	8671	270	364
2006	6258	5813	157	289
2007	7683	7201	195	288
2008	5194	4869	115	209
2009	6379	5903	127	349
2010	8728	8092	210	425
2011	6477	6073	119	285
2012	5943	5535	139	269
2013	8120	7689	187	244
2014	7228	6817	180	231
2015	8884	8154	245	485

Surface Water Budget (2005-2015)

■ Rainfall    ■ Floods  
■ Evaporation    ■ Groundwater Recharge





## Design Capacity and Actual Storage of Dams 2015

Dam	Design Capacity (MCM)	Storage (MCM)
Wehdeh	110	25
Wadi Arab	16.8	6.2
Zeqlab	4	0.5
King Talal	75	47
Karameh	55	16
wadi Shueib	1.4	1.1
Kafrain	8.5	3
Wala	8.2	5.8
Mujeb	29.8	25
Tanour	16.8	12
<b>Total Storage</b>		<b>141.6</b>
<b>Total Design Capacity</b>		<b>325</b>
<b>Storage Percentage (%)</b>		<b>44</b>

## Water Efficiency in Irrigation Distribution Systems

	2014	2015
Water Quantity Released (MCM)	189	206
Quantity of Water for Irrigation Order (MCM)	164	181
Distribution Efficiency %	87	88
Water Quantity Sold (MCM)	162	183
Selling Efficiency %	86	89

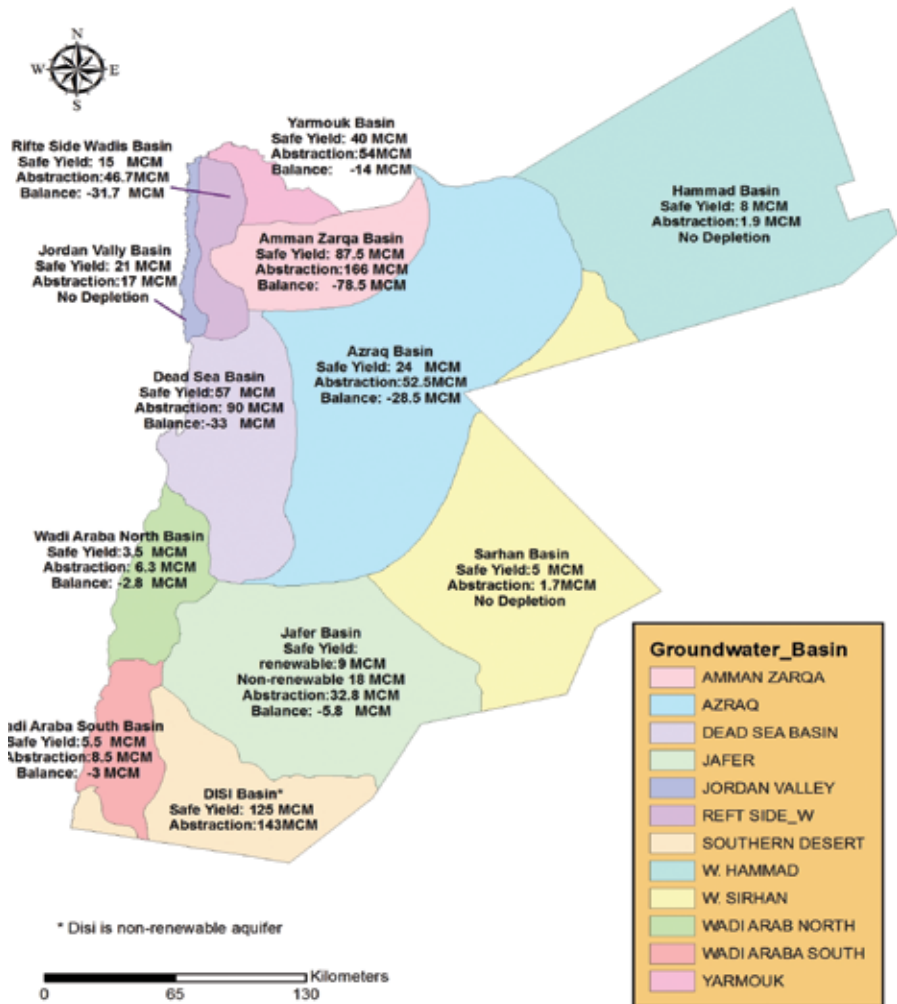
### Jordan Valley Desert Dams, Excavations and Ponds

Project Name	Number	Design Capacity (CM)
Desert Dams	61	88
Ponds	65	0.3
Desert Excavations	192	2
<b>Total</b>	<b>318</b>	<b>90.3</b>

### Groundwater Abstraction for 2015 in (MCM)

Groundwater Basin	Safe Yield	Abstraction	Deficit	
Disi	125	143		
Amman-Zarqa	87.5	166	-78.5	
Yarmouk	40	54	-14	
Jordan Side Valley	15	46.7	-31.7	
Azraq	24	52.5	-28.5	
Jafer	Renewable	9	35	-29
	Non-Renewable	18	1.7	
Jordan Valley	21	17	4	
Dead Sea	57	90	-33	
Araba South	5.5	8.5	-3	
Hammad	8	1.9	6.1	
Sirhan	5	1.7	3.3	
Araba North	3.5	6.3	-2.8	

## Groundwater Basins 2015



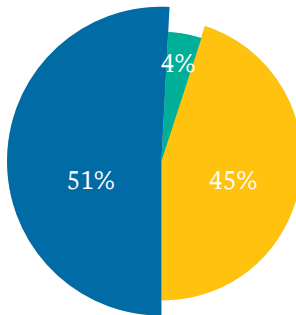
Done by GIS Department /MWI

**Water Use for 2015 in (MCM)**

Uses	Surface Water	Groundwater	Treated Waste-water	Total Water Resources
Domestic	124	332.5		456.5
Agriculture	146	237.6	130.8	514.4
Industry	4	31	2.2	37.9
<b>Total</b>	<b>274</b>	<b>601.8</b>	<b>133</b>	<b>1008.8</b>

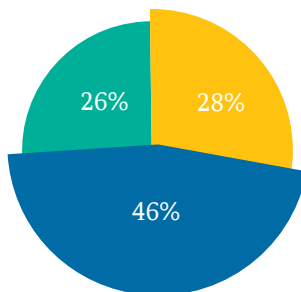
Water uses for different sectors 2015

Domestic Agriculture Industry



Water Resources for Irrigation 2015

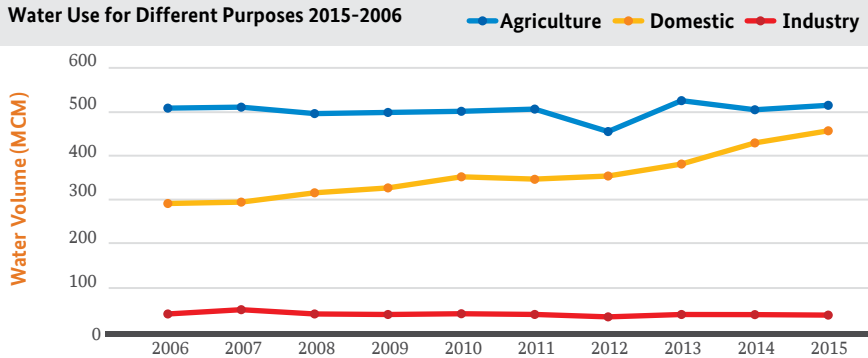
Ground water Surface water Treated wastewater



### Water Use for Different Purposes 2006-2015 in (MCM)

Year	Domestic	Industry	Agriculture
2006	291.4	40.5	508.6
2007	294.5	50.8	510.2
2008	315.7	40.5	495.6
2009	326.8	39.3	498.2
2010	352	41	500.8
2011	346.8	39.4	505.8
2012	353.8	33.9	454.8
2013	381	39.3	525
2014	429	39	504.3
2015	456.5	37.9	514.4

Water Use for Different Purposes 2015-2006



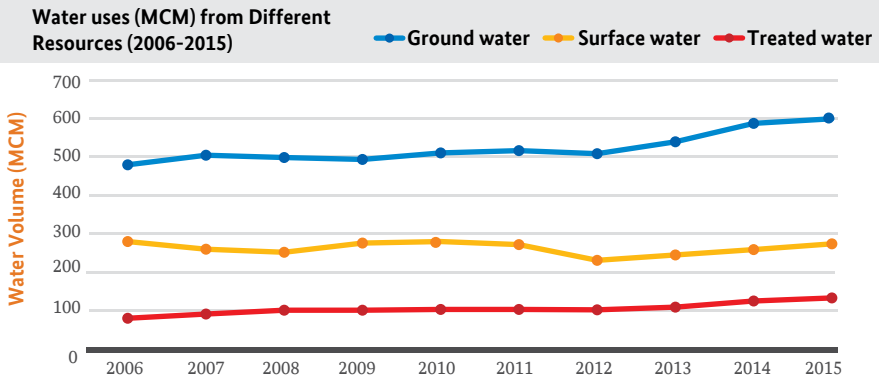
### Water Resources Monitoring Stations

Monitoring Station	Telemetric	Normal	Total
Rainfall Station	60	98	158
Evaporation Station	20	1	21
Runoff Station	1	35	36
Groundwater Level	86	110	196
Spring Discharge	0	600	600

**Water Uses from Different Resources (2006-2015) in (MCM)**

Year	Surface Water	Groundwater	Treated Water	Total
2006	280	480	80	840
2007	260	505	91	856
2008	252	499	101	852
2009	276	494	101	871
2010	280	511	103	894
2011	272	517	103	892
2012	231	509	102	842
2013	245	540	109	894
2014	259	588	125	972
2015	274	601.8	133	1008.8

**Water uses (MCM) from Different Resources (2006-2015)**



### Number of Operational Wells According to Water Uses 2005-2015

Year	Industrial Wells	Agriculture Wells	Drinking Wells	Livestock	Total
2005	173	2058	509	39	2779
2006	166	2125	511	37	2839
2007	174	2169	543	31	2917
2008	180	2223	581	37	3021
2009	188	2238	573	31	3030
2010	201	2284	591	22	3098
2011	192	2311	599	19	3121
2012	181	2254	588	20	3043
2013	206	2210	602	16	3034
2014	200	2000	781	50	3031
2015	201	2163	756	18	3138

### Number of Closed Illegal Wells 2007-2015

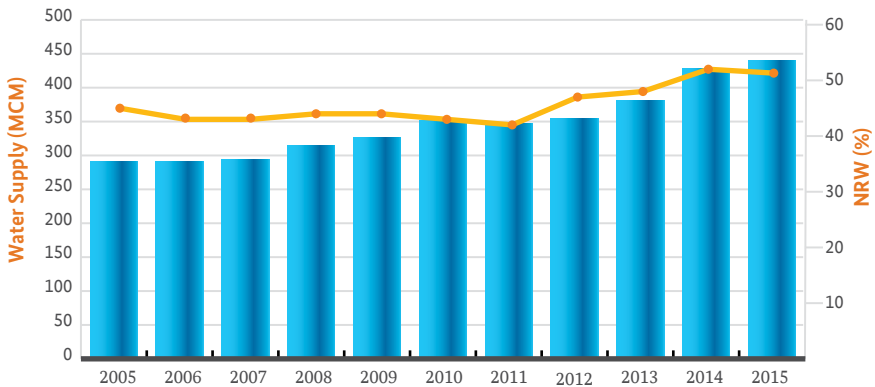
Year	Number of Wells
2007	26
2008	45
2009	46
2010	57
2011	29
2012	19
2013	141
2014	562
2015	174

### Domestic Water Supply and Non Revenue Water 2005-2015

Year	Water Supply (MCM)	Non Revenue Water(%)
2005	291	45
2006	291	43
2007	294	43
2008	315	44
2009	326	44
2010	352	43
2011	347	42
2012	354	47
2013	381	48
2014	429	52
2015	440	51.3

Domestic Water Supply and NRW

■ Water Supply MCM    ● Non Revenue Water%



### Samples of Drinking Water Conforming to Jordan Quality Standards

Year	Conforming Percentage
2012	99.6%
2013	99.7%
2014	99.6%
2015	99.5%



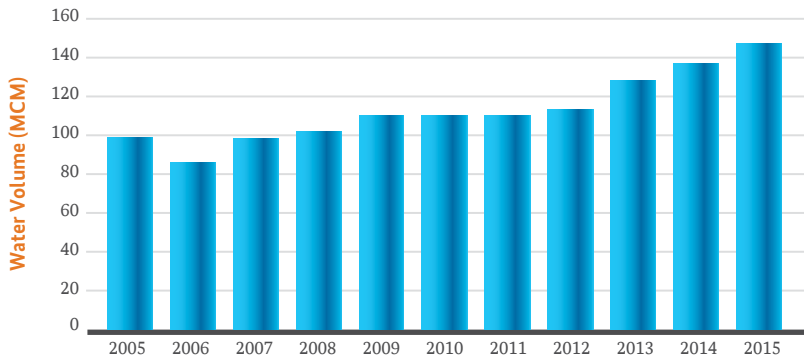
### Domestic Water Supply (l/c/d) 2005-2015

Year	Water Supply
2005	129
2006	139
2007	144
2008	145
2009	146
2010	147
2011	145
2012	145
2013	154
2014	132
2015	126

### Treated Wastewater Volume (MCM) 2005-2015

Year	Treated Wastewater
2005	99
2006	86
2007	98
2008	102
2009	110
2010	110
2011	110
2012	113
2013	128
2014	137
2015	147

### Treated Wastewater 2005-2015 in (MCM)

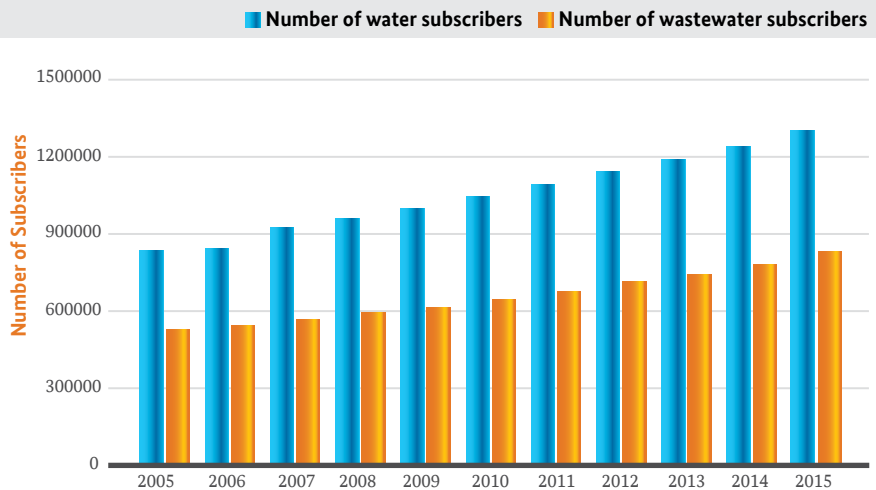


## Wastewater Treatment Plants in Jordan 2015

No.	WWTP Name	Design Capacity	Daily Influent CM/day	Technology	Operation Year	BOD5 Design
1	Aqaba-Natural	9000	6699	Waste Stab Ponds	1987	900
2	Aqaba-Mechanical	12000	12475	Activated Sludge	2005	420
3	Baqa	14900	11862	Trickling Filter	1987	800
4	Fuheis	2400	2719	Activated Sludge	1997	995
5	Irbid Center	11023	8143	Trickling Filter+ Activated Sludge	1987	800
6	Jerash-East	9000		Activated Sludge	1983	1090
7	Karak	5500	1408	Activated Sludge	1988	800
8	Kufranja	9000	2506	Trickling Filter+ Activated Sludge	1989	850
9	Madaba	7600	6557	Activated Sludge	1989	950
10	Mafraq	6050	3557	Waste Stab Ponds	1988	825
11	Ma'an	5772	2288	Activated Sludge	1989	700
12	Abu Nuseir	4000	3201	Activated Sludge	1986	1100
13	Ramtha	7400	4743	Activated Sludge	1987	1000
14	Salt	7700	7407	Activated Sludge	1981	1090
15	Tafila	7500	1450	Trickling Filter	1988	1050
16	Wadi Arab	21023	12880	Activated Sludge	1999	995
17	Wadi Hassan	1600	1594	Activated Sludge	2001	800
18	Wadi Mousa	3400	2628	Activated Sludge	2000	800
19	Wadi Esseir	4000	5040	Oxidation Ditch	1997	780
20	Ekeidar	4000	1918	Waste Stab Ponds	2005	1500
21	Lajoon	1000	595	Waste Stab Ponds	2005	1500
22	Tal Mantah	400	358	Trickling Filter+ Activated Sludge	2005	2000
23	Jiza	4000	773	Activated Sludge	2008	800
24	Samra	360000	294862	Activated Sludge	2008 ,1984	650
25	Meyrad	10000	6268	Activated Sludge	2011	800
26	Shobak	350	92	Waste Stab Ponds	2010	1850
27	Mansorah	50	15	Waste Stab Ponds	2010	
28	South Amman	52000	5436	Activated Sludge	2015	750
29	Mutah and Adnaniyyah	7060	1228	Activated Sludge	2014	
30	Shallaleh	13750	6070	Activated Sludge	2014	762
31	North Shouna	1200	777	Waste Stab Ponds	2015	1200
32	Zaatari	3500	964	Trickling Filter+ Activated Sludge	2015	1130
Total:		606178	416513			

## Number of Water and Wastewater Subscribers 2005-2015

Year	Number of Water Subscribers	Number of Wastewater Subscribers	Household Served in Sewer System% <sup>3</sup>
2005	837626	527578	63%
2006	842805	543596	64%
2007	925708	565948	61%
2008	959118	596503	62%
2009	1001217	613826	61%
2010	1048207	646519	62%
2011	1095191	677961	62%
2012	1142457	716671	63%
2013	1190831	742763	62%
2014	1240360	780661	63%
2015	1308043	834093	64%



<sup>3</sup> No. of wastewater subscribers divided by No. of Water

**Financial Status-Water Authority of Jordan and Water Companies in (JD)**

Description	2010	2011	2012	2013	2014	2015
Running Costs (O&M) without interests	136	154	179	199	216	245
<b>Capital Costs divided into:</b>						
Self-Financed expenses	138	113	69	76	154	206
Expenses covered by International loans	97	31	24	23	36	55
Expenses covered by external grants	23	13	40	48	48	75
<b>Government support / WAJ payments</b>						
Capital expenditures	138	113	69	76	154	206
Payments of installments and benefits (external + internal)	99	89	190	301	193	103

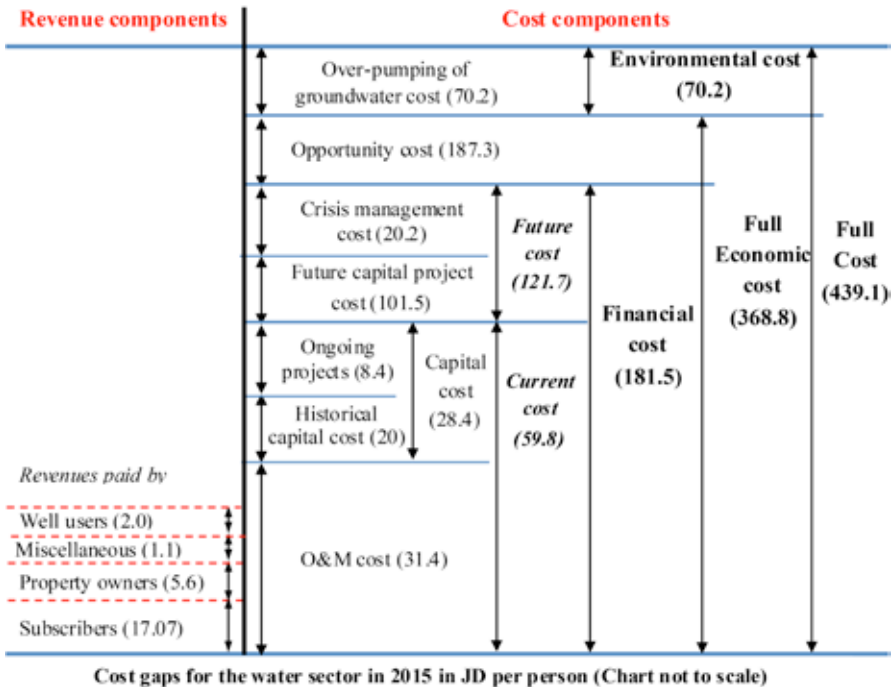
**Energy Consumption per Billed Water with Energy Consumption Rate**

<b>Water Authority</b>			
Year	Electricity Consumption (GW.h)	Billed Water MCM	Electricity Consumption Rate (KW.h/CM)
2014	1572	204	7.71
2015	1714	214	8.01

<b>Jordan Valley Authority</b>			
Year	Electricity Consumption (GW.h)	Billed Water MCM	Electricity Consumption Rate (KW.h/CM)
2014	36	164	0.22
2015	31	180	0.17

<b>Water Sector</b>			
Year	Electricity Consumption (GW.h)	Billed Water MCM	Electricity Consumption Rate (KW.h/CM)
2014	1608	368	4.37
2015	1745	394	4.43

## Syrian Refugees



According to UNHCR; the Estimated Number of the Syrian refugees in the Camps Approximately 655000

## Facts

- Jordan consists of 15 surface water basins and 12 groundwater basins.
- The number of operational wells in Jordan exceeds 3000 wells.
- Quantity of renewable water resources for different purposes is around 780 MCM for 2015.
- The safe yield abstraction quantity from renewable groundwater is 275 MCM annually.
- The safe yield abstraction from non renewable groundwater for 50 years is about 143 MCM annually.
- Quantity of pumping from renewable groundwater is about 160 MCM for 2015.
- The drawdown from static water level between 1-20 m yearly.
- The estimated water demand quantity for all sectors is 1400 MCM for 2015.
- 40% of Jordan water resources is shared water.
- The water sector consumes about 15% of total electricity consumed in Jordan.
- The non revenue water is estimated by 52% for 2015.
- Each Syrian refugee costs the water sector around 440 JD/year.



