

Under the High Patronage of His Majesty King Mohammed VI



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

Kingdom of Morocco



Ministry of
Equipment and Water

Challenges in achieving SDG6 targets 6.2 and 6.3 in Lebanon.

Assessing progress and setbacks

Nora Fayssal
Lebanese American University
Dec. 4, 2025



SDG 6.2.1.a “Proportion of population using safely managed sanitation services”

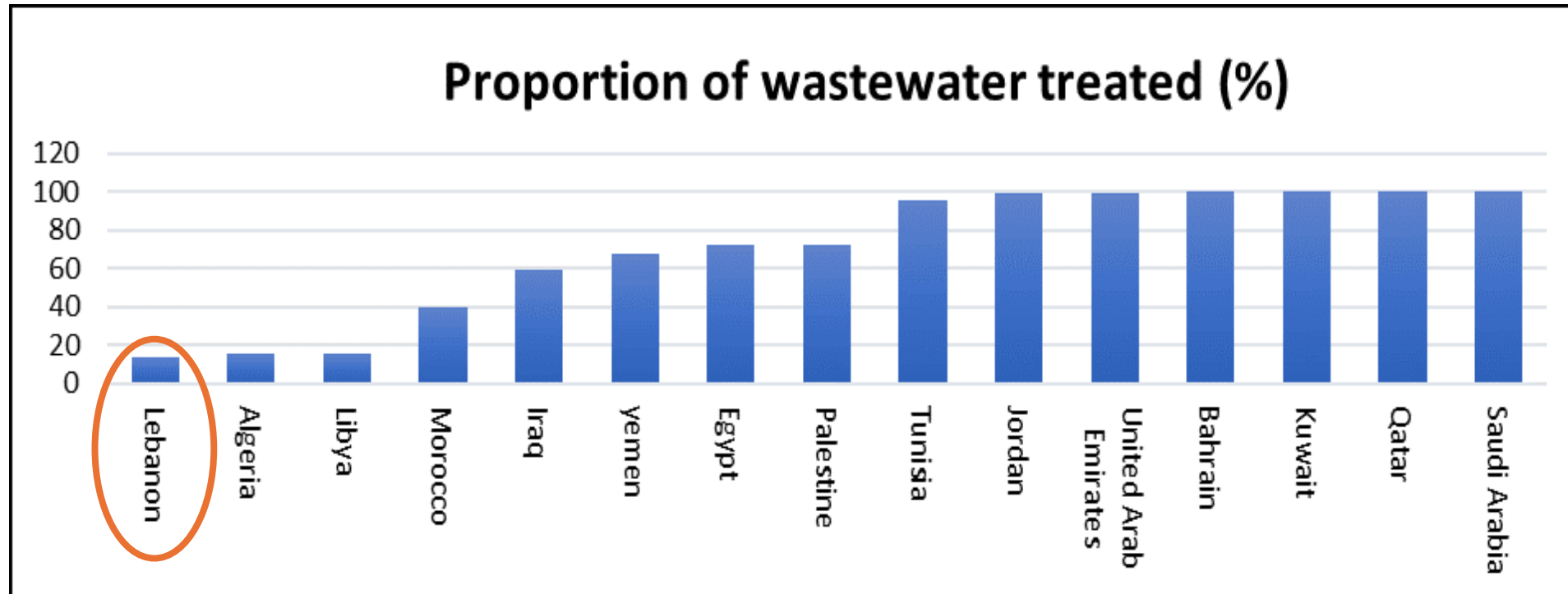


SDG 6.3.1

“Proportion of domestic and industrial wastewater flow safely treated”



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025



Wastewater Generation



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

Estimates provided by the national Wastewater management strategy

WW generation	Population millions	Water consumption (L/c/d)	WW Generation (L/c/d)	WW Generation annually MCM
Lebanese citizens	4.8	150	120	212- 247
Industries	-	-	-	60*
Refugees in Camps	0.9	44.27 – 53.82	39.6 -48	13- 15
Refugees outside camps (non-registered Syrians + Palestinians)	1.2 ***	-	75.6	33.1
Total	6.9	-	-	318 -356



Wastewater Generation



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

WW generation	Population millions	Water consumption (L/c/d)	WW Generation (L/c/d)	WW Generation annually MCM
Lebanese citizens	4.8	150	120	212- 247/ 410
Industries	-	-	-	60
Refugees in Camps	0.9	44.27 – 53.82	39.6 -48	13- 15.8
Refugees	1.2 ***	-	75.6	33.1
Total	6.9	-	-	318 -356

Actual water consumption in Lebanon vary between **225 L/c/ and 400 L/c/d.**

Multi water resources: the grid, private wells (licensed and unlicensed) tankers, and bottled water

Wastewater can reach **240 L/c/d**

Represents the situation in **1994** without any updates

In wet years, wastewater generation can reach up to **516 MCM**



Wastewater collection system (WWCS)

Field study targeted
“Project Area completed”

30%
of built-up zones
remain unconnected
to the WWCS

- Projects didn't account for potential urban expansion
- A 4-years project took 14 years
- Required Two additional re-financings due to wasted funding

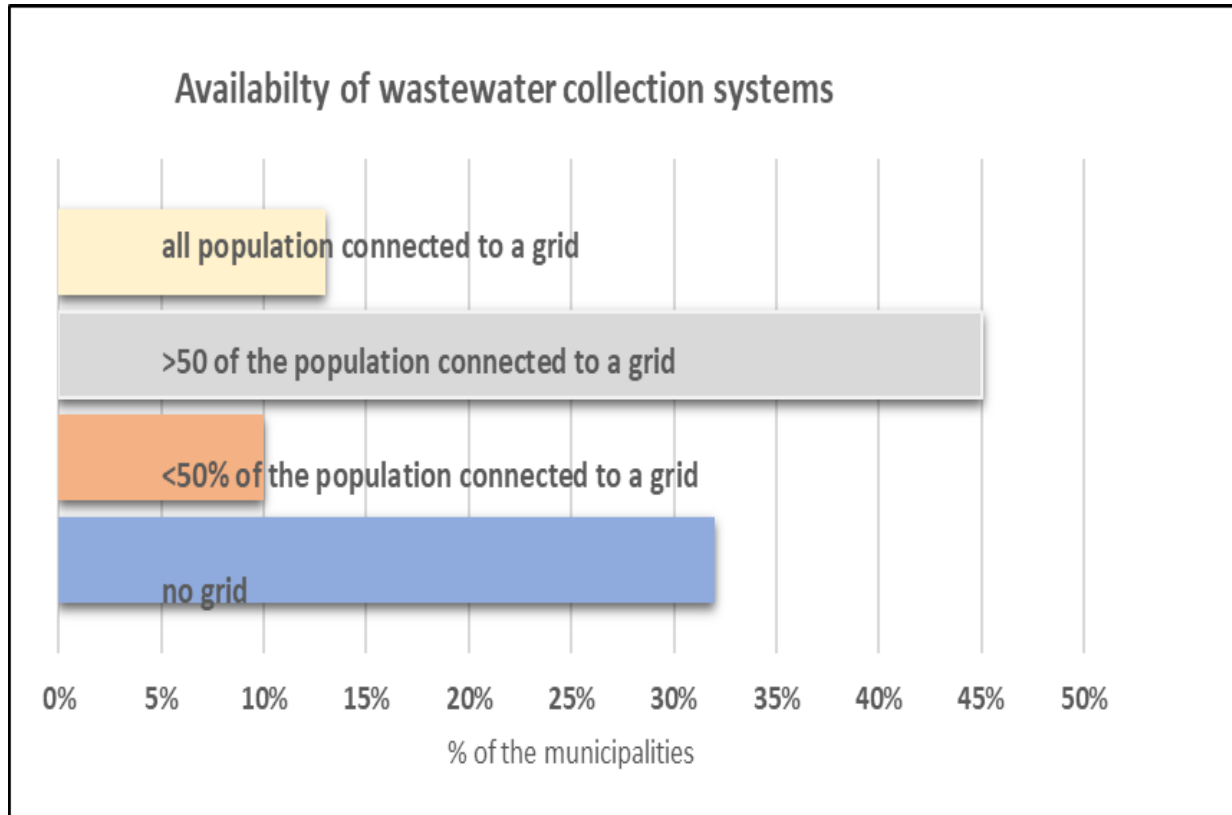


Wastewater collection system (WWCS)



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

Results of a Data collection survey covering 180 municipalities (80% of the Lebanese population)



67% of the population is connected to WWCS

Only in 13% of the Municipalities are served with Complete WWCS

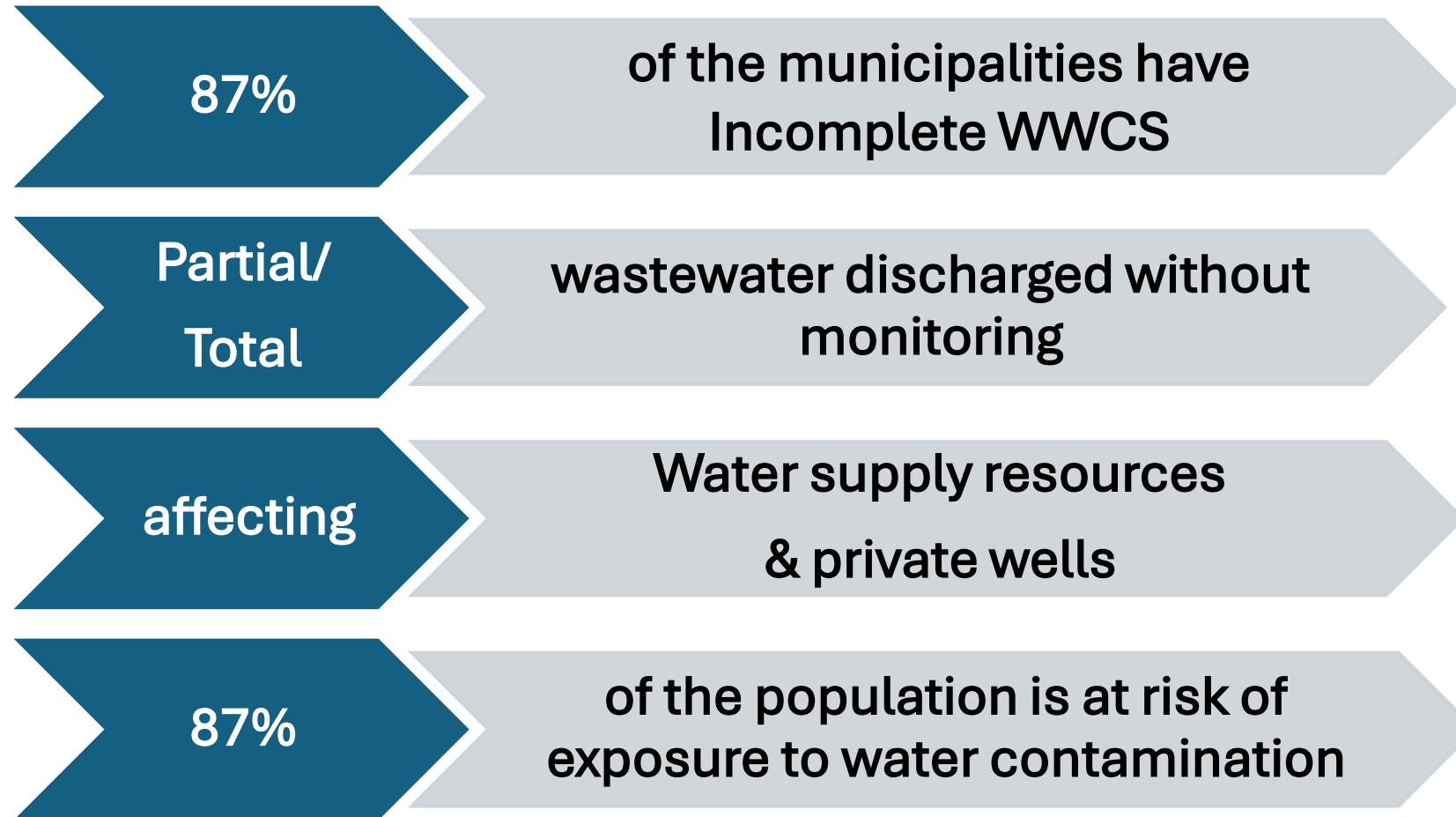
87% of the municipalities are served with Incomplete WWCS



Wastewater collection system (WWCS)



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025



Wastewater treatment



Wastewater treatment plants	Water authorities (2018)				
	BMLWE	BWE	NLWE	SLWE	Total
Operational	18	11	24	25	78
Under construction	2	2	5	5	14
Planned	35	25	98	23	181



Wastewater treatment plants (WWTP)



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

The data collected for this study revealed that **all WWTPs ceased operations** during the economic and energy crisis in 2020 (dependent on diesel for power)

Wastewater treatment plants	2018	2020	2023	2024
Wastewater treated of total wastewater discharged	14%	-	4%	10%
Operational	78	all stopped	21	46
Energy	Diesel	Energy/ economic crisis	PV panels (NGOs)	PV/ diesel (NGOs, municipalities)



Wastewater management in Lebanon



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

Irresponsible

- Wastewater generation

Incomplete

- Wastewater collection infrastructure

Inadequate

- Wastewater treatment



Governance gaps in the wastewater sector in Lebanon



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)

Lack of institutional coordination and deficit in long term vision

Delays, inefficiencies, and poor execution of WW infrastructure

Lack of regulations

Mispriced water and uncontrolled multiple water sources leading to high WW generation

Lack of advanced technology

- Lack of advanced water metering tech.
- Lack of energy self-sufficient WWTPs

Lack of accountability

Dissipated funds



Under the High Patronage of His Majesty King Mohammed VI



XIX WORLD WATER CONGRESS
International Water Resources Association (IWRA)
Marrakech, Morocco | 1-5 December 2025

Thank you!

nora.fayssal@lau.edu.lb

www.linkedin.com/in/nora-fayssal-phd-water

www.worldwatercongress.com

