

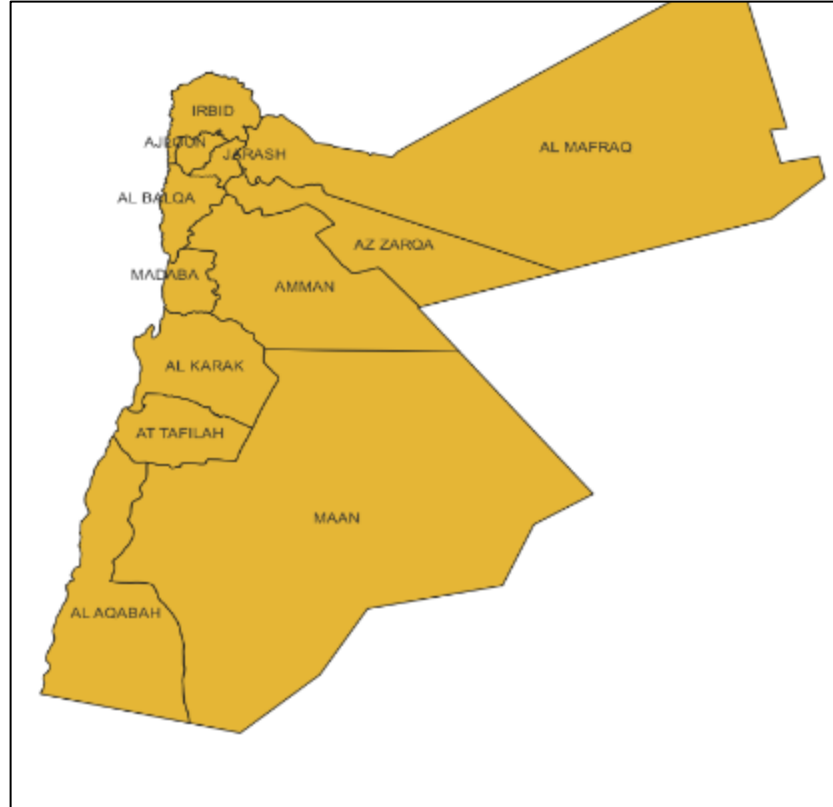
Water Allocation in Jordan

- Hydrology Elements
- Water Resources
- Water uses
- NRW
- Water allocation policy
- Water Deficit
- Selected Pilot area
- Irrigated Areas
- Water Accounting

The Hashemite Kingdom of Jordan

**Ranked amongst
poorest countries
in the World in
terms of available
water resources**

Precipitation
8200 MCM



Population

11 Millions

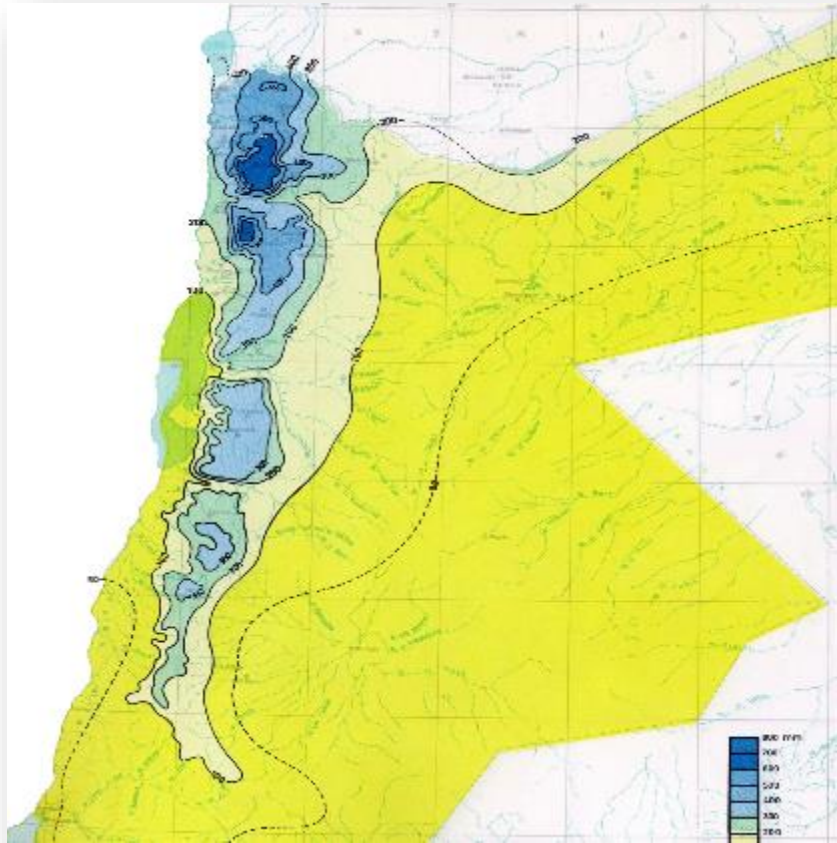
Area

Around 90,000
Square Km

**Available Fresh
water**

Less than 100 CM
per person for all
uses

Average rainfall map of Jordan



Avg. Long Term Rain Fall (1937-2021) in Jordan

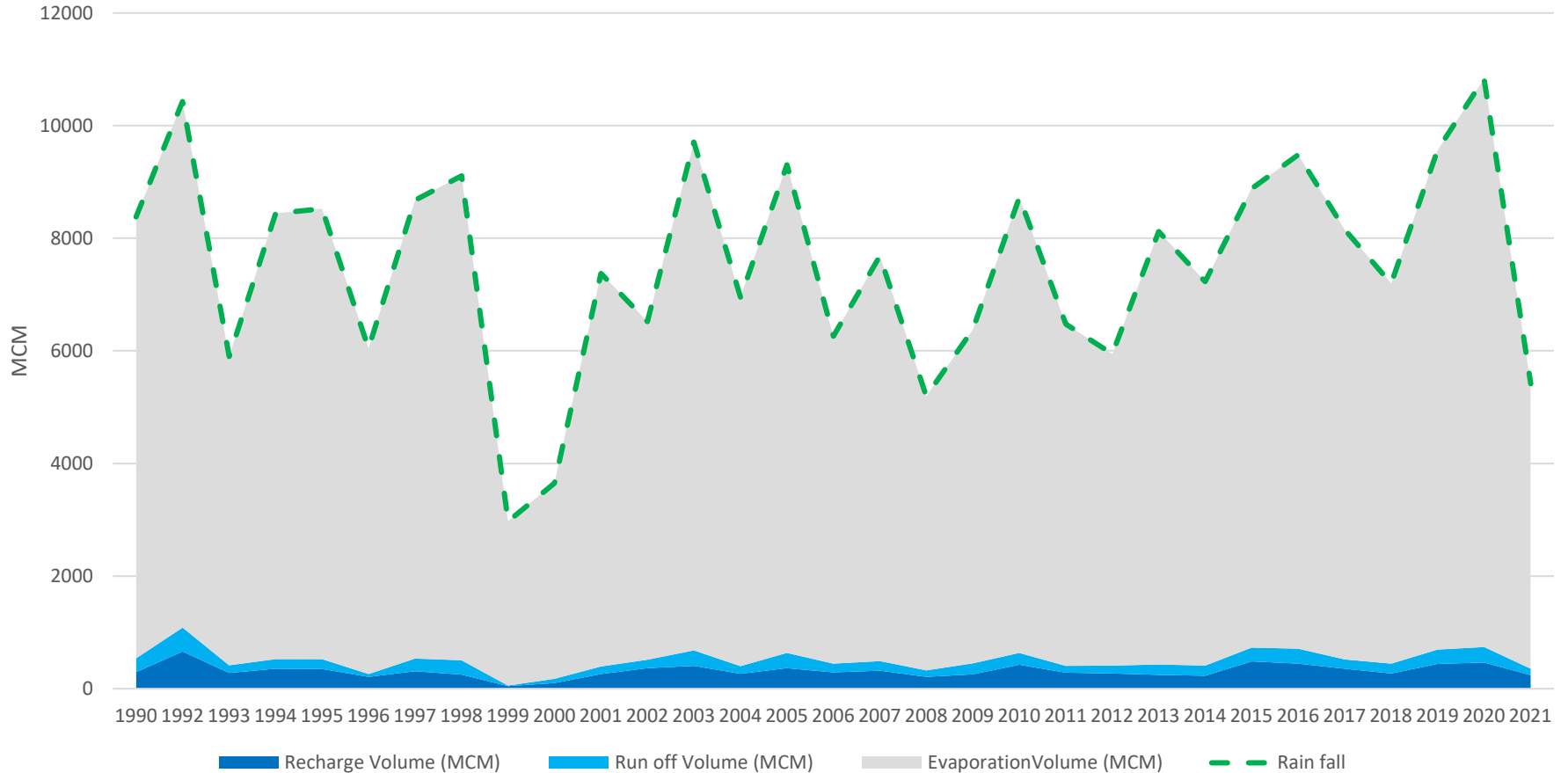
Jordan Valley
50-300 mm/year (5.7%)

Highlands
400-600 mm/year (2.9%)

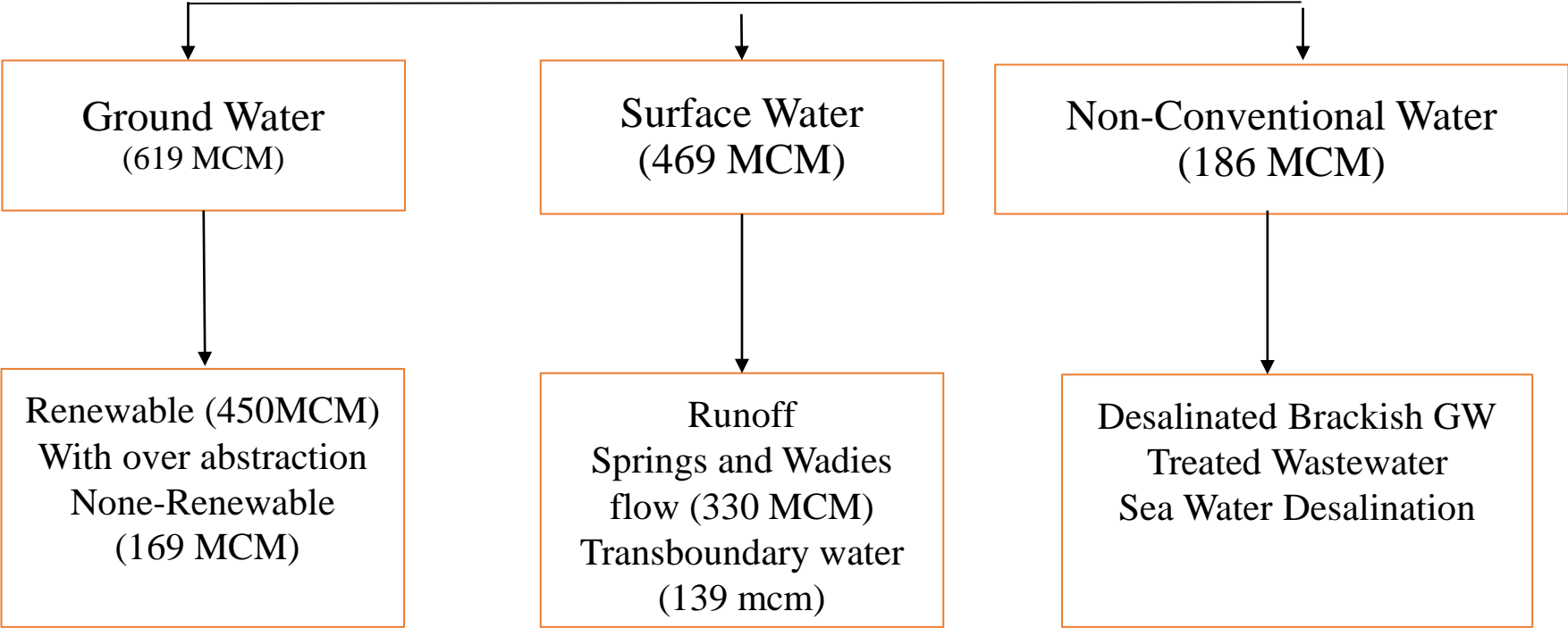
Badia
50-200 mm/year (91.4%)

Only 8% is available as Surface
Runoff and Groundwater recharge

Hydrological Elements and the Long Term Avg. (MCM)

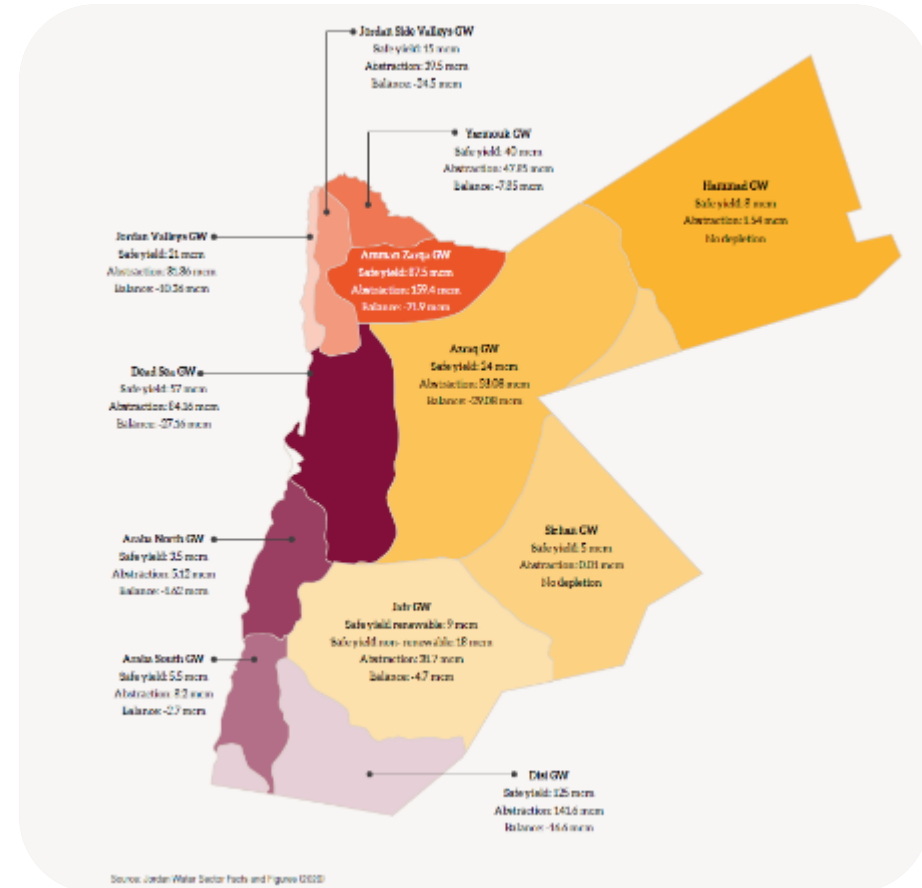


Water Resources



Groundwater

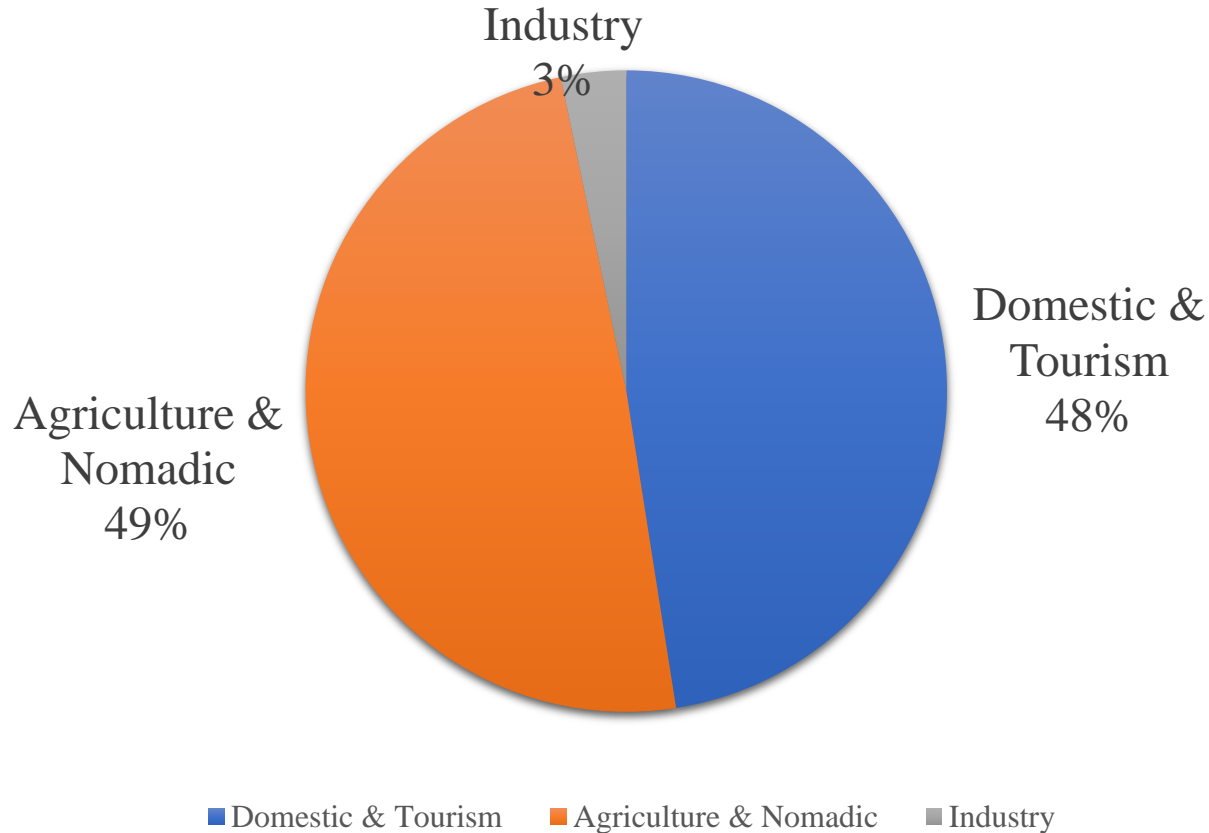
- Jordan have 12 groundwater basins
- Renewable groundwater basins :
 - Amman-Zarqa basin
 - Yarmouk basin
 - Azraq basin
- None-Renewable groundwater basins :
 - Disi basin



Source: Jordan Water Sector Facts and Figures 2022

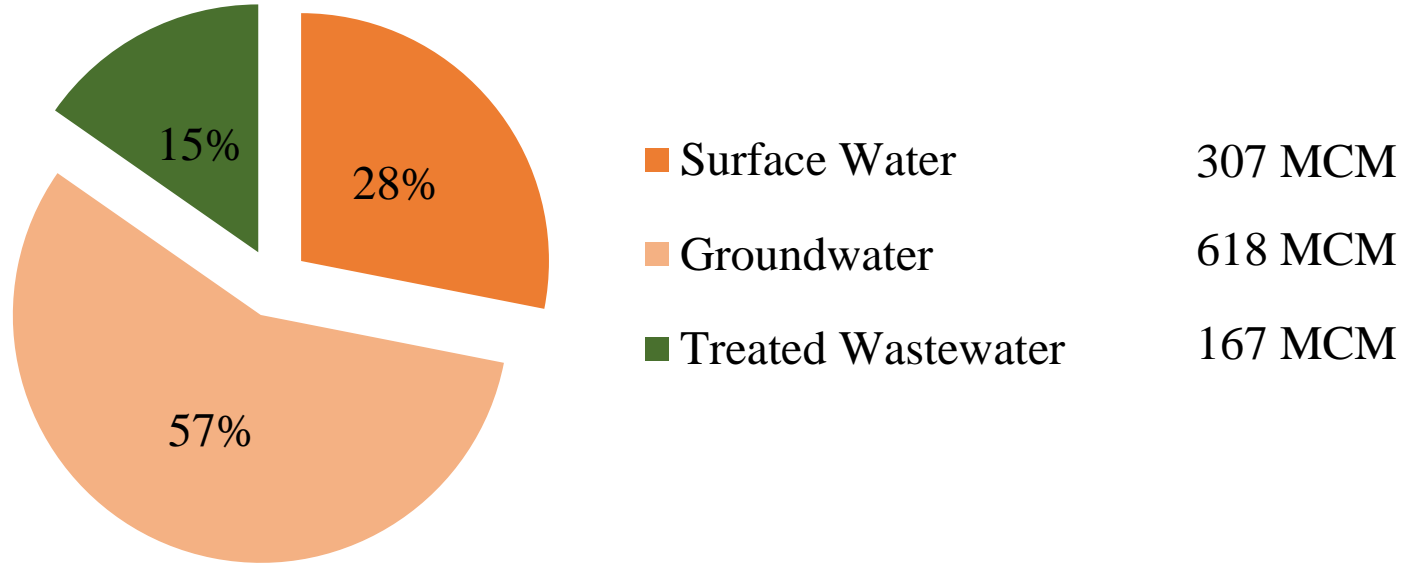
Source: Jordan Water Sector Facts and Figures 2022

Water Uses by Sector in 2021

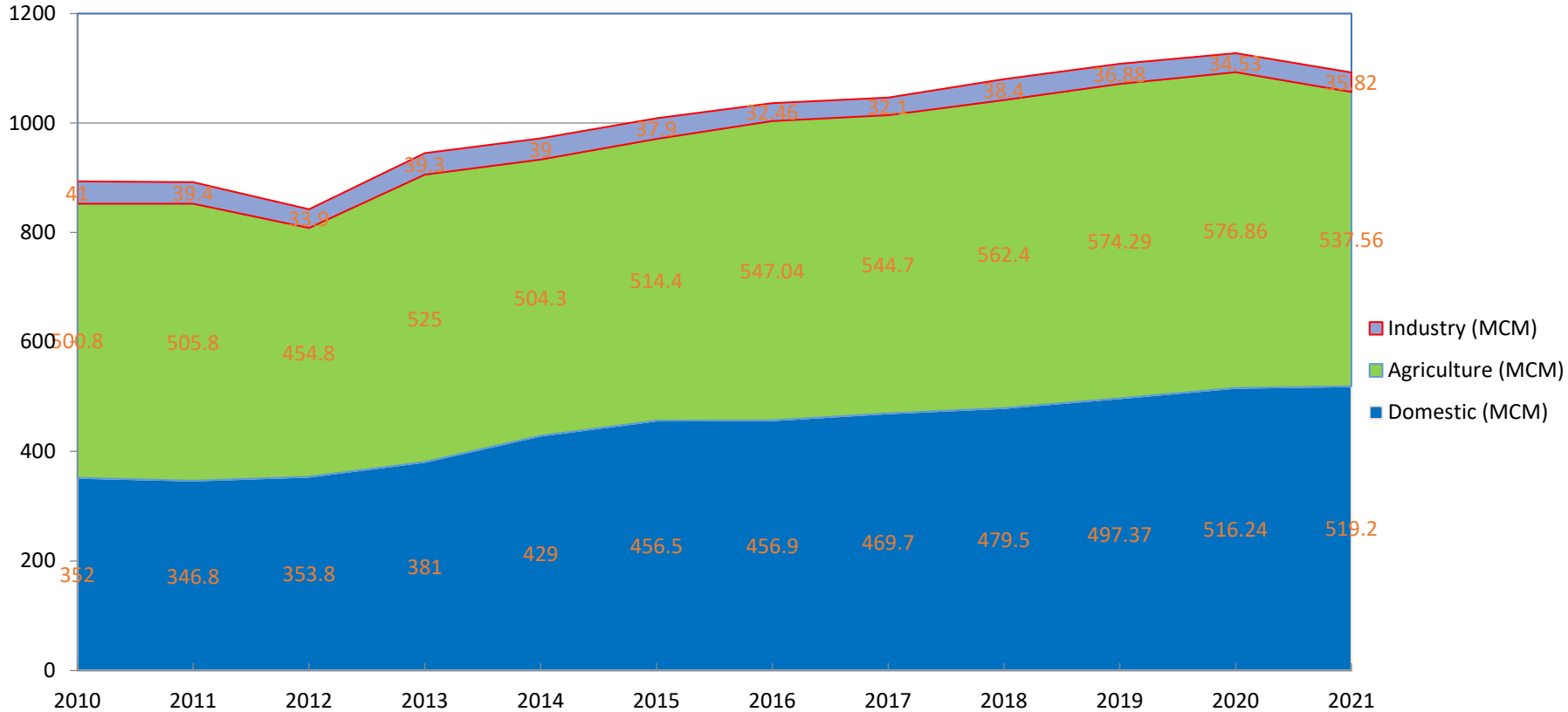


Water uses by resource

Groundwater accounts for the largest share of Jordan's water supply at 57% followed by surface water at 28% and treated wastewater a bout 15% ,Water from desalination plants accounted for only about 0.06% in 2021.



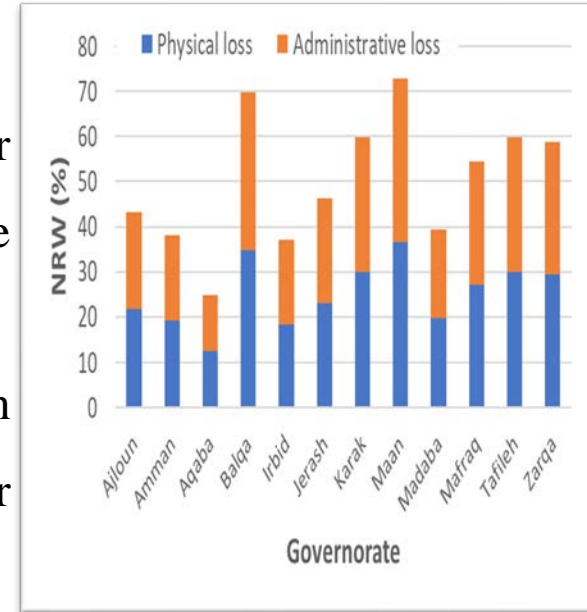
Water Uses Development



Non Revenue Water (NRW) :

Difference between water supplied to the distribution system and the billed water. It comprises of two types:

- Administrative losses. This is water used by a consumer for which no bill has been generated (for example, stolen, free use, or inaccurate meter readings).
- Physical losses. This is water lost through the distribution network predominantly through leakage which then either evaporates or returns to groundwater



Water allocation policy (the Rationale)

- The limited amount of renewable fresh water resources.
- The high rate of population growth including hosting fluxes of refugees from neighboring countries .
- Depleting the groundwater resources to the limits that exceeded safe yields in the most of renewable groundwater aquifers.
- MWI initiated the reallocation policy in 2015 to minimize the gap between supply and demand which is being updated currently

Water Reallocation (Pillars)

The main pillars for water reallocation policy are :

- Sustainability
- Health
- Efficiency
- Equity
- Economy
- Environment and nature
- Giving priority to the domestic uses followed by the other economic sectors according to their importance tied to its economic returns

Water Allocation (Rules)

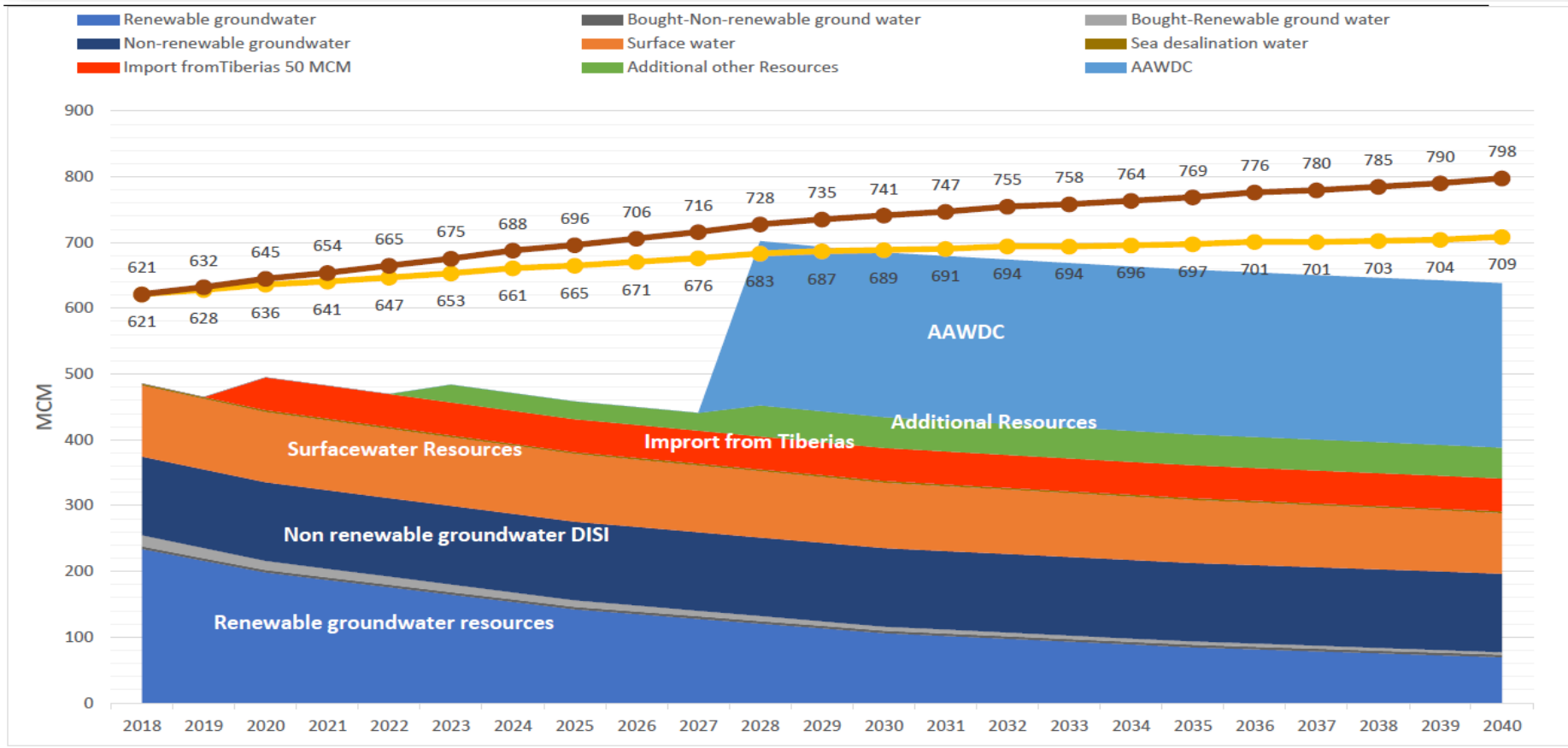
How much water is needed?

How much water is available?

Who should be served first, second, ...?

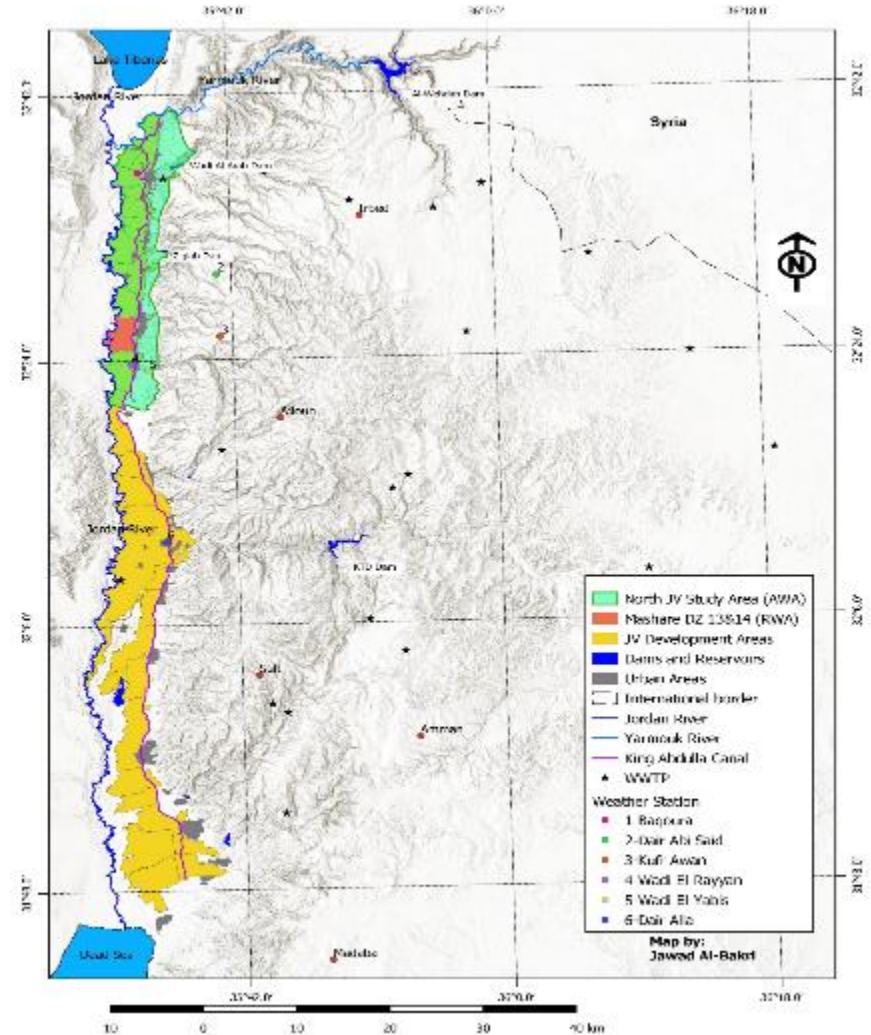
Sectors priorities	Sources supply priorities
1. Domestic	1. Treated Waste Water (Irrigation Only)
2. Energy Sector	2. Surface Water
3. Tourism	3. Treated Surface Water
4. Industry	4. Desalinated Water
5. Agriculture	5. Local Groundwater
	6. Local Groundwater (from deep aquifers)
	7. Remote Groundwater
	8. Remote Groundwater (from deep aquifers)

Forecast of Development of Water Resources Availability, Supply Requirement and Gap 2020-2040

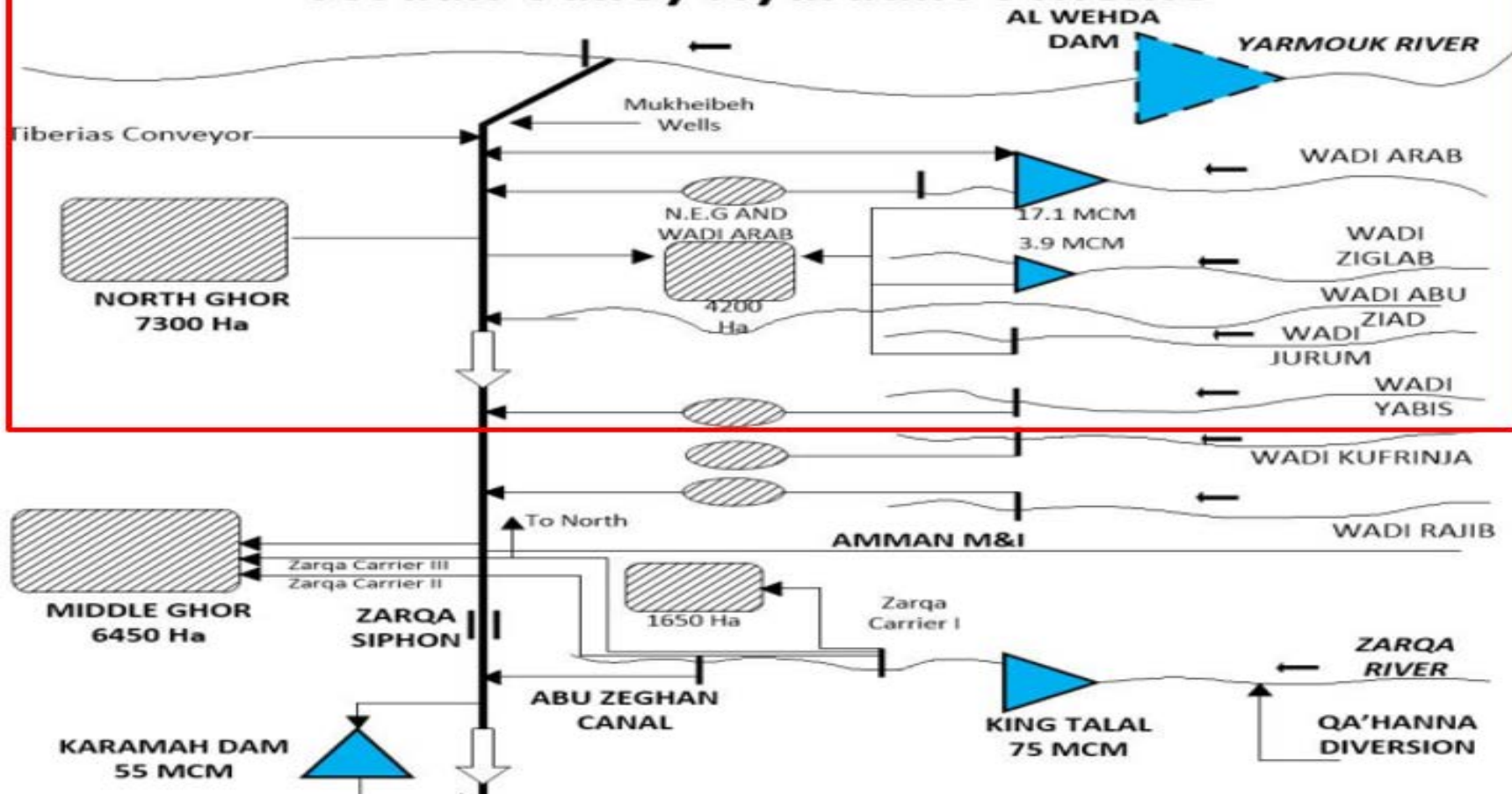




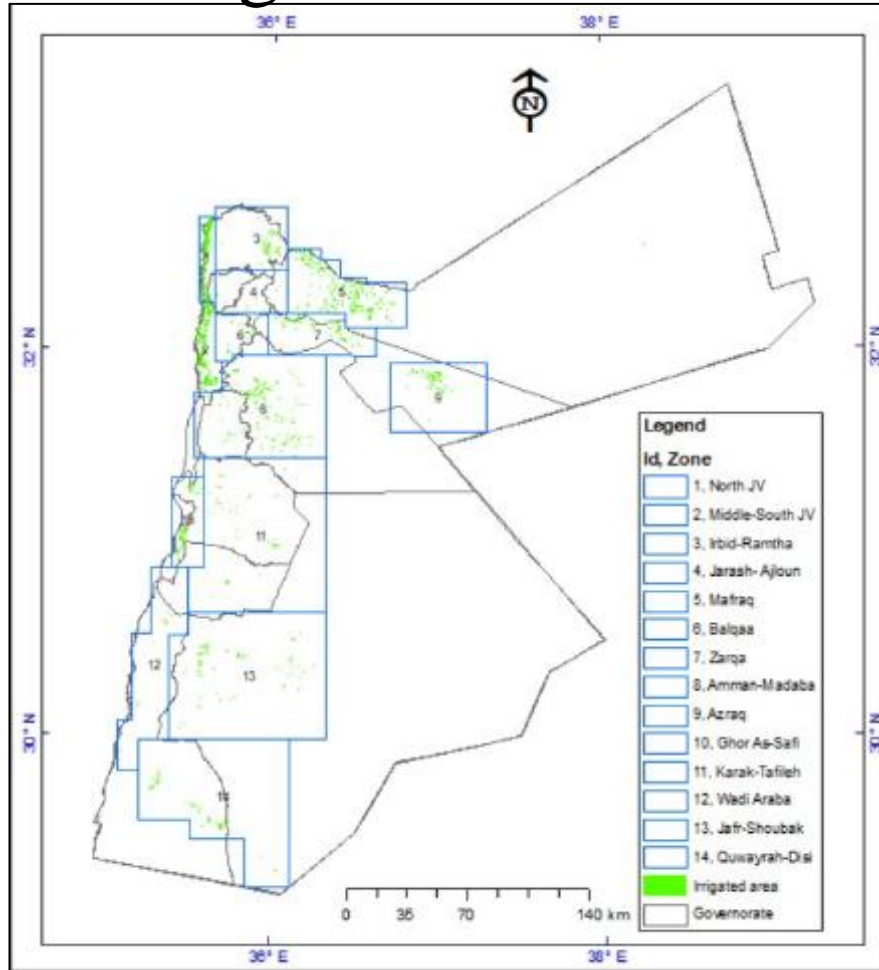
The Pilot Area for adapting the Improved water allocation for agriculture guidelines is proposed to be Jordan Valley



Jordan Valley Hydraulic Scheme



Irrigation zones and water Consumption

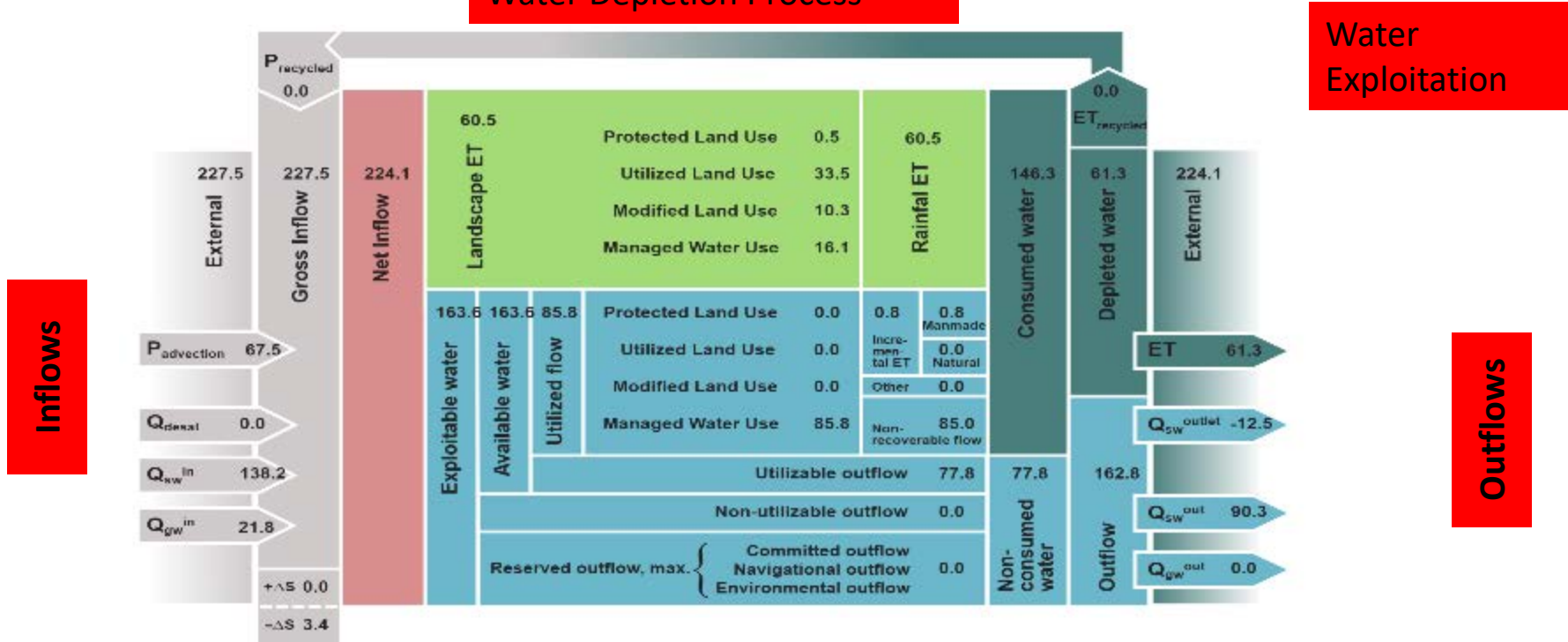


Id	Zone	Irrigated Area (du)	GIWR (MCM)
1	North JV	107,957	93.8
2	Middle-South JV	147,841	157.2
3	Irbid-Ramtha	40,384	32.7
4	Jarash- Ajloun	14,012	14.9
5	Mafraq	185,962	118.2
6	Balqaa	11,848	8.4
7	Zarqa	69,232	34.0
8	Amman-Madaba	128,289	67.0
9	Azraq	53,911	42.4
10	Ghor As-Safi	50,770	32.8
11	Karak-Tafileh	30,815	16.5
12	Wadi Araba	13,818	5.8
13	Jafr-Shoubak	60,111	27.4
14	Quwayrah-Disi	38,000	36.8
Total		952,950	688

Id	Zone	Irrigated Area (du)	Irrigation water sources (MCM)					
			GIWR	Springs	Surface	TWW	GW	Recorded
1	North JV	107,957	93.8	2.1*	63.2 (KAC)	--	15.2	1.2**
2	Middle-South JV	147,841	157.2	1.0	108.0 (KAC)		32.2	16.0
3	Irbid-Ramtha	40,384	32.7	1.1	3.0	7.0	21.6	13.0
4	Jarash- Ajloun	14,012	14.9	3.6	3.8	3.1	4.4	4.0
5	Mafraq	185,962	118.2	1.0	8.0	4.5	104.7	76.0
6	Balqaa	11,848	8.4	1.2	1.2	3.6	2.4	2.4
7	Zarqa	69,232	34.0	0.8	6.0	6.0	21.2	13.8
8	Amman-Madaba	128,289	67.0	7.5	5.6	4.5	49.4	37.9
9	Azraq	53,911	42.4	--	3.0	--	39.4	26.0
10	Ghor As-Safi	50,770	32.8	10.6	20.8	--	1.4	1.4
11	Karak-Tafileh	30,815	16.5	6.3	2.4	1.8	6.0	4.7
12	Wadi Araba	13,818	5.8	--	--	0.2	5.6	5.8
13	Jafr-Shoubak	60,111	27.4	1.2	--	0.5	25.7	20.2
14	Quwayrah-Disi	38,000	36.8	--	--	--	36.8	37.4
	Total	952,950	688				366	260

Advanced Water Accounting in the Northern Jordan Valley

Water Depletion Process



Inflows

Water Exploitation

Outflows

The WA+ resource base sheet provides information on water volumes. Inflows are shown on the left, the middle part provides information on how and through what processes the water is depleted within a domain, the right side provides information on exploitable water and reports on outflows.

Justifications for Selection of the Jordan valley as pilot area

- it can be considered as the food basket for Jordan that produces crops in all seasons
- Higher water Productivity than the Highlands
- Competition between Water uses for irrigation and Water uses for domestic purposes
- Drought Period and Transboundary Water issues
- Different types of Water resources
- Less Groundwater Over abstraction
- Policy and Regulations
- Availability of Information

Thank you For Listening