Ministry of Water and Irrigation
Water Authority of Jordan
Programme Management Directorate (PMD)

PMD
PROJECT MANAGEMENT DIRECTORATE

6

JORDAN WATER UTILITIES MONITORING REPORT 2024

Bird Habitat at Aqaba Wastewater Treatment Plant

Jordan Water Utilities Monitoring Report 2024

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ASEZA	Aqaba Special Economic Zone Authority
AW	Aqaba Water Company
BGR	Federal Institute for Geosciences and Natural Resources
BMZ	German Federal Ministry for Economic Cooperation and Development
BoD	Boards of Directors
BS	Booster stations
CEO	Chief Executive Officer
COD	Chemical Oxygen Demand
CS	Customer service
ERSAR	Entidade Reguladora dos Serviços de Águas e Resíduos
GIZ	German International Cooperation
GM	General Manager
GWOPA	Global Water Operations' Partnerships Alliance
Hr	Hour
HR	Human resources
IT	Information Technology
JOD	Jordanian Dinar
KfW	Kreditanstalt fur Wiederaufbau Banking Group
km	Kilometre
KPIs	Key Performance Indicators
KWh	Kilowatt hours
Lcd	Litre per capita per day
LLC	Limited Liability Company
m3	Cubic metre
MCM	Million cubic metres
MCs	Management contracts
Mio	Million
MWI	Megawatt
MWI	Ministry of Water and Irrigation
NRW	Non-revenue water
NSPI	National Strategy Performance Indicators
O&M	Operation and maintenance
PIs	Performance Indicators
PMD	Programme Management Directorate
PS	Pump stations
ROUs	Regional Operating Units
SCADA	Supervisory Control and Data Acquisition
SWA	Sanitation and Water for All
UKAS	United Kingdom Accreditation Service
UPMU	Utilities Performance Monitoring Unit
USG	United States Government
W&WWP	Water and wastewater plants
WAJ	Water Authority of Jordan
WHO	World Health Organization
WSG	Water Sector Governance
WWTP	Wastewater treatment plant
YWC	Yarmouk Water Company

Opening Speech

It is my honor to present the 2024 Annual Performance Monitoring Report, prepared by Project Management Directorate (PMD). This report serves as a pivotal tool for evaluating the performance of Jordan's water utilities, supporting improvements in service quality, operational efficiency, and long-term sustainability. The water sector in Jordan continues to navigate a complex and evolving environment, characterized by rising water demand, limited resources, and mounting environmental pressures. These challenges, however, also create unique opportunities for utilities to innovate, optimize performance, and deliver sustainable water services that meet the needs of all citizens.

In this context, monitoring and evaluating water utilities' performance plays a central role in strengthening institutional performance across water sector. Through data-driven analysis, this function support transparency and accountability, and contributes to improving the efficiency and effectiveness of water service delivery.

This report highlights key achievements and best practices that contribute to the efficient management of Jordan's limited water resources. It also presents key performance insights that support sector stakeholders in strengthening institutional capacity and enhancing the sustainability of water service delivery.

We extend our sincere appreciation to GIZ for their continuous technical and financial support, which has been instrumental in strengthening institutional capacity to monitor performance and improve operational practices within water utilities. Their partnership plays a vital role in enabling innovation, promoting resilience, and advancing the overall performance of Jordan's water sector.

Through this report, we aim to inspire continuous improvement, strengthen institutional and operational performance, and advance Jordan's water sector toward a resilient and sustainable future, ensuring reliable, high-quality water services for all citizens today and for generations to come.

Minister of Water and Irrigation
Eng. Raed Abu Soud

Ministry of Water and Irrigation

1 Performance Monitoring Functions within PMD

Vision

Enhancing the capabilities of Jordanian Water utilities to provide the best services to customers in an effective and efficient manner

Mission

Monitoring the Jordanian Water Utilities’ performance against an agreed set of indicators, setting performance targets to support evaluation and benchmarking, while taking into consideration the need to enhance the Utilities’ financial sustainability

1.1 Performance Monitoring Institutional Framework

The Utilities Performance Monitoring Unit (UPMU) was established in accordance with the Water Authority of Jordan (WAJ)'s Law No. 18 and its amendments in Article (10) to enhance the principles of transparency and good governance in the water sector, and to improve the legal and contractual relationship between the Ministry of Water and Irrigation (MWI), WAJ, and the water utilities.

On 8 February 2026, following the institutional restructuring within the Water Authority of Jordan (WAJ), the Performance Monitoring function, previously carried out by the Utilities Performance Monitoring Unit (UPMU), was integrated into the Programme Management Directorate (PMD), as originally foreseen in the Assignment Agreement, ensuring the continuity of performance monitoring within the water sector.

Within this framework, the performance monitoring function focuses on the following activities:

1- Setting and developing Performance Indicators (PIs), baselines and mechanisms for calculating and using them as a basis for comparing and evaluating the utilities' performance.

2- Monitoring the utilities' performance and issuing performance reports.

3- Developing and reviewing the necessary documentation for establishing the utilities and developing their tasks/duties (i.e., Development and Delegation Agreements (Assignment Agreements)).

4- Issuing the basis-in and general evidence which inform the frameworks for developing internal working guidelines and procedures, such as business planning and customer service guidelines, as regulatory standards.

5- Reviewing, approving, and accrediting company business plans and setting targets, in cooperation with the utilities and in accordance with water policies.

1.2 Stakeholders:

Ministry of Water and Irrigation (MWI)

Miyahuna (Jordan Water Company)

Aqaba Water Company (AW)

Yarmouk Water Company (YWC)

German International Cooperation (GIZ)

Kreditanstalt fur Wiederaufbau Banking Group (KfW)

German Federal Ministry for Economic Cooperation and Development (BMZ)

World Health Organization (WHO) - RegNET

Global Water Operations' Partnerships Alliance (GWOPA)

Sanitation and Water for All (SWA)

Federal Institute for Geosciences and Natural Resources (BGR)

United States Government

1.3 Report Methodology

This sixth annual report analyzes 2024 data to evaluate the performance of Jordan's water utilities, highlighting achievements and challenges. Its main goal is to enhance accountability, transparency, and continuous improvement.

The report begins with an overview of the performance monitoring function, followed by an overview of Jordanian water utilities, including their profiles and service areas. The chapter of Water Utilities' Performance in 2024 provides key insights for decision-makers and stakeholders. It also helps utilities to assess their performance using defined indicators.

By reviewing the results over the five-year period from 2020 to 2024, the analysis aims to monitor progress toward achieving the utilities strategic objectives, identify performance gaps and areas that require corrective actions, and detect trends and shifts related to efficiency, service quality, and sustainability.

2 Overview of the Jordanian Water Utilities

Chapter 2: Overview of Jordan's water utilities

2.1 Map of the utilities' service areas

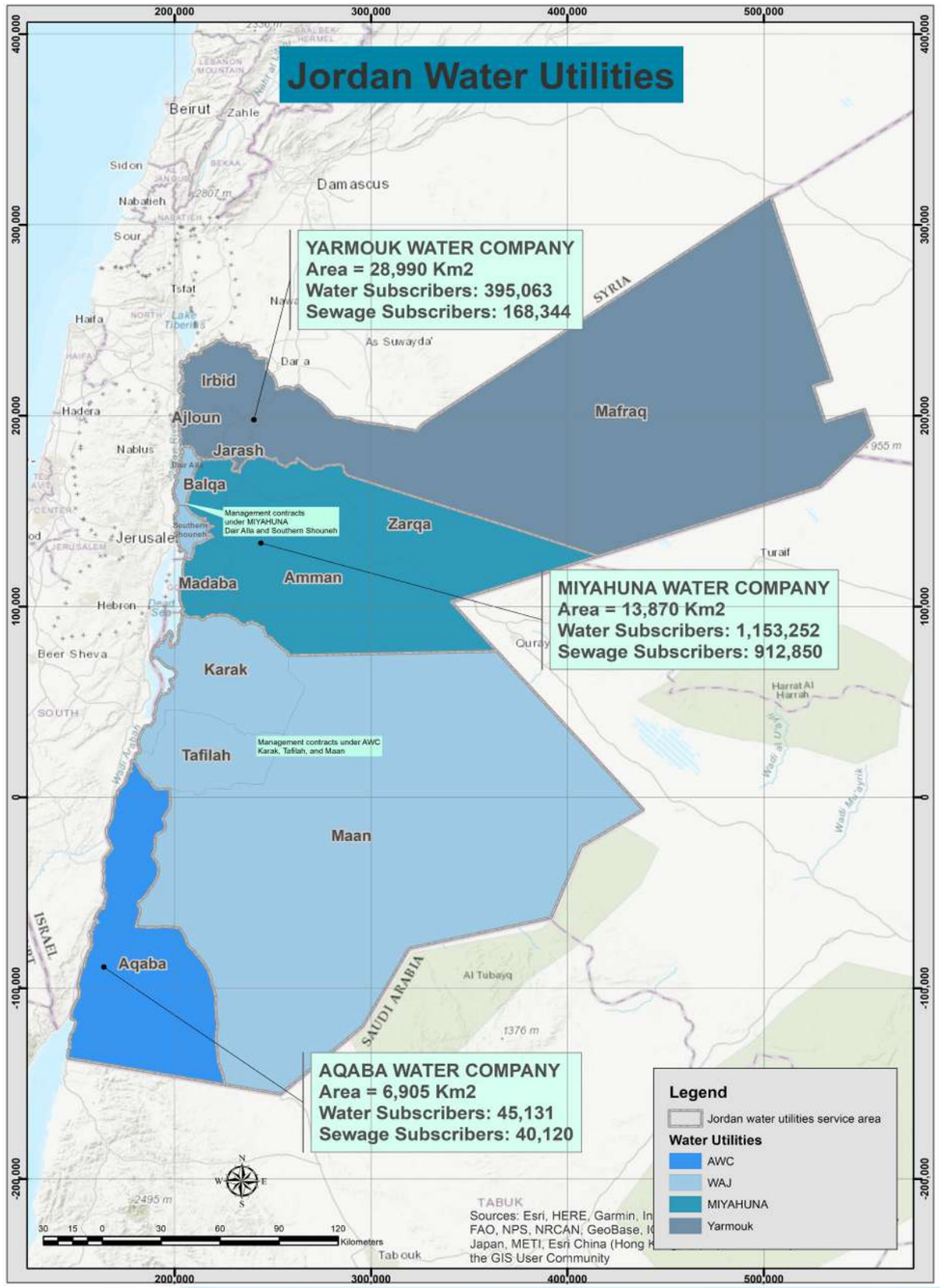


Figure 1: Map of the utilities' service areas - 2024

2.2 Utility: Jordan Water Company Miyahuna

Jordan Water Company - Miyahuna LLC, is responsible for providing water and sanitation services to the capital governorate. In 2007, Miyahuna signed a Delegation and Development Agreement with the Water Authority of Jordan under which Miyahuna has the authority to manage and operate water and wastewater facilities for a period of 99 years, in addition to operating and maintaining water networks, operating and maintaining sewage collection networks, and operating several small sewage treatment plants. In 2014, an agreement was signed with WAJ to manage and operate water and sanitation for the Madaba governorate, and in early 2018 another agreement was signed to join the Madaba administration to Miyahuna.

The Ministry of Water and Irrigation decided, after the approval of the Council of Ministers, to include Zarqa Governorate as part of Miyahuna in 2020. In mid 2020, the Mahes and Fuheis directorates in Balqa Governorate were included under Miyahuna, and Balqa Governorate become part of Miyahuna in 2023 – excluding South Shouneh and Deir Alla.

The company strives to achieve the highest levels of quality in the services provided and the speed of response to complaints, in addition to reducing water loss. The central laboratories implement a system of operational programs and intensive monitoring of water quality at all stages, starting from the sources to the distribution network to ensure their compliance with specifications and standards according to Jordanian standards as well as international accreditation from the United Kingdom Accreditation Service (UKAS).

Vision, mission and values

Vision
Committed to providing customers with excellence and effectiveness in water and wastewater services.

Mission
To enhance quality of life by providing all customers with sustainable, efficient and reliable water and to conserve the environment by adopting best techniques for wastewater treatment.

Values
Quality, a spirit of teamwork, loyalty, innovation, creation, transparency and reliability.

Miyahuna in numbers – 2024

Area[1] [km²]
13,870

Wastewater coverage [%]
88

Population
7,276,870

Length of sewage network [km]
6,343

Water subscribers
1,153,252

Water distributed [MCM]
351.622

Average number of people served per subscriber
6.5

Authorized consumption [MCM]
191.140

Sewage subscribers
912,850

Number of bills annually
5,376,268

Employees
2,844

Amount billed in period[2] [Mio JOD]
146.044

Estimated water service coverage [%]
98

Number of wells
215

Length of water network [km]
18,265

Number of reservoirs
127

[1]Miyahuna area includes (Amman, Zarqa, Madaba and Balqa, excluding South Shouneh and Deir Alla).

[2]Amount billed in period includes water and wastewater as well as other billing.

2.3 Utility: Aqaba Water Company (AW)

Aqaba Water Company, which was established in 2004, is considered a legal offshoot of the Water Authority of Jordan. The WAJ owns 85% of AW, while Aqaba Development Company (ADC) / Aqaba Special Economic Zone Authority (ASEZA) owns 15% of it. Thus, AW in addition to providing the services it was established for, is also responsible for contributing to the comprehensive development of Aqaba by creating a healthy investment environment through the provision of distinguished services at high standards.

AW's main objective is to ensure a sustainable and reliable water supply for residential, commercial and industrial customers in Aqaba. It manages the water infrastructure, including wastewater treatment plants, water distribution networks, and customer service.

The WAJ awarded AW a four-year performance-based management contract to manage the operation and maintenance of three governorates (Karak, Tafileh, Ma'an) with the objective of enhancing their performance.

Vision, mission and values

Vision
To be a role model in regional management, operation and investment of water and wastewater services.

Mission
To provide excellence in water and wastewater services: offering efficiency and effectiveness in managing resources and operations; using the latest technologies in the field of water and wastewater; contributing to raising the standards of environmental and health quality; contributing to providing a fertile environment for investment; and transferring knowledge and expertise in a way that contributes to the prosperity of society and secures its requirements and guarantees continuity.

Values
Social responsibility, inclusion and empowerment, integrity, transparency, creativity, innovation, building partnerships, performance quality and accountability.

AW in numbers - 2024

Area [km²]
6,905

Wastewater coverage [%]
91

Population
245,200

Length of sewage network [km]
343

Water subscribers
45,131

Water distributed [MCM]
30.404

Average number of people served per subscriber
5.7

Authorized consumption [MCM]
18.471

Sewage subscribers
40,120

Number of bills annually
533,700

Employees
740

Amount billed in period [Mio JOD]
23.598

Estimated water service coverage [%]
100

Number of wells
46

Length of water network [km]
1,256

Number of reservoirs
47

2.4 Utility: Yarmouk Water Company (YWC)

Yarmouk Water Company LLC is owned by the Water Authority of Jordan. It was established in 2011, working on operation and maintenance of drinking water production and distribution systems. These depend mainly on groundwater, in addition to a set of different springs and water resources, as well as the collection and treatment of wastewater in the northern governorates of Jordan (Irbid, Jerash, Ajloun and Mafraq).

The YWC has been challenged by rapid growth of the served population due to the reception area seeing the influx of nearly one million Syrian refugees over the past few years, and the increase in the number of water and wastewater subscribers, in addition to a decline in productivity of internal water resources and the financial crisis.

Vision, mission and values

Vision
To provide optimal services in the water and wastewater sector, maintaining high efficiency in order to enhance the level of service offered to customers.

Mission
To achieve the highest degree of efficiency, productivity and transparency in the management of ethical and sustainable water and wastewater services.

Values
Team work, excellent customer service, quality, efficiency, social awareness.

YWC in numbers – 2024

Area [km²]
28,990

Population
3,355,600

Water subscribers
395,063

Average number of people served per subscriber
8.8

Sewage subscribers
168,344

Employees
1,331

Estimated water service coverage [%]
98

Length of water network [km]
12,602

Wastewater coverage [%][3]
46.5

Length of sewage network [km]
1,914

Water distributed [MCM]
116.549

Authorized consumption [MCM]
61.432

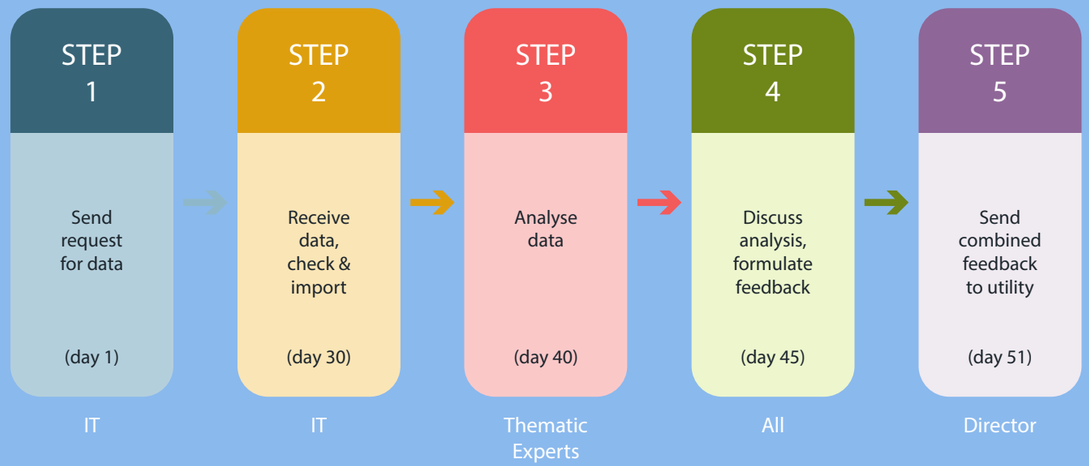
Number of bills annually
4,329,776

Amount billed in period [Mio JOD]
46.593

Number of wells
214

Number of reservoirs
162

[3] *The percentage of wastewater coverage in 2024 is lower than in 2023 due to a change in the calculation methodology.*



Data collection steps

3 WATER UTILITIES' PERFORMANCE IN 2024

Chapter 3: Water Utilities' Performance in 2024

This chapter provides a comprehensive assessment of the performance of Jordan's three water utilities—Miyahuna, Aqaba Water Company (AW), and Yarmouk Water Company (YWC)—for the year 2024. The evaluation focuses on how effectively and efficiently these utilities managed their resources and services in key areas.

The analysis was conducted using a structured framework of 43 indicators. These comprise 10 Key Performance Indicators (KPIs), 24 lower-level Performance Indicators (PIs), and 9 National Strategy Indicators (NSPIs), all of which are grouped into five key clusters.

The following color code is used to assess the quality of the indicators based on the validity and reliability of the variables used in their calculation:

- The credibility of indicator is good
- The credibility of indicator is acceptable
- The credibility of indicator is not good

3.1 Performance Indicators

3.1.1 Operational Performance

The first group of indicators, which looks at operational performance, is divided into five clusters:

a. Water Quality Assurance: This cluster includes 4 indicators that provide a comprehensive overview of the drinking water quality and the effluent from the sewage treatment plants of the Water Utilities, ensuring compliance with international and Jordanian standards.

b. Energy Efficiency: This cluster includes 3 indicators concerning energy savings, the use of renewable energy, and monitoring power consumption, all of which are crucial for improving energy efficiency and reducing costs.

c. Response Time & Repair Efficiency: This cluster includes 4 indicators focusing on aspects that ensure an efficient, effective, and sustainable system in water utilities. These indicators directly impact the ability to address and resolve issues related to water supply and pump efficiency.

d. Bulk Metering: This cluster includes 4 indicators focusing on the utilities' performance regarding meters at bulk resources. These measure flow rates in wells, reservoirs, and import-export points to accurately measure the volume of system input, providing a better understanding of the percentage of Non-Revenue Water (NRW).

e. Water Losses: This cluster includes 6 indicators showcasing utilities' performance regarding water losses and resource efficiency. This provides a crucial understanding of operational efficiency, identifies weaknesses in the water supply system, and guides strategies to enhance sustainability and resource management.

Cluster no.	Section	PI Name	PI Level	Unit	No. of Variables
1.	Quality Assurance & Control	Microbiological water quality compliance	KPI	%	2
		Physical-chemical water quality compliance	PI	%	2
		Effluent quality compliance	NSPI	%	2
		Water quality tests performed	PI	% of req. tests	2
2.	Energy Efficiency	Renewable energy utilization	NSPI	%	5
		Average unit energy consumption	PI	KWh/m³	4
		Power consumption monitoring	NSPI	%	2
3.	Response Time & Repair Efficiency	Speed of repair of failures	PI	% of bursts	4
		Preventive maintenance of pumps	NSPI	%	2
		Corrective maintenance of pumps	NSPI	%	2
		Sizing of pumps	NSPI	%	2
4.	Bulk metering	Operational well and reservoir meters	NSPI	%	2
		Calibration of well and reservoir meters	NSPI	%	2
		Metering of import and export points	NSPI	%	4
		Wells with dynamic level monitored	PI	%	2
5.	Water Losses	Non-Revenue Water[4]	KPI	% of system input	2
		Water loss per subscriber	PI	m³/subscriber/day	4
		Water losses per mains length	PI	m³/km/day	3
		Water losses per connection per day	PI	m³/connection/day	4
		Inefficiency of use of water resources	PI	%	5
		Water resources use per capita/ day	PI	lcd	4

Table 1: Operational Performance Indicators

[4] *The NRW% presentes through Annex II: Non-Revenue Water Central Unit (CNRW) report-Reporting Period: 3rd assessment year*

3.1.2 Customer Service Performance

The second group of indicators, which looks at customer service performance, is divided into three clusters:

a.Supply Mode & Efficiency. This cluster includes 3 indicators which focus on assessing and analyzing various indicators related to supply mode and efficiency. It gives a foundation for assessing service quality and ensuring equitable water distribution.

b.Commercial & Customer Processes. This cluster includes 4 indicators which are measuring the efficiency and effectiveness of utilities in managing customer-related operations and commercial activities. This cluster is important because it reflects how well utilities manage customer services, billing accuracy, and system reliability.

c.Customer Relationship & satisfaction. This cluster includes 2 indicators which focus on evaluating how effectively utilities respond to customer needs and maintain service quality from the user's perspective. This cluster is important because it reflects the level of customer satisfaction and confidence with the utility's performance.

Cluster no.	Section	PI Name	PI Level	Unit	No. of Variables
1.	Supply Mode & Efficiency	Continuity of supply	KPI	% of time	1
		Subscribers receiving continuous supply	PI	%	2
		Water consumption per capita (residential subscribers)	KPI	Liters/capita/day (lcd)	2
2.	Commercial & Customer Processes	New connection efficiency	KPI	% of requests	2
		Percentage of inactive subscribers	PI	%	2
		Subscriber meter replacement ratio	PI	%	2
		Meter reading ratio	PI	%	2
3.	Customer Relationship & satisfaction	"No Water" complaints	KPI	No. of complaints/1000 active subscribers	2
		Billing complaints	PI	No. of complaints/1000 active subscribers	2

Table 2: Customer Service Performance Indicators

3.1.3 Financial performance

The third group of indicators, which looks at financial performance, is divided into three clusters:

a.Financial Efficiency (Liquidity): This cluster includes 5 indicators which measure the ability of utilities to cover issued billing and operating expenses from collections. It helps assess financial sustainability, identify cash flow challenges, and ensure that utilities maintain sufficient liquidity to support continuous service delivery and system maintenance.

b.Financial Sustainability (Profitability): This cluster includes 2 indicators which measure utilities' ability to cover operating expenses from revenue generated. It helps determine whether the utility's revenue streams are sufficient to support ongoing operations and ensure long-term financial stability.

c.Unit Profitability- JOD/m^3: This cluster includes 2 indicators which measure the balance between the revenue earned and the cost incurred per cubic meter, providing a clear view of operational profitability. It helps utilities assess whether water and wastewater prices cover service costs, identify areas of cost inefficiency, and support better financial planning for sustainable operations.

Cluster no.	Section	PI Name	PI Level	Unit	No. of Variables
1.	Financial Efficiency (Liquidity)	Collection Efficiency (Customers)	KPI	%	4
		Collection ratio	PI	%	2
		Delay in accounts receivable	PI	months	4
		Operating cost coverage ratio (collection)	PI	%	2
2.	Financial Sustainability (Profitability)	Operating cost coverage ratio (revenues)	KPI	%	2
		Electricity costs as percentage of total O&M costs ctive subscribers	PI	%	2
3.	Unit Profitability- JOD/m^3	Average water and wastewater revenue for billed consumption	PI	JOD/m^3	11
		Unit operating cost water and wastewater services	PI	JOD/m^3	2

Table 3: Financial Performance Indicators

3.1.4 Human Resources performance

The last group analyzes employees' efficiency, capability, and capacity-building measures.

a. Staff Utilization: This cluster includes 2 indicators which measure staff productivity, helping utilities determine whether staffing levels are appropriate relative to the number of customers served. Monitoring these indicators supports better human resource planning, cost control, and operational efficiency.

b. Staff Efficiency: It includes 2 indicators that measure staff efficiency within the utilities, support continuous professional development, and help identify gaps in skills or knowledge. Monitoring these indicators enables utilities to enhance staff performance and improve service delivery.

Cluster no.	Section	PI Name	PI Level	Unit	No. of Variables
1.	Staff Utilization	Employees per 1000 subscribers Water & Wastewater (W&WW)	KPI	No/1000 Subscribers	3
		Employees per 1000 subscribers Water(W)	PI	No/1000 Subscribers	2
2.	Staff Efficiency	Training per employee	KPI	Hr per employee	2
		Percentage of staff trained	PI	%	2

Table 4: Human Resources Performance Indicators

Murals on the main reservoirs and towers owned by Miyahuna

3.2 Performance of water utilities in 2024

3.2.1 Operational performance
3.2.1.1 Quality assurance & control

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Microbiological water quality compliance	%	Miyahuna	99.7	99.7	99.9	100	99.8	●
		AW	100	100	100	100	100	●
		YWC	100	100	100	100	100	●
Physical-chemical water quality compliance	%	Miyahuna	99.9	99.9	99.9	99.9	99.9	●
		AW	100	100	100	100	108	●
		YWC	100	100	100	99.6	99.9	●
Effluent quality compliance	%	Miyahuna	99	99	99	97	99	●
		AW	100	100	100	100	100	●
		YWC	88	87	89	85	76	●
Water quality test performed	% of	Miyahuna	100	100	100	100	100	●
		AW	100	100	275	187	194	●
		YWC	100	100	100	100	104	●

Table 5: Quality assurance & control 2020-2024

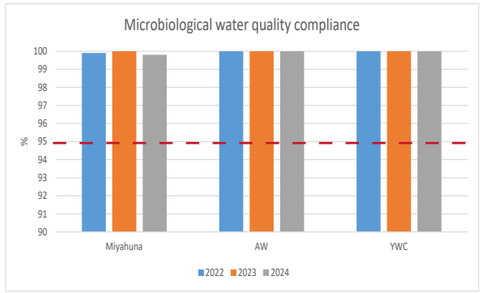


Figure 2: Microbiological water quality compliance

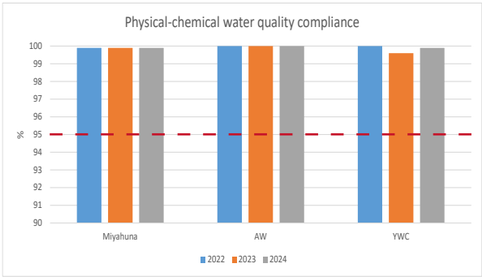


Figure 3: Physical-chemical water quality compliance

The microbiological and Physical-chemical water quality compliance of drinking water across the three utilities demonstrates consistent excellence, with full compliance to both Jordanian national standards and World Health Organization (WHO) guidelines. This performance highlights the utilities' strong commitment to safeguarding public health and ensuring customer confidence with water services.

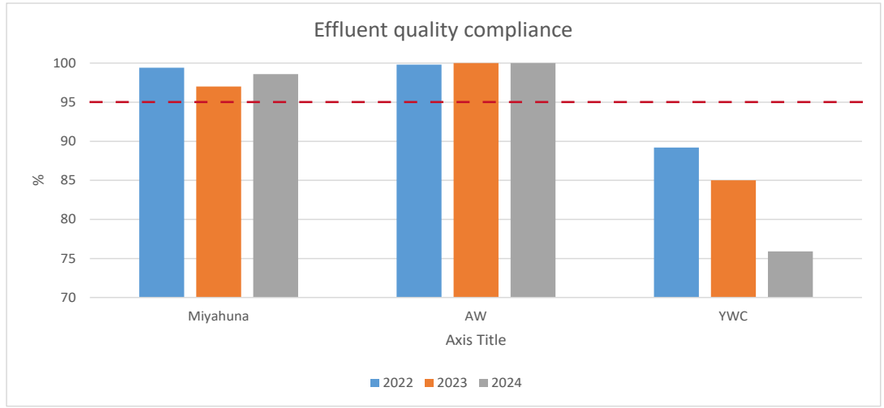


Figure 4: Effluent quality compliance

The three utilities demonstrated varying levels of effluent quality compliance. Miyahuna and AW maintained strong performance with high compliance rates. In contrast, Yarmouk Water Company (YWC) continued to face significant challenges, with compliance levels showing a clear downward trend over the period. This places YWC well below the Jordanian minimum threshold of 95% and highlights operational inefficiencies and systemic issues in its wastewater treatment plants. Ongoing upgrades by the Water Authority of Jordan (WAJ), supported by donor-funded projects, are currently under implementation and are expected to become operational in the coming years, which will positively impact effluent quality and help YWC improve its compliance performance.

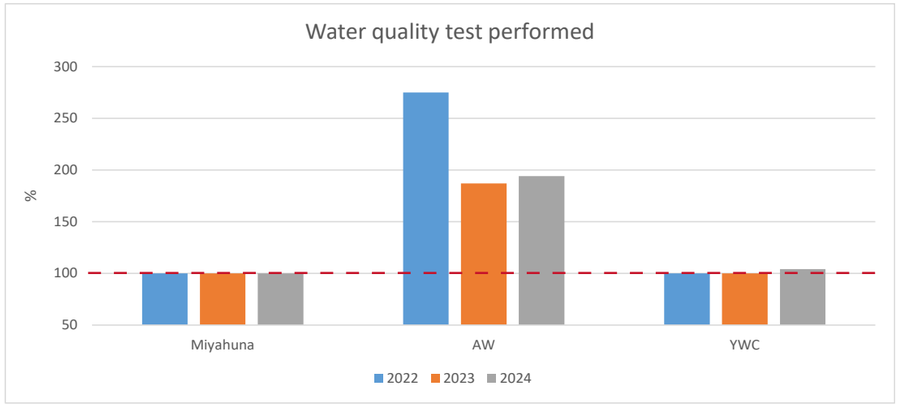


Figure 5: Water quality test performed

The water quality test is 100% in Miyahuna, while in AW it is 194%, as AW conducted more water quality tests than the required number initially during the cholera pandemic in the neighboring countries, as per the instruction from the Ministry of Health.

YWC exceeded the 100% target, reaching 104%, by conducting more water quality tests than required. This approach was taken to ensure the safety of water resources and to prevent any deviation in quality, particularly in wells, through repeated testing.

3.2.1.2 Energy Efficiency

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/ note
Renewable energy utilization	%	Miyahuna	0	0	0	1.1	5.8	●
		AW	0	0	5.5	0.7	5.1	●
		YWC	0	0	0	1.1	6.2	●
Average unit energy consumption	KWh/m³	Miyahuna	3.0	2.9	2.7	2.6	2.5	●
		AW	1.0	1.0	1.4	1.4	1.4	●
		YWC	3.2	3.1	3.0	3.1	3.3	●
Power consumption monitoring	%	Miyahuna	43	45	46	60	61	●
		AW	100	98	100	100	100	●
		YWC	95	20	25	56	56	●

Table 6: Energy Efficiency 2020-2024

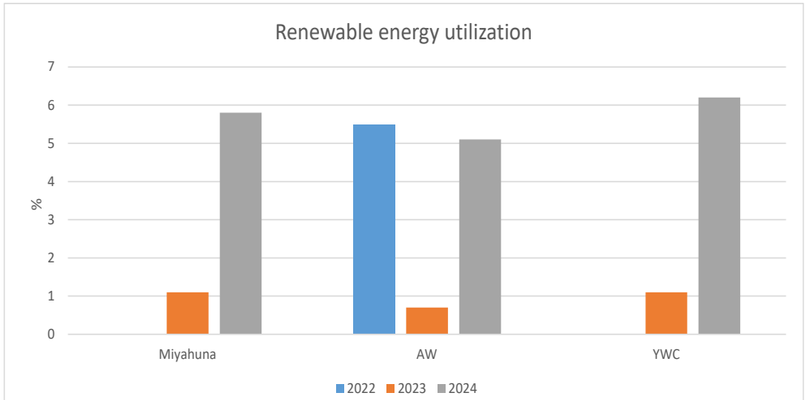


Figure 6: Renewable energy utilization

Miyahuna and YWC benefited throughout 2024 from the operation of the 24 MW photovoltaic solar energy project in the Disi area, launched in the fourth quarter of 2023. Miyahuna receives 70% and YWC 30% of the project's total energy output, which positively contributed to their energy performance indicators.

AW's performance improved due to the utilization of photovoltaic energy generated by North Aqaba WWTP. However, the biogas system is still pending licensing and under discussion with the relevant authorities, with expected operation in 2025.

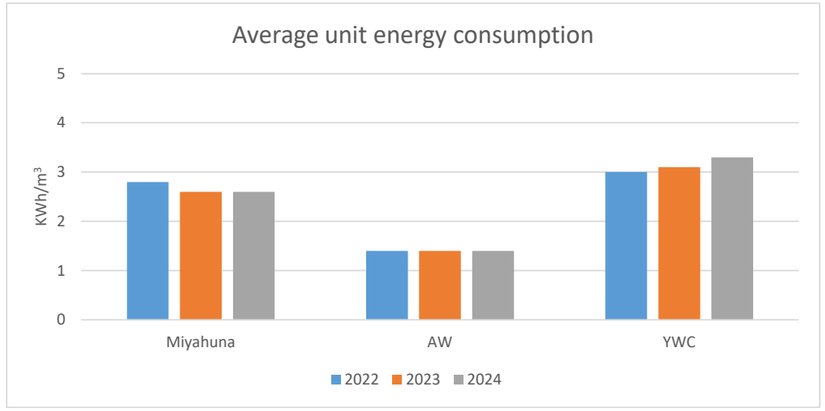


Figure 7: Average unit energy consumption

Miyahuna and AW maintained their performance for this indicator, while YWC shows a slight increase in this indicator. Despite the integration of renewable energy components across all utilities, the expected reduction in energy consumption per unit was not clearly observed. The main factor is the substantial increase in water supply volume in 2024, which raised electricity demand for pumping, particularly affecting YWC.

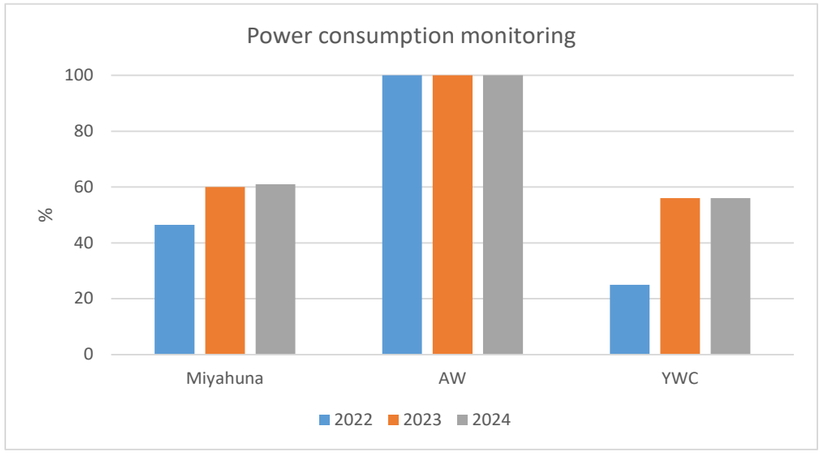


Figure 8: Power consumption monitoring

For AW, the ratio reached 100% as all pumps are connected to and monitored through the main Supervisory Control and Data Acquisition (SCADA) system.

Miyahuna and YWC demonstrated similar performance; however, it is recommends strengthening the management and maintenance of SCADA systems due to their critical role in providing a comprehensive view of the entire network, enhancing data integration, and enabling more efficient control and decision-making at higher levels within the utilities.

3.2.1.3 Response time & repair efficiency

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/ note
Speed of repair of failures	% of bursts	Miyahuna	96	98	98	98	87	●
		AW	100	100	100	100	100	●
		YWC	95	95	94	94	94	●
Preventive maintenance of pumps	%	Miyahuna	97	98	88	100	22	●
		AW	100	32	91	100	97	●
		YWC	32	38	50	45	57	●
Corrective maintenance of pumps	%	Miyahuna		41	48	56	54	●
		AW	51	18	69	54	35	●
		YWC	80	96	73	78	80	●
Sizing of pumps	%	Miyahuna	80	95	94	75	71	●
		AW	100	0	100	100	100	●
		YWC	29	37	38	43	43	●

Table 7: Response time & repair efficiency 2020-2024

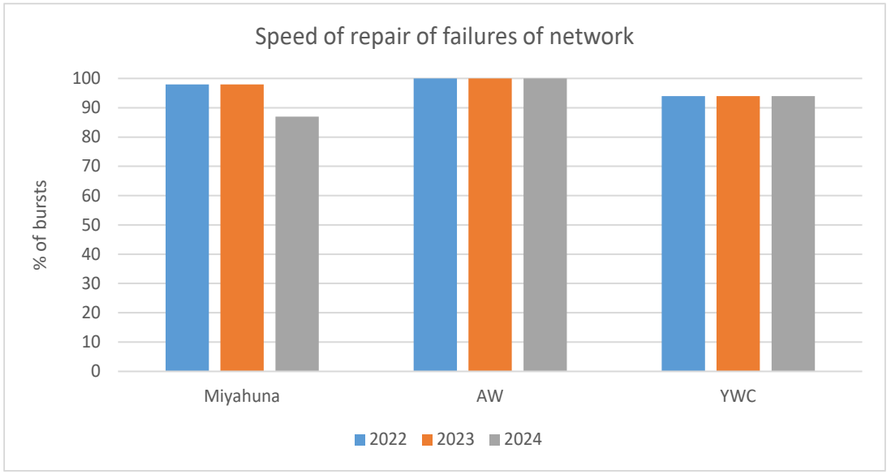


Figure 9: Speed of repair of failures of network

Aqaba Water (AW) consistently achieved 100% performance across all three years, and YWC maintained a steady, good performance in the 93–94% range.

Miyahuna showed a decline in performance in 2024 (approximately 87%), particularly in Amman (around 85%) and Zarqa (around 83%), after maintaining high performance in the previous two years. This significant deviation indicates operational challenges that require immediate attention, as it negatively impacts service continuity and customer satisfaction.

Strengthening maintenance programs at Miyahuna (particularly in Amman and Zarqa) is recommended to reduce the frequency of network failures, enhance real-time monitoring systems, and reinforce resource allocation to ensure sufficient repair teams and materials are available during peak failure periods.

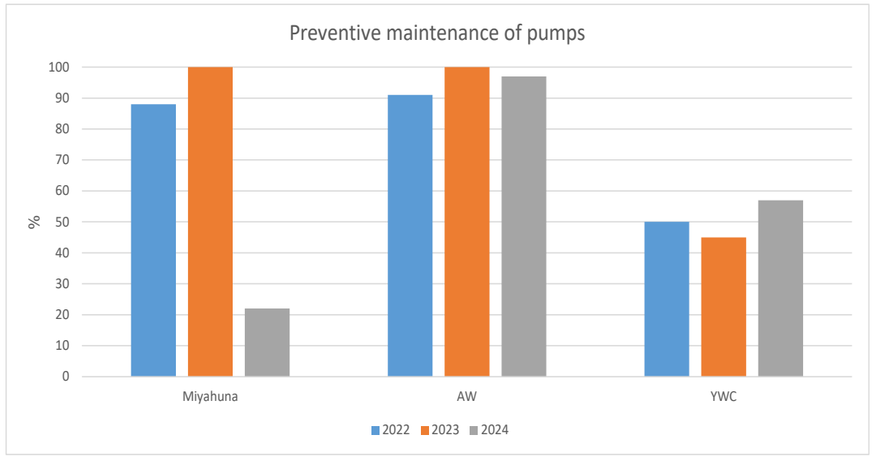


Figure 10: Preventive maintenance of pumps

Preventive maintenance of pumps is essential to keep the water supply running efficiently, especially in areas with intermittent supply like Miyahuna and YWC. In 2024, Miyahuna's performance dropped to about 65% after reaching 100% in 2023, showing the need to improve maintenance planning and follow-up. AW continued to perform very well, maintaining around 96%. YWC showed a slight improvement to about 60% but still needs to improve preventive maintenance.

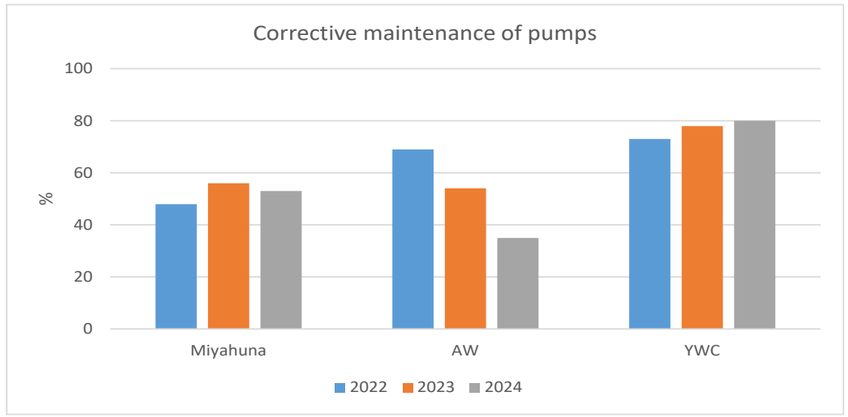


Figure 10: Corrective maintenance of pumps

YWC shows a slight increase in the percentage of pumps repaired through corrective maintenance despite maintaining a good level of preventive maintenance. For Miyahuna and AW, although some improvement is observed, the percentage of pumps requiring corrective maintenance remains relatively high. Both utilities should continue strengthening their preventive maintenance programs to further reduce breakdowns. Overall, all utilities are advised to establish dedicated and skilled maintenance teams to effectively perform both preventive and corrective maintenance tasks.

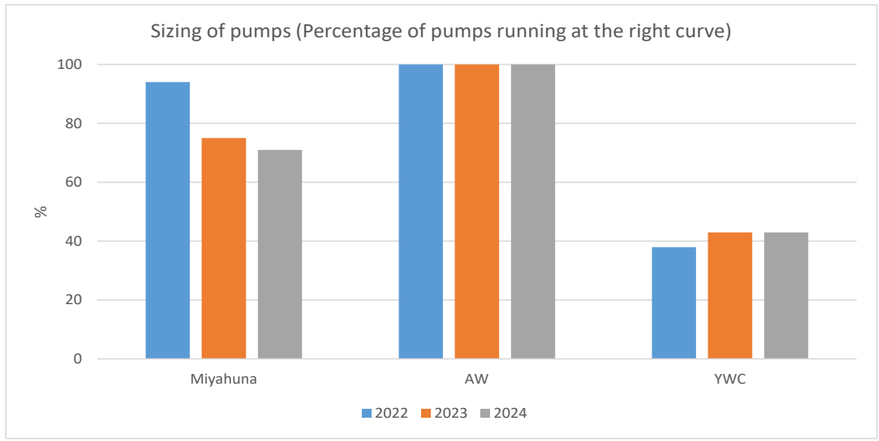


Figure 12: Sizing of pumps

Miyahuna shows a slight decrease in performance related to the sizing of pumps, which may indicate minor mismatches between pump capacity and actual operational demand in certain sites. AW, on the other hand, demonstrates excellent results, reflecting strong technical design standards and proper capacity assessment. YWC, however, still has room for improvement in this area and should consider adopting best practices for pump selection and sizing. All utilities are advised to periodically evaluate pump performance to ensure that sizing aligns with system demand, operational conditions, and long-term energy efficiency goals.

3.2.1.4 Bulk metering

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/ note
Operational well and reservoir meters	%	Miyahuna	90	93	93	78	80	●
		AW	58	100	70	70	70	●
		YWC	86	90	92	92	95	●
Calibration of well and reservoir	%	Miyahuna	36	100	27	67	0	●
		Meters	100	100	97	2	49	●
		YWC	100	100	91	40	83	●
Metering of import and export points	%	Miyahuna	100	100	100	98	98	●
		AW	100	100	100	100	100	●
		YWC	83	100	100	100	100	●
Wells with dynamic level monitored	%	Miyahuna	-	-	-	100	12	●
		AW	-	-	-	55	64	●
		YWC	-	-	-	17	10	●

Table 8: Bulk metering 2020-2024

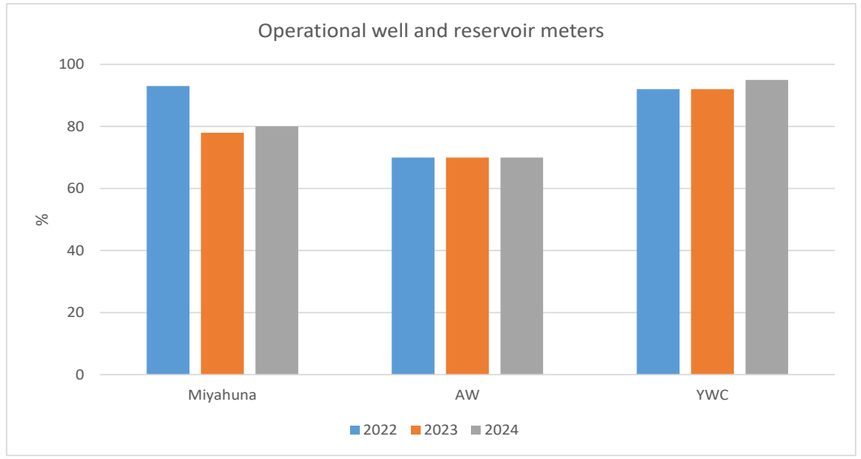


Figure 13: Operational well and reservoir meters

AW shows a stable operational performance in the percentage of operational well and reservoir meters in 2024. Miyahuna Water Company recorded a slight increase in 2024, mainly driven by improvements in the Balqa governorate. YWC demonstrated a positive upward trend, achieving the highest operational level among the three utilities.

Ongoing projects by the Water Authority of Jordan (WAJ) and each related utility, supported by donor-funded projects, are still under implementation across all utilities, enhancing overall system reliability and performance.

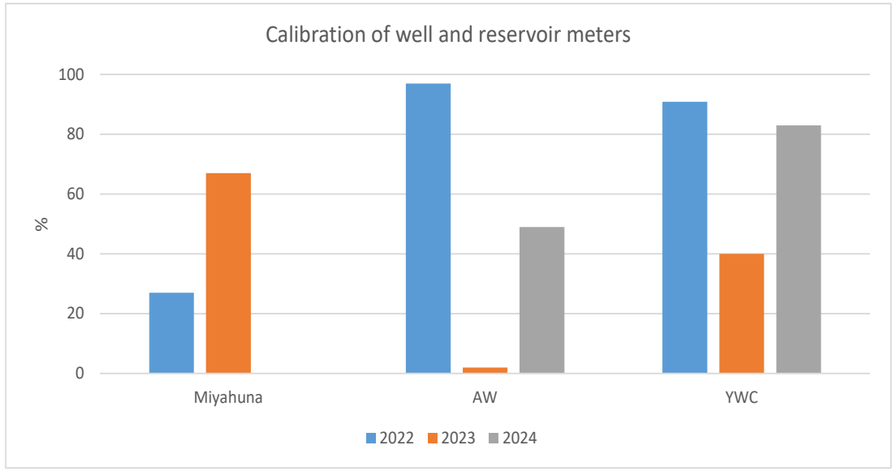


Figure 14: Calibration of well and reservoir meters

The fluctuations in the percentage of well and reservoir meter calibration for 2024 occurred because the three utilities confused the concepts of verification and calibration. Starting in 2025, it has been agreed with the utilities that verification and calibration will be recorded separately.

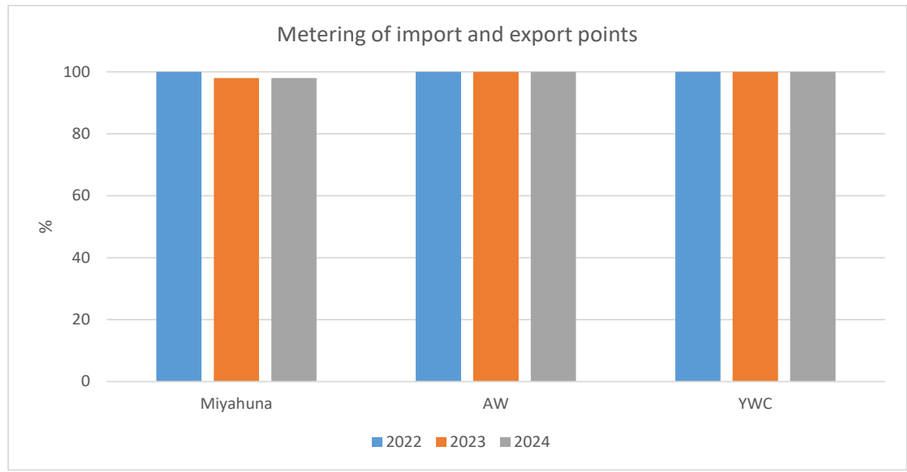


Figure 15: Metering of import and export points

All export/import points in AW and YWC are metered. Miyahuna maintained the same performance as the previous year.

Note: Water from private wells is considered imported water

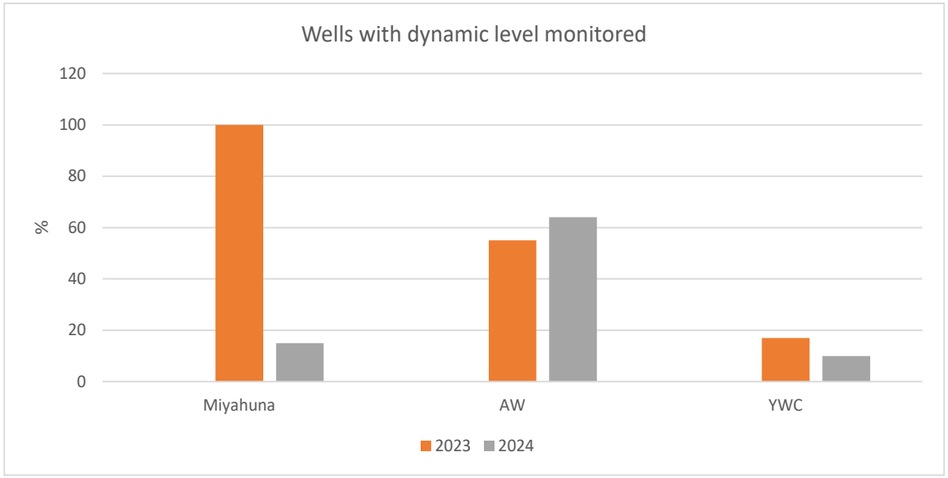


Figure 16: Wells with dynamic level monitored

This indicator measured the percentage of owned wells with dynamic water levels measured. The year 2023 was the first year of reporting this indicator, following discussions with BGR and the water utilities.

This measurement is necessary to highlight the importance of monitoring groundwater resources.

Al - Shallala WWTP-YWC

3.2.1.5 Water Losses

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/ note
Non – Revenue Water	%	Miyahuna	46.1	44.6	42.8	44.7	*See annex II*	
		AW	37.0	33.3	33.1	33.8		
		YWC	49.5	50.3	51.1	47.6		
Water losses per subscriber	m³/ subscriber/ day	Miyahuna	0.40	0.38	0.36	0.36	0.38	●
		AW	0.65	0.59	0.51	0.59	0.72	●
		YWC	0.39	0.42	0.42	0.37	0.38	●
Water losses per main length	m³/km/day	Miyahuna	25.5	24.4	24.5	23.5	24.1	●
		AW	27.5	25.1	21.1	21.9	26.0	●
		YWC	12.4	13.2	13.4	12.2	12.0	●
Water losses per connection per day	m³ /connection /day	Miyahuna	1.16	1.11	1.05	0.99	1.03	●
		AW	1.40	1.26	1.12	1.21	1.50	●
		YWC	0.65	0.67	0.67	0.61	0.63	●
Inefficiency of use of water resources	%	Miyahuna	19.8	19.4	18.1	21.6	22.2	●
		AW	18.5	16.7	16.4	16.6	19.6	●
		YWC	24.4	24.5	24.9	23.1	23.5	●
Water resources use per capita/day	%	Miyahuna	125	124	122	129	132	●
		AW	369	364	324	348	347	●
		YWC	97	101	98	95	96	●

Table 9: Water losses 2020-2024

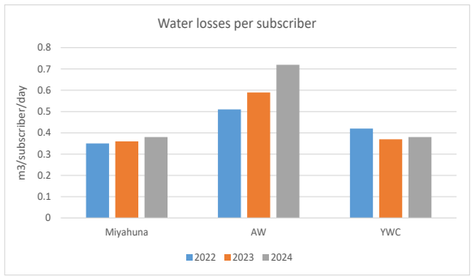


Figure 17: Water losses per subscriber

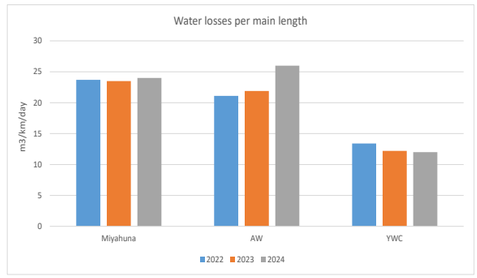


Figure 18: Water losses per main length

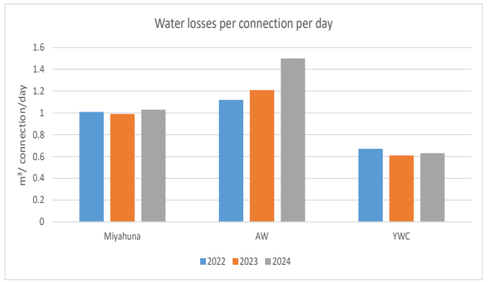


Figure 19: Water losses per connection per day

These three indicators are straightforward and widely used, and examining their variation provides a clearer understanding of loss intensity across the system. Looking at losses per subscriber, per kilometer of network, and per connection highlights how efficiently each utility manages its customer base, network infrastructure, and service connections, offering a more detailed view of where performance is improving or deteriorating.

For the most part, all utilities show a decrease in efficiency across these indicators. Miyahuna and AW both demonstrate a decline in efficiency, with all three indicators rising noticeably in 2024, indicating increasing losses across subscribers, network length, and connections.

In contrast, YWC continued improvement in losses per main length (kilometer) and generally stable losses per subscriber and per connection, marked only by minor fluctuations.

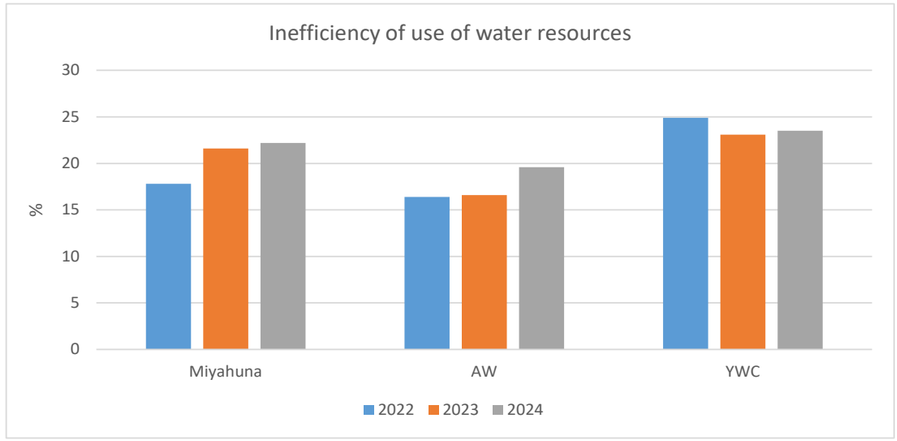


Figure 20: Inefficincy of use of water resources

Miyahuna and YWC remained relatively stable but at consistently high inefficiency levels. While AW experienced increasing inefficiency in water use and higher losses. To address these issues, it is recommended that all utilities strengthen maintenance and rehabilitation of networks, implement accurate monitoring and leak detection systems, and adopt advanced metering and data analysis technologies.

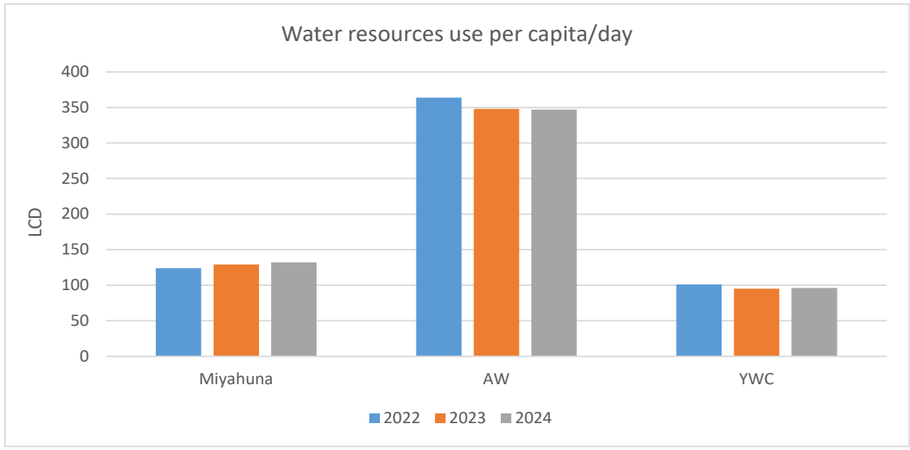


Figure 21: Water resources use per capita/day

The water resources used per capita per day measures the average daily volume of water supplied per capita. For all three utilities, the figures for 2024 remained almost unchanged compared to the previous years, as the increase in water supply corresponded closely with population growth.

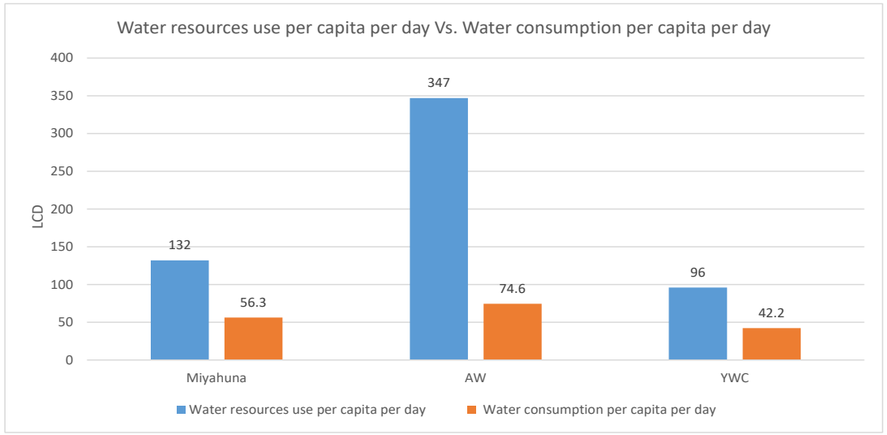


Figure 22: Water resources use per capita per day Vs. Water consumption per capita per day

The figure above shows a comparison between water resources use per capita per day and water consumption per capita per day for the year 2024.

Note: For AW, the huge difference between two indicators is due to the big consumption of the commercial and industrial customers.

3.2.2 Customer service Performance
3.2.2.1 Supply Mode and Efficiency

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Continuity of supply	% of time	Miyahuna	21.3	21.3	21.3	22.6	22.3	●
		AW	100	100	100	100	100	●
		YWC	5.4	5.4	5.4	5.4	5.4	●
Subscribers receiving continuous	%	Miyahuna	3	1	2	1.2	1.2	●
		AW	93	96	95	100	100	●
		YWC	0	0	0	0	0	●
Water consumption per capita (residential subscribers)	Liters /capita/ day (lcd)	Miyahuna	54.1	53.6	52.9	58.3	56.3	●
		AW	76.4	87.9	75.3	92.1	74.6	●
		YWC	45.6	46.4	44.1	44.1	42.2	●

Table 10:Supply Mode and Efficiency 2020-2024

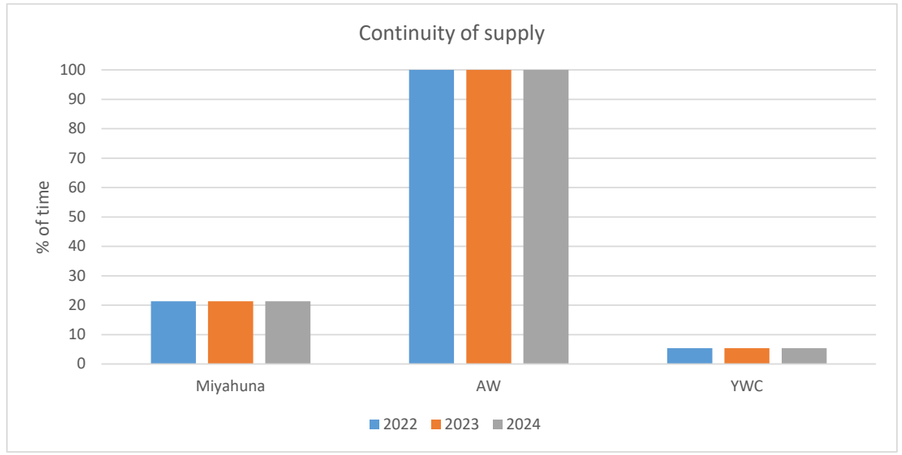


Figure 23: Continuity of supply

The continuity of supply for Aqaba Water Company and Yarmouk Water Company has remained stable over the past three years, while Miyahuna shows a slight decrease compared to the previous year.

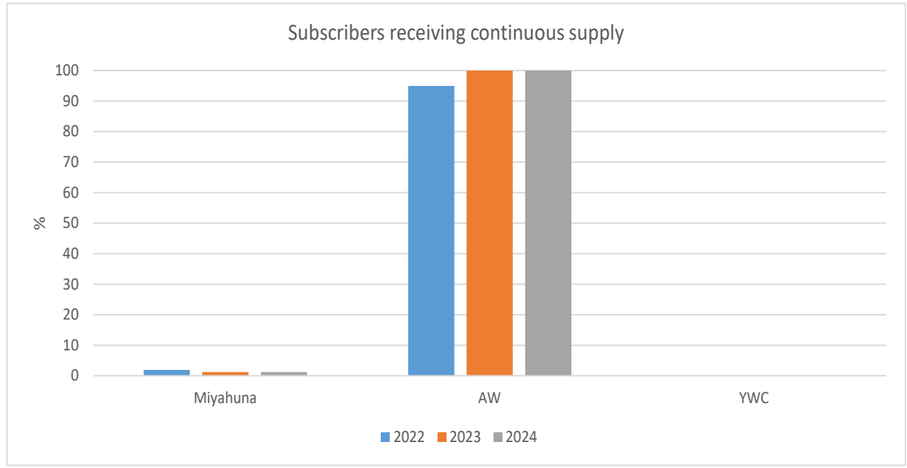


Figure 24: Subscribers receiving continuous supply

Subscribers receiving continuous supply for the three utilities remains consistent with the previous year.

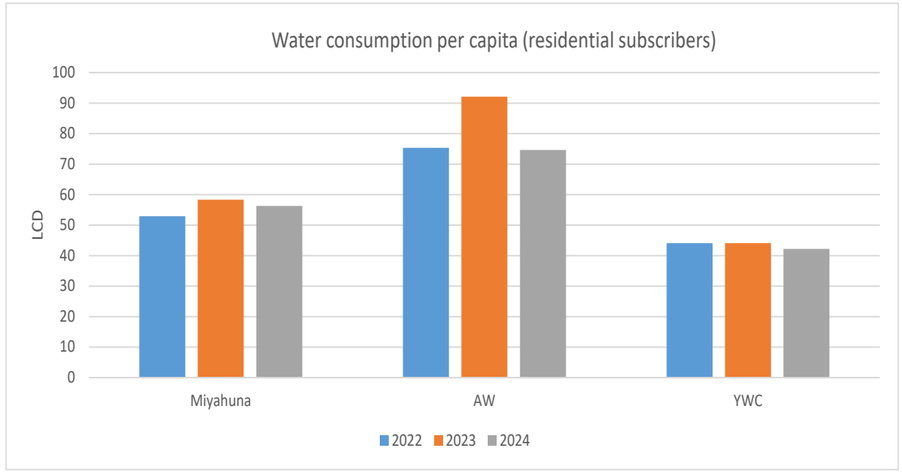


Figure 25: Water consumption per capita (residential subscribers)

The three utilities recorded a decrease in LCD compared to the previous year despite an increase in total water supplied, mainly due to a decline in the volume of water billed to residential subscribers.

3.2.2.2 Commercial & Customer Processes

Indicator/ year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
New connection efficiency	% of requests	Miyahuna	84	77	78	79	81	
		AW	100	100	100	100	100	
		YWC	88	89	83	89	71	
Percentage of inactive subscribers	%	Miyahuna	9.5	10.1	9.6	9.6	9.8	
		AW	6.7	4.0	4.9	4.9	1.6	
		YWC	13.4	13.3	14.5	14.5	12.8	
Subscriber meter replacement ratio	%	Miyahuna	2.4	3.9	7.4	4.8	38.2	
		AW	43.4	30.2	1.4	1.9	2.6	
		YWC	2.6	1.7	0.9	1.7	29.5	
Meter reading ratio	%	Miyahuna	103	102	100	99	99	
		AW	98	97	93	97	96	
		YWC	98	96	100	99	93	

Table 11: Commercial & Customer Processes 2020-2024

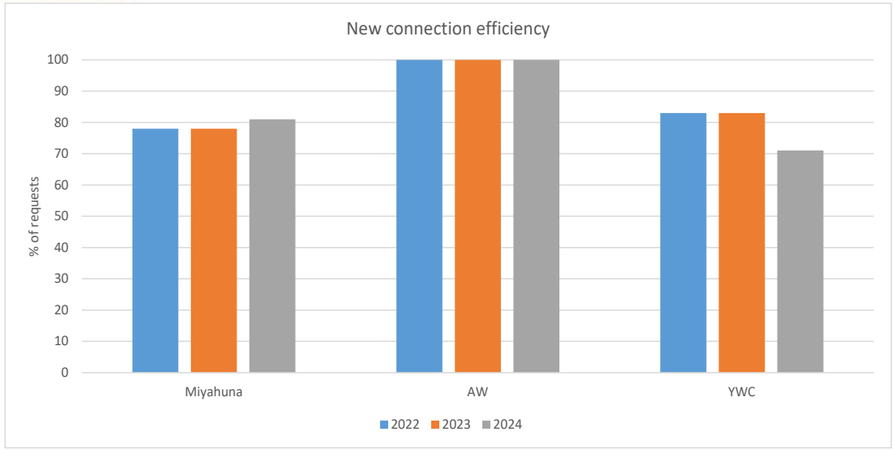


Figure 26: New connection efficiency

This indicator measures the Percentage of connections type 1 and type 2 installed within the specified target time.

Miyahuna shows increase compared to the previous year. While AW remains excellent and the highest in efficiency in implementing new connections for all three types. YWC showed notable decrease in performing type 1 and 2 connections.

The three utilities reported this indicator based on the installation of the customer meter without specifying the target time; due to their direct dependency on other authorities (e.g., municipalities, MOPH, etc.), which often leads to delays in finalizing the installation of type 2 connections.

Note: The three types of new connection are defined as:

Type 1	*Additional subscription (new water meters)*
Type 2	*New house connection needed for the new subscription*
Type 3	*New subscription needs main pipe laying (no target time is set)*

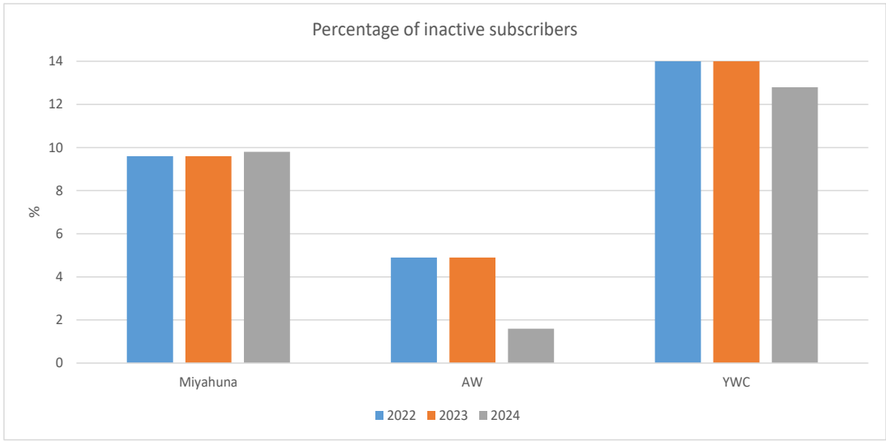


Figure 27: Percentage of inactive subscribers

Regarding inactive subscribers, the percentage for AW decreased to 1.6% and for YWC to 12.8%, while for Miyahuna, it slightly increased to 9.8%. This has serious consequences on unauthorized consumption and subscriber accounts receivables.

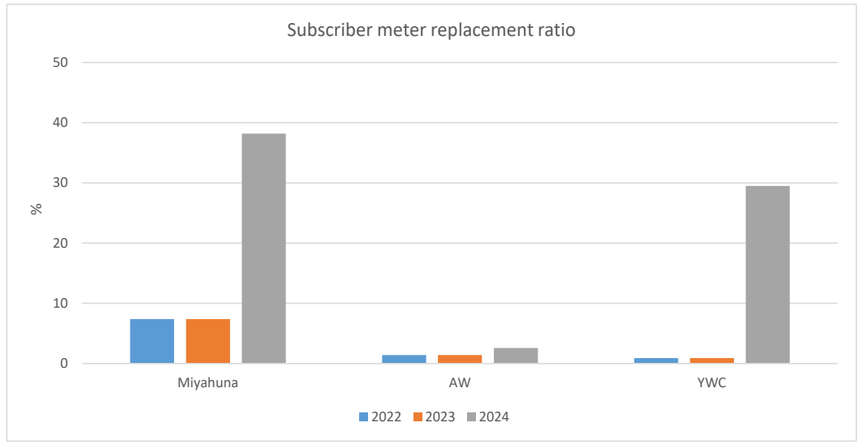


Figure 28: Subscriber meter replacement ratio

The percentage of meter replacements in Miyahuna rose significantly from 7.4% to 38.2% in 2024, reflecting a strong positive trend in upgrading old or inaccurate meters.

Aqaba Water (AW) recorded a slight increase from 1.4% to 2.6%, while Yarmouk Water Company (YWC) achieved a remarkable milestone by replacing around 100,000 subscriber meters, a step expected to enhance billing accuracy and improve consumption monitoring efficiency.

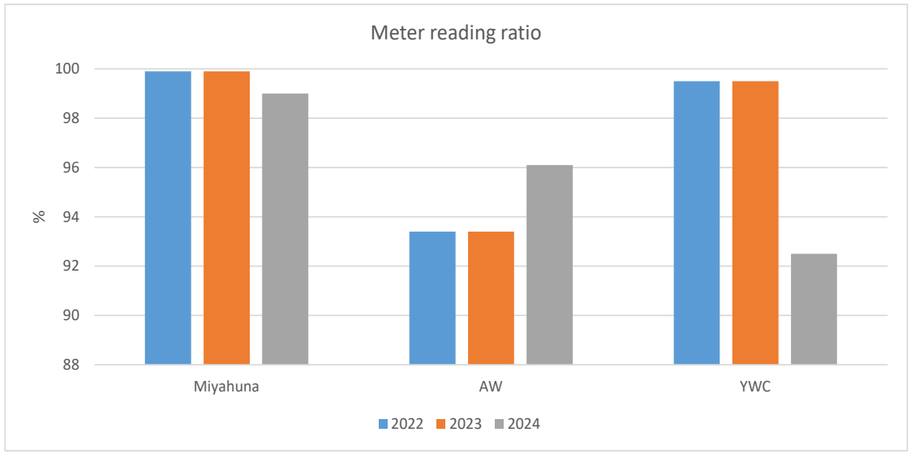


Figure 29: Meter reading ratio

Miyahuna maintained a relatively stable performance in meter reading ratios, while AW showed a slight improvement.

In contrast, YWC experienced a significant decline in meter reading ratios during the first two quarters of 2024; however, performance began to improve in the third quarter following the implementation of an external metering contract.

3.2.2.3 Customer Relationship & satisfaction

Indicator/ year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
"No Water" complaints	No. of complaints/ 1000 active subscribers	Miyahuna	298	381	366	248	255	
		AW	57	92	115	174	179	
		YWC	287	239	232	206	252	
Billing complaints	No. of complaints/ 1000 active subscribers	Miyahuna	19	22	21	24	22	
		AW	24	61	28	54	50	
		YWC	18	28	18.4	16.9	30	

Table 12: Customer Relationship & satisfaction 2020-2024

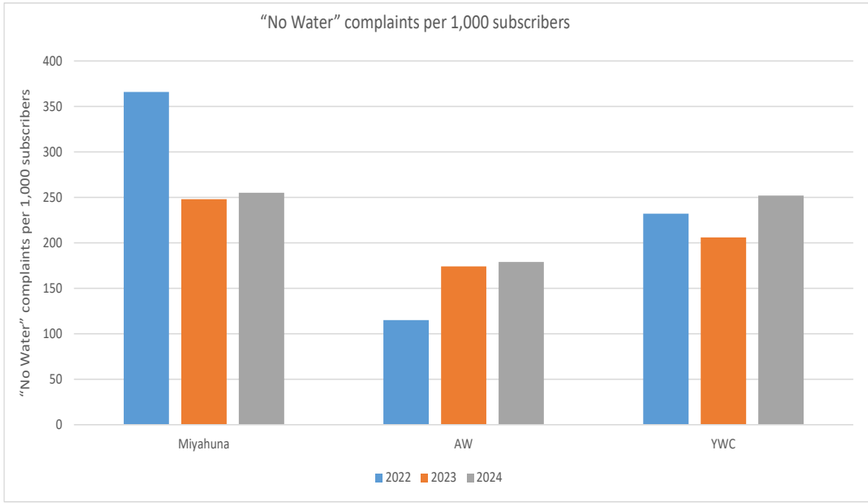


Figure 30: "No Water" complaints per 1,000 subscribers

In 2024, all three water utilities recorded an increase in "No Water" complaints, alongside higher water supply levels—approximately 4% in Miyahuna, 6% in Aqaba Water (AW), and 3% in Yarmouk Water Company (YWC). The number of active subscribers also rose by about 2%, 11%, and 4%, respectively.

Strongly recommended for the three water utilities to strengthen their efforts in managing water distribution to effectively address supply issues and enhance customer satisfaction.

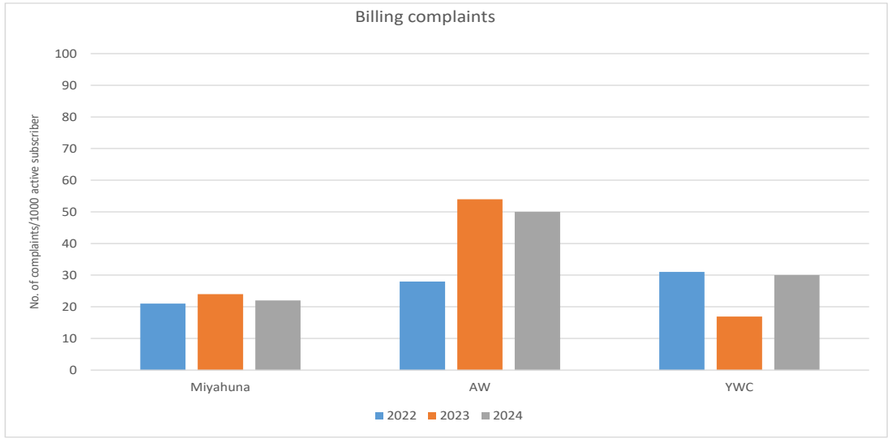


Figure 31: Billing complaints

Miyahuna and AW show a decrease in billing complaints, indicating the successful adaptation and implementation of monthly billing for the second consecutive year, which led to greater customer acceptance of their bills.

YWC shows a notable increase in the number of billing complaints due to the implementation of the monthly billing system in 2024.

The central SCADA - AW

3.2.3 Financial Performance
3.2.3.1 Financial Efficiency (Liquidity)

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Collection Efficiency (Customers)	%	Miyahuna	87.9	95.6	95.9	90.0	371.1	🔴
		AW	88.9	91.6	80.8	90.0	105.6	🟢
		YWC	72	73	87.2	83.0	98.2	🟢
Collection ratio	%	Miyahuna	86.1	91.6	88.5	97.6	383.3	🔴
		AW	84.2	88.5	74.6	79.7	91.8	🟢
		YWC	84.4	74.8	81.2	85.3	98.2	🟢
Delay in accounts receivable	month	Miyahuna	7.7	7.4	7.9	8.52	8.61	🔴
		AW	8.1	8.5	9.4	9.68	8.85	🟢
		YWC	17.6	18.4	23.5	22.62	24.41	🟢
Operating cost coverage ratio (collection)	%	Miyahuna	77.1	89.7	88.5	87.4	276.6	🔴
		AW	71.6	90.3	85.3	91.7	96.6	🟢
		YWC	45.8	45.7	45.0	47.0	55.7	🟢

Table 13: Financial Efficiency (Liquidity) 2020-2024

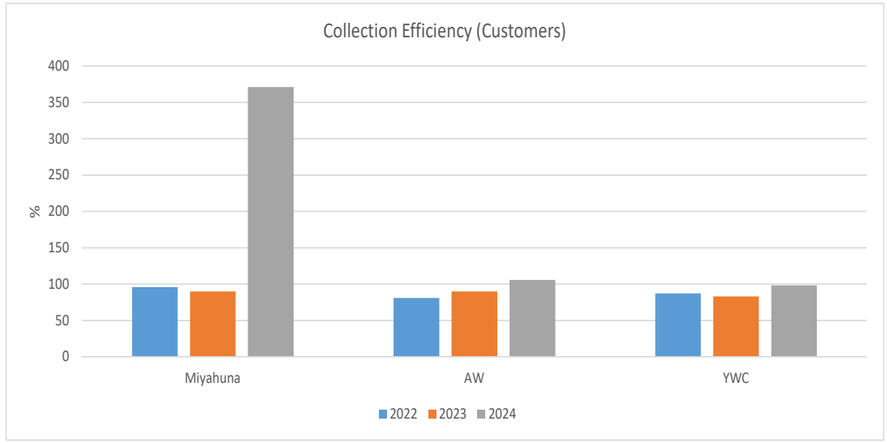


Figure 32: Collection Efficiency (Customers)

Collection efficiency measures how effectively the utilities collect billing revenue from customers for water and wastewater services. It reflects the ability to recover outstanding debts, making it a key indicator for assessing utilities' liquidity.

Miyahuna showed a recorded improvement in collection efficiency from 90.9% in 2023 to 371.1% in 2024. However, the credibility of this figure is compromised due to inaccuracies in the financial data submitted, particularly regarding collections from residential and non-residential customers. Despite multiple opportunities provided to Miyahuna to review and validate its financial data, the required level of accuracy was not achieved.

Meanwhile, AW improved from 90.0% in 2023 to 105.6% in 2024, and YWC improved from 83.0% in 2023 to 98.18% in 2024.

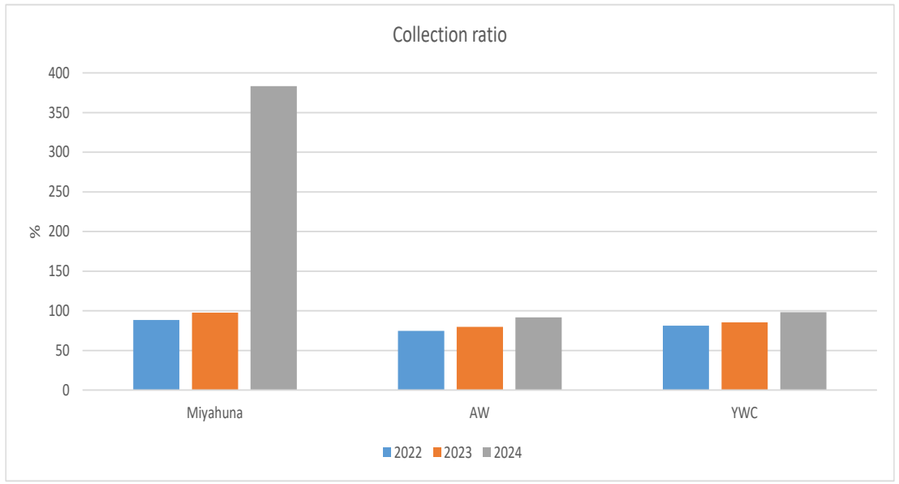


Figure 33: Collection Ratio

This indicator is a financial metric that measures the efficiency of utilities' total collections from their total billing (a measure of liquidity), and it indicates how quickly the utility can convert its bills into cash.

Miyahuna's collection ratio has improved dramatically from 97.6% in 2023 to 383.3% in 2024. However, the credibility of this indicator is not good due to inaccuracies in the financial data submitted for this indicator, particularly in collection from residential and non-residential customers.

While the AW ratio had a major improvement from 79.7% in 2023 to 91.8% in 2024, this was due to the increase in collection by 15% while billing stayed almost the same; YWC has also showed major improvement from 85.3% in 2023 to 98.2% in 2024, and this was due to the increase in collection by 19% while revenue increased by only 3%.

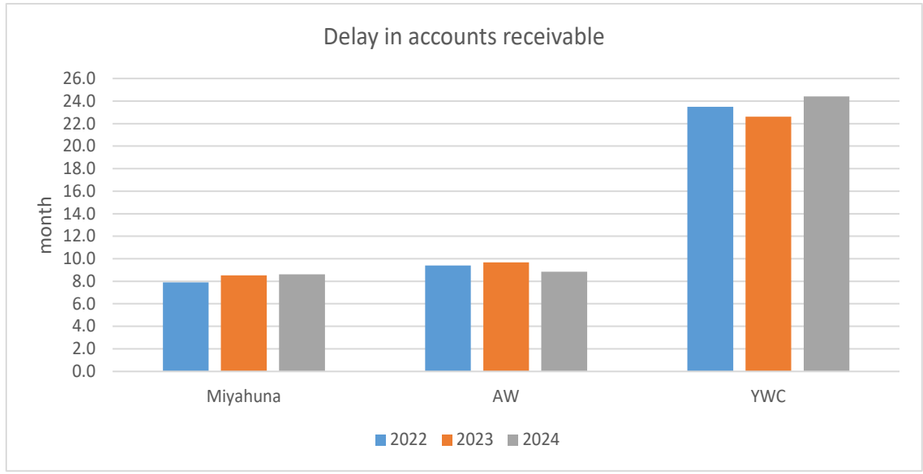


Figure 34: Delay in accounts receivable

Delay in accounts receivable measures the collection period, which is the amount of time it takes for the utility to collect payment from customers after bills are issued. It is an important metric in financial management and cash flow analysis, as it helps the utility understand how efficiently it is managing its accounts receivable.

In Miyahuna, the delay of receivables increased from 8.52 months in 2023 to 8.61 months in 2024. However, the credibility of this indicator is not good due to inaccuracies in the billing data submitted for this indicator, particularly in billing for illegal usage and billing for tanker sales.

While it decreased in AW from 9.68 months in 2023 to 8.85 months in 2024, it increased in YWC from 22.62 months in 2023 to 24.41 months in 2024.

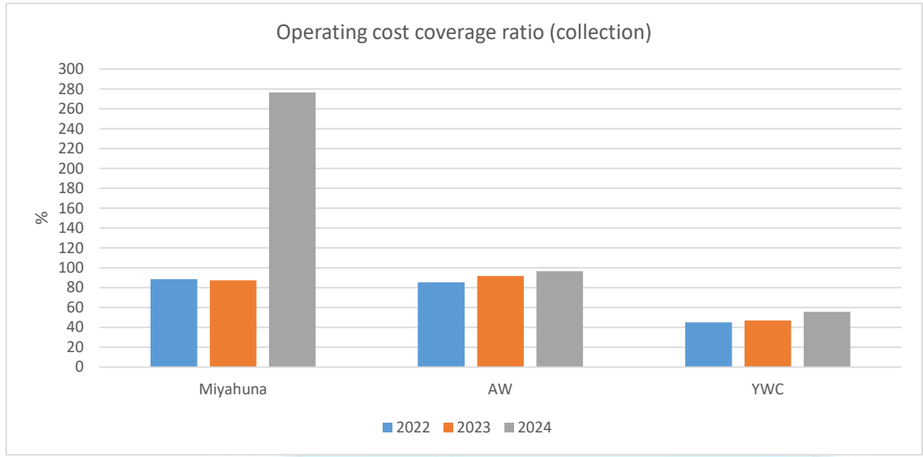


Figure 35: Operating cost coverage ratio (collection)

The Operating Cost Coverage Ratio (Collection) is a financial metric used to assess a company's ability to cover its operating expenses with its collections. It measures how well the company can pay for its day-to-day operational costs using the collected revenue.

Miyahuna's recovery from collections increased from 87.4% in 2023 to 276.6% in 2024. However, the credibility of this indicator is not good due to inaccuracies in the financial data submitted for this indicator, particularly in collections from residential and non-residential customers.

AW recovery increased from 91.7% in 2023 to 96.6% in 2024, since collections increased by 15%, while operational costs increased by only 9%.

For YWC, recovery increased from 47.0% in 2023 to 55.7% in 2024, since collections increased by 19%, while operational costs stayed almost the same.

3.2.3.2 Financial Sustainability (Profitability)

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Operating cost coverage ratio (revenues)	%	Miyahuna	90.1	99.9	100.3	100.9	114.8	●
		AW	122.0	134.5	119.9	122.5	117.7	●
		YWC	58.3	63.4	60.8	56.0	73.5	●
Electricity costs as percentage of total O&M costs	%	Miyahuna	52	48	43.8	39.2	37.6	●
		AW	19	20	21.2	20.3	18.2	●
		YWC	52	45	40.2	40.6	40.7	●

Table 14:Financial Sustainability (Profitability) 2020-2024

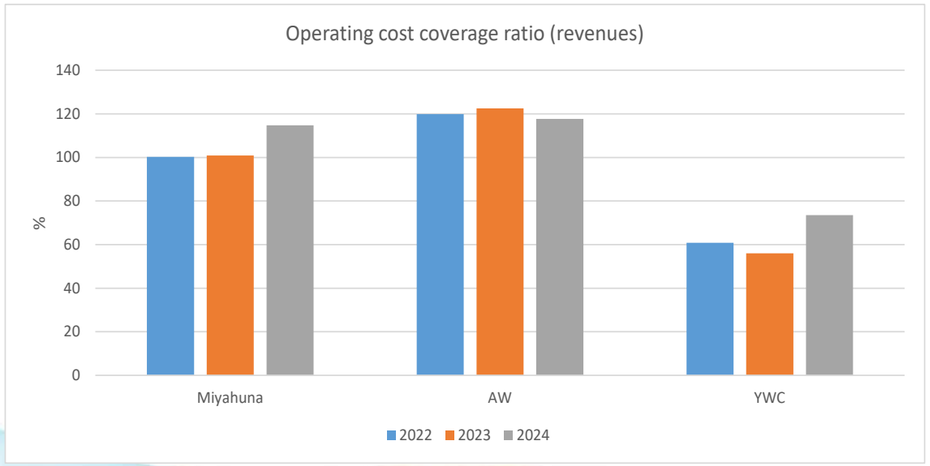


Figure 36: Operating cost coverage ratio (revenues)

The Operating Cost Coverage Ratio (revenues) helps in assessing a utility's ability to cover its operation and maintenance costs using its total revenue (revenues from water and wastewater services as well as other revenues including grants), measuring their operational efficiency and sustainability.

Miyahuna and YWC showed a major improvement of the operating cost coverage ratio in 2024. Miyahuna's increased from 100.95% in 2023 to 114.83% in 2024, since revenue increased by 16% while O&M increased by only 2%. YWC's coverage increased from 56.0% in 2023 to 73.5% in 2024, due to a 31% increase in revenue with almost the same O&M costs as the previous year.

AW showed a decrease in coverage from 122.5% in 2023 to 117.7% in 2024, since revenue increased by 5% while the O&M costs increased by 9%.

In general, the Operating Cost Coverage Ratio considers all utility revenues, including grants. If grants are excluded from the calculation, the ratio provides a clearer view of the utility's ability to cover operation and maintenance costs from its core service activities. Under this approach, the ratio would be 105% for Miyahuna, 60% for Yarmouk Water Company, and 109% for Aqaba Water in 2024.

Indicator/year	Unit	Utility	2024	Quality of indicator/note
Operating cost coverage ratio (revenues excluding grants)	%	Miyahuna	371.1	●
		AW	105.6	●
		YWC	60	●

Table 15:Operating cost coverage ratio (revenues excluding grants)

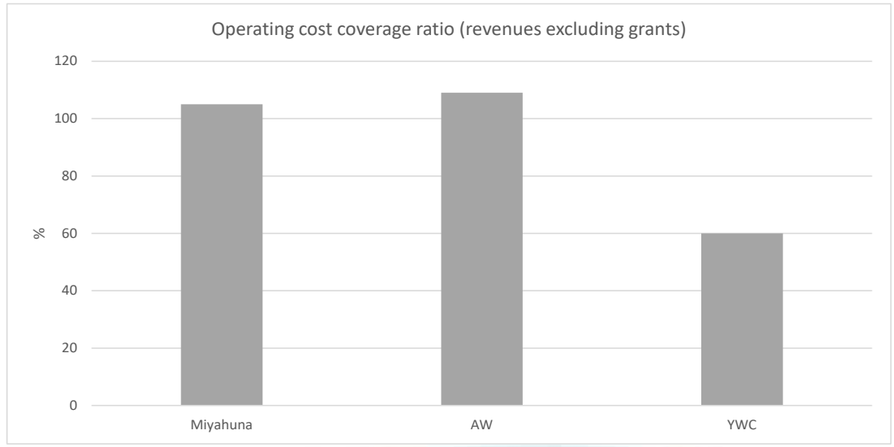
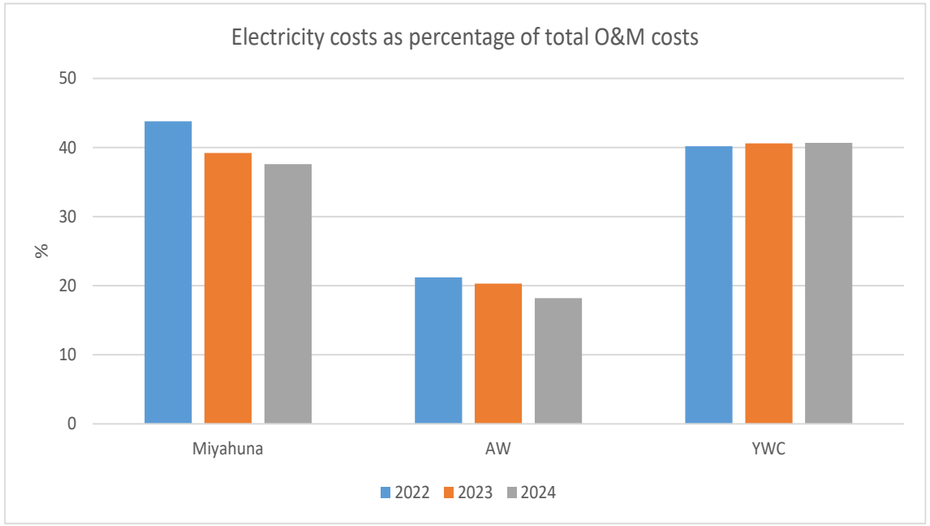


Figure 37: Operating cost coverage ratio (revenues excluding grants)/2024



Electricity costs as a percentage of total O&M costs measures the importance and impact of electricity costs relative to the total O&M costs.

Miyahuna's electricity percentage decreased from 39.2% in 2023 to 37.6% in 2024,and AW's decreased from 20.3% in 2023 to 18.2% in 2024,while YWC's slightly increased from 40.6% in 2023 to 40.7% in 2024.

The electricity cost percentage shows a higher dependency on electricity for Miyahuna and YWC, with around 38% for Miyahuna and 41% for YWC, while the AW percentage is around 21%. This is due to the difference in pumping requirements because of differing topography, allocation of sources, and subscriber distribution.

3.2.3.3 Unit Profitability- JOD/m^3

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Average water and wastewater revenue for billed consumption	JOD/m³	Miyahuna	0.83	0.82	0.79	0.82	0.80	
		AW	0.89	0.95	1.17	1.12	1.12	
		YWC	0.72	0.73	0.68	0.69	0.69	
Unit operating cost water and wastewater services	JOD/m³	Miyahuna	1.06	0.99	0.93	1.06	1.06	
		AW	1.10	0.97	1.11	1.10	1.21	
		YWC	1.30	1.39	1.43	1.36	1.34	

Table 16:Unit Profitability- JOD/m³ 2020-2024

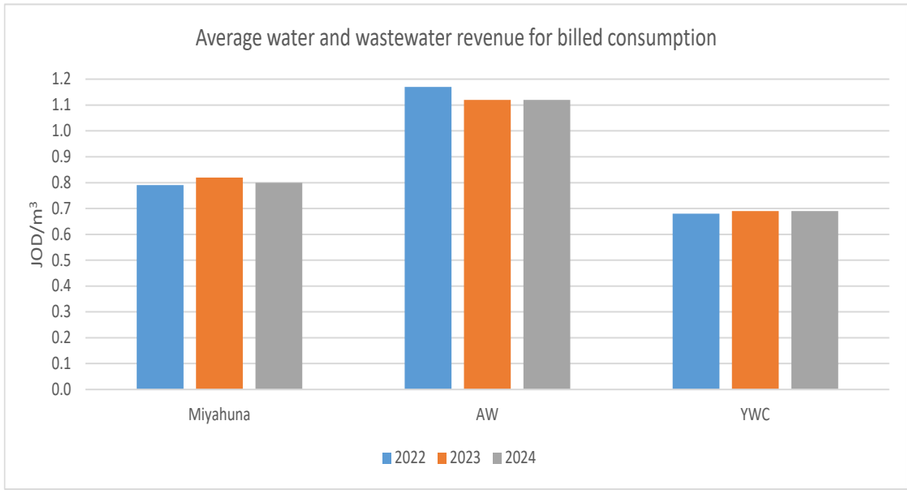


Figure 39: Average water and wastewater revenue for billed consumption

Average water and wastewater revenue for billed consumption measures revenue from billing per cubic metre; it shows the average of different customer types and consumption patterns, and it also has a great impact on utilities' sustainability.

Despite the increase in tariff in December 2023, the average water and wastewater revenue for billed consumption decreased slightly for Miyahuna from 0.82 JOD/m³ in 2023 to 0.80 JOD/m³ in 2024. However, the credibility of this indicator is not good due to inaccuracies in the billing data submitted for this indicator, particularly in billing for illegal usage and billing for tanker sales.

While YWC and AW were stable—AW at 1.12 JOD/m³, and YWC at 0.69 JOD/m³—this could be due to a change in customers' consumption patterns.

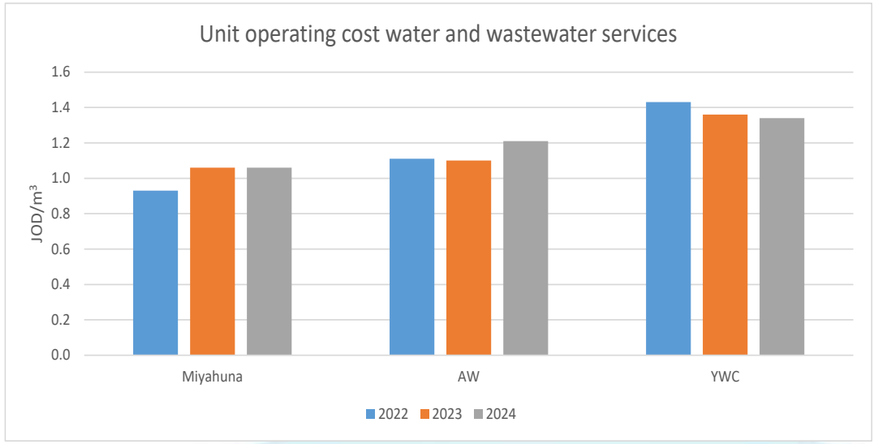


Figure 40: Unit operating cost water and wastewater services

The unit operating cost of water and wastewater services measures O&M cost per cubic metre, and it depends on several factors, including the type of treatment process, scale of operation, energy consumption, labour costs, chemicals used and maintenance needs.

The unit operating cost of water and wastewater services was stable in Miyahuna at 1.06 JOD/m³ for 2023 and 2024, since both O&M costs and the authorized water consumption increased by 2%. In AW, it increased from 1.10 JOD/m³ in 2023 to 1.21 JOD/m³ in 2024; this was due to the decrease of 2% in billed authorized consumption and the 9% increase in O&M cost.

In YWC, it decreased from 1.36 JOD/m³ in 2023 to 1.34 JOD/m³ in 2024; this was due to the increase of 2% in billed authorized consumption while the O&M cost stayed almost the same.

Laboratories Directorate-YWC

3.2.4 Human resources Performance
3.2.4.1 Staff Utilization

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Employees per 1000 subscribers Water & Wastewater (W&WW)	No /1000 Subs	Miyahuna	1.3	1.3	1.2	1.7	1.4	●
		AW	4.3	4.2	4.0	4.0	8.7	●
		YWC	2.6	2.6	2.4	2.2	2.4	●
Employees per 1000 subscribers (Water) W	No /1000 Subs	Miyahuna	2.4	2.3	2.2	3.0	2.5	●
		AW	8	7.8	7.3	7.5	16.4	●
		YWC	3.9	3.7	3.4	3.1	3.4	●

Table 17:Staff Utilization & Efficiency 2020-2024

Figure 41: Employees per 1000 subscribers (W&WW)

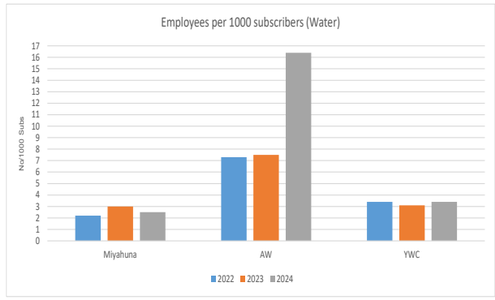


Figure 42: Employees per 1000 subscribers W

Miyahuna and YWC approximately maintained the same number of employees per 1,000 subscribers compared with the previous year.

AW, however, recorded a notable increase in the number of employees per 1,000 subscribers in 2024 — a 14% increase in total employees. The main reason is that AW signed management contracts with WAJ for the operation and maintenance of WWTPs and lifting stations at the beginning of 2024, which created a significant gap compared with the previous year.

3.2.4.2 Staff Efficiency

Indicator/year	Unit	Utility	2020	2021	2022	2023	2024	Quality of indicator/note
Training per employee	Hr/ employees	Miyahuna	2.2	5	7.6	6.4	8.5	
		AW	14.1	13.8	15.3	15.8	14.1	
		YWC	0.7	0.8	2.4	3.8	2.0	
Percentage of staff trained	%	Miyahuna	11	29	43	46	68	
		AW	42	84	85	83	56	
		YWC	7	6	7	16	19	

Table 18: Staff Efficiency 2020-2024

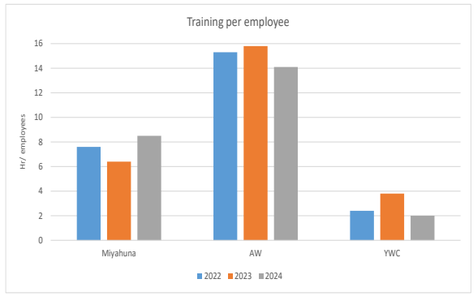


Figure 43: Training per employee

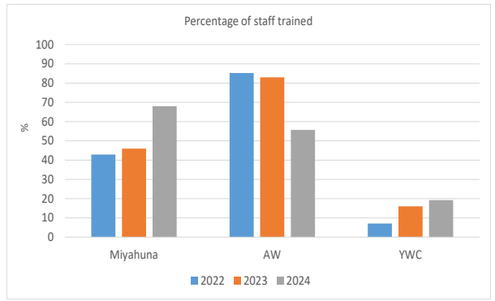


Figure 44: Percentage of staff trained

Miyahuna recorded an increase in both training hours per employee and the percentage of staff trained. In contrast, AW showed a decrease in these indicators, which was expected due to the reasons mentioned under the “employees per 1,000 subscribers” indicator.

YWC, on the other hand, showed an increase in the percentage of staff trained but a decrease in training hours per employee. Consequently, YWC had the lowest results for both indicators, highlighting the need to strengthen employee training programs and enhance staff skills.

Recommendations

All utilities are advised to identify and implement potential measures to increase revenues and reduce operating costs, with particular emphasis on strengthening billing and collection efficiency.

All utilities are advised to place greater focus on optimizing energy consumption and reducing dependency on conventional electricity sources.

All utilities are advised to strengthen the management and maintenance of SCADA systems due to their critical role in providing a comprehensive view of the entire network, enhancing data integration, and enabling more efficient control and decision-making at higher levels within the utilities.

All utilities are advised to establish dedicated and skilled maintenance teams to effectively perform both preventive and corrective maintenance tasks.

All utilities are advised to evaluate periodically pump performance to ensure that sizing aligns with system demand, operational conditions, and long-term energy efficiency goals.

All utilities are advised to strengthen efforts in managing water distribution to effectively address supply issues and enhance customer satisfaction.

Miyahuna is advised to submit accurate financial data, ensuring a high level of reliability and credibility of financial performance indicators.

Miyahuna should strengthen maintenance programs to reduce the frequency of network failures, enhance real-time monitoring systems, and reinforce resource allocation to ensure that sufficient repair teams and materials are available during peak failure periods.

YWC is advised to segregate water operations expenses from wastewater operation expenses.

AW is advised to segregate the collection of billing from other collections in the accounting and billing system.

ANNEXES

Annex I: Calculation of indicators used in this report

Indicator Name	Definition	Formula
"No water" complaints per 1000 subscribers	Number of "no water" complaints per 1000 active subscribers during reporting period	=Complaints of "No Water Supply" / (Active subscribers*1000)
Average unit energy consumption	Electricity consumption per m^3 supplied	=Electricity consumption / (Water produced + Imported treated water - Exported treated water)
Average water and wastewater revenue for billed consumption	Water and wastewater sales revenue from residential and non-residential subscribers (exported water excluded) per m^3 of authorized consumption	= (Residential water sales (amount) + Non-residential water sales (amount) + Billing for illegal usage + Reductions in billing +Billing for tanker sales + Billing for residential wastewater + Billing for non-residential wastewater) / (Residential billed volume + Non-residential billed volume + Volume billed for illegal usage + Volume provided through tankers)
Billing complaints	Average number of billing complaints and queries per 1.000 water subscribers during reporting period	=Billing complaints / Total water subscribers
Collection Efficiency (Customers)	Percentage of revenues collected from residential and non-residential customers during period	= (Collected amount from bills of residential & non-residential customers + collected amounts of sewerage charges from private tankers sales + collected amounts from annual sewerage. agreement) / (Amount Billed in Period - billed amount for exported water - Other Billing)*100
Collection ratio	Percentage of revenues collected from billed amounts during reporting period including exported water and other billing	=Total collection / Amount billed in period * 100
Continuity of supply	Percentage of hours when the (intermittent supply) system is pressurized	=Number of hours per week that the system is pressurized / (7*24) * 100
Corrective maintenance of pumps	Percentage of pumps fixed by corrective maintenance	=Production and distribution pumps corrective maintenance / Production and distribution pumps * 100
Delay in accounts receivable	Accounts receivable at reporting date compared to revenues during reporting period	=Total accounts receivable / (Amount billed in period / 12)
Effluent quality compliance	Percentage compliance of effluent quality test results with standards	=Compliant effluent quality tests / Wastewater effluent tests conducted * 100
Electricity costs as percentage of total O&M costs	Electricity costs as percentage of total Operation and Maintenance	=Total electricity costs / Total operation and maintenance costs water and wastewater services * 100
Employees per 1000 subscribers(W&WW)	Number of full time equivalent employees per 1000 water subscribers and wastewater subscribers	=Total number of employees / ((Total water subscribers + Total sewer subscribers) /1000))
Employees per 1000 subscribers W	Number of full-time equivalent employees per 1000 water subscribers	=Total number of water employees / ((Total water subscribers /1000)
Inefficiency of use of water resources	Real losses during the assessment period / System input volume during the assessment period *100	=(Water produced + Imported treated water - Exported treated water - Billed consumption) / (Water produced + Imported treated water - Exported treated water) * 100) * (Real water losses/100)
Meter reading ratio	Percentage of active customers whose meter has been read during reporting period	=Customer meters read / Active subscribers *100
Metering of import and export points	Percentage of metered import and export points	=(Number of metered import points + Number of metered export points) / (Number of import points + Number of export points) * 100
Microbiological water quality compliance	Percentage of the total number of microbiological tests of treated water performed that comply with the applicable standards.	=(Compliant microbiological tests/Microbiological water quality tests performed) * 100
New connection efficiency	Percentage of connections installed within the specified target time	=New water connections type 1 and type 2 within a target time / New water connections type 1 and type 2 requested * 100
Non-Revenue Water	Percentage of system input volume not being billed	=(Water distributed - Billed authorized consumption) / (Water distributed) * 100

Operating cost coverage ratio (collection)	Total collection compared to total operation and maintenance costs	=Total collection / Total operation and maintenance costs water and wastewater services * 100
Operating cost coverage ratio (revenues)	Total revenues compared to total operation and maintenance costs	=Total revenues / Total operation and maintenance costs water and wastewater services * 100
Operational well and reservoir meters	Percentage of wells and reservoirs with operational meters	=Number of operational reservoir meters / Number of metered reservoirs
Percentage of staff trained	Percentage of staff trained during reporting period	=Total number of staff that participated in internal or external training / Total number of employees (full-time equivalent) * 100
Physical-chemical water quality compliance	Percentage of the total number of physical-chemical tests of treated water performed that comply with the applicable standards.	=Compliant physical-chemical tests / Physical-chemical water quality tests performed * 100
Power consumption monitoring	Percentage of pumps monitored for power consumption	= Production and distribution pumps monitored / Production and distribution pumps * 100
Preventive maintenance of pumps	Percentage of pumps covered by preventive maintenance	=Production and distribution pumps preventive maintenance / Production and distribution pumps * 100
Renewable energy utilization	Percentage of renewable energy used	=((Photovoltaic energy produced + Hydro power produced + Wind energy produced + Biogas energy produced) / Electricity consumption) * 100
Sizing of pumps	Percentage of pumps running at the right sizing	=Production and distribution pumps sizing / Production and distribution pumps * 100
Speed of repair of failures	Percentage of network and water service connection failures repaired within target time	=(Network failures repaired in target time) + (Service connection failures repaired in target time) / (Network failures + Water service connection failures) * 100
Subscriber meter replacement ratio	Percentage of subscriber meters replaced during reporting period	=Subscriber meters replaced during reporting period / Subscriber meters * 100
Subscribers receiving continuous supply	Percentage of subscribers receiving 24 hours supply 7 days per week except for interruptions due to major maintenance or repair interventions	=Subscribers receiving continuous supply / Total water subscribers * 100
Training per employee	Number of training hours per employee during reporting period	=Total number of training hours in reporting period / Total number of employees
Unit operating cost water and wastewater services	Operating costs of water and wastewater services per m^3 authorized consumption	Total operation, maintenance and administration costs water and wastewater services / Authorized consumption
Water consumption per capita (residential subscribers)	Average daily water consumption per capita	quarterly = Residential billed volume*1000/90/ Population supplied (water) annually = Residential billed volume*1000/365/ Population supplied (water)
Water loss per subscriber	Total (apparent and real) losses, expressed in terms of annual volume of supplied water lost per subscriber per day	=(Water supplied -(Authorized consumption-Exported water)) / Total water subscribers) * 1000 / 365
Water losses per connection per day	Total real losses, expressed in terms of annual volume of supplied water lost per connection per day	=((Water supplied -(Authorized Consumption-Exported water)))*Real losses / Total connections * 1000 / 365
Water losses per mains length	Total (apparent and real) losses, expressed in terms of annual volume of distributed water lost per mains length.	=(Water distributed -Authorized consumption) / Length of water network) / 365
Water resources use per capita/day	Average daily volume of water supplied per capita	=(Water produced + Imported treated water - Exported treated water) / (Resident population) * 1000 / 365
Water quality tests performed	Percentage of treated water tests required by applicable standards that are carried out.	= Water quality tests performed / Water quality tests required * 100
Wells with dynamic level measured	Percentage of owned wells with dynamic water level measured during reporting period	= Total number of owned wells with water level monitored/ Total number of owned wells

Annex II: Non-Revenue Water Central Unit (CNRW) report-Reporting Period: 3rd assessment year

Hashemite Kingdom of Jordan
Ministry of Water and Irrigation

Non-Revenue Water Central Unit

(CNRW)

JORDAN NATIONAL NON-REVENUE WATER REPORT

Reporting Period: 3rd assessment year

(1st July, 2024 --- 30th June, 2025)

August, 2025

NRW Central Unit
Muna_Bataineh@mwi.gov.jo

Contents

The downward trendline since 2021 (Fig.1) in a way reflects the outcomes in NRW reduction activities and the support of international funding agencies, the engagement and coordinated efforts of all concerned actors in NRW management contributed to these positive developments, and, a much higher commitment has been observed from 2022 onwards.

Much higher inputs on the real (physical) loss reduction are needed in the coming three years to meet the annual 2% target. Significant reduction will only be seen once the network improvement measures are starting in full swing, which due to the long implementation periods will probably appear from 2028 onwards.

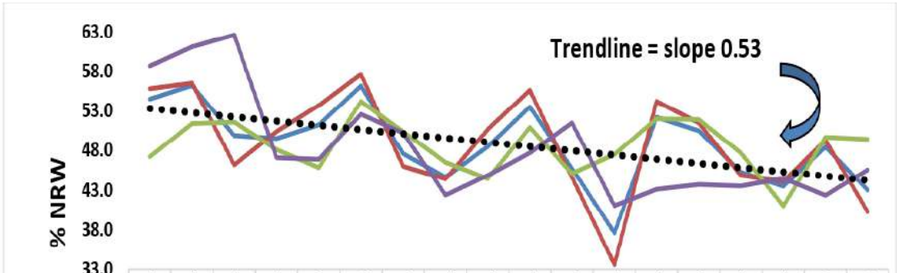
More detailed information is contained in the subsequent chapters of this report and shall provide an insight on governorate level.

National Non-Revenue Water (NRW) Assessment: Baseline and Performance Year Analysis:

The graph in Figure 1 shows the NRW development for the three utility companies since January 2021 until the second quarter of 2025. Obviously, fluctuations depending on the season are apparently quite normal, While the downward trend since 2021 was maintained.

As all governorates are now part of the companies' service area, their NRW figures are reflecting the overall company performance and include the governorates under management contract.

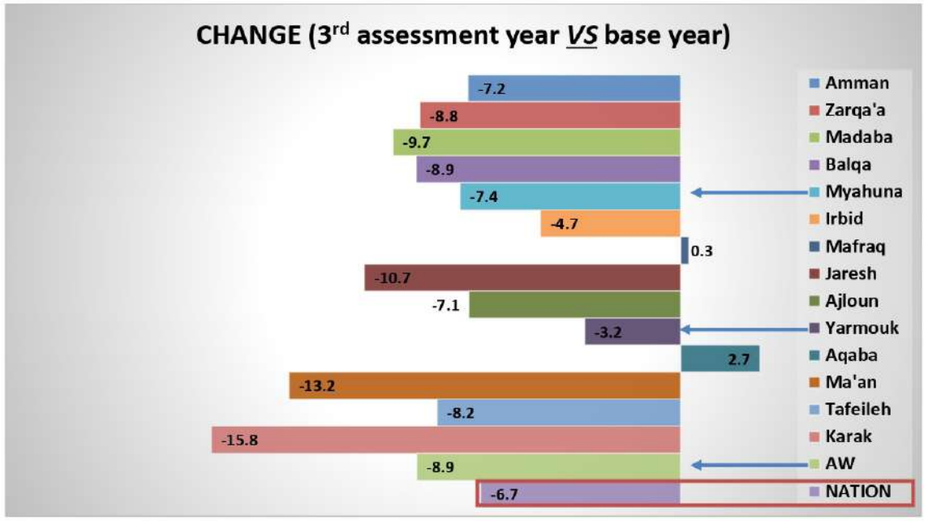
Figure 1: NRW Levels since Q1/2021



	Q1/21	Q2/21	Q3/21	Q4/21	Q1/22	Q2/22	Q3/22	Q4/22	Q1/23	Q2/23	Q3/23	Q4/23	Q1/24	Q2/24	Q3/24	Q4/24	Q1/25	Q2/25
National	54.5	56.2	49.9	49.5	51.2	56.2	47.6	44.6	48.5	53.5	45.7	37.6	52.2	50.5	45.3	43.5	48.5	43.0
Miyahuna	55.8	56.5	46.2	50.4	53.7	57.6	46.0	44.4	50.7	55.6	44.6	33.6	54.2	51.5	44.8	44.1	49.3	40.3
YWC	47.2	51.4	51.6	48.1	45.8	54.2	50.4	46.5	44.5	50.9	45.1	47.5	52.0	51.9	47.7	41.0	49.7	49.4
AWC	58.7	61.1	62.6	47.1	46.9	52.6	50.2	42.4	44.9	47.7	51.5	41.0	43.1	43.7	43.5	44.5	42.3	45.5

Fig. 2 shows the NRW% points reduction per governorate, company and nationwide. All governorates reduced the Non-Revenue Water percentage compared to the base year (from June 2021 until July 2022), except for Mafraq and Aqaba which increased by 0. 3% and 2.7% respectively. Nationwide the NRW percentage has decreased by 7.6% (from 51.7 to 45.0).

Figure 2: reduction of %NRW of the 2nd assessment year compared to the baseyear



Miyahuna, which serves 68% of the subscribers in Jordan, managed to reduce NRW by 7.4% comparing to the baseyear, while contributing in the reduction of the national NRW volume by 55 % (around 10.1 MCM of 18.3 MCM total). This illustrates that efforts were integrated, focused and continuous. This great reduction was achieved with a positive contribution of Balqa especially in the last quarter.

Yarmouk Water on the other side, serving 23% of the total subscribers in Jordan has succeeded in reducing the overall percentage of NRW by only 3.2 %, which is below the -6% target, but was the last to contribute in decreasing the NRW volume wise by 7.6% (1.4 MCM). This NRW reduction was achieved by Yarmouk water without any positive contribution from Mafraq which increased the volume of the NRW by around 2.8 MCM. Accordingly, and as an urgent matter, Yarmouk water in general and Mafraq governorate in specific should be given a closer attention from decision makers.

Aqaba Water is serving 9% of Jordan's water subscribers, but decreased the overall percentage of NRW by 8.9% and contributed in decreasing the overall national reduction by 37% (6.7 MCM). This reduction was achieved without any contribution from Aqaba governorate which increased NRW by 2.7% (2.5MCM)

By looking into more detail, 82% of the total reduction of Aqaba water company is contributed by Karak governorate. it appears that 5% of the number of subscribers living in Karak governorate decreased their NRW by 15.8% (5.6 MCM).

Aqaba governorate increased the NRW by 2.7 comparing to the base year and the actual volume of NRW has increased by 2.5 MCM. This can be justified by decreasing billing efficiency by -4%.

Below table illustrates %NRW figures for all governorates in the base year and the current assessment year while highlighting the governorates with increasing NRW percentages.

Table 1 %NRW base year (2021/22) and third assessment year (2024/25)

overnorate	Amman	Zarqa'a	Madaba	Balqa	Irbid	Mafraq	Jaresh	Ajloun	Aqaba	Ma'an	Tafeileh	Karak	Nation
Base year	47.0	57.6	47.7	69.5	40.9	67.2	52.8	43.5	30.8	67.1	64.3	65.7	**51.7**
3rd ssessment year	39.8	48.8	37.9	60.5	36.2	67.5	42.1	36.4	33.4	53.9	56.1	49.9	**45.0**
Δ %NRW	-7.2	-8.8	-9.7	-8.9	-4.7	0.3	-10.7	-7.1	2.7	-13.2	-8.2	-15.8	**-6.7**

Non-Revenue Water (NRW) Assessment on Utility - Governorate Level

The breakdown on governorate level over the complete assessment year shows the critical ones and should help in prioritization of activities in the coming years. The following analysis is for the reduction between the third assessment year comparing to the base year.

Detailed results in the 3rd performance period 2024/25 continue to show a positive trend (Table), except Mafraq and Aqaba governorates. This needs further investigation and attention. Besides these governorates, another priority governorate to be focused on is Balqa, showing NRW rates above 69%, but with a positive downward trend.

Miyahuna, showed a good performance in all governorates with a NRW reduction from 7.2% to Amman until 9.7% to Madaba. NRW management activity with the company is professional with high ability to monitoring and improving. Major intervention area for achieving the 2% reduction in the coming years.

Balqa continues to be the most critical governorate. A Masterplan to address the tertiary network and house connections was published in January 2024, indicating that 94% of the total distribution network length relates to pipe diameters equal to 2" and below, and about 30% of the network consists of steel or GI pipes. In combination with the high network pressure, the physical losses appear to contribute to more than 50% of the NRW, explaining in parts the reason for the consistently high NRW figures. The required investment volume is about 150 MJOD, immediately required investment is about 70 MJOD.

The reduction of NRW was only achieved in the last quarter of this assessment year (Q2/2025), where commercial losses including illegal usages was the major contribution to the great NRW reduction.

If this investment is not carried out within the coming 4 years, a sizeable reduction of NRW will not be possible.

Yarmouk Water Company, being the second largest utility with more than 370,000 customers and 115 MCM supplied water (2024) operates under severe financial constraints. This should rather motivate the management to address NRW reduction as a top priority.

However, until the end of this reporting period YWC has no functioning NRW unit nor showing initiatives to implement concrete measures to reduce leaks in critical areas. Without considerable engagement of qualified professionals in NRW management, combined with more intensive capacity building and other resources a turnaround will not happen in the near future.

While all three governorates, Irbid, Jerash and Ajloun managed to reduce the NRW by 4.7%, 10.7% and 7.1 respectively, Mafraq scored 0.3% increase in NRW, which could be related to the high no. of pipe diameters 2" and below. The planned water loss reduction project, funded by KfW with about 60 MEUR, will address this and help in reducing the physical losses to acceptable levels.

Aqaba Water Company (AW), is in a kind of transition stage. Since mid-2022 the three southern governorates of Ma'an, Tafieleh and Karak are managed by Aqaba Water and need additional support especially related to human resources and IT. With the reduction of commercial loses in the past assessment years, these governorates represent a reduction of the NRW comparing to the base year by 13.2%, 8.2% and 15.8 respectively.

This rapid reduction is primarily related to administrative (commercial) loss reduction, indicating that many customers have not been billed for years. It is remarkable, what a good management with an incentive-based targeted action can achieve within a short period.

Aqaba city on the other hand is not giving NRW reduction a property within the business work of the company which resulted in an increase of NRW comparing to the base year in spite the favored operational conditions that Aqaba has comparing to all other governorates in the kingdom.

Table 2 Quarterly NRW reduction (Baseline **vs** 1st and 2nd Performance)

Governorate	Q3 NRW% 2024	Δ Q3 %NRW Base year	Q4 NRW% 2024	Δ Q4 %NRW Base year	Q1 NRW% 2025	Δ Q1 %NRW Base year	Q2 NRW% 2025	Δ Q2 %NRW Base year
Amman	37.8	**-0.7**	37.9	**-8.2**	42.0	**-7.9**	41.5	**-12.0**
Zarqa	48.4	**-6.2**	44.0	**-8.8**	57.1	**-3.8**	46.0	**-15.9**
Madaba	43.9	**-6.9**	24.2	**-16.7**	39.6	**-4.2**	42.4	**-10.5**
Balqa	70.3	**0.5**	72.9	**1.1**	71.6	**7.5**	27.7	**-44.0**
Irbid	38.8	**-2.0**	28.9	**-11.0**	37.9	**0.1**	39.0	**-5.6**
Mafraq	64.4	**-5.9**	65.8	**-1.1**	70.3	**10.9**	69.6	**-0.3**
Jerash	42.5	**-8.5**	31.6	**-13.4**	47.0	**-10.3**	46.0	**-11.0**
Ajloun	41.3	**-6.3**	27.2	**-3.7**	43.2	**5.0**	33.7	**-19.4**
Aqaba	31.7	**-1.8**	33.7	**18.2**	31.0	**-1.0**	37.2	**-4.5**
Ma'an	58.0	**-15.9**	54.1	**-12.1**	46.7	**-11.7**	54.3	**-13.4**
Tafieleh	57.8	**-17.5**	61.2	**-6.2**	52.0	**-8.3**	53.1	**-0.6**
Karak	45.6	**-40.3**	49.5	**-14.0**	54.0	**0.1**	50.3	**-3.6**
Kingdom	**45.3**	**-4.6**	**43.5**	**-6.0**	**48.5**	**-2.8**	**43.0**	**-13.2**

- Detailed data is shown in Annex 1

Lessons learnt:

"The reduction of NRW is everyone's business", that was the message that was conveyed to all utilities and subsequently the CNRW unit started an awareness campaign for all related departments; customer relations, technical affairs, operations and NRW departments.

Some utilities took large steps in decreasing NRW using the available quick wins such as Tafieleh and Karak. They have tried to tackle commercial losses, where, increasing billing efficiency, re-evaluating billing estimation regulations, decreasing the percentage of estimated customers and mainly issuing bills for zero-billed customers measures were directly adopted and results were quickly showing.

Other utilities, the middle governorates, worked in a more comprehensive methodology where they formed internal committees to follow up the activities in each business unit aiming towards NRW reduction. Such activities, which are done by a collaborative approach between all related departments, include the aforementioned quick wins measures in addition to conducting a full water balance for water systems, intensifying illegal use campaigns and increasing the efficiency of workers through applying an incentive scheme and by applying a maintenance monitoring application which enhanced leak repairs and quality of work.

Annex (1)

Detailed comparison data between base year and 3rd assessment year

QUARTER 3 -2021				
Governorate	Supplied (m^3)	Billed (m^3)	NRW Volume	NRW %
Amman	55,724,302	34,256,233	21,468,069	38.5
Zarqa'a	15,954,821	7,254,397	8,700,424	54.5
Madaba	3,291,750	1,619,489	1,672,261	50.8
Balqa'a	11,784,567	3,551,626	8,232,941	69.9
Myahuna	86,755,440	46,681,745	40,073,695	46.2
Irbid	16,473,772	9,755,180	6,718,592	40.8
Mafraq	10,008,371	2,967,362	7,041,009	70.4
Jaresh	2,544,375	1,246,213	1,298,162	51.0
Ajloun	1,925,963	1,009,617	916,346	47.6
Yarmouk	30,952,481	14,978,372	15,974,109	51.6
Aqaba	7,932,469	5,278,495	2,653,974	33.5
Ma'an	4,180,120	1,091,231	3,088,889	73.9
Tafeileh	2,270,994	562,200	1,708,794	75.2
Karak	6,616,793	927,781	5,689,012	86.0
AW	21,000,376	7,859,707	13,140,669	62.6
NATION	138,708,297	69,519,824	69,188,473	49.9

→

QUARTER 3 -2024				
Governorate	Supplied (m^3)	Billed (m^3)	NRW Volume	NRW %
Amman	60,835,080	37,847,906	22,987,174	37.8
Zarqa'a	16,384,096	8,458,938	7,925,158	48.4
Madaba	3,491,593	1,958,864	1,532,729	43.9
Balqa	14,694,798	4,358,198	10,336,600	70.3
Myahuna	95,405,567	52,623,906	42,781,661	44.8
Irbid	16,373,058	10,018,991	6,354,067	38.8
Mafraq	10,243,018	3,643,498	6,599,520	64.4
Jaresh	2,624,876	1,509,970	1,114,906	42.5
Ajloun	1,898,980	1,114,986	783,994	41.3
Yarmouk	31,139,932	16,287,445	14,852,487	47.7
Aqaba	8,360,008	5,712,784	2,647,224	31.7
Ma'an	3,574,236	1,502,846	2,071,390	58.0
Tafeileh	2,623,784	1,108,006	1,515,778	57.8
Karak	4,818,156	2,619,230	2,198,926	45.6
AW	19,376,184	10,942,866	8,433,318	43.5
NATION	145,921,683	79,854,217	66,067,466	45.3

Simple Change	
CHANGE (Q3 24 - Q3 21)	
Amman	-0.7
Zarqa'a	-6.2
Madaba	-6.9
Balqa	0.5
Myahuna	-1.3
Irbid	-2.0
Mafraq	-5.9
Jaresh	-8.5
Ajloun	-6.3
Yarmouk	-3.9
Aqaba	-1.8
Ma'an	-15.9
Tafeileh	-17.5
Karak	-40.3
AW	-19.0
NATION	-4.6

The middle governorates were closely monitored by Miyahuna and results were monthly discussed to set correction plans.

Governorates with high NRW ratios above 60% have severe problems with unstructured and undersized distribution networks, in particular tertiary networks and house connections. The traditional rehabilitation approach, to first carry out the foundation tasks by restructuring and zoning and after measuring NRW levels decide about the future action is not appropriate any more, as the long project preparation and implementation periods for subsequent projects are endangering a sustainable water loss reduction. If a NRW project for reduction of physical losses is planned and designed, it must comprise the whole spectrum of NRW reduction measures, in particular tertiary networks and house connections.

Although 3.1% , 5.2%and 6.7% points NRW reduction has been achieved in the first, second and third assessment years respectively, attention has to be given to the coming 2-3 years as commercial loss reduction was the major contributor. The investment addressing physical loss reduction on the other hand will be requiring implementation periods between 4-5 years to show good results.

To bridge the gap of approx. 3 years and maintain the momentum in the governorates, the NRW reduction has to focus on short term activities like:

- Quick installation of domestic water meters,
- speeding up leak repairs,
- partial replacement of tertiary networks and house connections,
- disconnecting redundant networks,
- illegal use reduction,
- outsourcing functions like meter reading, leak repairs,

QUARTER 1 -2022				
Governorate	Supplied (m^3)	Billed (m^3)	NRW Volume	NRW %
Amman	50,979,862	25,558,730	25,421,132	49.9
Zarqa'a	15,006,441	5,865,014	9,141,427	60.9
Madaba	2,301,056	1,294,417	1,006,639	43.7
Balqa	10,588,727	3,801,561	6,787,166	64.1
Myahuna	78,876,086	36,519,722	42,356,364	53.7
Irbid	13,547,351	8,432,230	5,115,121	37.8
Mafraq	6,762,911	2,749,830	4,013,081	59.3
Jaresh	2,519,860	1,075,945	1,443,915	57.3
Ajloun	1,359,757	841,133	518,624	38.1
Yarmouk	24,189,879	13,099,138	11,090,741	45.8
Aqaba	5,978,447	4,068,305	1,910,142	32.0
Ma'an	3,240,195	1,346,241	1,893,954	58.5
Tafeileh	1,702,844	675,276	1,027,568	60.3
Karak	4,192,418	1,934,707	2,257,711	53.9
AW	15,113,904	8,024,529	7,089,375	46.9
nation	118,179,869	57,643,389	60,536,480	51.2

→

QUARTER 1 -2025				
Governorate	Supplied (m^3)	Billed (m^3)	NRW Volume	NRW %
Amman	55,087,249	31,965,437	23,121,812	42.0
Zarqa'a	15,696,404	6,728,830	8,967,574	57.1
Madaba	2,524,635	1,525,738	998,897	39.6
Balqa	13,651,410	3,879,858	9,771,552	71.6
Myahuna	86,959,698	44,099,863	42,859,835	49.3
Irbid	14,939,644	9,277,954	5,661,690	37.9
Mafraq	9,317,554	2,768,347	6,549,207	70.3
Jaresh	2,351,099	1,244,928	1,106,171	47.0
Ajloun	1,534,834	872,294	662,540	43.2
Yarmouk	28,143,131	14,163,523	13,979,608	49.7
Aqaba	7,767,010	5,359,953	2,407,057	31.0
Ma'an	2,319,959	1,235,645	1,084,314	46.7
Tafeileh	2,129,605	1,021,675	1,107,930	52.0
Karak	4,892,564	2,252,273	2,640,291	54.0
AW	17,109,138	9,869,546	7,239,592	42.3
nation	132,211,967	68,132,932	64,079,035	48.5

Simple Change	
CHANGE (Q1 25- Q1 22)	
Amman	-7.9
Zarqa'a	-3.8
Madaba	-4.2
Balqa	7.5
Myahuna	-4.4
Irbid	0.1
Mafraq	10.9
Jaresh	-10.3
Ajloun	5.0
Yarmouk	3.8
Aqaba	-1.0
Ma'an	-11.7
Tafeileh	-8.3
Karak	0.1
AW	-4.6
NATION	-2.8

QUARTER 4 -2021				
Governorate	Supplied (m^3)	Billed (m^3)	NRW Volume	NRW %
Amman	52,934,129	28,530,832	24,403,297	46.1
Zarqa'a	14,961,826	7,067,881	7,893,945	52.8
Madaba	2,601,463	1,538,924	1,062,539	40.8
Balqa'a	10,349,511	2,923,494	7,426,017	71.8
Myahuna	80,846,929	40,061,131	40,785,798	50.4
Irbid	15,542,328	9,340,493	6,201,835	39.9
Mafraq	8,629,029	2,853,952	5,775,077	66.9
Jaresh	2,391,257	1,313,594	1,077,663	45.1
Ajloun	1,542,514	1,065,400	477,114	30.9
Yarmouk	28,105,128	14,573,439	13,531,689	48.1
Aqaba	6,694,380	5,661,772	1,032,608	15.4
Ma'an	3,463,851	1,171,350	2,292,501	66.2
Tafeileh	2,010,996	656,205	1,354,791	67.4
Karak	6,395,409	2,330,005	4,065,404	63.6
AW	18,564,636	9,819,332	8,745,304	47.1
NATION	127,516,693	64,453,902	63,062,791	49.5

→

QUARTER 4 -2024				
Governorate	Supplied (m^3)	Billed (m^3)	NRW Volume	NRW %
Amman	56,883,841	35,297,091	21,586,750	37.9
Zarqa'a	16,232,194	9,088,701	7,143,493	44.0
Madaba	2,846,135	2,157,841	688,294	24.2
Balqa'a	14,096,426	3,821,827	10,274,599	72.9
Myahuna	90,058,596	50,365,460	39,693,136	44.1
Irbid	15,657,922	11,139,904	4,518,018	28.9
Mafraq	9,407,388	3,213,588	6,193,800	65.8
Jaresh	2,157,206	1,474,502	682,704	31.6
Ajloun	1,673,017	1,217,848	455,169	27.2
Yarmouk	28,895,533	17,045,842	11,849,691	41.0
Aqaba	8,251,508	5,473,521	2,777,987	33.7
Ma'an	2,803,930	1,286,164	1,517,766	54.1
Tafeileh	2,291,853	889,404	1,402,449	61.2
Karak	4,667,306	2,354,976	2,312,330	49.5
AW	18,014,597	10,004,065	8,010,532	44.5
NATION	136,968,726	77,415,367	59,553,359	43.5

Simple Change	
CHANGE (Q4 24 - Q4 21)	
Amman	-8.2
Zarqa'a	-8.8
Madaba	-16.7
Balqa	1.1
Myahuna	-6.4
Irbid	-11.0
Mafraq	-1.1
Jaresh	-13.4
Ajloun	-3.7
Yarmouk	-7.1
Aqaba	18.2
Ma'an	-12.1
Tafeileh	-6.2
Karak	-14.0
AW	-2.6
NATION	-6.0

NRW% at governorate level for base year and 3rd assessment year

Governorate	Base year		3rd assessment year		Δ
	NRW Volume	NRW %	NRW Volume	NRW %	
Amman	101,077,937	47.0	92,443,968	39.8	-7.2
Zarqa'a	35,629,844	57.6	31,805,489	48.8	-8.8
Madaba	5,406,174	47.7	4,586,823	37.9	-9.7
Balqa	31,197,460	69.5	34,345,812	60.5	-8.9
Myahuna	173311415	52.0	163182092	44.5	-7.4
Irbid	25,051,479	40.9	22,611,433	36.2	-4.7
Mafraq	23,280,204	67.2	26,092,523	67.5	0.3
Jaresh	5,352,574	52.8	4,081,265	42.1	-10.7
Ajloun	2,958,794	43.5	2,458,774	36.4	-7.1
Yarmouk	56643051	50.2	55,243,995	47.0	-3.2
Aqaba	8,401,847	30.8	10,928,010	33.4	2.7
Ma'an	10,071,260	67.1	6,372,650	53.9	-13.2
Tafeileh	5,305,709	64.3	5,285,409	56.1	-8.2
Karak	15,233,800	65.7	9,654,562	49.9	-15.8
AW	39012615	52.9	32,240,631	44.0	-8.9
Nation	268,967,081	51.7	250,666,718	45.0	-6.7

QUARTER 2 -2022						QUARTER 2 -2025					Simple Change	
Governorate	Supplied (m³)	Billed (m³)	NRW Volume	NRW %		Governorate	Supplied (m³)	Billed (m³)	NRW Volume	NRW %	CHANGE (Q2 25- Q2 22)	
Amman	55,639,057	25,853,618	29,785,439	53.5		Amman	59,589,344	34,841,112	24,748,232	41.5	Amman	-12.0
Zarqa'a	15,978,069	6,084,021	9,894,048	61.9		Zarqa'a	16,898,857	9,129,593	7,769,264	46.0	Zarqa'a	-15.9
Madaba	3,148,905	1,484,170	1,664,735	52.9		Madaba	3,224,757	1,857,854	1,366,903	42.4	Madaba	-10.5
Balqa	12,196,461	3,445,125	8,751,336	71.8		Balqa	14,295,788	10,332,727	3,963,061	27.7	Balqa	-44.0
Myahuna	86,962,492	36,866,934	50,095,558	57.6		Myahuna	94,008,746	56,161,286	37,847,460	40.3	Myahuna	-17.3
Irbid	15,721,142	8,705,211	7,015,931	44.6		Irbid	15,573,247	9,495,589	6,077,658	39.0	Irbid	-5.6
Mafraq	9,226,276	2,775,239	6,451,037	69.9	→	Mafraq	9,691,429	2,941,433	6,749,996	69.6	Mafraq	-0.3
Jaresh	2,688,389	1,155,555	1,532,834	57.0		Jaresh	2,560,685	1,383,201	1,177,484	46.0	Jaresh	-11.0
Ajloun	1,970,507	923,797	1,046,710	53.1		Ajloun	1,652,846	1,095,775	557,071	33.7	Ajloun	-19.4
Yarmouk	29,606,314	13,559,802	16,046,512	54.2		Yarmouk	29,478,207	14,915,998	14,562,209	49.4	Yarmouk	-4.8
Aqaba	6,716,573	3,911,450	2,805,123	41.8		Aqaba	8,312,625	5,216,883	3,095,742	37.2	Aqaba	-4.5
Ma'an	4,125,650	1,329,735	2,795,915	67.8		Ma'an	3,127,773	1,428,593	1,699,180	54.3	Ma'an	-13.4
Tafeileh	2,262,127	1,047,571	1,214,556	53.7		Tafeileh	2,371,100	1,111,848	1,259,252	53.1	Tafeileh	-0.6
Karak	5,983,304	2,761,631	3,221,673	53.8		Karak	4,979,998	2,476,983	2,503,015	50.3	Karak	-3.6
AW	19,087,654	9,050,387	10,037,267	52.6		AW	18,791,496	10,234,307	8,557,189	45.5	AW	-7.0
nation	135,656,460	59,477,123	76,179,337	56.2			142,278,449	81,311,591	60,966,858	43.0	NATION	-13.2

Ministry of Water and Irrigation
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