WSRC

مجلس تنظيم قطاع المياه

WATER SECTOR REGULATORY COUNCIL

PALESTINE فلسطين

Performance Monitoring Report

For Water & Wastewater Service Providers in Palestine

2022

August 2023

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President of the State of Palestine President
Mahmoud Abbas

State of the Prime Minister
Dr. Mohammad Shtayyeh

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Preface

Chairman's preface

In accordance with the provisions of paragraph 12 of Article 24 of Water law No. 14 of 2014, which stipulates one of the tasks of the Water Sector Regulatory Council is to establish a database of technical, financial, and statistical information for water and wastewater service providers in Palestine and to publish it periodically, we hereby make this data available to the reader for assessing the quality of these services as one of the pillars of transparency and accountability, in line with citizens' right to access information.

The data in this report covers the overall performance monitoring of service providers in the West Bank and Gaza Strip for the year 2022. We, at the Water Sector Regulatory Council, are fully aware of the difficulties facing service providers in Palestine in terms of scarcity of water resources resulting from Israeli control and unjust control over available water quantities for Palestinian citizens. At the same time, we also acknowledge the economic situation of the citizens and the financial challenges faced in providing services. Nevertheless, we take pride in the sustainability of services and any achievements reflected in the overall performance indicators of service providers.

The achievements realized through the cooperation between the Palestinian government and its relevant institutions, led by the Water Authority, on the one hand, and service providers and citizens, on the other hand, as well as international partners in the water sector, have played a crucial role in improving water and wastewater services.

Performance reports reflect various performance-related indicators, such as technical, financial, and quality indicators, in accordance with the Palestinian Water Authority and globally adopted monitoring procedures. It is worth noting that only a portion of the collected data, provided by the Council's database, is presented here, and this data is available to all, including local and international institutions, students, researchers, and citizens.

This is the ninth annual performance report issued by the Council, which we hope will serve as an additional tool for improving service quality and future planning to meet the needs of citizens and researchers. The Council has sought accuracy and objectivity in data collection, a task that wouldn't have been made possible without the high level of commitment and credibility of service providers and employees in these institutions. Many thanks and appreciation to all those working in water and wastewater service providers in Palestine.

In this context, we do not ignore the support provided by the government of the Netherlands to the Council to enable it to carry out its duties, for the fourth consecutive year. Likewise, I can only express my gratitude to the dedicated staff of the Council for this achievement.

Mohammed Awni Abu Ramadan
Chairman of Board of Directors

CEO's preface

The Water Sector Regulatory Council was formed by Decree No. (14) for the year 2014 relating to the water law, which was amended in 2019 without affecting the council's tasks or activities. Among the tasks assigned to the council, as outlined in its objectives, is to monitor the quality of water and wastewater services at the national level through a set of indicators measured within the objectives and targets set by the Palestinian Water Authority within the National Water Strategy.

Institutions and relevant stakeholders, including the Palestinian Water Authority, the Water Sector Regulatory Council, service providers, and other related institutions, are working to ensure water security, preserve every drop of water, reduce water wastage, and utilize all modern technological means to ensure efficient and safe use of water across all sectors. This is achieved through updating national strategies, involving the private sector, enhancing the capacity and efficiency of water sector personnel in various locations, and implementing programs to protect water resources. The council, in turn, is developing its monitoring tools to ensure access to accurate data, update the complaint system and follow-up mechanisms, and provide service providers with self-regulatory tools for operational processes with specific compliance indicators for governance of service provision.

Accordingly, the objectives of this report can be summarized as follows:

- Assessing compliance with annual objectives for water and wastewater services in comparison to national goals.
- Identifying performance weaknesses and exploring causes and solutions.
- Providing accurate data for planning and correcting courses of service provision.
- Giving the opportunity for service providers to exchange information according to their performance.
- Granting citizens one of their rights to knowledge and access to service providers' performance.

The report includes performance monitoring for 286 service providers in the West Bank and all service providers in the Gaza Strip. Note that small population clusters in the West Bank, accounting for approximately 4% of the population, were excluded as they lacked the required data.

The report also includes an overview of water sources for each service provider, along with detailed data, as well as changes in financial, technical, quality indicators, and subscriber satisfaction. It also covers the employee/staff productivity index and gender-based involvement. The report also provides information about the operational processes monitored by the council.

It's been noticed the set-back in some indicators especially NRW, it was increased 2% in 2022 in Westbank, in contrary, this indicator decreased by 3.74% in 2022 in Gaza.

On the other hand, there is an improvement in collection efficiency indicator by 6% in West Bank, but in Gaza, this indicator decreased by 11% due to the socio-economic situation in Gaza.

The volume of data collected from service providers is much larger than what is presented in this report, and is reviewed and categorized within the council's database. This database is accessible through the council's website at www.wsrc.ps

The Water Sector Regulatory Council affirms its commitment to ensuring the accuracy and credibility of the data and uses multiple methods to verify this credibility. However, there may be occasional errors in some data for various reasons, which, in no way, diminishes the importance of the report and its usability by service providers, researchers, and donor organizations.

The council's staff, in coordination and partnership with the Palestinian Water Authority's staff, has made significant efforts worthy of praise. Service providers have also dedicated time and effort to collect, verify, and submit data to the council, an effort that also deserves gratitude and appreciation.

Mohammed Said Al Hamidi
Chief Executive Officer

WSRC's Mission

Objective of the Council

Founded in 2014 in accordance with the Decree No. (14) for the year 2014 Relating to the Water Law, the Water Sector Regulatory Council (WSRC) plays a pivotal role in the water sector reform strategy of Palestine. It stands as one of the principal pillars within the sector, holding financial and administrative autonomy alongside the Palestinian Water Authority. The council's mission is to strike a balance between safeguarding the needs and rights of consumers and addressing the responsibilities and interests of service providers.

The council's primary objective is to comprehensively monitor all aspects of the operational side of water and wastewater service providers. This includes oversight of transportation, distribution, consumption, and wastewater treatment processes, all aimed at ensuring the delivery of high-quality, affordable services to consumers.

For eight consecutive years, the council has been diligently extending its outreach to all water and wastewater service providers across Palestine. This year, their efforts have successfully encompassed over 300 service providers in both the West Bank and the Gaza Strip.

1. The council has developed an internationally adapted set of performance indicators, comprising over 50 specific indicators aligned with the strategic planning of the Palestinian Water Authority. These indicators serve as a baseline for evaluating and measuring the efficiency and quality of the services provided.
2. The council has established a database that allows service providers to input the required data and information, which is subsequently analysed and evaluated as performance indicators.
3. The council has conducted workshops for the majority of service providers to review and discuss the results of the evaluation, ensuring their accuracy and relevance to performance enhancement before approval and publication.
4. The council issues an annual report to present the results of key performance indicators, followed by a comparison report that assesses the improvement or deterioration of service provider performance over the past two years.
5. The council collaborates with local and international organizations to collect quarterly data for various key performance indicators, facilitating real-time monitoring and enabling humanitarian intervention recommendations, policy recommendations and better planning.
6. The council consistently provides recommendations to donors, aiming to guide donations effectively to promote performance enhancement and align with the interests of all stakeholders.

Performance Monitoring Challenges

The council is facing several challenges that impede its monitoring role in improving the water services performance. Consequently, these challenges weaken its active involvement. Here are some of the challenges:

1. Monitoring of a large number of service providers, with limited human and financial resources. Given that there are over 300 service providers, effective communication becomes daunting, necessitating a thorough examination of each provider's results.

2. The high turnover rate among service providers poses an obstacle, making it challenging to collect accurate data from new employees. Despite the council limited resources, on the job training must be provide to ensure the accuracy of the data.
3. Some service providers are uncooperative in terms of providing data, causing delays in data analysis and reporting.
4. The unavailability of certain data hampers the enhancement process.
5. Failure to adhere to the council's reports and recommendations diminishes the efficiency of monitoring. The council's role as a source of data should invoke responsibility among executive entities and service providers alike.

The WSRC Database

The database is an online management system designed for the collection of data related to water and wastewater services. Trained staff from service providers are granted accounts within this system, enabling them to input and review data. The system offers flexibility, allowing service providers to create different accounts with specific permissions for each one. This functionality empowers service providers by granting them direct access to their performance indicators. They can explore these indicators, compare them to previous years, or even benchmark them against other service providers. Furthermore, the system has streamlined the data collection process for the WSRC and contributes to the review and verification of data. Additionally, it assists in the calculation of indicator results for all service providers and facilitates the generation of dynamic reports and infographics.

The impact of WSRC on Water Sector

In addition to the real efforts from all stakeholders led by PWA, the council has had a profound impact on the water sector, leading to notable improvements in the performance of water and wastewater service providers. We can underscore these changes through the following key points:

1. The substantial enhancement in the quality of data collected by the council serves as concrete evidence of service providers' commitment to ensuring the accuracy and authenticity of the data.
2. The council stands as the exclusive source of operational data for water and wastewater services within the water sector. A majority of service providers regard the council's reports as a primary reference point when engaging with other donors.
3. The number of service providers approaching the council for tariff reviews is directly correlated with the value that the council adds to the significance of pricing and financial sustainability for these services.
4. Some service providers have established dedicated departments to manage water balance and employ techniques to reduce water losses.
5. There is a heightened focus on water quality among a larger number of service providers, and the Ministry of Health actively monitors water quality standards.
6. Collaboration between the WSRC, MoH, and service providers has strengthened to address water quality-related issues.

7. The increasing number of complaints received by the council reflects public awareness that, despite service provider monopolies, they can still voice concerns and seek qualitative improvements.
8. The council has raised awareness about water and environmental protection, fostering experience exchange with various organizations through workshops and council meetings.
9. Following council-implemented training on operation & inspection monitoring, service providers have shown interest in self-monitoring, and the council is actively promoting this practice.
10. The council is working on building the capacity of service provider employees, enhancing their analytical and financial skills to facilitate data analysis and the design or revision of service tariffs based on clear scientific and managerial principles.
11. The council's activities and events have shifted the perception of water and wastewater services from being solely mechanical processes to comprehensive, managerial, financial, and operational components deeply intertwined with the societal sustainability of the water sector as a complex and holistic entity.
12. The council has made significant contributions to enhancing academic and scientific levels by assisting numerous graduate students pursuing their master's and Ph.D. degrees at various universities. The council's experts also provide feedback on their research.

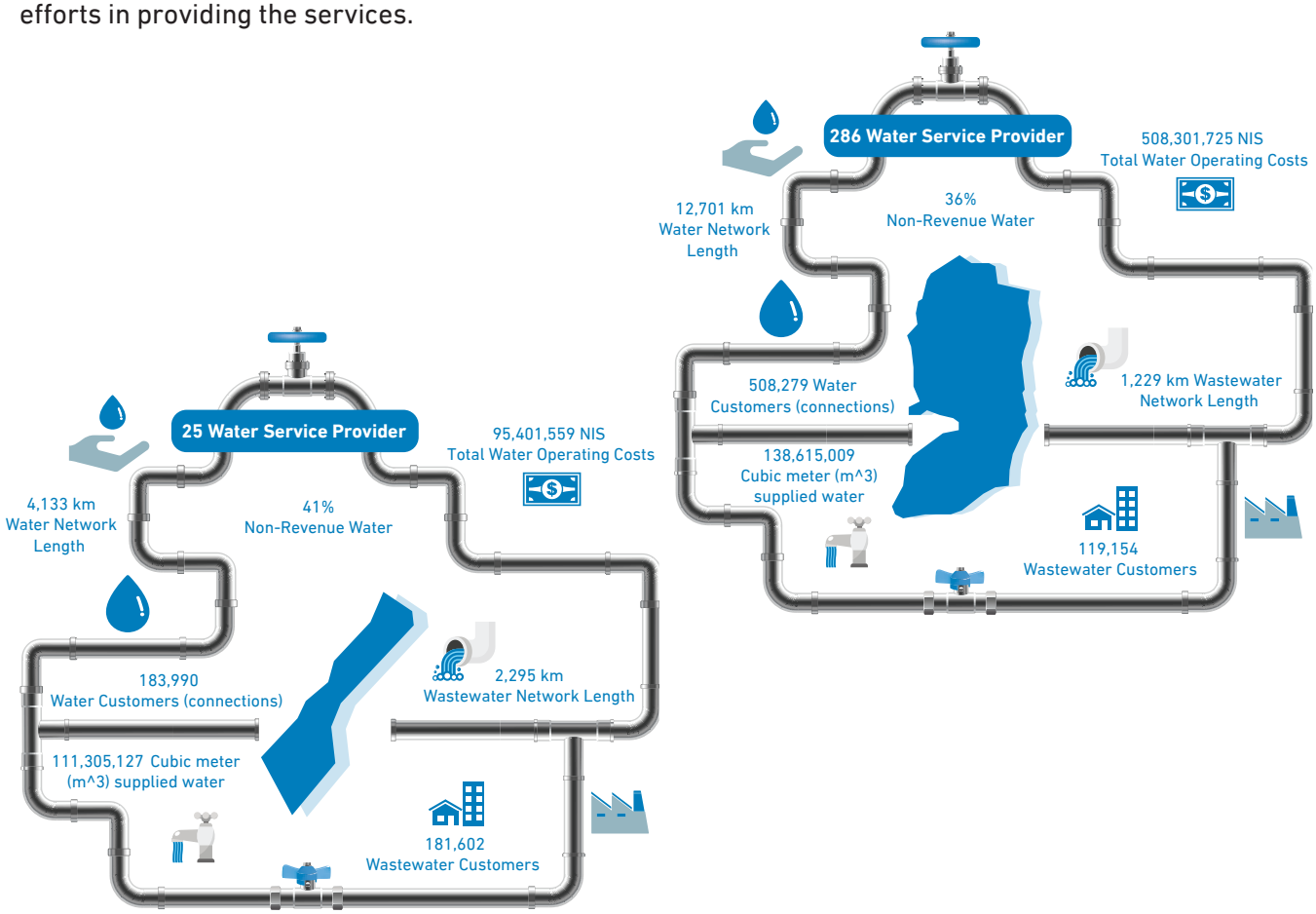
Introduction

The monitoring report has a primary objective of measuring and analyzing the annual performance indicators for water and wastewater service providers. This report serves as a fundamental reference point for assessing the reform strategy within the Palestinian water sector. It evaluates the extent to which local authorities benefit from improving the quality of services provided to citizens, utilizing specific key performance indicators and adhering to international standards. Consequently, this assessment reflects the collective efforts of the government and donors in advancing the reform of the water sector in Palestine. In pursuit of establishing a solid foundation, all stakeholders have worked towards achieving the ultimate goal: providing high-quality services at affordable prices for consumers.

To this extend, WSRC presents in this report the results of key performance indicators for water and wastewater service providers in Palestine for year of 2022, this includes 286 WSPs in Westbank and 25WSPs in Gaza, allocated through Joint service councils, water associations, village councils, municipalities, water utilities and private sector. Providing water to the citizens continuously and according to the international standards.

Looking at the immediate results, it can be observed that 94% of the population in the West Bank is connected to a water network. Approximately 3% receive water services through water tanks, while some communities rely on specialized tanks for their water supply. Consequently, 97% of the West Bank's population and 90% of the Gaza Strip's population have access to water utilities at their households. Additionally, 35% of the West Bank's population benefits from wastewater services, and 80% of Gaza's population has access to wastewater services. This implies that the vast majority of the population is recipients of at least one of these services, even in a worst-case scenario.

The diagram below shows a sneak-peak on some of the statistics related to water service and the exerted efforts in providing the services.



It's essential to note that this report differs from the type of auditing report typically found in an accounting office. In this report, the council conducts an analysis of performance indicators based on data provided by the service providers. This analysis follows a training-based approach where employees of the service providers are guided in collecting the necessary data. Subsequently, the council reviews the data for accuracy. Ongoing communication and follow-up with service provider employees are crucial elements in ensuring the accuracy of the data and the resulting analysis.

The council relies on performance indicators to offer explanations and detailed insights regarding each indicator, comparing them to the benchmarks established in collaboration with the Palestinian Water Authority and related stakeholders. Additionally, this data serves to provide justifications for any irregularities that may arise during the evaluation process for certain service providers.

It is important to note that this report assesses the performance indicators for service providers in the Gaza Strip, taking into consideration that the water supplied in Gaza does not meet WHO standards for drinkability. Given this context, the performance indicators are measured to provide insights into the operational processes undertaken by the service providers.

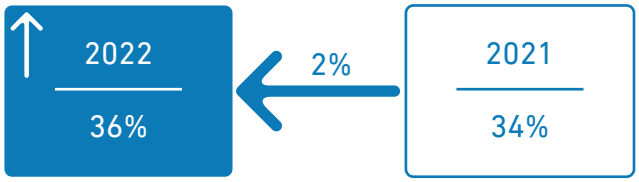
In conclusion, upon conducting an analytical review of the performance indicators for the year 2022 and comparing them to previous years, significant improvements in the performance of service providers have become evident. The goals outlined by the council in the water sector reform strategy are now being realized, within just one year, for several key reasons. Firstly, the council has undertaken substantial efforts, bolstered by the trust of donors as stipulated in the water law. Additionally, the collaborative engagement of service providers in both the Gaza Strip and the West Bank in providing data has reinforced their sense of responsibility and underscored the council's importance in enhancing overall performance.

Key Performance Changes in 2021-2022

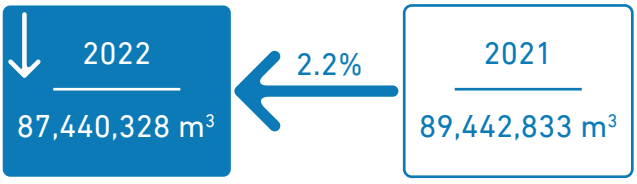
West Bank

The numbers indicate that there are no significant differences between 2021 and 2022. However, they do highlight that service providers are effectively meeting the water needs of consumers. Notably, there has been a substantial increase in cash collection, amounting to nearly 29 million ILS. This increase is expected to contribute to the enhancement and sustainability of the service.

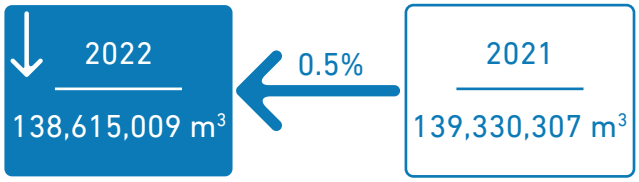
A slight increase in the percentage of non-revenue water



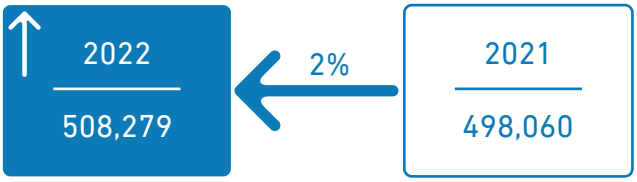
A decrease in the amount of water purchased from the Mekorot



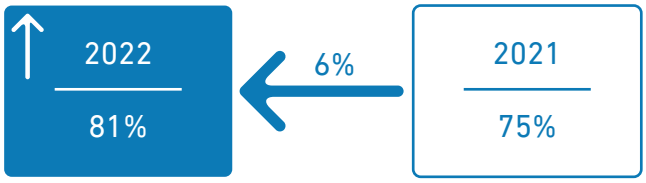
A slight decrease in water amounts pumped into distribution networks



Increase in the number of subscriptions



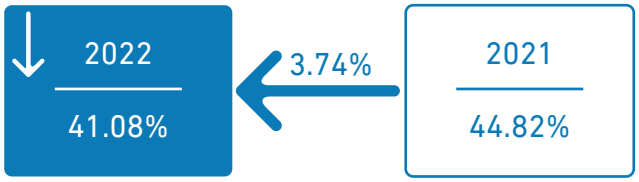
Increase in the efficiency of collection



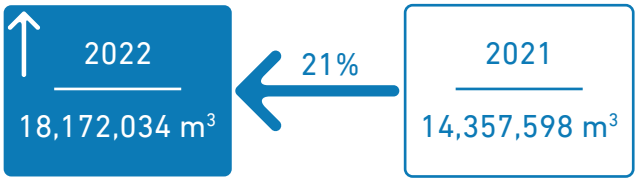
The Gaza Strip

The numbers unmistakably reveal a notable improvement in the services provided during 2021-2022, particularly in terms of reducing non-revenue water, enhancing water quality, and minimizing subscription cancellations. However, a deficiency in citizen awareness regarding the significance of these service improvements becomes evident when consumers do not contribute by paying for the service. This shortfall can be attributed to a lack of understanding regarding the enhancements being undertaken by service providers, compounded by challenging economic and livelihood conditions prevalent in the Gaza Strip.

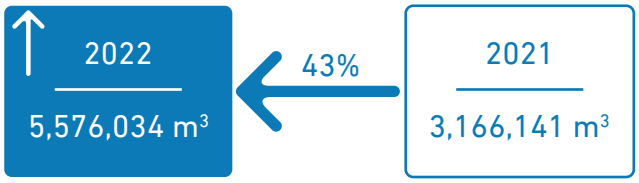
A decrease in the percentage of non-revenue water



Increase in the amount of purchased water from the Mekorot

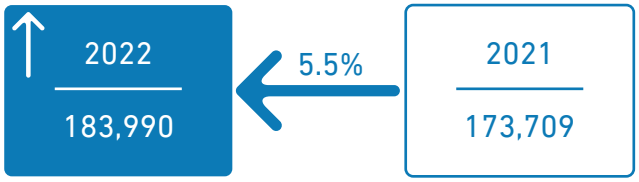


Increase in the purchased water from seawater desalination plants

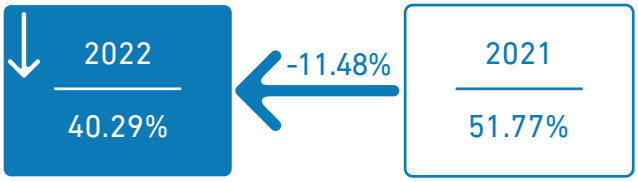


A slight increase in the amount of water in the distribution network

Increase in the number of subscriptions



A decrease in the efficiency of collection



Water and Wastewater Service Providers in Palestine

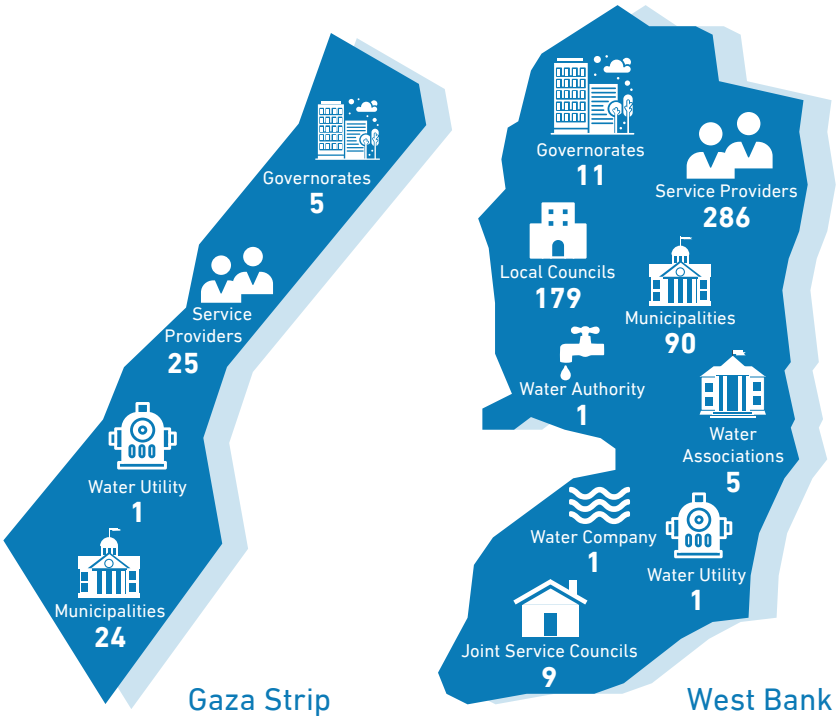
The Decree No. (14) for the year 2014 relating to the water law defines service providers as the "National Water Company and Regional Water Utilities, local Authorities, Joint Councils, and Associations that provide water or wastewater services."

The WSRC has successfully collected general data from a total of 286 service providers in the West Bank. Out of these, 42 provide both water and wastewater services, while the others focus solely on water services. In the Gaza Strip, detailed data was gathered from 25 service providers, with 20 offering both water and wastewater services and the remaining five exclusively providing water services.

As of the publication of this report, service providers in both the West Bank and the Gaza Strip have been classified based on the number of subscriptions (Large, Midsize, Small). This classification takes into account the significant fluctuations in the number of customers and the volume of services provided within their respective coverage areas.

Region/ Classification	Large	Midsize	Small	Total
West Bank	More than 3000 Subscriptions	Between 1000 - 3000 subscriptions	1000 subscriptions and less	**286**
	Number of service providers: 32	Number of service providers: 72	Number of service providers: 182	
Gaza	More than 8000 Subscriptions	Between 2000 - 8000 subscriptions	2000 subscriptions and less	**25**
	Number of service providers: 7	Number of service providers: 8	Number of service providers: 10	
Total number of service providers				**311**

Coverage of Service Providers based on the organizational structure



Due to the substantial number of service providers in the West Bank, this report will primarily present the results of performance indicators for large and midsize service providers. Detailed data for small service providers can be found in the annex.

Furthermore, the annual performance indicators report for 2022 has incorporated data from a total of 311 service providers. This includes 286 service providers in the West Bank, serving approximately 97% of the population, and 25 service providers in the Gaza Strip, covering to around 90% of the population in Gaza.

It's important to note that 40 service providers in the West Bank did not provide data or essential information relevant to their performance indicators. These non-participating service providers are as follows:

- Ad Deir VC
- Qarawat Bani Zeid VC
- Al Khas VC
- A'rab ar Rashayida VC
- Beit A'mra VC
- Wadi Rahhal VC
- A'nza VC
- Wadi an Nis VC
- Zabda Al Jadida VC
- Kisan VC
- A'rabbuna VC
- Shuyukh al A'rrub VC
- Al Jaba' VC
- Al A'ttara VC
- Al Manshiya VC
- Al A'sa'asa VC
- Ein el Beida VC
- Deir Abu Masha'l VC
- Al Kufeir VC
- Yasuf VC
- Rantis VC
- Imneizil VC
- Farkha VC
- Deir A'mmar VC
- Rural Yatta JSC
- Rujeib VC
- Allaban Algharbiu VC
- Idhna Municipality
- A'zmut VC
- Kafr Qalil VC
- At Tuwani VC
- Al Badhan VC
- Madama VC
- Furush Beit Dajan VC
- Deir Sharaf VC
- Zawata VC
- Barta'a Al sharqia Municipality
- Al Ka'abneh Om Adaraj (Alzoyedeen) VC
- El Fara'a Camp Services Subcommittee
- Beit Qad (Al Shamali) VC

Operational Data for Water and Wastewater Service Providers

1. Water Sources

When examining the data regarding water sources for service providers, a notable contrast emerges between the West Bank and the Gaza Strip. In the West Bank, service providers heavily rely on purchased water from Mekorote. This reliance stems from the challenges they face in establishing underground water wells, primarily due to the occupation's control over C areas and water resources. This situation has a significant impact on various indicators, particularly the cost of water per cubic meter.

In contrast, in the Gaza Strip, service providers primarily rely on underground water sources to supply water to the citizens. However, it's worth noting that the quality indicators for this water do not meet the standards set by the Palestinian Standards Institution or World Health Organization (WHO). To address this challenge, service providers are striving to create a blend of purchased water from Mekorote and water from seawater desalination plants to reduce salt levels in the potable water supply. These efforts result in a substantial increase in operational costs, placing a significant burden on the service providers.

The Palestinian Authority (PA) subsidises the water price and bear portion of bulk purchasing costs - a fact many consumers do not know.

Although the WBWD purchases water from Mekorot by ILS 3.2 per cubic metre, it resells it to the service providers at ILS 2.6 per cubic metre. Moreover, Mekorot adds more expenses to the WBWD's bill, such as fines and maintenance fees.

When it comes to safeguarding water sources in Palestine, the council has collected data regarding availability of safety water plans based on data collected in 2022. The results of these efforts are as follows:

- Among the 286 service providers in the West Bank, 91 of them (32%) have safety plans for their water sources, while 96 service providers have no safety plans in place. Some service providers lack any information regarding safety plans.
- Among the 40 service providers who rely solely on their water sources without purchasing water, 28 of them have safety plans, while 10 service providers have none, and 2 service providers are unaware of safety plans altogether.

As a result, the WSRC has identified the fundamental components of safety plans for water sources, including protective measures, which comprise the following:

- Evaluate whether the water networks' systems, up to the point of consumption by consumers, can consistently provide high-quality water that meets consumer needs.
- Implement operational monitoring for every critical aspect that assesses risks and ensures the achievement of objectives.
- Develop communication and management plans that are documented and aligned with the system's procedures.

Water Resources - West Bank

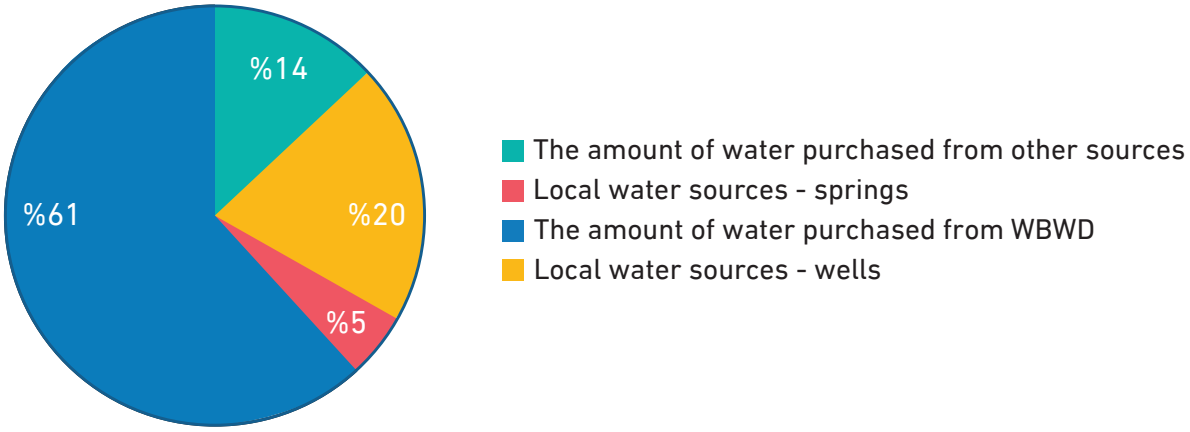


Table 1: Quantities of Available Water m^3 for water service providers in the West Bank.

Service provider	Total number of water customers	Local water sources - wells	Local water sources - springs	Quantity of water purchased from the WBWD	Quantity of water purchased from other sources	Available Quantities of water
Large Service Providers						
Northwest Jerusalem Joint Service Council	5,576	-	-	1,352,081	-	1,352,081
Al 'Eizariya Municipality	5,242	-	-	1,397,033	-	1,397,033
Abu Dis Cooperative Society for Water	4,165	-	-	661,989	-	661,989
Jericho Municipality	7,507	-	3,589,207	101,104	13,740	3,704,051
Water Supply and Sewerage Authority "WSSA" Bethlehem	14,519	755,088	-	5,645,769	-	6,400,857
Beit Liqya, Kharbatha Al Misbah JSC	3,388	-	-	778,764	-	778,764
Beituniya Municipality	7,460	-	-	-	1,212,898	1,212,898
Jerusalem Water Undertaking	78,316	3,301,013	-	14,591,780	3,552,833	21,445,626
West Jenin Water Utility	12,115	2,062,731	-	612,098	-	2,674,829
Meithalun JSC	5,157	-	-	198,871	947,032	1,145,903
Jenin Municipality	9,684	807,037	-	1,473,510	842,906	3,123,454
Qabatiya Municipality	4,498	-	-	571,528	867,878	1,439,406
Ya'bad Municipality	3,962	788,974	-	700	-	788,974
Rural Dura JSC	5,457	-	-	849,872	-	849,872
Hebron Municipality	17,815	-	-	9,316,692	573,300	9,889,992
Yatta Municipality	4,997	-	-	1,667,444	-	1,667,444

Service provider	Total number of water customers	Local water sources - wells	Local water sources - springs	Quantity of water purchased from the WBWD	Quantity of water purchased from other sources	Available Quantities of water
Dura Municipality	4,730	-	-	1,010,948	-	1,010,948
Halhul Municipality	4,467	-	-	1,344,180	-	1,344,180
Adh Dhahiriya Municipality	3,123	-	-	822,193	-	822,193
Bani Na'im Municipality	4,267	-	-	840,359	-	840,359
Sa'ir Municipality	3,547	-	-	947,699	838	948,537
As Samu' Municipality	3,900	-	-	589,141	-	589,141
Beit Ummar Municipality	3,169	-	-	1,033,817	-	1,033,817
Surif Municipality	3,876	-	-	846,731	-	846,731
Tarqumiya Municipality	3,323	-	-	477,734	-	477,734
Tulkarm Municipality	16,368	-	-	-	-	-
Tubas Joint Service Council	10,684	-	-	2,060,750	317,043	2,377,793
Salfit Municipality	3,894	146,130	266,611	462,860	-	875,601
Biddya Municipality	3,600	331,400	-	315,310	-	646,710
South East Nablus JSC	7,213	-	-	1,492,655	-	1,492,655
Nablus Municipality	50,859	8,168,252	2,482,334	155,455	1,715,260	12,521,301
Qalqiliya Municipality	12,647	5,044,911	-	-	23,700	5,068,611
Midsize service provider						
Az Za'ayyem Municipality	1,140	-	-	363,915	-	363,915
As Sawahira Ash Sharqiya Municipality	1,013	-	-	487,407	-	487,407
Al Jib Municipality	1,600	-	-	263,399	-	263,399
Ubeidiya Municipality	2,066	-	-	597,368	-	597,368
Beit Fajjar Municipality	2,153	-	-	671,662	-	671,662
Tuqu' Municipality	1,750	-	-	501,317	-	501,317
Nahhalin Municipality	1,900	-	-	412,795	-	412,795
Jannatah Municipality	1,300	-	-	273,546	-	273,546
Za'tara Municipality	1,544	-	-	507,438	-	507,438
Battir Municipality	1,004	-	-	260,664	-	260,664
Husan VC	1,308	-	-	316,837	-	316,837
Ash Shawawra VC	1,210	-	-	281,434	-	281,434
Dar Salah VC	1,319	-	-	277,840	-	318,228
Bani Zaid Al Gharbia Municipality	2,490	-	-	407,789	-	407,789
Ni'lin Municipality	1,250	-	-	368,265	-	368,265
Qatra Water Resources	1,605	-	-	112,209	-	112,209

Service provider	Total number of water customers	Local water sources - wells	Local water sources - springs	Quantity of water purchased from the WBWD	Quantity of water purchased from other sources	Available Quantities of water
Beit 'Ur at Tahta Municipality	1,223	-	-	220,867	-	220,867
Qibya VC	1,446	-	-	336,573	-	336,573
Shuqba VC	1,200	-	-	449,672	-	449,672
Jaba' Municipality	2,150	-	-	282,427	40,794	323,221
Kafr Ra'i Municipality	1,643	-	-	29,441	462,767	492,208
Birqin Municipality	1,450	148,388	-	-	150,070	298,458
Silat adh Dhahr Municipality	1,690	-	-	307,539	-	307,539
Az Zababida Municipality	1,150	-	-	92,224	102,380	194,604
Barta'a ash Sharqiya Water Association	2,290	-	64,935	264,310	-	329,245
Sanur VC	1,107	-	-	182,500	-	182,500
A'jja Municipality	1,205	-	-	202,723	13,000	215,723
Faqqu'a VC	1,013	-	-	160,396	11,506	171,902
Beit Ula Municipality	2,150	-	-	504,029	-	504,029
Taffuh Municipality	1,830	-	-	330,570	107,860	438,430
Beit A'wwa Municipality	1,582	-	-	174,490	-	174,490
Ash Shuyukh Municipality	2,087	-	-	519,892	3,335	523,227
Kharas Municipality	1,550	-	-	536,848	-	536,848
Nuba Municipality	1,242	-	-	303,286	-	303,286
Karmil Municipality	1,200	-	-	230,751	-	231,833
Beit Kahil	1,450	-	-	497,783	-	497,783
Deir Samit Municipality	2,000	-	-	170,871	2,000	170,502
Deir al Ghusun Municipality	2,811	780,000	-	-	-	780,000
A'ttil Municipality	2,350	-	-	-	665,053	665,053
Anabta Municipality	2,231	818,672	-	-	-	818,672
Qaffin Municipality	2,596	650,000	-	-	75,110	725,110
Bal'a Municipality	1,978	510,243	-	-	-	510,243
'Illar Municipality	1,992	138,240	-	-	859,878	998,118
Beit Lid Municipality	1,373	-	-	216,820	-	216,820
Kafr Al Labad Municipality	1,114	-	-	-	300,450	300,450
Baqa Ash Sharqiya Municipality	1,354	-	-	-	300,800	300,800
Seida Municipality	1,000	-	-	-	145,647	145,647

Service provider	Total number of water customers	Local water sources - wells	Local water sources - springs	Quantity of water purchased from the WBWD	Quantity of water purchased from other sources	Available Quantities of water
Zeita Municipality	1,123	724,000	-	-	-	724,000
Far'un VC	1,045	270,177	-	-	-	270,177
Az Zawiya Municipality (Salfit)	1,780	-	-	312,460	-	312,460
Qarawat Bani Hassan Municipality	1,698	-	-	265,120	-	265,120
Kafr ad Dik Municipality	1,400	-	-	207,573	-	207,573
Deir Ballut Municipality	1,004	-	-	196,262	-	196,262
Bruqin Municipality	1,050	-	-	188,896	-	188,896
Kifl Haris Municipality	1,077	-	-	111,117	-	111,117
Harris VC	1,050	-	-	200,838	-	200,838
Sarta VC	1,198	-	-	198,586	-	198,586
Beita Municipality	2,702	-	-	370,540	22,825	393,365
A'sira ash Shamaliya Municipality	2,284	-	-	-	329,061	329,061
Aqraba Municipality	2,670	-	-	-	319,283	319,283
Beit Furik Municipality	2,632	-	-	-	527,902	527,902
Qabalan Municipality	2,068	-	-	309,672	-	309,672
Huwwara Municipality	1,915	-	-	560,820	-	560,820
Jamma'in Municipality	1,674	-	-	335,286	-	335,286
Salim VC	1,250	-	-	279,179	-	279,179
Beit Iba VC	1,600	-	-	-	-	-
Burqa VC	1,303	-	90,000	131,604	-	218,900
A'zzun Municipality	2,157	536,556	-	-	219,560	756,116
Habla Municipality	2,250	770,000	-	-	30,000	800,000
Kafr Thulth Municipality	1,400	355,160	-	-	105,380	460,540
Jayyus Municipality	1,053	220,000	-	-	90,000	310,000

Allocation of water Resources -Gaza Strip

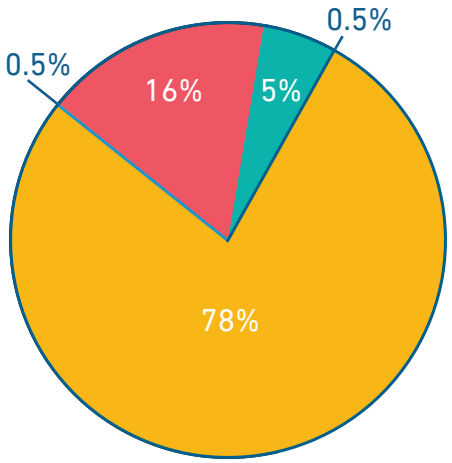


Table 2: Quantities of water available (m^3) for water service providers in the Gaza Strip

Service provider	Local water sources - wells	Quantities of water produced by the service provider's desalination plants	Quantities of water purchased from Mekorote	Quantities of water purchased from local desalination plants	The amount of water purchased from local water wells	Total available water
Large Service Providers						
Gaza City	25,915,564	0	8,340,542	3,309,341	0	37,565,447
Beit Lahya	6,773,000	0	0	0	0	6,773,000
Jabalia Al Nazleh	14,023,521	0	0	0	0	14,023,521
Nusairat	3,145,773	0	2,000,340	0	1,980	5,148,093
Dair Al Balah	5,326,130	0	0	707,081	0	6,033,211
Khan Younis	9,614,608	0	0	744,290	0	10,358,898
CMWU - Rafah	10,353,332	99,963	0	815,673	0	11,268,968
Midsize Service Provider						
Braij	643,755	61,580	1,495,220	0	117,163	2,317,718
Maghazi	373,411	0	1,132,198	0	0	1,505,609
Zawaida	786,659	0	336,828	0	0	1,123,487
Beit Hanoun	4,173,389	0	0	0	0	4,173,389
Qarara	1,431,754	0	0	0	0	1,431,754
Bani Suhaila	94,114	78,208	2,135,999	0	0	2,308,321
Abasan Kabira	2,400	0	1,681,036	0	21,755	1,705,191
Khuzaa	0	0	577,877	0	115,967	693,844
Small Service Provider						
Naser Um	338,700	0	0	0	0	338,700
Al-Zahra	884,461	0	0	0	0	884,461
Moghraga	843,364	0	0	0	0	843,364

Service provider	Local water sources - wells	Quantities of water produced by the service provider's desalination plants	Quantities of water purchased from Mekorote	Quantities of water purchased from local desalination plants	The amount of water purchased from local water wells	Total available water
Small Service Provider						
Gaza Valley	228,143	0	0	0	0	228,143
Wadi salga	337,170	0	0	0	0	337,170
Musaddar	250,615	0	0	0	0	250,615
Abasan Al Jadida	47,380	0	471,994	0	6,751	526,125
Fukhari	332,569	0	0	0	0	332,569
Ennaser	576,329	0	0	0	0	576,329
Shuka	557,200	0	0	0	0	557,200

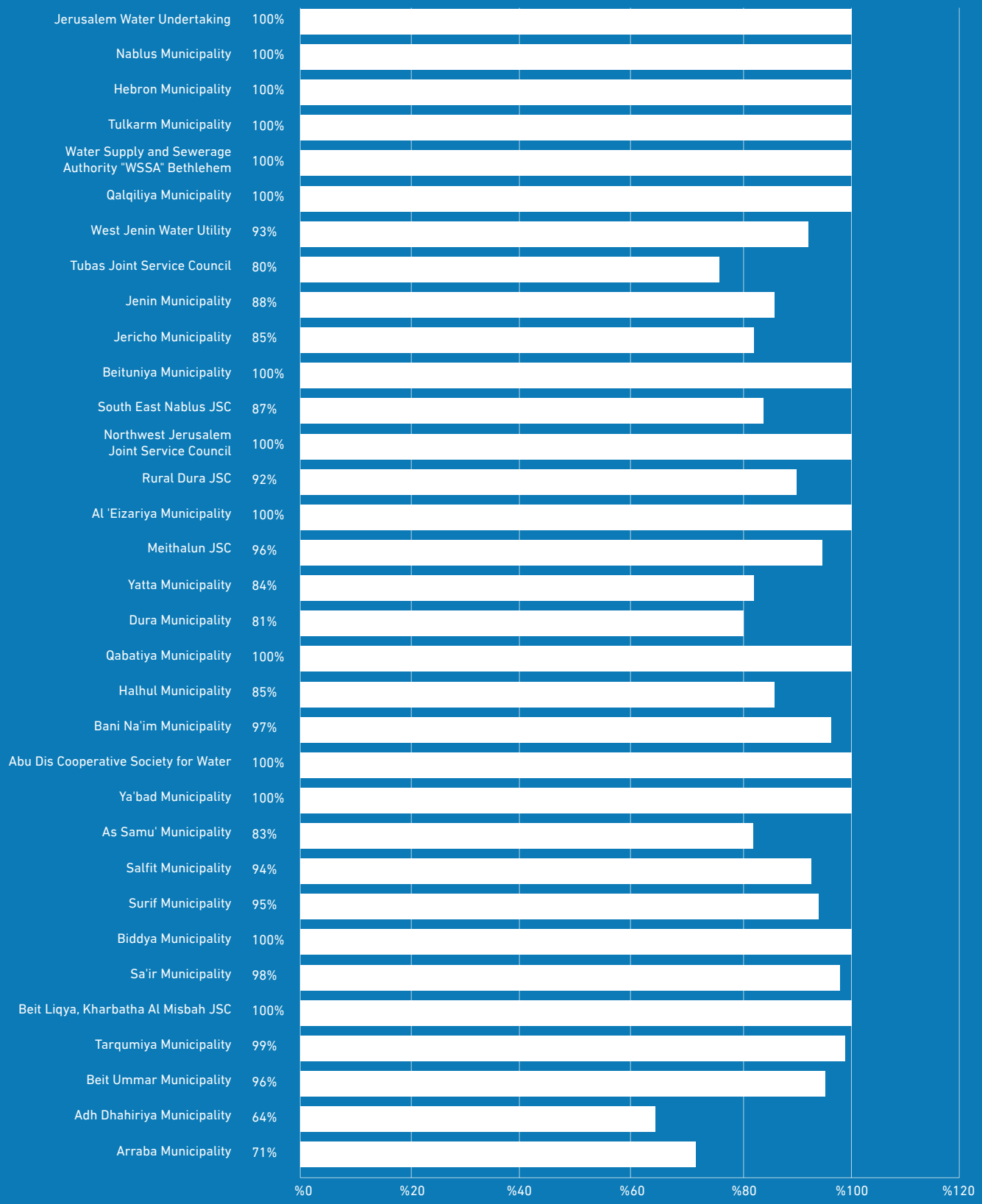
2. Coverage of Water Network to Customer

The results reflect the service providers efforts to supply the maximum possible amount of water to the citizens. Data from service providers in the West Bank indicates that nearly 97% of the population is served by water across nearly 500 population communities, including cities, villages, and refugee camps. Turning to the coverage percentage for the population in the Gaza Strip, we find that approximately 90% of the population has access to water in 33 population communities, with eight of them being refugee camps.

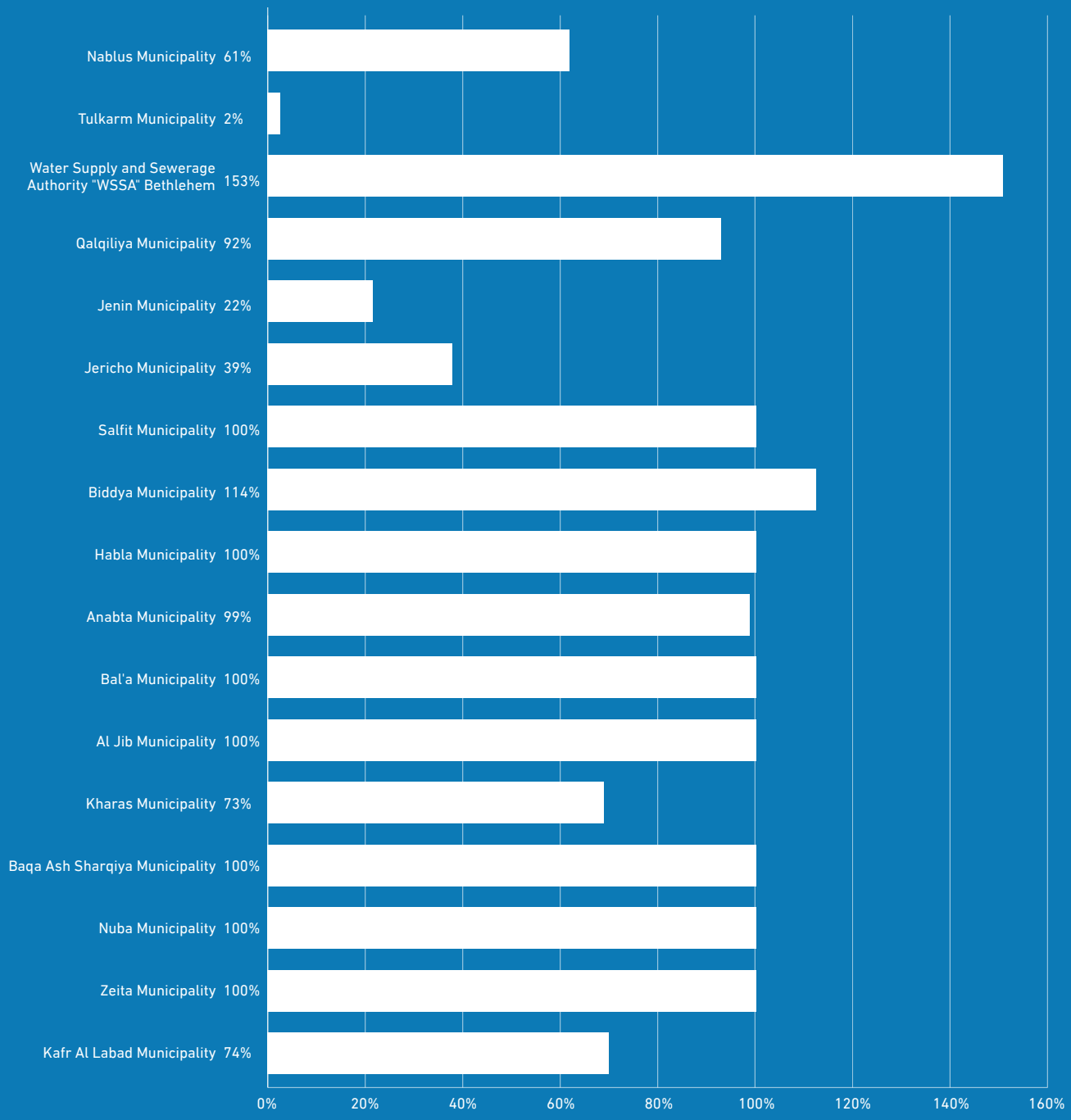
The significant variance in service providers' coverage can be attributed to the following factors:

- The challenges imposed by the Israeli occupation, which hinder service delivery to certain areas in the West Bank.
- Limited water sources and the inability of service providers to extend their services to these areas.
- Some densely populated areas are located on the boundaries of cities and towns, making water delivery more challenging.
- Many clients in rural areas depend on farming and water wells for agriculture, reducing their reliance on centralized water services.

Water Coverage Percentage - Large Service Providers | West Bank



Collection Efficiency “Wastewater Service” (%)



Coverage of Water Service - Gaza Strip

Tables 3 and 4 present data pertaining to service providers, allowing us to assess their performance levels. Notably, there are five municipalities in the Gaza Strip that do not offer wastewater services, while a significant majority of service providers in the West Bank also lack wastewater services. This underscores the need for additional efforts to expand wastewater service coverage and infrastructure to serve all residents in Gaza.

Table 3: Operational information for water and sanitation service providers - West Bank

Service provider	Length of Network in meters	Number of subscribers in the water Service	Number of subscribers in the wastewater service	Number of water service clients	Number of wastewater clients	Billable Amount of water (M^3)
Large Service Providers						
Northwest Jerusalem Joint Service Council	152	5,576	-	45,000	-	1,046,967
Al 'Eizariya Municipality	60	5,242	-	38,000	-	835,872
Abu Dis Cooperative Society for Water	35	4,165	-	27,500	-	505,171
Jericho Municipality	204	7,507	1,829	34,000	6,000	2,706,864
Water Supply and Sewerage Authority "WSSA" Bethlehem	451	14,519	12,785	115,429	100,423	3,309,275
Beit Liqya, Kharbatha Al Misbah JSC	62	3,388	-	17,632	-	586,926
Beituniya Municipality	70	7,460	-	27,566	-	813,255
Jerusalem Water Undertaking	1,420	78,316	-	400,000	-	13,860,758
West Jenin Water Utility	1,083	12,115	304	61,000	3,700	1,593,103
Meithalun JSC	153	5,157	536	27,140	2,885	586,766
Jenin Municipality	178	9,684	10,411	59,600	38,705	1,468,523
Qabatiya Municipality	95	4,498	-	28,500	-	969,987
Ya'bad Municipality	60	3,962	-	18,000	-	530,500
Rural Dura JSC	250	5,457	-	43,000	-	649,066
Hebron Municipality	-	21,088	-	232,500	-	6,357,600
Yatta Municipality	220	4,997	-	84,000	-	1,120,924
Dura Municipality	176	4,730	-	35,000	-	795,849
Halhul Municipality	100	4,467	-	25,915	-	787,825
Adh Dhahiriya Municipality	165	3,123	-	40,000	-	636,421
Bani Na'im Municipality	172	4,267	-	31,000	-	690,789
Sa'ir Municipality	100	3,547	-	27,500	-	605,061
As Samu' Municipality	13	3,900	-	25,000	-	328,800

Service provider	Length of Network in meters	Number of subscribers in the water Service	Number of subscribers in the wastewater service	Number of water service clients	Number of wastewater clients	Billable Amount of water (M^3)
Beit Ummar Municipality	110	3,169	-	19,000	-	562,365
Surif Municipality	96	3,876	-	18,700	-	565,895
Tarqumiya Municipality	100	3,323	-	21,780	-	371,220
Tulkarm Municipality	240	16,368	8,400	91,000	66,000	3,842,353
Tubas Joint Service Council	402	10,684	1,520	51,000	11,000	1,552,655
Salfit Municipality	80	3,894	1,220	15,000	10,000	653,666
Biddya Municipality	57	3,600	200	13,500	1,000	463,896
South East Nablus JSC	150	7,213	-	45,000	-	794,277
Nablus Municipality	560	50,859	50,829	213,800	209,524	6,480,462
Qalqiliya Municipality	165	12,647	15,725	60,780	59,564	3,817,038
Midsize Service Provider						
Az Za'ayyem Municipality	12	1,140	945	12,000	8,000	275,000
As Sawahira Ash Sharqiya Municipality	12	1,013	-	12,500	-	164,508
Al Jib Municipality	15	1,600	820	5,500	4,800	145,086
Ubeidiya Municipality	50	2,066	-	17,500	-	404,993
Beit Fajjar Municipality	56	2,153	-	16,000	-	611,240
Tuqu' Municipality	95	1,750	-	15,000	-	312,006
Nahhalin Municipality	53	1,900	-	10,050	-	270,094
Jannatah Municipality	50	1,300	-	8,720	-	144,107
Za'tara Municipality	102	1,544	-	7,458	-	300,300
Battir Municipality	45	1,004	-	6,500	-	199,883
Husan VC	25	1,308	-	7,310	-	223,622
Ash Shawawra VC	120	1,210	-	6,000	-	120,615
Dar Salah VC	44	1,319	-	9,500	-	248,616
Bani Zaid Al Gharbia Municipality	53	2,490	84	10,000	400	300,307
Ni'lin Municipality	18	1,250	-	5,900	-	273,078
Beit 'Ur at Tahta Municipality	13	1,223	-	6,000	-	144,081
Qatra Water Resources	20	1,605	1,606	7,000	7,000	107,544
Qibya VC	18	1,446	-	7,500	-	-
Shuqba VC	20	1,200	-	7,000	-	195,663
Jaba' Municipality	45	2,150	-	12,800	-	208,502
Kafr Ra'i Municipality	60	1,643	-	10,000	-	245,210

Service provider	Length of Network in meters	Number of subscribers in the water Service	Number of subscribers in the wastewater service	Number of water service clients	Number of wastewater clients	Billable Amount of water (M^3)
Birqin Municipality	35	1,450	-	7,100	-	222,808
Silat adh Dhahr Municipality	20	1,690	-	8,500	-	215,565
Az Zababida Municipality	23	1,150	-	5,000	-	144,697
Barta'a ash Sharqiya Water Association	25	2,290	-	6,100	-	246,566
Sanur VC	10	1,107	-	6,000	-	-
A'jja Municipality	25	1,205	-	7,200	-	122,927
Faqqu'a VC	40	1,013	-	5,000	-	166,787
Beit Ula Municipality	53	2,150	-	15,000	-	344,795
Taffuh Municipality	45	1,830	-	15,000	-	272,308
Beit A'wwa Municipality	16	1,582	-	10,000	-	137,900
Ash Shuyukh Municipality	78	2,087	-	13,500	-	435,253
Kharas Municipality	62	1,550	479	10,100	5,150	322,170
Nuba Municipality	45	1,242	844	7,400	4,500	243,557
Karmil Municipality	54	1,200	-	13,000	-	178,298
Beit Kahil	10	1,450	-	8,000	-	227,000
Deir Samit Municipality	2	2,000	-	8,000	-	120,000
Deir al Ghusun Municipality	68	2,811	-	13,000	-	486,192
A'ttil Municipality	63	2,350	-	11,500	-	469,550
Anabta Municipality	66	2,231	1,374	9,560	6,675	372,952
Qaffin Municipality	34	2,596	-	11,600	-	499,203
Bal'a Municipality	23	1,978	475	9,000	3,000	254,000
'Illar Municipality	64	1,992	-	8,200	-	287,388
Beit Lid Municipality	85	1,373	273	7,000	1,200	161,320
Kafr Al Labad Municipality	21	1,114	320	6,000	1,500	179,393
Baqa Ash Sharqiya Municipality	25	1,354	1,170	5,500	4,000	236,202
Seida Municipality	20	1,000	-	4,000	-	117,667
Zeita Municipality	6	1,123	857	4,000	3,500	326,000
Far'un VC	22	1,045	-	4,500	-	183,096
Az Zawiya Municipality (Salfit)	25	1,780	-	6,500	-	259,343

Service provider	Length of Network in meters	Number of subscribers in the water Service	Number of subscribers in the wastewater service	Number of water service clients	Number of wastewater clients	Billable Amount of water (M^3)
Qarawat Bani Hassan Municipality	25	1,698	-	6,130	-	254,320
Kafr ad Dik Municipality	18	1,400	-	6,322	-	173,635
Deir Ballut Municipality	24	1,004	-	5,000	-	153,323
Bruqin Municipality	21	1,050	-	4,550	-	90,124
Kifl Haris Municipality	21	1,077	-	4,561	-	107,362
Harris VC	13	1,050	-	4,606	-	137,027
Sarta VC	29	1,198	-	3,852	-	135,009
Beita Municipality	87	2,702	-	12,742	-	305,139
A'sira ash Shamaliya Municipality	65	2,284	-	11,500	-	188,900
Aqraba Municipality	75	2,670	-	10,000	-	245,048
Beit Furik Municipality	31	2,632	-	14,680	-	390,668
Qabalan Municipality	48	2,068	-	9,100	-	216,860
Huwwara Municipality	35	1,915	-	10,000	-	299,903
Jamma'in Municipality	30	1,674	-	8,111	-	250,569
Salim VC	15	1,250	-	8,000	-	-
Beit Iba VC	16	1,600	1,108	5,000	4,000	-
Burqa VC	30	1,303	-	5,000	-	110,680
A'zzun Municipality	58	2,157	-	10,800	-	544,476
Habla Municipality	40	2,250	1,800	8,000	7,200	573,884
Kafr Thulth Municipality	20	1,400	-	6,335	-	365,205
Jayyus Municipality	20	1,053	-	4,500	-	141,381

Table 4: Operational information for water and sanitation service providers - Gaza Strip

Service provider	Length of Network in meters	Number of subscribers in the water Service	Number of subscribers in the wastewater service	Number of water service clients	Number of wastewater clients	Billable Amount of water (M^3)
Large Service Providers						
Gaza City	900	49,577	75,968	636,529	622,384	21,411,729
Beit Lahya	190	8,847	8,530	99,587	89,104	3,172,377
Jabalia Al Nazleh	430	18,191	19,727	220,351	246,275	8,491,723
Nusairat	175	8,581	8,246	92,000	90,000	2,861,974
Dair Al Balah	274	8,821	7,077	89,688	81,280	2,160,774
Khan younis	418	22,763	20,836	226,508	198,195	7,101,627
CMWU - Rafah	486	21,769	18,835	226,608	200,369	6,983,877
Midsize Service Provider						
Braij	72	4,152	4,100	47,032	44,556	1,274,291
Maghazi	68	2,995	2,394	31,342	30,393	861,782
Zawaida	98	2,990	1,996	26,310	20,343	818,647
Beit Hanoun	185	6,906	6,203	57,905	51,810	2,527,216
Qarara	130	3,128	244	30,007	2,667	952,031
Bani Suhaila	120	5,843	2,198	45,253	19,054	1,614,087
Abasan Kabira	121	4,455	0	29,231	0	1,342,959
Khuzaa	57	2,076	0	13,091	0	604,924
Small Service Provider						
Naser Um	10	684	500	5,416	4,145	249,900
Al-Zahra	35	1,403	1,385	5,682	5,383	714,549
Moghraga	51	1,933	1,290	12,324	9,243	285,800
Gaza Valley	24	1,133	940	4,624	4,008	149,997
Wadi salga	28	739	0	7,258	0	298,004
Musaddar	20	430	229	2,354	1,177	135,417
Abasan Al Jadida	40	1,416	0	9,611	0	399,823
Fukhari	61	1,291	184	6,665	1,407	252,402
Ennaser	60	1,975	0	7,197	0	450,571
Shuka	80	1,892	720	15,055	7,528	469,900

Monitoring Performance of Service Providers

Monitoring of the performance of service providers was done through 5 groups of indicators as following:

- 8 technical indicators
- 12 Financial indicators
- 7 indicators of water quality
- 6 Customer Satisfaction indicators
- 4 other indicators.

This report presents several indicators that will be discussed to evaluate the performance of service providers. It's important to note that the council's database contains all the necessary data and inputs for these indicators, should they be required for further analysis.

First: Technical Indicators

1. Average daily per capita water consumption for domestic uses indicator

Definition	Calculations	Reference Criterion
Measures the average daily consumption for domestic uses per capita in liters	$= \frac{\text{Amount of sold water for domestic uses (billable water) in } m^3}{\text{Number of days} \times \text{Total Number of customer}} \times 1000$	At least 100 l/c/d

This indicator plays a vital role in evaluating the performance of service providers worldwide. It measures the per capita water allocation for domestic use, adhering to WHO standards. One important prerequisite for calculating this indicator involves categorizing water consumption into domestic, industrial, tourism, and other uses. The average family size for each subscription is of six members.

However, due to some service providers not categorizing their subscriptions and some subscriptions serving multiple families, considering the prevalent extended family culture in Palestine, this indicator can sometimes be misleading and yield inaccurate per capita per day results.

This indicator relies on billed water quantities rather than total produced water. The percentage of non-revenue water is a critical factor influencing service provider performance concerning the provision of a suitable water quota for individuals for domestic use, in accordance with international and national standards. Consequently, service providers should intensify efforts to reduce non-revenue water percentages and separate subscriptions for individual families. This action will increase the per capita water allocation for clients and have a positive impact on various other performance indicators.

The World Health Organization (WHO) recommends providing a minimum of 150 liters per capita per day (l/c/d) of water. Internationally, the minimum standard is set at 100 l/c/d.

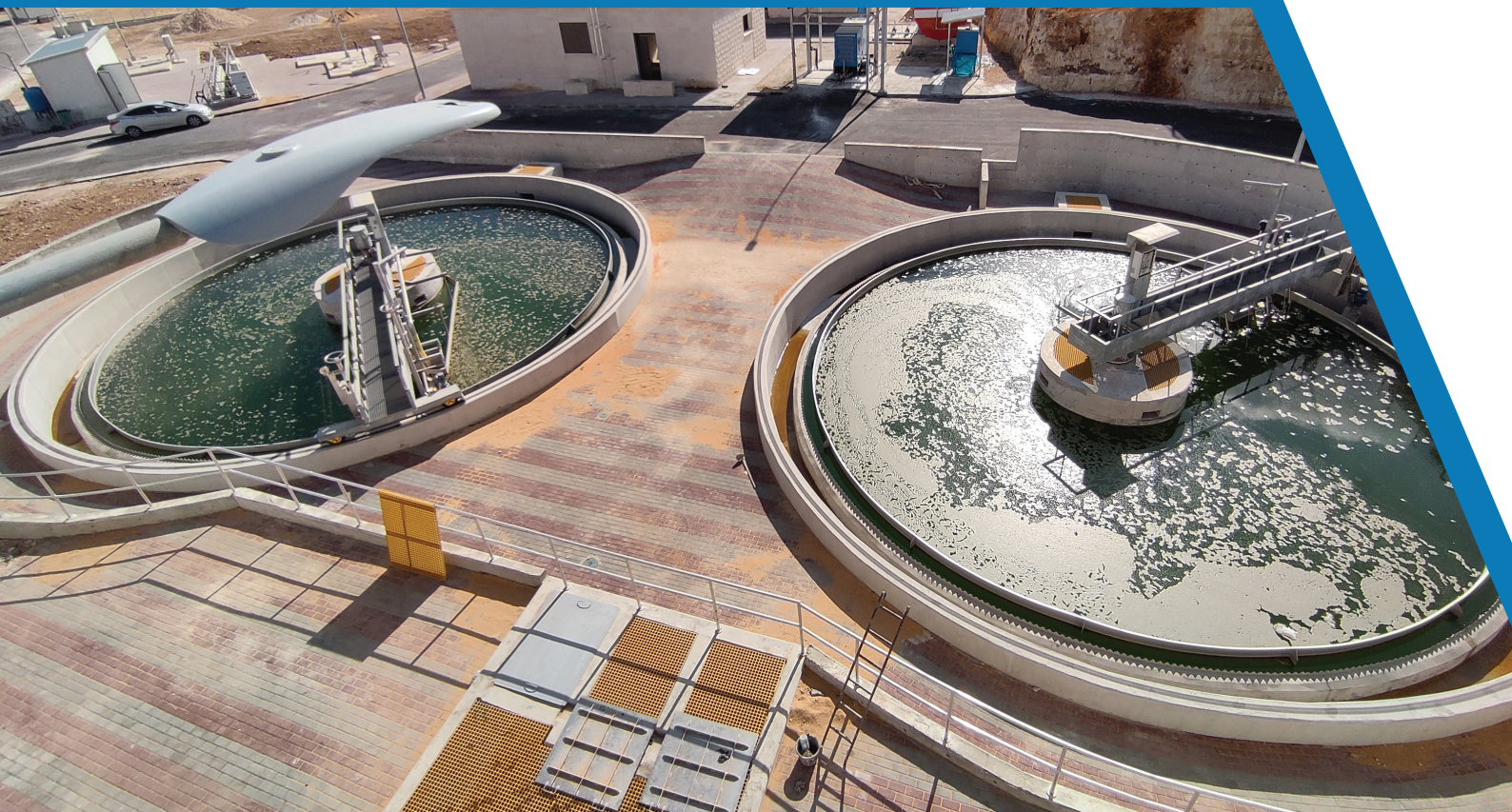
The least average daily per capita water consumption for domestic uses in the West Bank and Gaza Strip

West Bank (l/c/d)		Gaza Strip (l/c/d)	
Karmil Municipality	27	Khan Younis, Braij	74
A'rab Al Jahalin VC, Taffuh Municipality	26	Moghraga	64
Khallet al Maiyya Municipality	23	Dair Al Balah	63

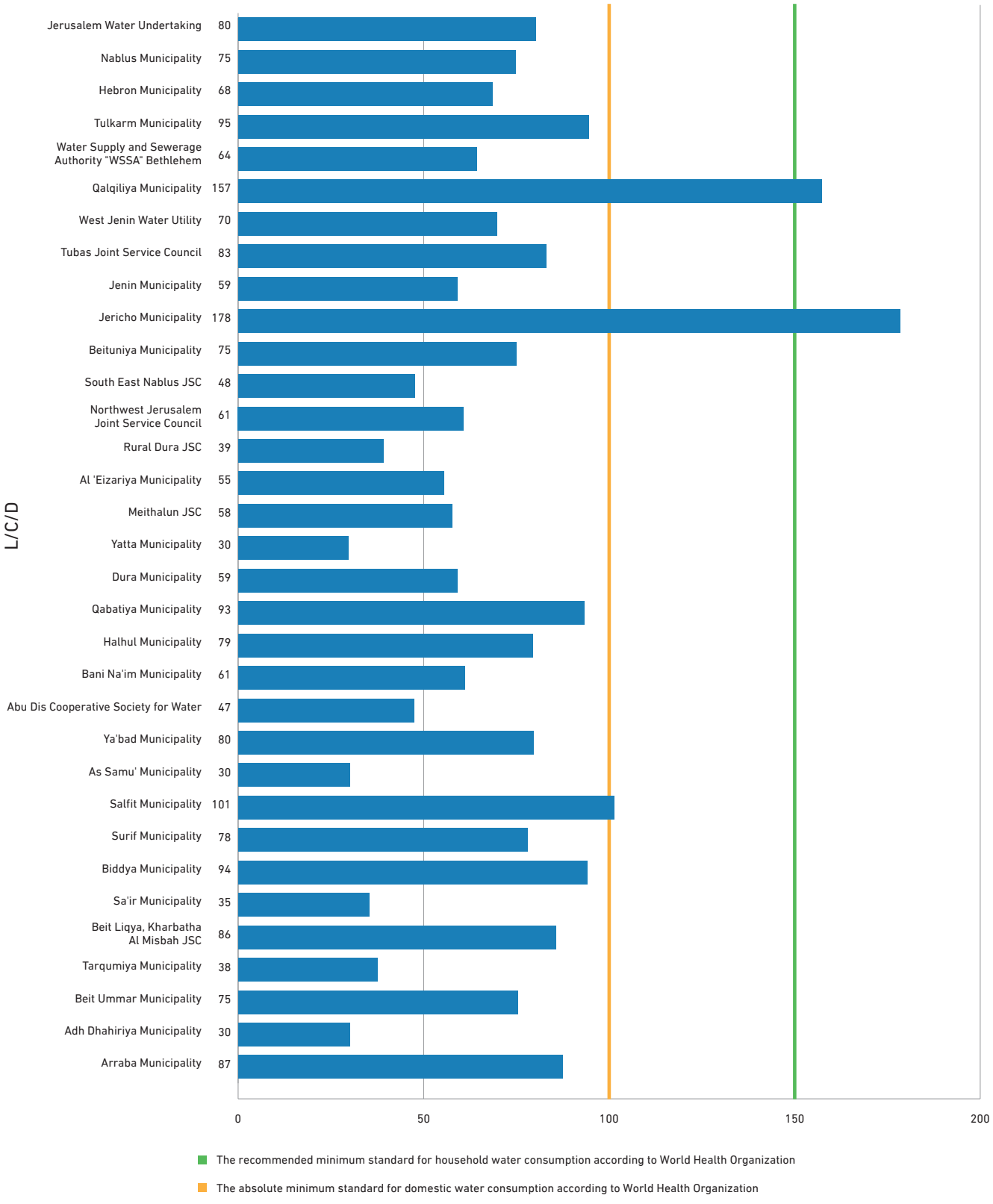
The per capita water allocation (l/c/d) varies depending on the geographic location and the availability of water sources. Municipalities in the southern Hebron region face water scarcity due to limited availability of water resources. Coastal municipalities in the Gaza Strip, especially those that purchase water from desalination plants, Mekorote, and underground sources, have access to different water sources.

In the West Bank, there is a significant variation in per capita water allocations. For instance, it is approximately 23 l/c/d in Khallet al Maiyya municipality, while in municipalities in the northern part of the West Bank, such as Seir VC, An Nabi Elyas VC, and Zeita Municipality, it exceeds 230 l/c/d. In the Gaza Strip, the average per capita allocation is somewhat better, with individuals receiving between 63 l/c/d in Dair El Balah and 336 l/c/d in Al-Zahra.

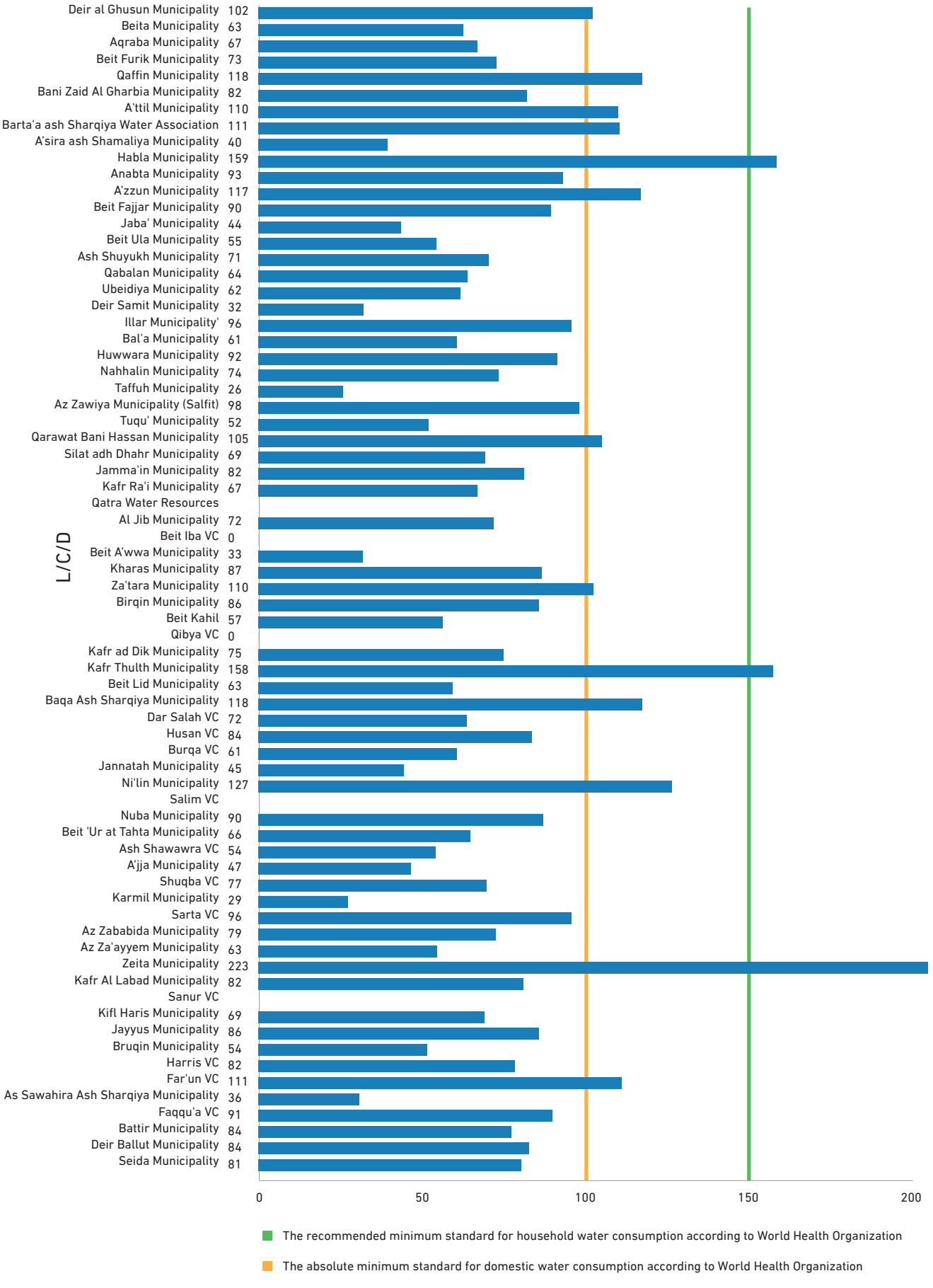
It's worth noting that the water supplied to consumers in the Gaza Strip is not suitable for drinking according to national and international standards. This water is intended solely for domestic use. Residents rely on freshwater purchased from desalination plants, with prices reaching up to 30 ILS/M^3.



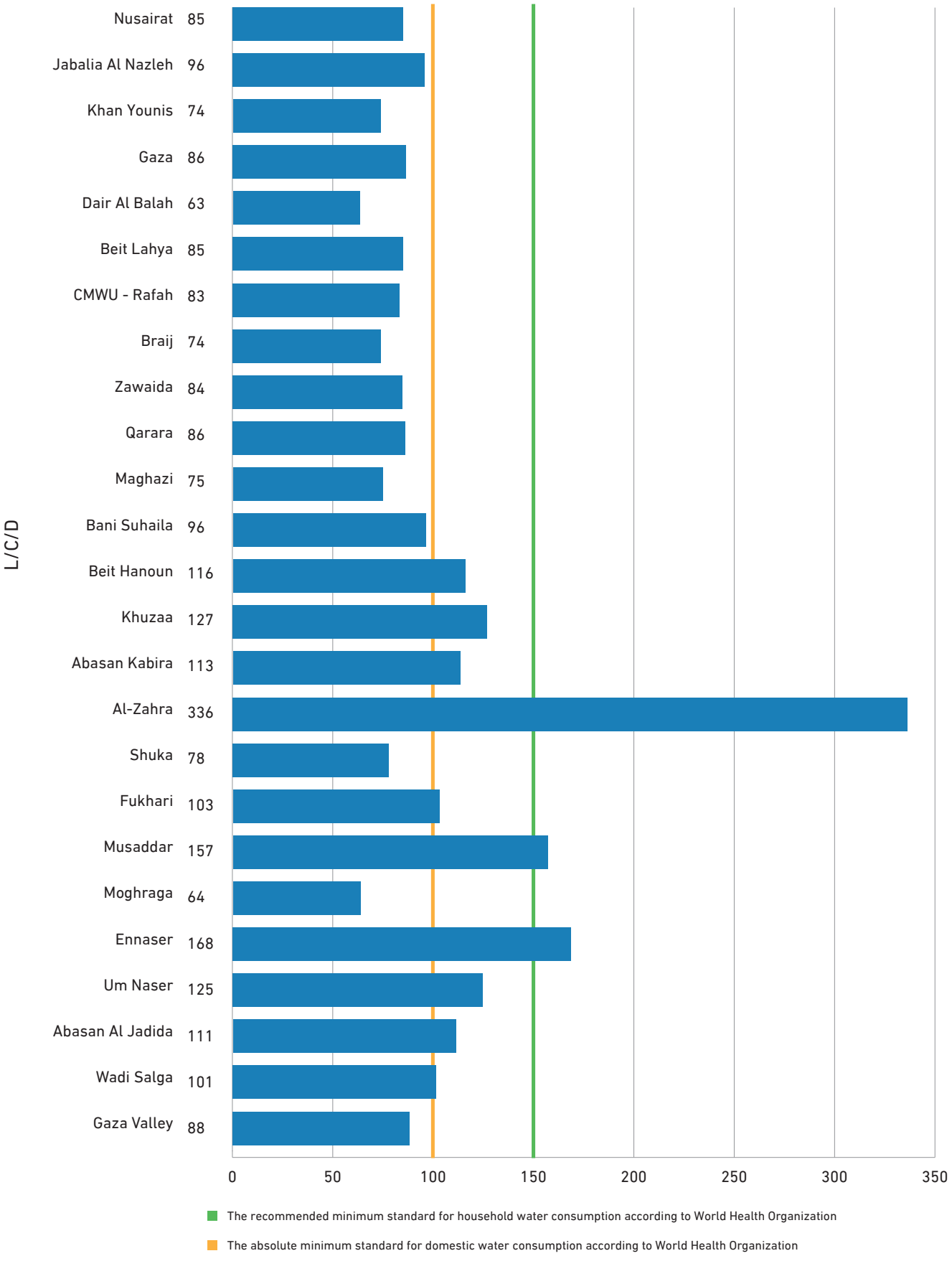
Average Daily Per Capita Water Consumption for Domestic Uses - Large Service Provider West Bank



Average Daily Per Capita Water Consumption for Domestic Uses - Midsize Service Provider West Bank



Average Daily Per Capita Water Consumption for Domestic Uses
Gaza Strip



2. Average daily water sold per capita based on total population

Definition	Calculations	Reference Criterion
Measures the average daily consumption for all uses per capita in liters	$= \frac{\text{Amount of sold water for all uses (billable water) in } m^3}{\text{Number of days} \times \text{Total Number of Clients}} \times 1000$	At least 120 l/c/d

This indicator measures the total per capita water consumption for all domestic, commercial, industrial, tourist, and wholesale uses by the number of individuals. The indicator is calculated for a comparison of service providers if types of consumption are not separated by a service provider. The indicator is measured in comparison to other service providers. The absence of classification is justified by the unified tariff for all consuming categories for many service providers.

Additionally, some service providers categorize water usage for house gardens as domestic use, even if the garden area extends to 3 donums, as observed in municipalities like Al Zahra'a, Seir VC, and Al A'uja Municipality. Furthermore, when service providers sell water in bulk to customers outside their coverage areas, it can impact this indicator, as seen in the cases of Illar and Zeita.

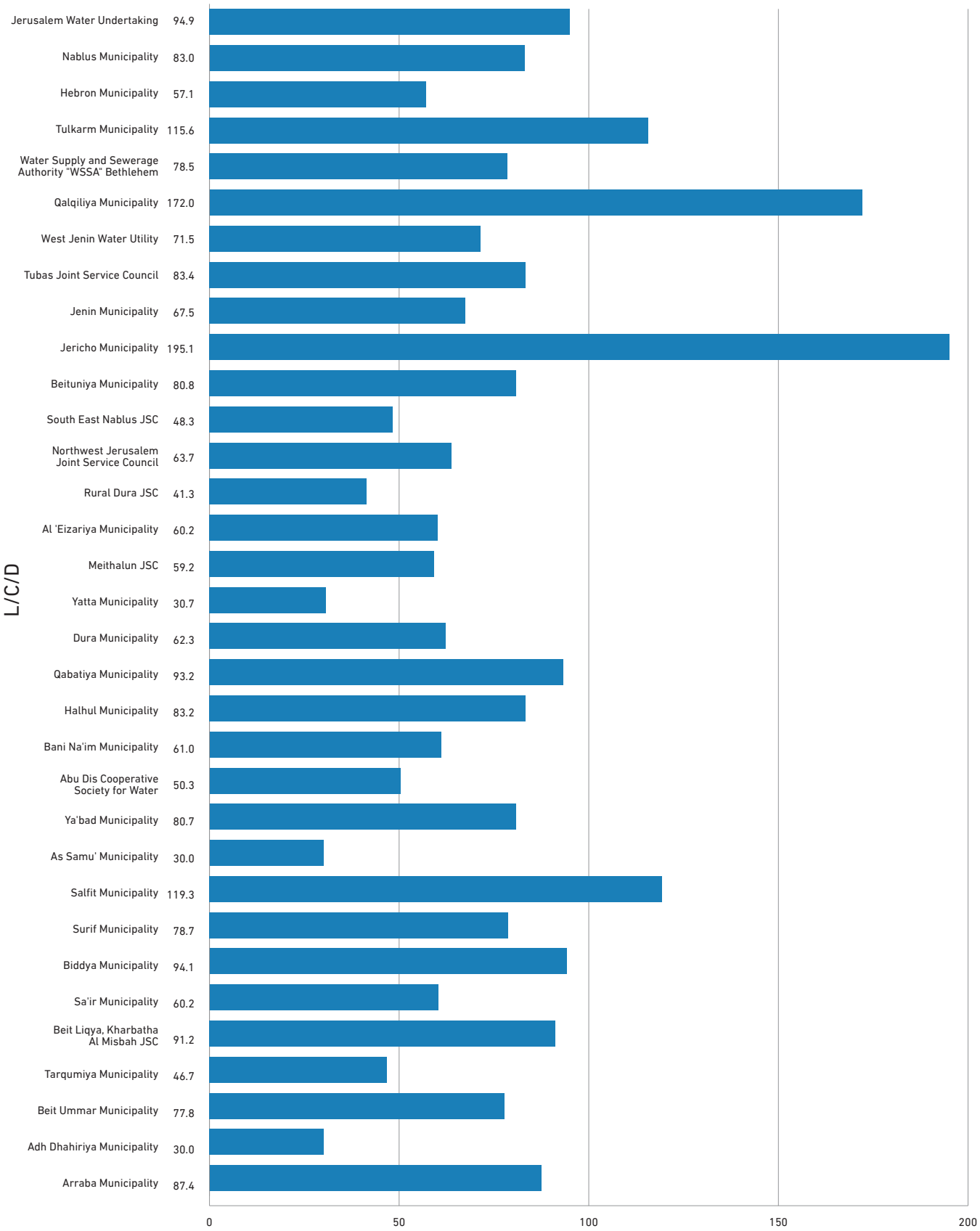
Moreover, the results from municipalities like Jericho, Hebron, and Gaza indicate that a significant amount of water is allocated for tourism, industrial, and commercial purposes due to the lack of clear subscription classifications.

The Water Sector Regulatory Council strongly recommends that service providers make additional efforts to differentiate and categorize subscriptions. This is crucial, as the accuracy of results for the 'Average Daily Per Capita Consumption for Domestic Uses' indicator can only be achieved when the consumption amounts for domestic use are clearly separated from other usage categories.

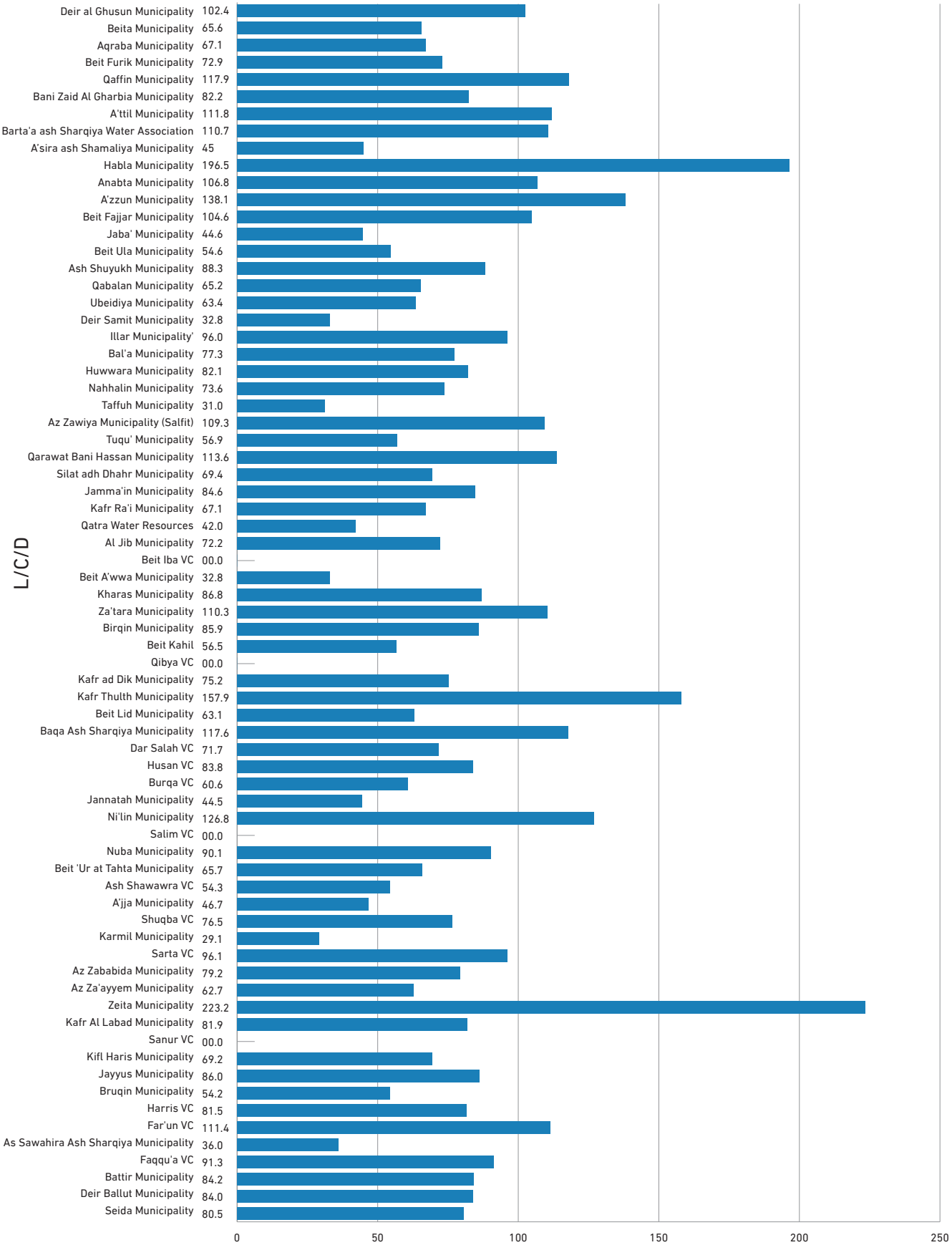
Accurate classification for subscribers will accurately show the average capita per day for domestic uses and other uses. It will also show the real amount of water needed to domestic uses only and other uses. This will help restructure the tariff system and which categories are trending according to the strategic plan of the service provider.

According to the newly issued "unified tariff bylaw" No. 14 for year of 2021, Water service providers must classify their water subscriptions according to the following categories: domestic use, commercial use, industrial use and touristic use. And the bylaw clarifies the meaning of each one.

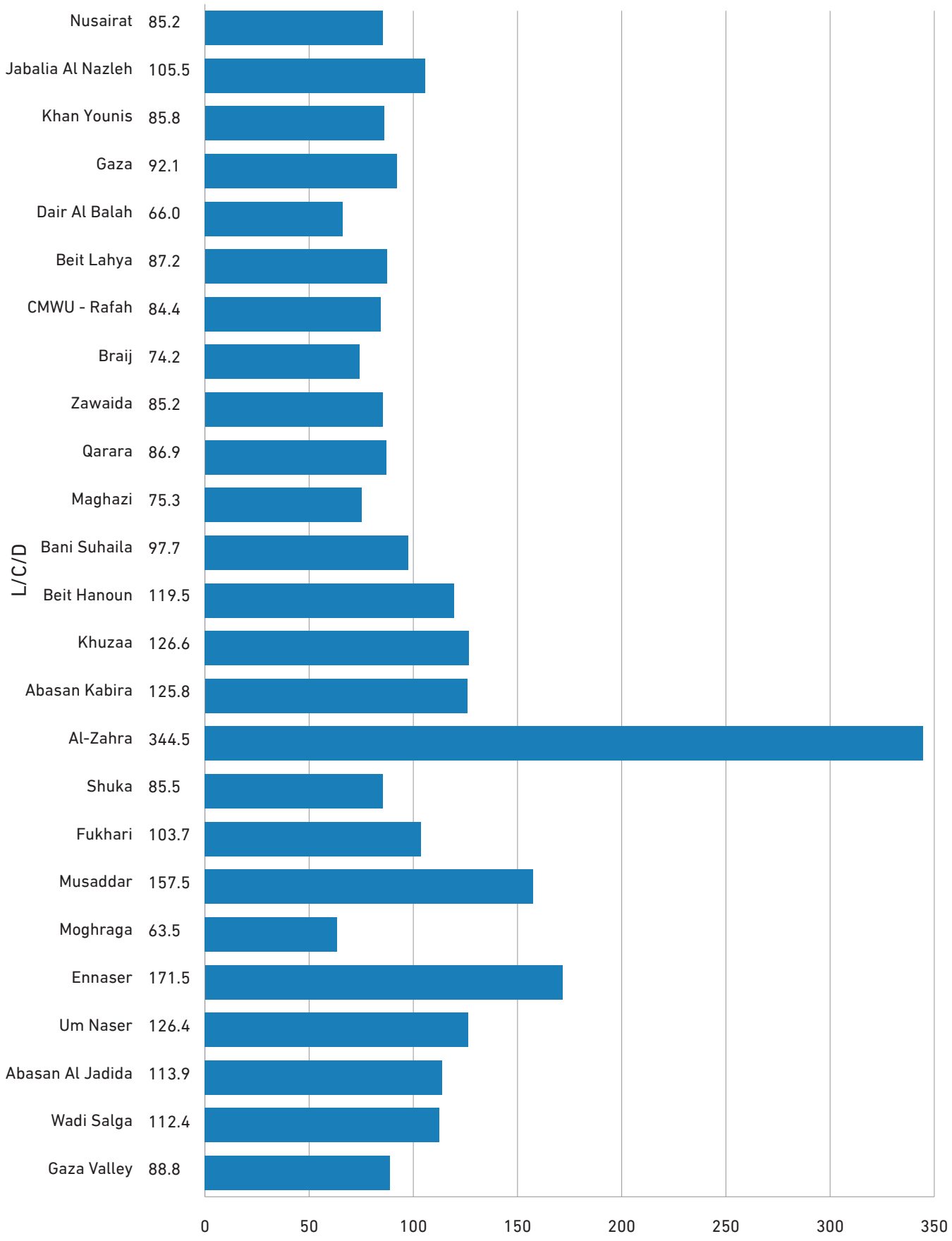
Average of Water Sold to Individuals, Including All Types of Consumption - Large Service Providers | West Bank



Average of Water Sold to Individuals, Including All Types of Consumption - Midsize Service Providers | West Bank



Average of Water Sold to Individuals, Including All Types of Consumption | Gaza Strip

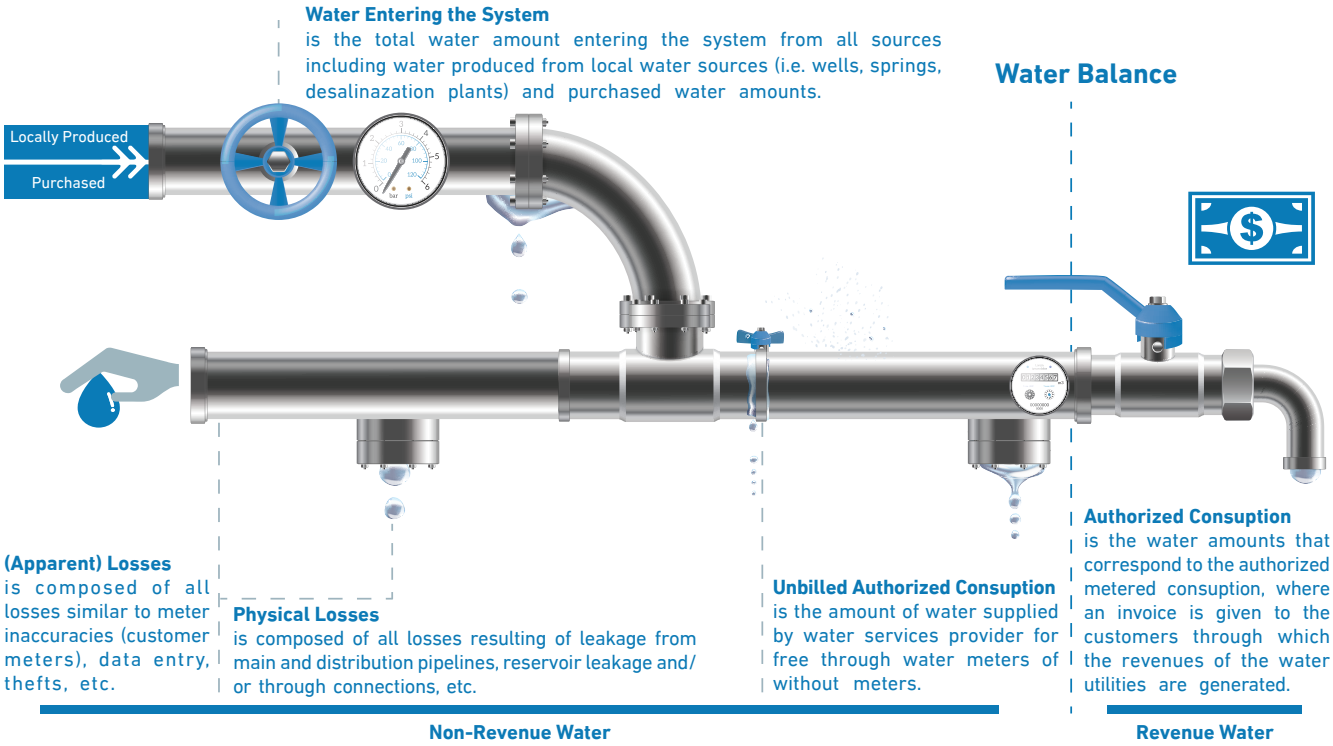


3. Non-revenue Water Percentage Indicator

Definition	Calculations	Reference Criterion
Measures the difference between the produced water and the sold water for consumers divided by the produced water	100% - (Sold water during the evaluation period m^3 ± Difference in stored amounts in the service providers' tanks m^3) × 100%	Less than 30% according to Water Authority Strategy

This indicator is designed to assess the efficiency of water distribution to customers. It calculates the percentage of water, whether produced or purchased, that the service provider couldn't accurately account for. This percentage reflects the difference between the total provided water and the water sold to consumers.

The diagram below illustrates the components of the water balance, providing an explanation of the primary factors considered when analyzing this indicator.



In the West Bank, Sawahira Municipality and Al A'uja Municipality record the highest percentage of NRW. It reveals to 66% and 60% respectively, while Qatra company recorded less NRW percentage which is 4%.in Gaza, Moghraga and Dair al Balah recorded the highest percentages 66% and 64 % respectively, while Wadi Salga and Khuzaa recorded the lowest percentages 12% and 13% respectively.

The reasons for these varying percentages differ among service providers. Some may be attributed to network conditions and water leakage, while others could be related to illegal water consumption or unaccounted-for amounts used by entities such as mosques, churches, parks, and fire departments.

When examining the results of non-revenue water between 2021 and 2022, we can observe the efforts made by service providers to reduce this percentage. In the Gaza Strip, the overall percentage of non-revenue water decreased from 44.08% in 2021 to 41% in 2022. Conversely, in the West Bank, this percentage increased from 34% in 2021 to 36% in 2022.

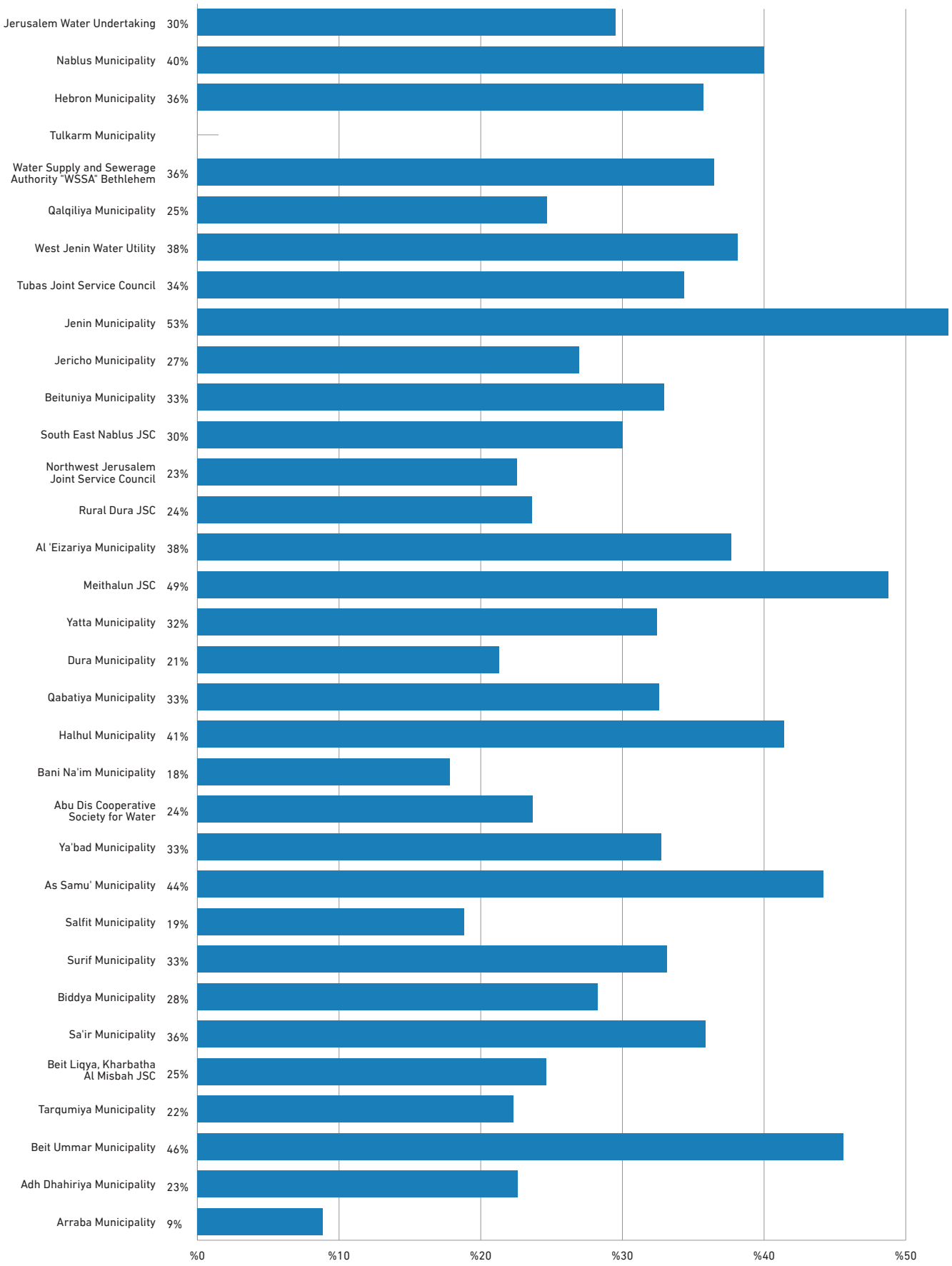
The results from this indicator assist service providers in planning future investments for the rehabilitation and improvement of distribution networks. This, in turn, can reduce operational costs, increase water sales, and preserve the limited available water sources. Ultimately, it enhances the sustainability of service providers, enabling them to provide water services and plan for expansion into new areas within their jurisdiction.

Some service providers achieved remarkably low non-revenue water percentages, with results dropping below 15%. WSRC conducted a comprehensive review of these outcomes, collaborating closely with the service providers to scrutinize the details of their results and calculations. In response to this effort, these service providers implemented stringent measures to curtail water losses.

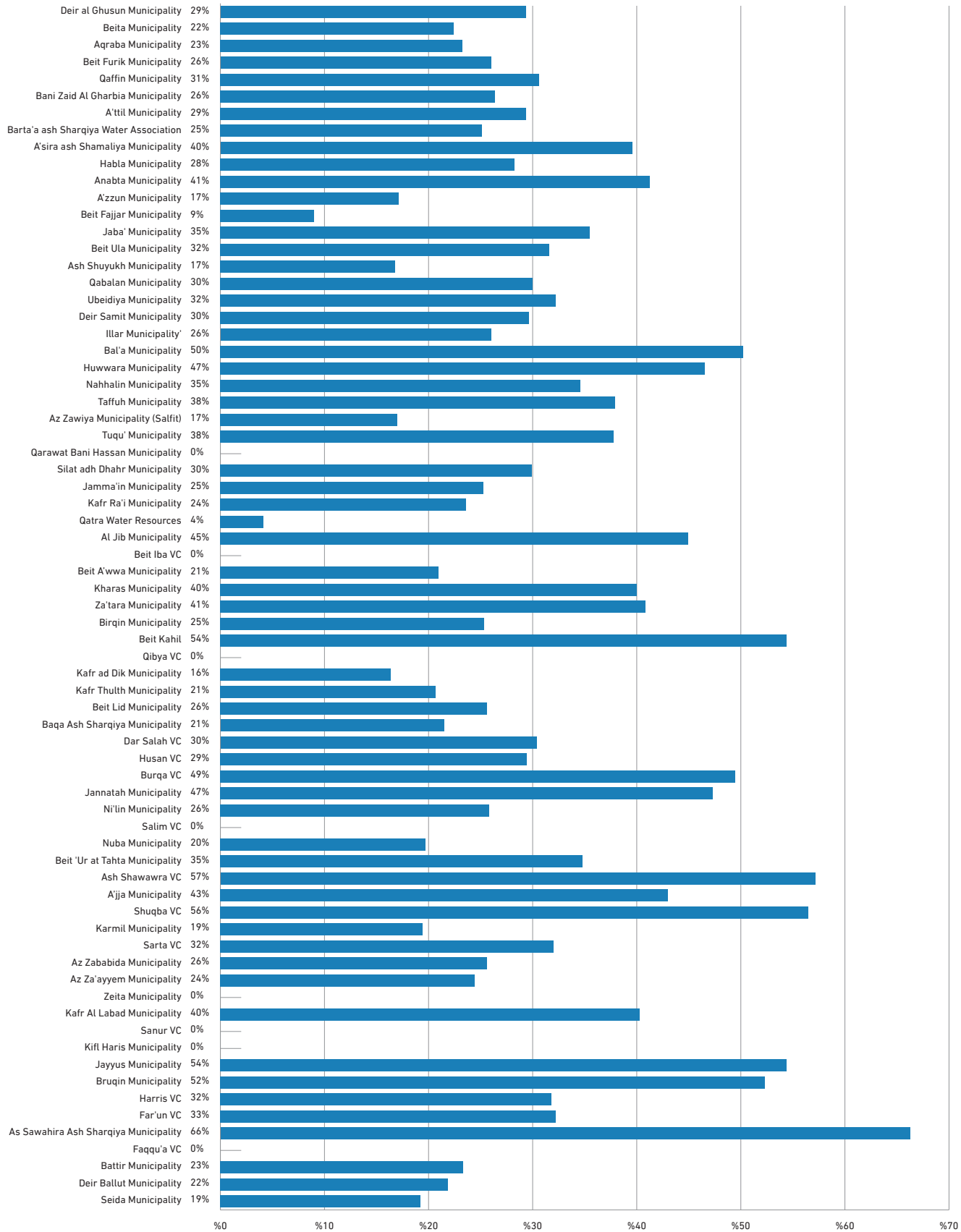
These measures included real-time monitoring of water network conditions to identify and address leakages, violations, and instances of illegal water tapping. Additionally, they introduced hefty fines as a deterrent to minimize water losses. Some service providers further invested in new network systems and advanced water metering technology, which proved effective in reducing overall water losses.

Qatra Company stands out for its remarkably low non-revenue water percentage. In the year 2022, this percentage was a mere 4%. This achievement can be attributed to the company's state-of-the-art, high-specification water network. Water is directly distributed to households from the reservoir, eliminating the need for roof water tanks. Qatra employs cutting-edge technology for monitoring and managing the water system, ensuring efficient service to citizens. Moreover, the company has implemented smart water metering, which allows for remote and real-time recording of water consumption. This technology not only facilitates quick detection of water leaks but also eliminates inaccuracies in meter readings.

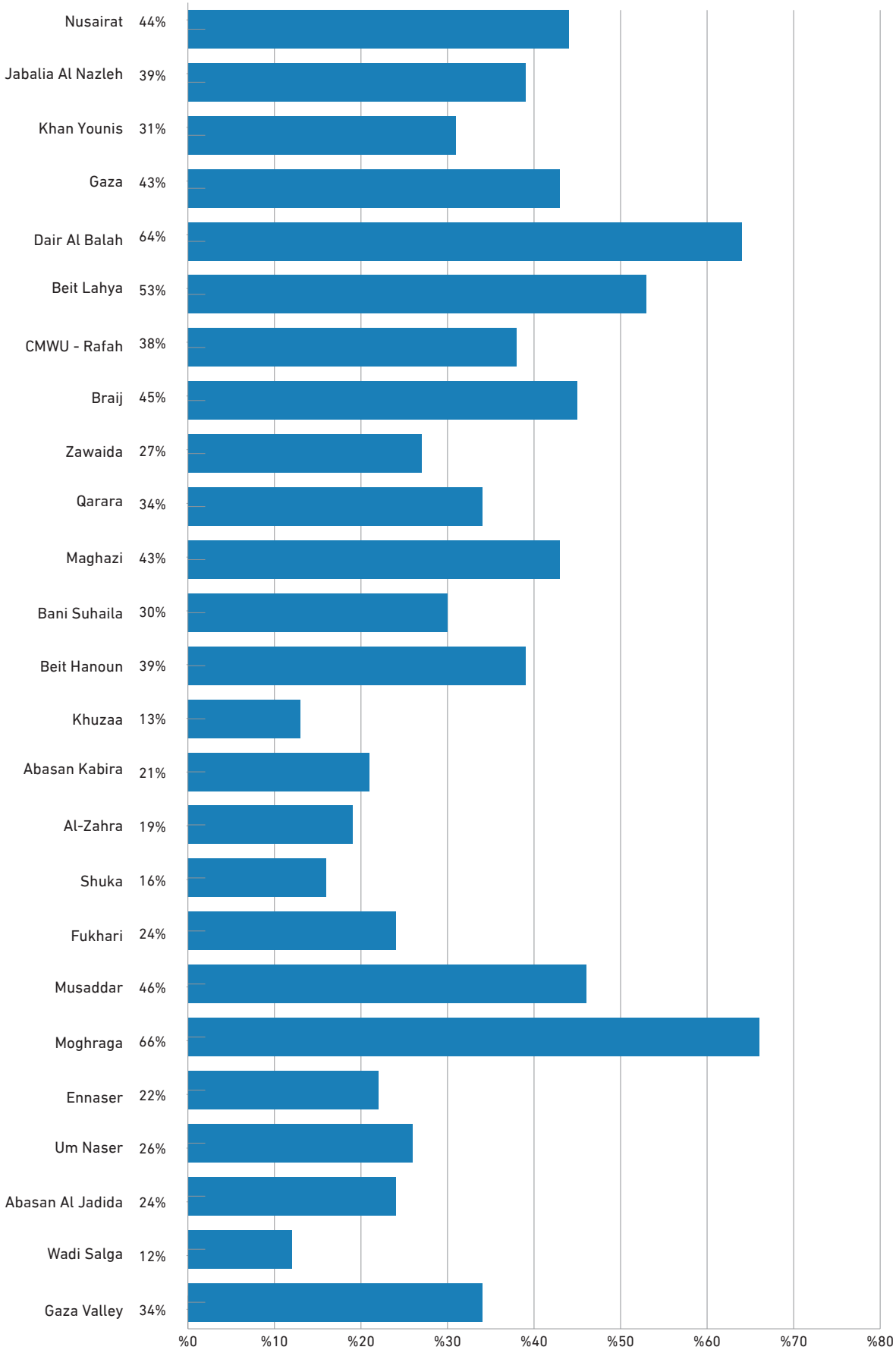
Non-Revenue Water By Volume (%) - Large Service Providers
West Bank



Non-Revenue Water By Volume (%) - Midsize Service Providers
West Bank



Non-Revenue Water By Volume (%) | Gaza Strip



4. NRW per kilometre of the network per year

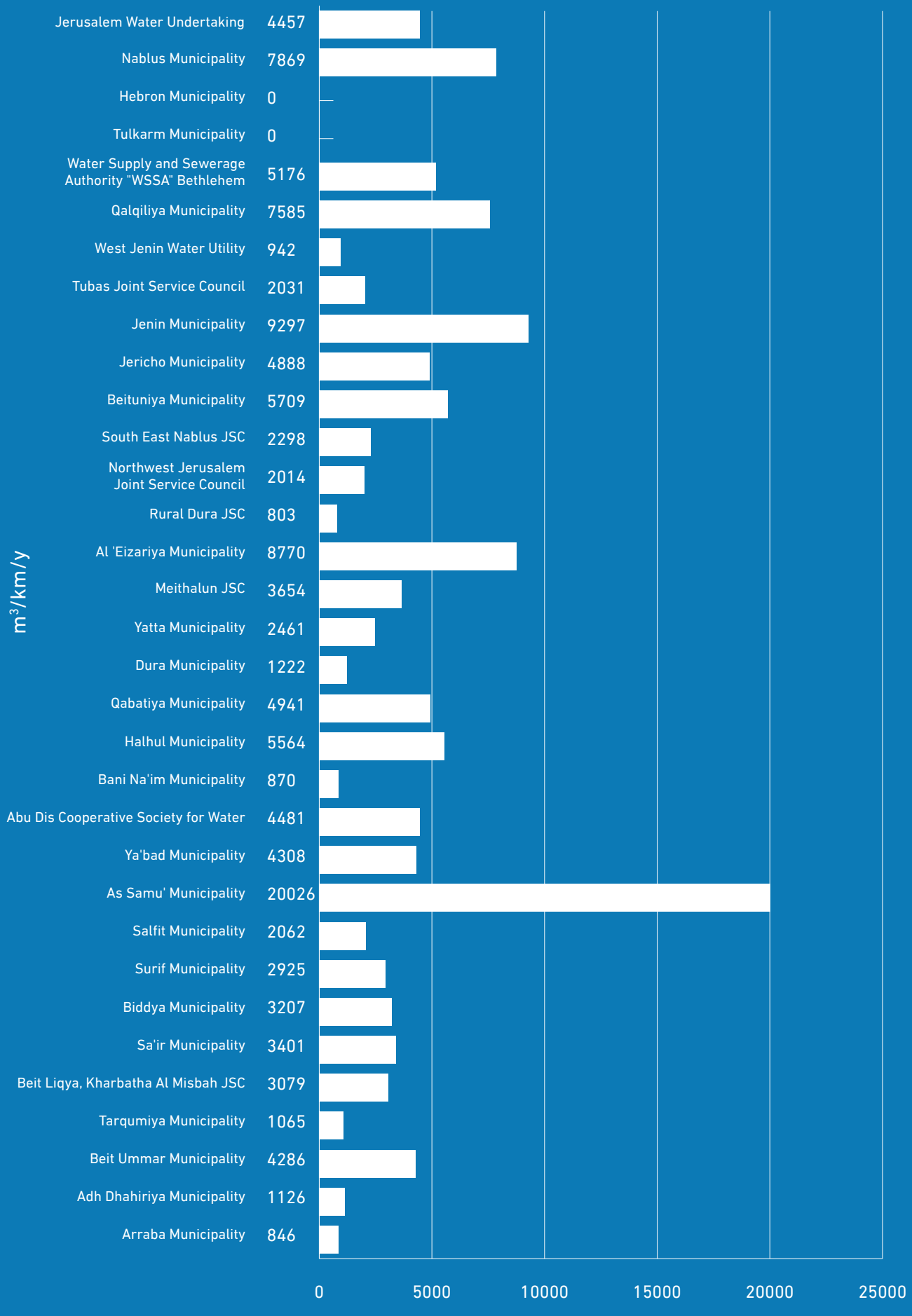
Definition	Calculations	Reference Criterion
This indicator measures the efficiency of the network and transmission lines while eliminating discrepancies arising from variations in network lengths. It provides a more reliable basis for comparison and ensures more accurate results	Total amount of non-revenue water in m^3 ÷ Network length in km	N/A

The results of this indicator reflect the efficiency of the water network and provide data on the amount of water losses resulting from broken pipes in the network, leaks from pipe fittings, and violations such as illegal connections per kilometer of the main network. This indicator enables service providers to generate accurate and comparable results, complementing the data from the non-revenue water indicator. Therefore, it is essential to consider both indicators in assessing network efficiency.

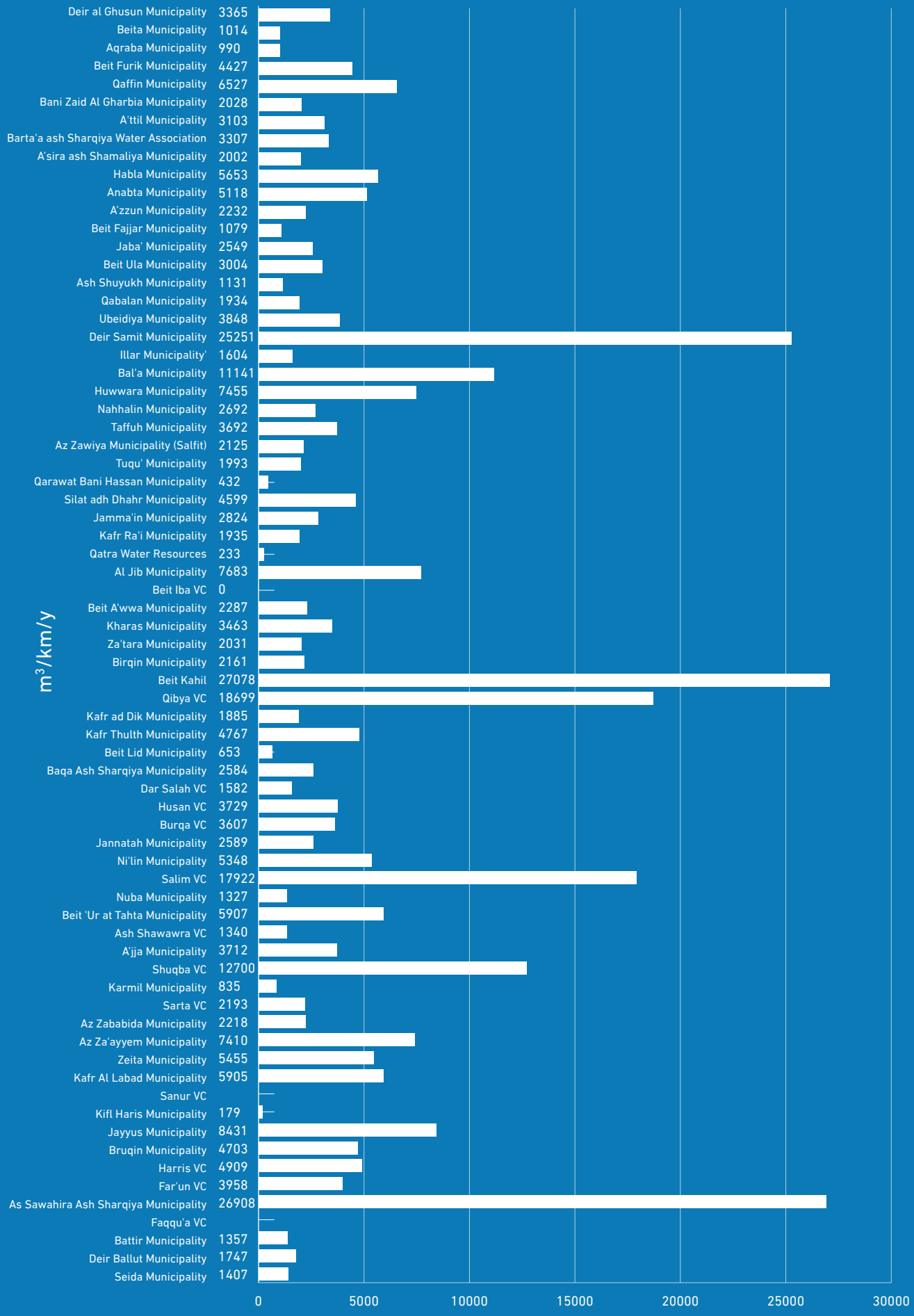
This indicator allows for a fair comparison between service providers by neutralizing network lengths, enabling a direct comparison of non-revenue water amounts per kilometer. It provides valuable insights into the efficiency of the network and transmission lines, helping water service providers make informed decisions regarding future investments, repairs, or network replacements.

There are significant discrepancies in the results of this indicator. In the West Bank, the amount of water losses ranged from 233 cubic meters per year in Qatra Company to over 26,000 cubic meters per year in As Sawahira Ash Sharqiya and Beit Kahil municipalities. In the Gaza Strip, the figures varied from 18,950 cubic meters per year in Beit Lahia Municipality to 1,091 cubic meters per year in Al Shuka Municipality.

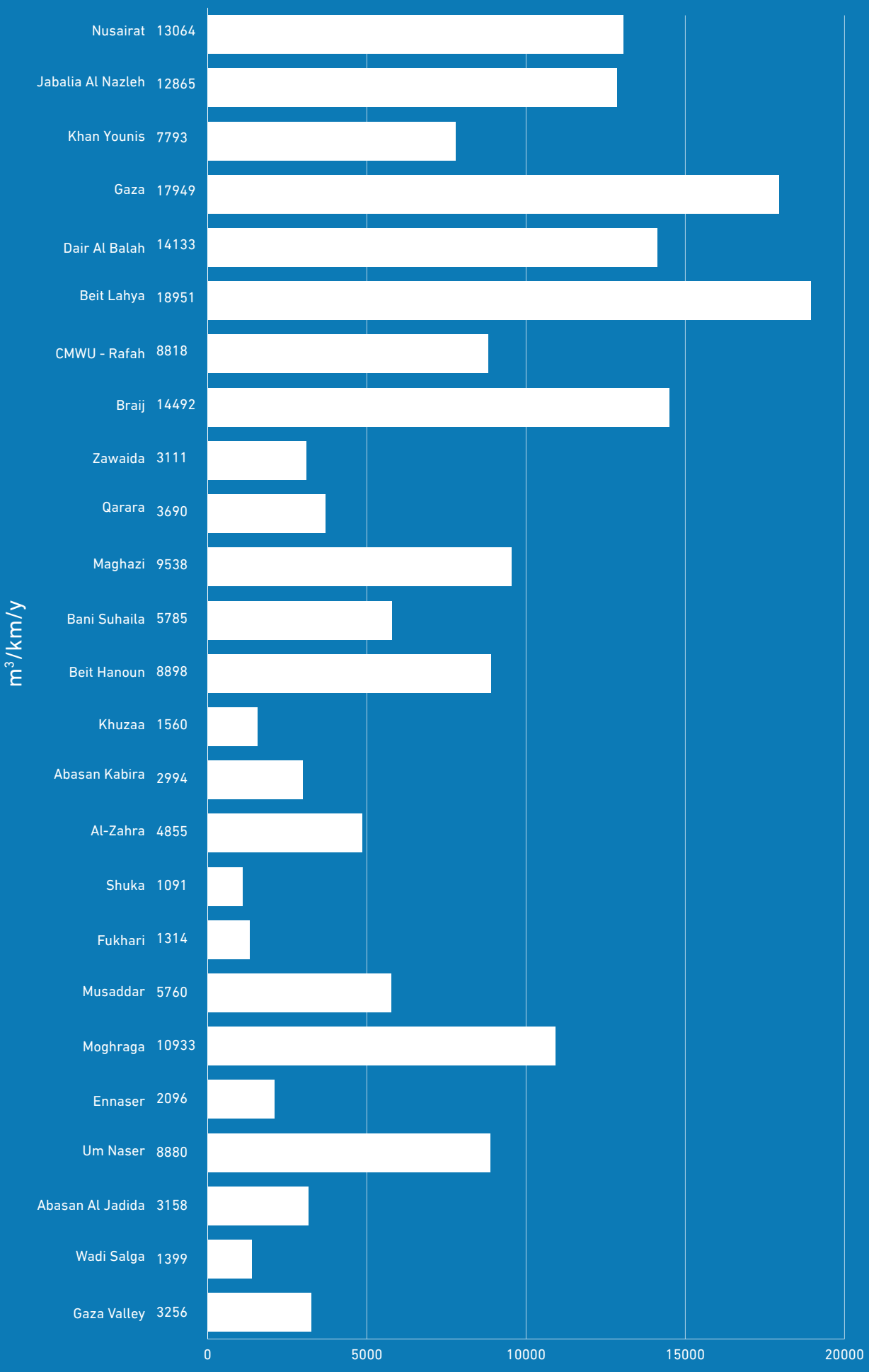
NRW per Kilometer of the Network Per Year - Large Service Providers
West Bank



NRW per Kilometer of the Network Per Year - Midsize Service Providers
West Bank



NRW Per Kilometer of the Network Per Year | Gaza Strip



5. Daily NRW per connection indicator

Definition	Calculations	Reference Criterion
This indicator provides a breakdown of the daily non-revenue water (NRW) quantity per active connection	Total amount of unaccounted water in the evaluation period × 1000 ÷ (Number of days of evaluation × number of subscriptions)	N/A

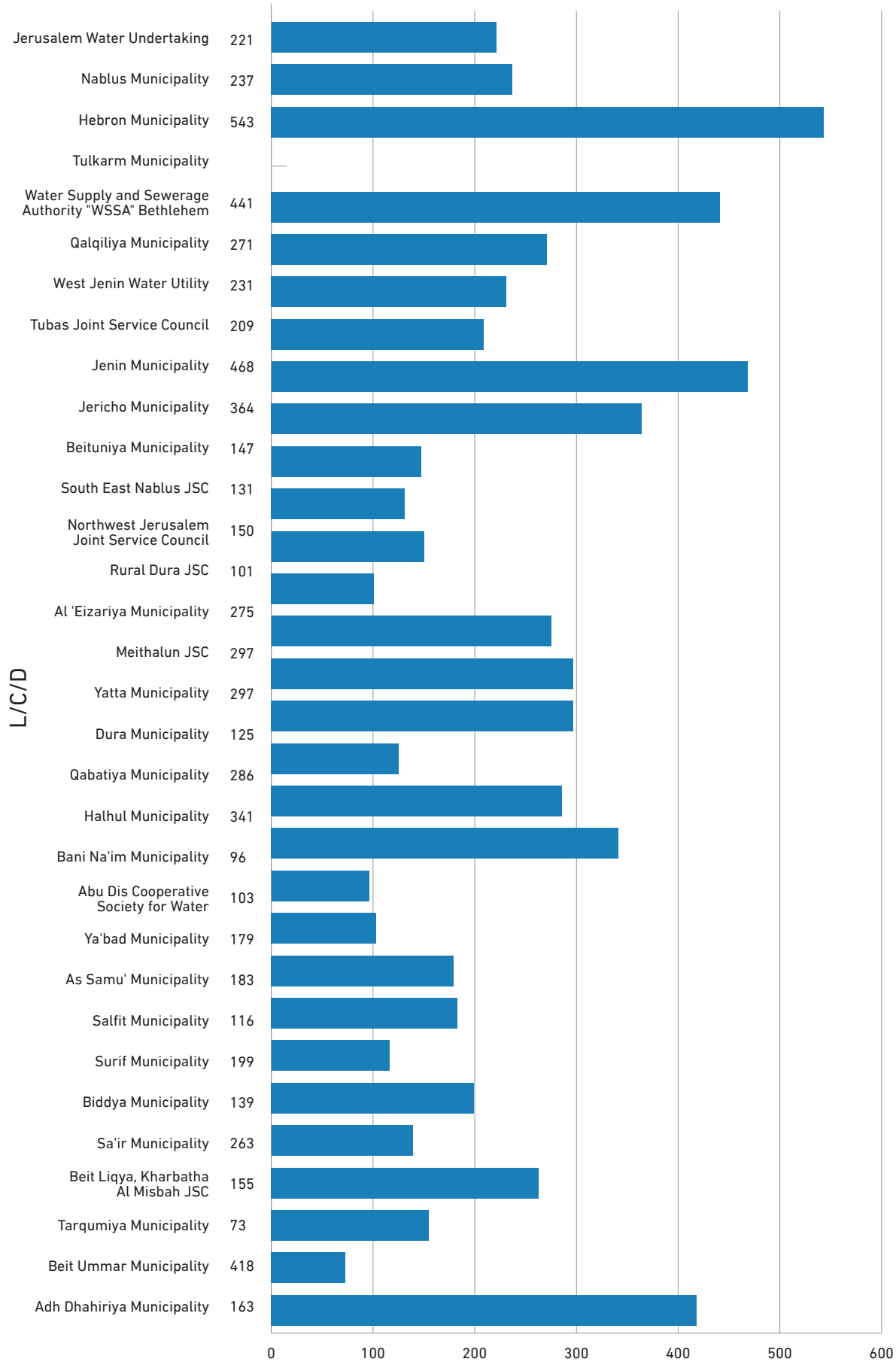
This indicator breaks down the percentage of non-revenue water into specific amounts of water loss attributed to each active connection within the service provider's system. In other words, this indicator serves several purposes:

- It measures the additional costs incurred by each active connection, in addition to the consumption costs recorded by water meters.
- It quantifies the extra water that could be made available to customers if non-revenue water amounts were reduced.
- It assists decision-makers in various organizations in identifying the actual need for water sources in comparison to existing ones.
- It helps the WSRC in monitoring the level of services provided to populations and setting objectives to help service providers improve their services to meet international and national laws and standards for available water supply.
- The results of this indicator can be used by service providers and other organizations to organize awareness sessions aimed at reducing the amount of non-revenue water.

The results clearly indicate variations in daily non-revenue water per connection across different municipalities. In Dier El Balah and Biet Lahia, this figure is notably higher at 1202 and 1150 liters per connection per day, respectively. Conversely, in Khuzaa, the figure is significantly lower at 117 liters per connection per day, aligning with the percentage of non-revenue water.

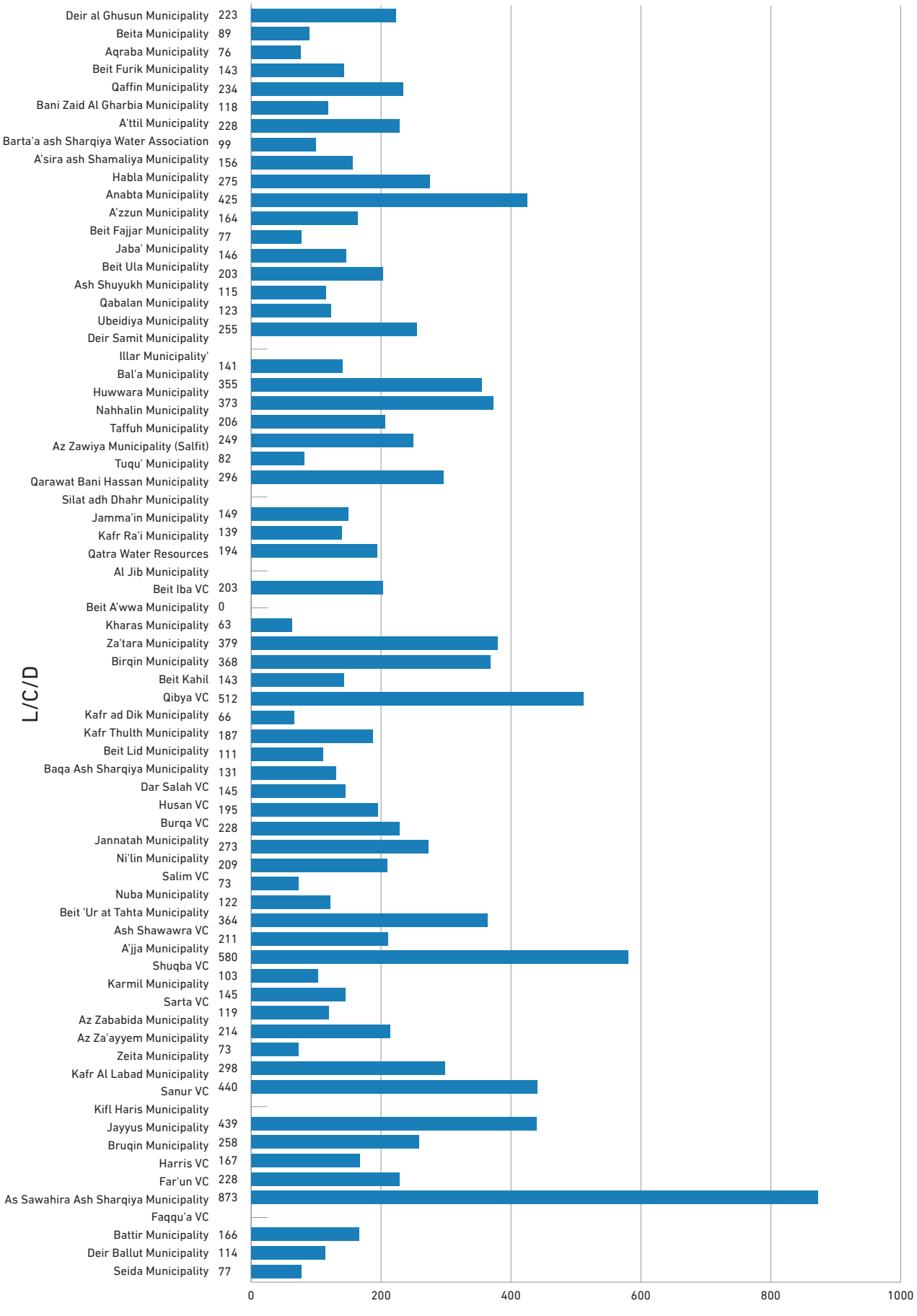
In the West Bank, Beit A'wwa and Kafr ad Dik municipalities achieved the lowest percentage of non-revenue water per connection per day, with figures below 60 liters. In contrast, As Sawahira Ash Sharqiya Municipality recorded the highest percentage of unaccounted water per connection per day, totaling 873 liters.

Daily NRW per connection indicator - Large Service Providers
West Bank

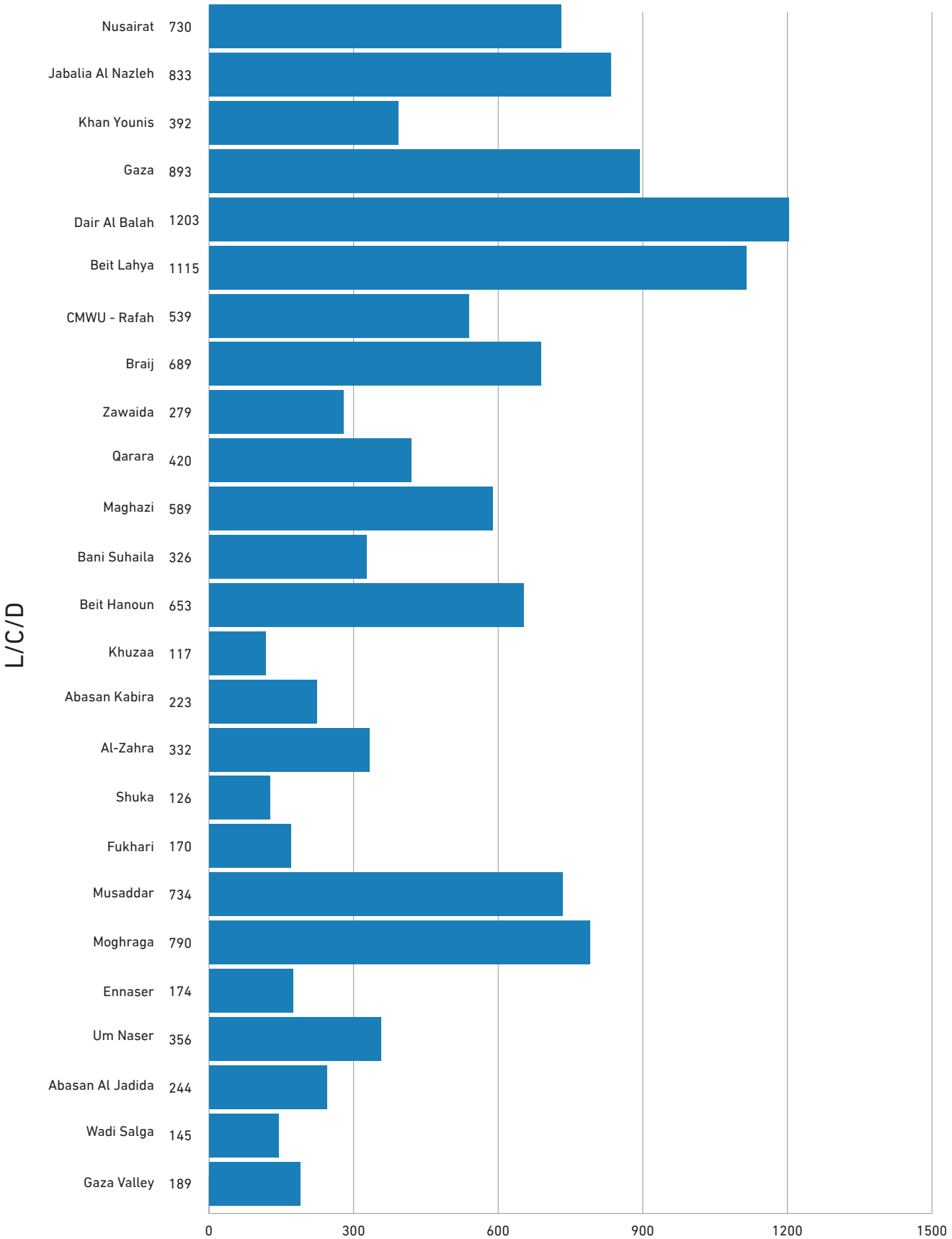


Daily NRW per connection indicator - Midsize Service Providers

West Bank



Daily NRW per connection indicator | Gaza Strip



Second: Financial Indicators

Water Service

1. Average Selling Price Per Cubic Meter of Water

Definition	Calculations	Reference Criterion
This indicator represents the average selling price of a cubic meter of water	Total Sales of Water (ILS) ÷ Total Sales of Water for Domestic, Commercial, and Industrial Use (m^3)	This figure should ideally be equal to or greater than the operational cost for one cubic meter of sold water

This indicator does not reflect the tariff system used by service providers; instead, it serves as a guiding indicator for comparing the average selling price per cubic meter of water to the operational costs incurred by the service provider.

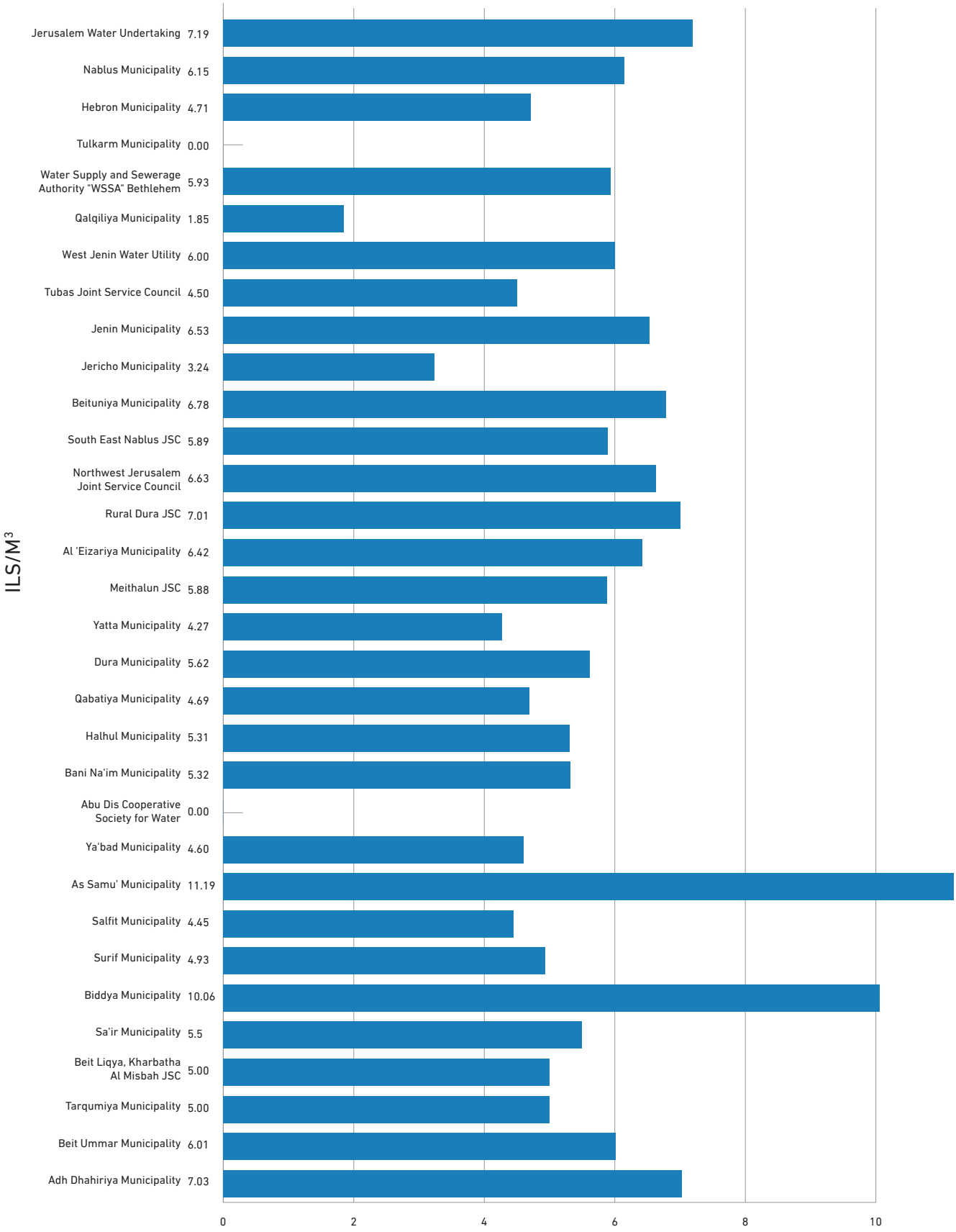
This indicator holds great significance for service providers, as it serves as a primary determinant of revenue, particularly when water service accounts for 60% of a municipality's operations. It acts as a warning signal for service providers to assess whether their services cover operational costs or not. Therefore, it is essential to consider this indicator alongside the operational cost indicator for each cubic meter of water sold, as it helps identify the gap between the average selling price and the costs associated with selling at that price. Consequently, this allows us to gauge the efficiency of the tariff system.

The variation in average selling prices among service providers can be attributed to several factors:

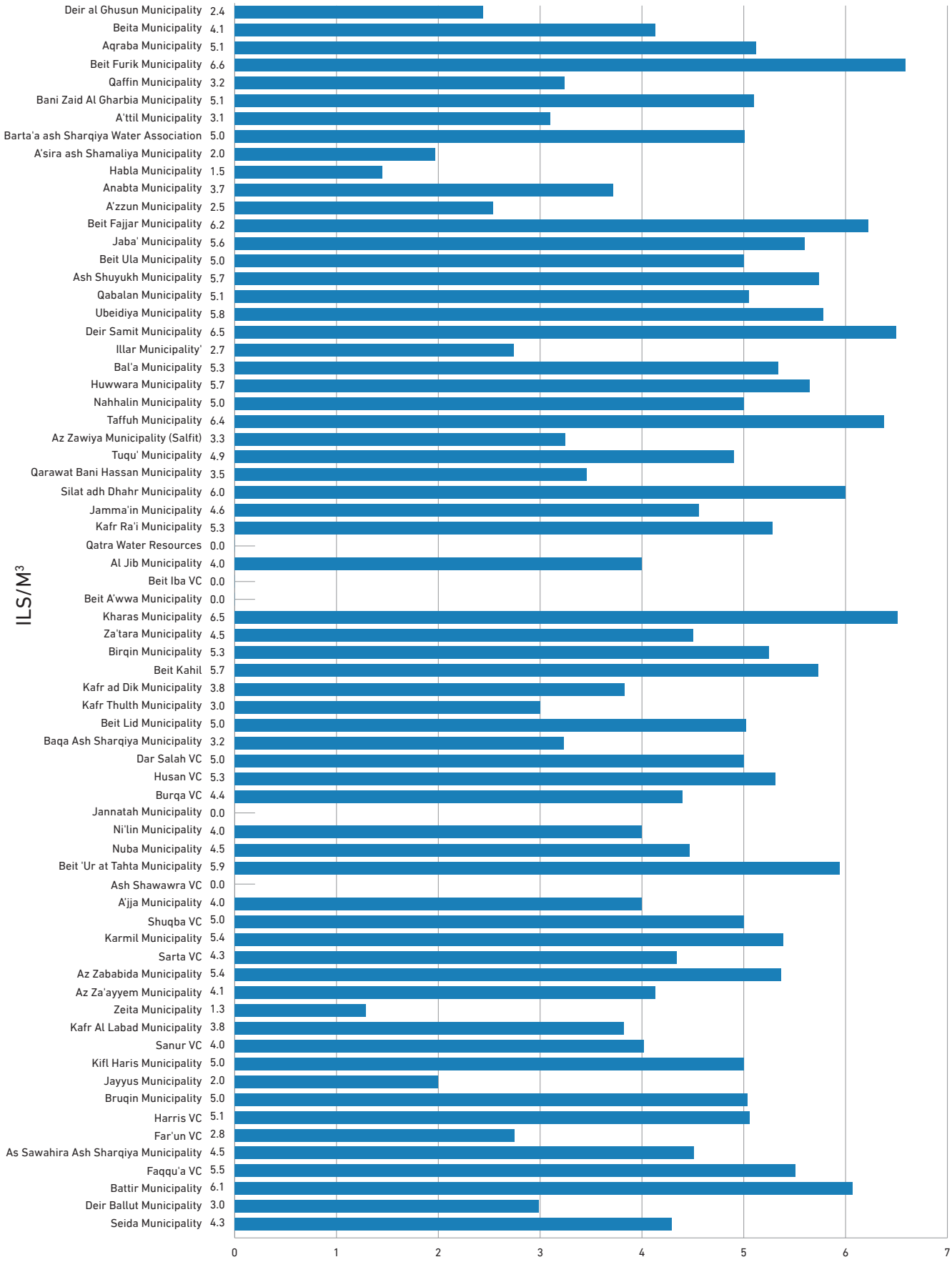
1. Differences in operational costs, including management, production, and distribution expenses, among different service providers.
2. Some service providers adopt a fixed pricing structure for water services, irrespective of the water's usage. Examples of this include Gaza City and CMWU - Rafah.
3. Certain service providers implement an increasing tariff system, categorizing prices based on water consumption, as seen in Khan younis and Jabalia Al Nazleh.
4. Some service providers generate revenue by selling water in bulk to neighboring customers at higher prices, as observed in illar and Beita.
5. Variations may also arise due to the range of services offered by a single service provider, or their sole focus on water services, as is the case with smaller municipalities.

Water prices should adhere to the principles outlined in the unified tariff system bylaw for water and wastewater services, No. 4 of 2021. This bylaw is designed to recover the actual cost of water and ensure the financial sustainability of service providers. Additionally, it aims to standardize the fundamentals and pricing standards for water and wastewater services, encompassing subscription and service fees. This approach encourages consumers to use water efficiently and safeguard water sources.

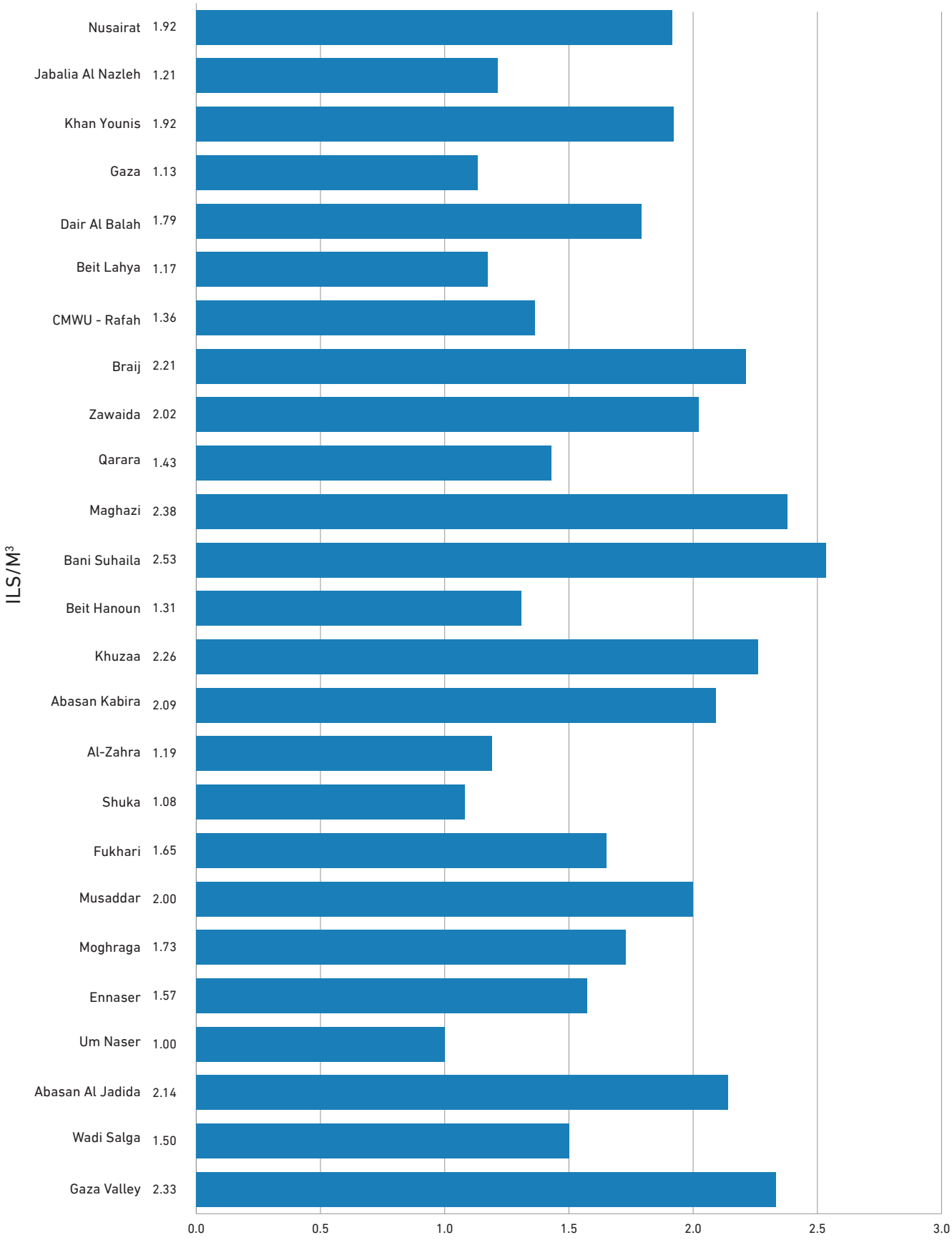
Average Selling Price Per Cubic Meter of Water - Large Service Providers West Bank



Average Selling Price Per Cubic Meter of Water - Midsize Service Providers
West Bank



Average Selling Price Per Cubic Meter of Water | Gaza Strip



2. Operational Costs Per M^3 of Water Sold

Indicator Definition	Calculations	Reference Criterion
The indicator measures the average operational (running) cost of every cubic meter of water sold.	Costs of operating, maintenance, and admin (ILS) expect for depreciation ÷ net sales of water in cubic meter	N/A

This indicator reflects the operational costs incurred by service providers for production, management, distribution, and overall service operation. These costs may be paid immediately or accumulate as debts. It is crucial to ensure that these costs not including the asset depreciation cost related to the service.

The variation in operational costs among service providers can be attributed to several factors, including the high cost of energy for production and distribution. Additionally, employee salaries for management and operation are a significant expense. The price of purchased water from Mekorote or desalination plants can also contribute to higher costs. Furthermore, addressing water losses and providing promotional discounts for consumers can impact the overall operational expenses for service providers.

The disparity between the average selling price and operational costs for every cubic meter of water indicates that service providers may struggle to cover their operational expenses. In such cases, service providers should consider a two-fold approach:

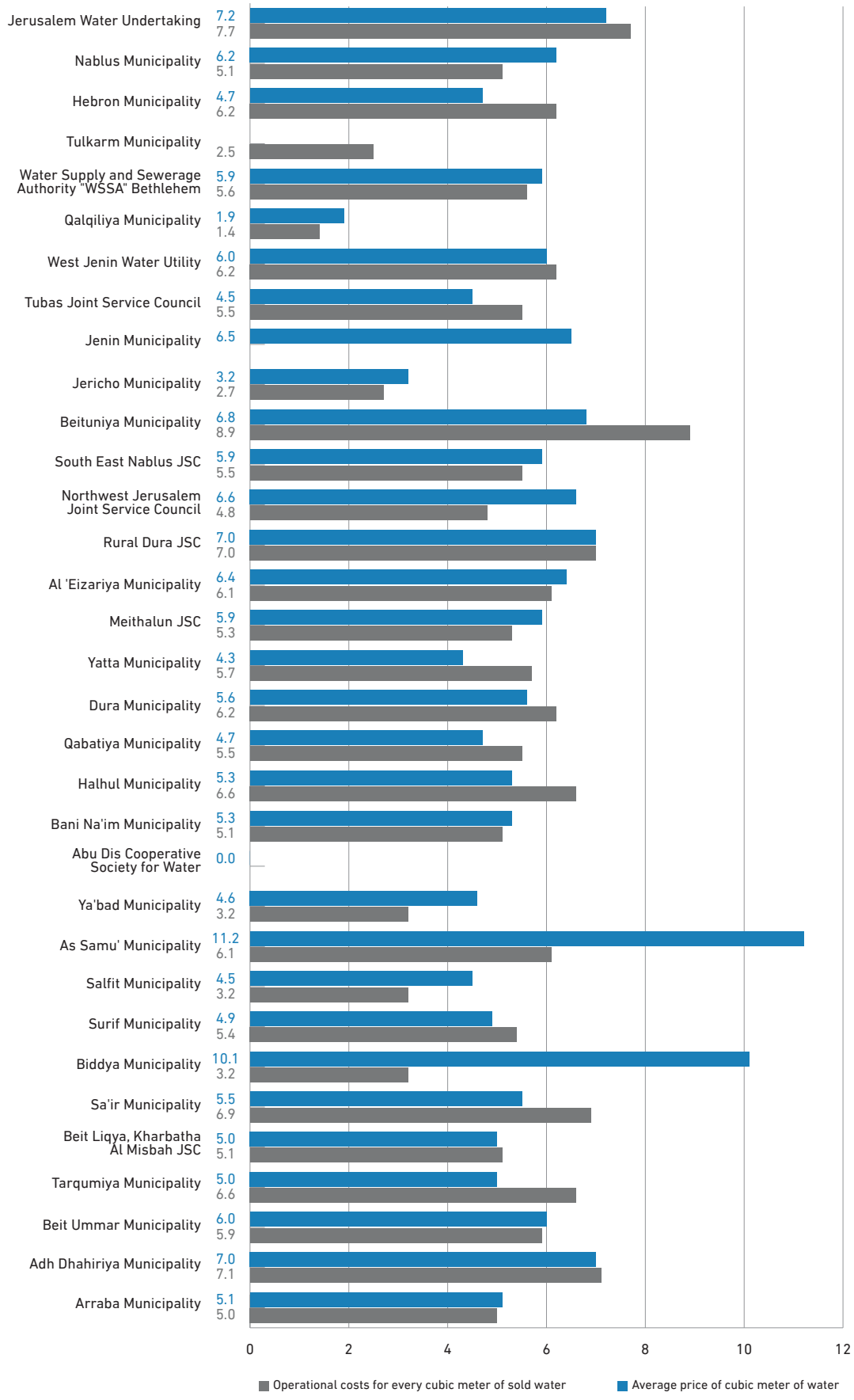
- First, they should carefully review their costs to ensure there are no unnecessary or unjustified expenses.
- Second, they should reevaluate their tariff system to align it with the operational costs, thus enabling service providers to adequately cover their ongoing expenditures and maintain sustainable, quality service.

It has been observed that several service providers in the West Bank, such as Jenin, A'sira ash Shamaliya, and As Sawahira Ash Sharqiya Municipalities, have exceeded their operational cost limits compared to the selling price. This can be attributed to factors related to the operation and pumping of water to different elevations. In the Gaza Strip, areas in eastern Khan Younis, like Bani Suhaila and Abasan, as well as central areas like Al Braij and Al Maghazi, have high operational costs of 5 ILS per cubic meter. This is primarily because they rely heavily on purchased water from Mekorote, which comes at a high cost.

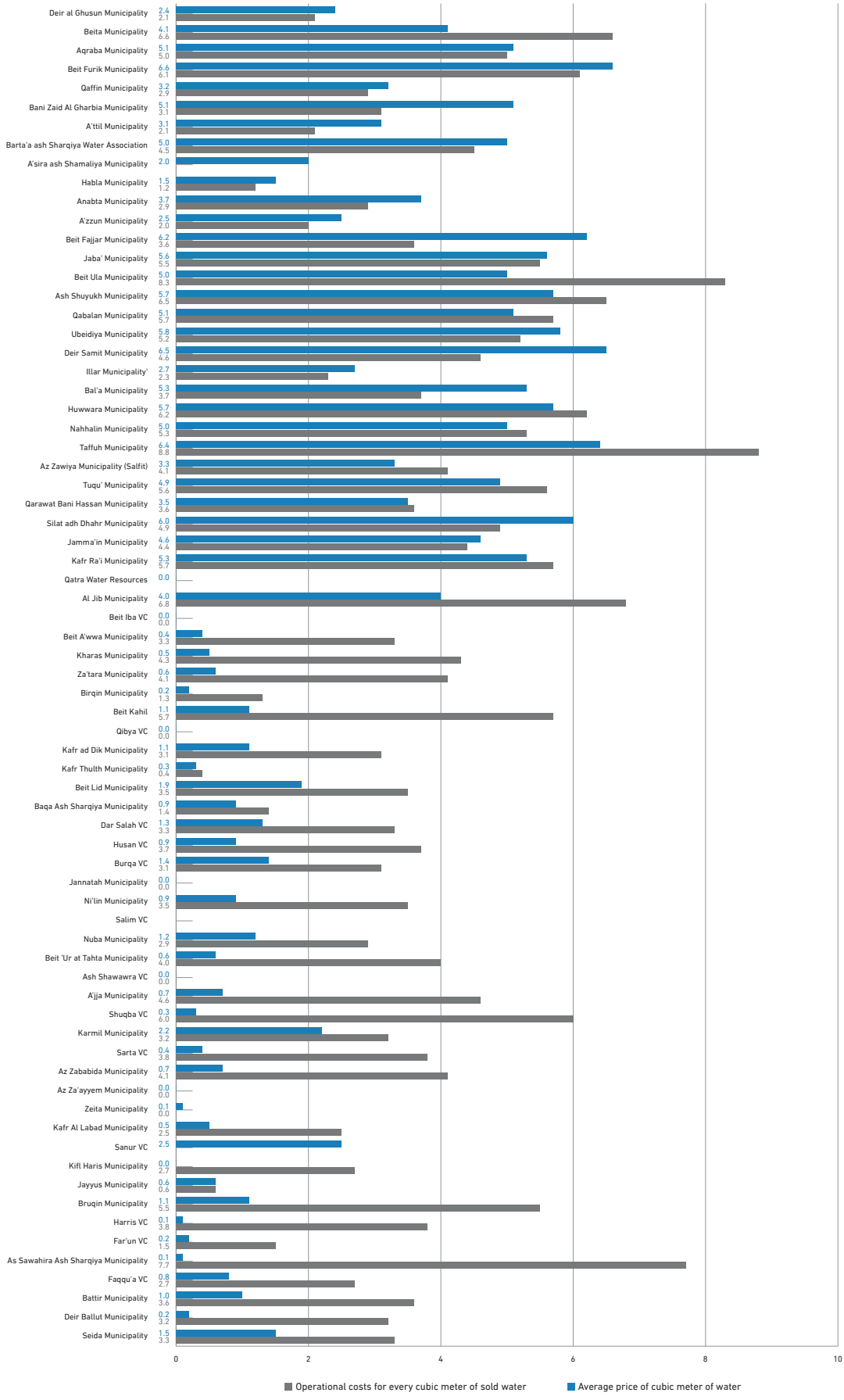
On the other hand, municipalities like Al Zahara, Wadi Gaza, and Al Mussadar have shown that the revenue from sold water exceeds operational costs. This is achieved through various policies and procedures implemented by these municipalities to reduce energy and purchased water expenses. They employ an increasing tariff system based on consumption categories.

As previously mentioned, it's important to consider both the average selling price and operational costs indicators for every cubic meter of sold water in conjunction with the non-revenue percentage indicators due to the positive correlations between water losses and operational costs.

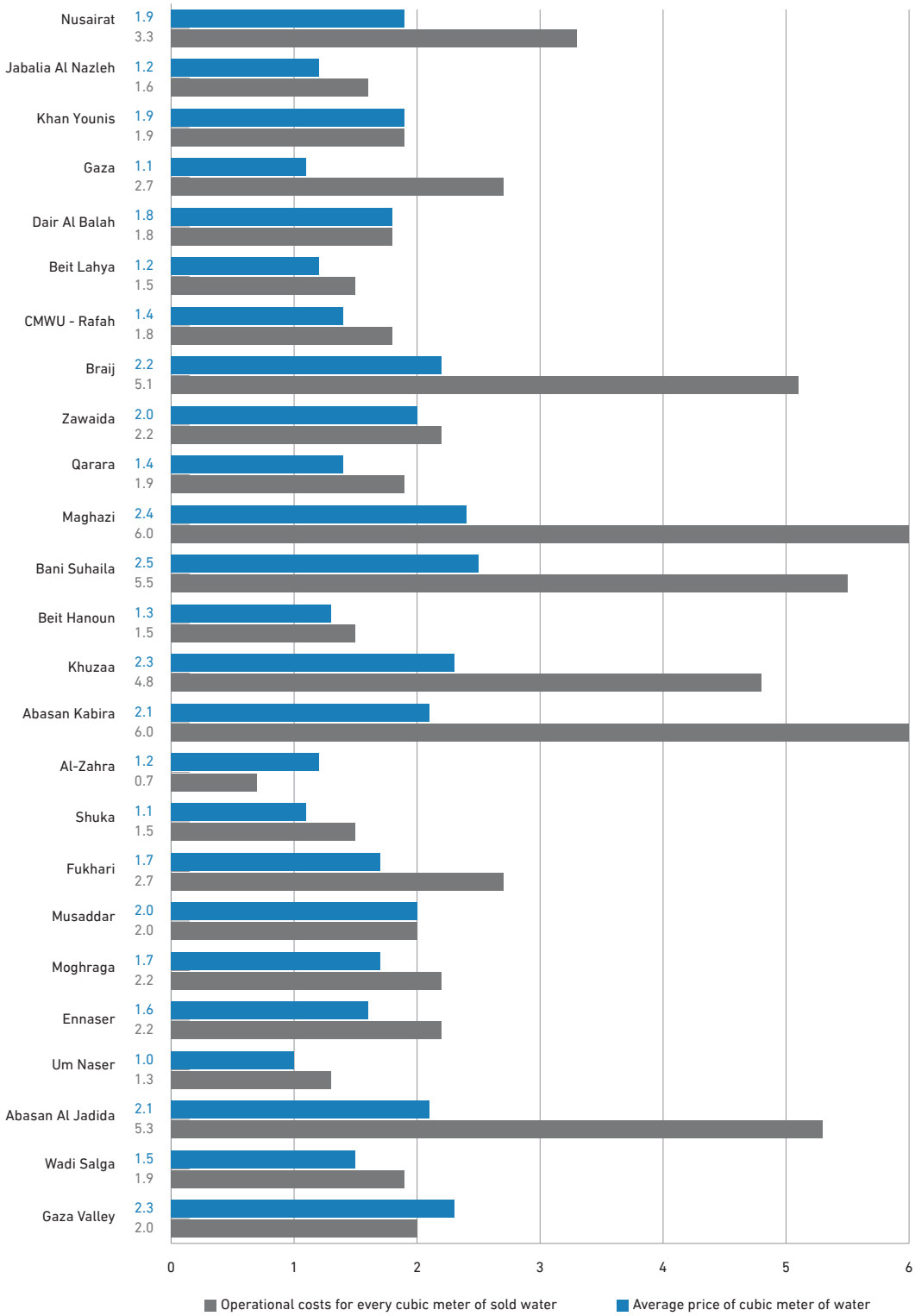
Average Selling Price Per M³ of Water and Operating Costs Per M³ of Water Sold - Large Service Providers | West Bank



Average Selling Price Per M³ of Water and Operating Costs Per M³ of Water Sold - Midsize Service Providers | West Bank



Average Selling Price Per M³ of Water and Operating Costs Per M³ of Water Sold | Gaza Strip

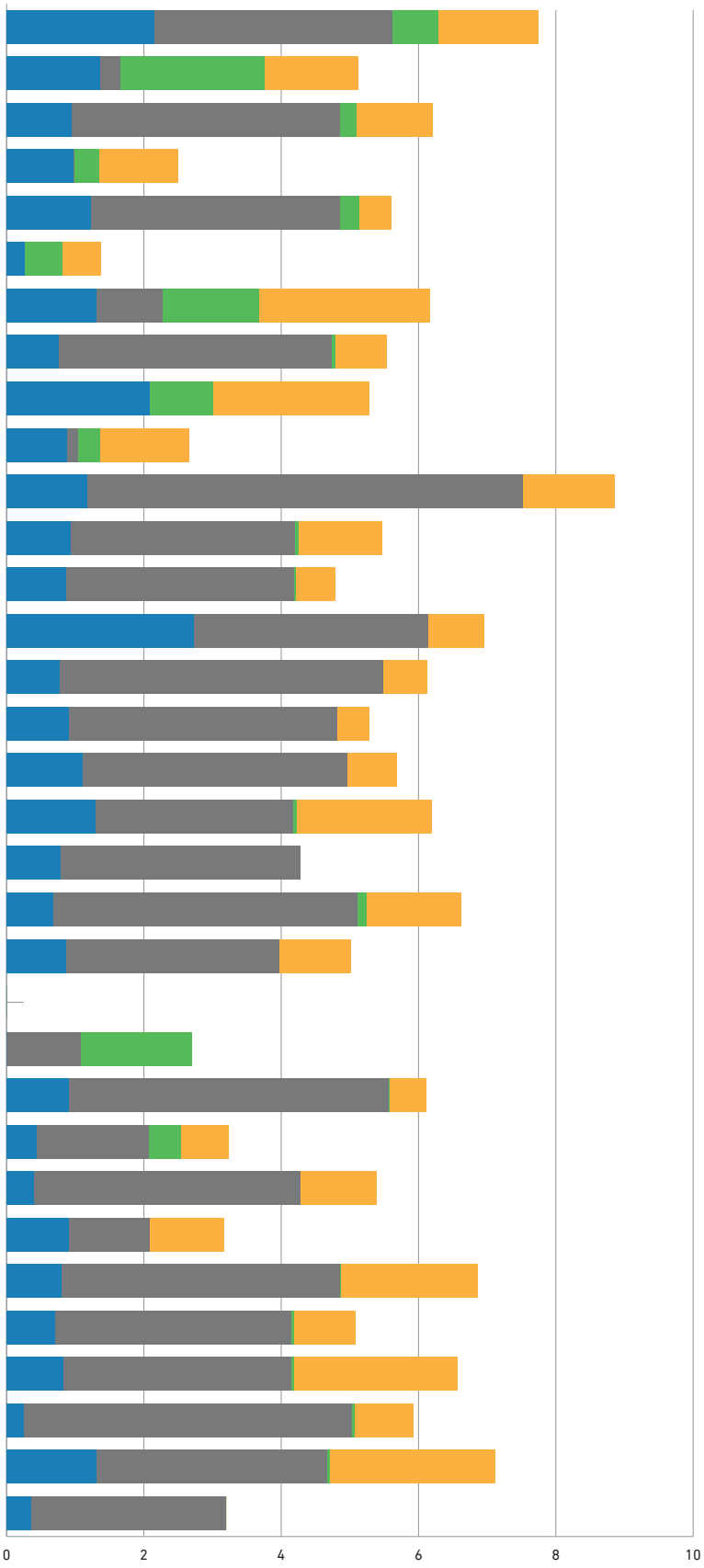


The Charts below show the details of operational costs for every service provider including the following:

- Employees costs
- Purchased water costs
- Energy costs
- Other operational costs

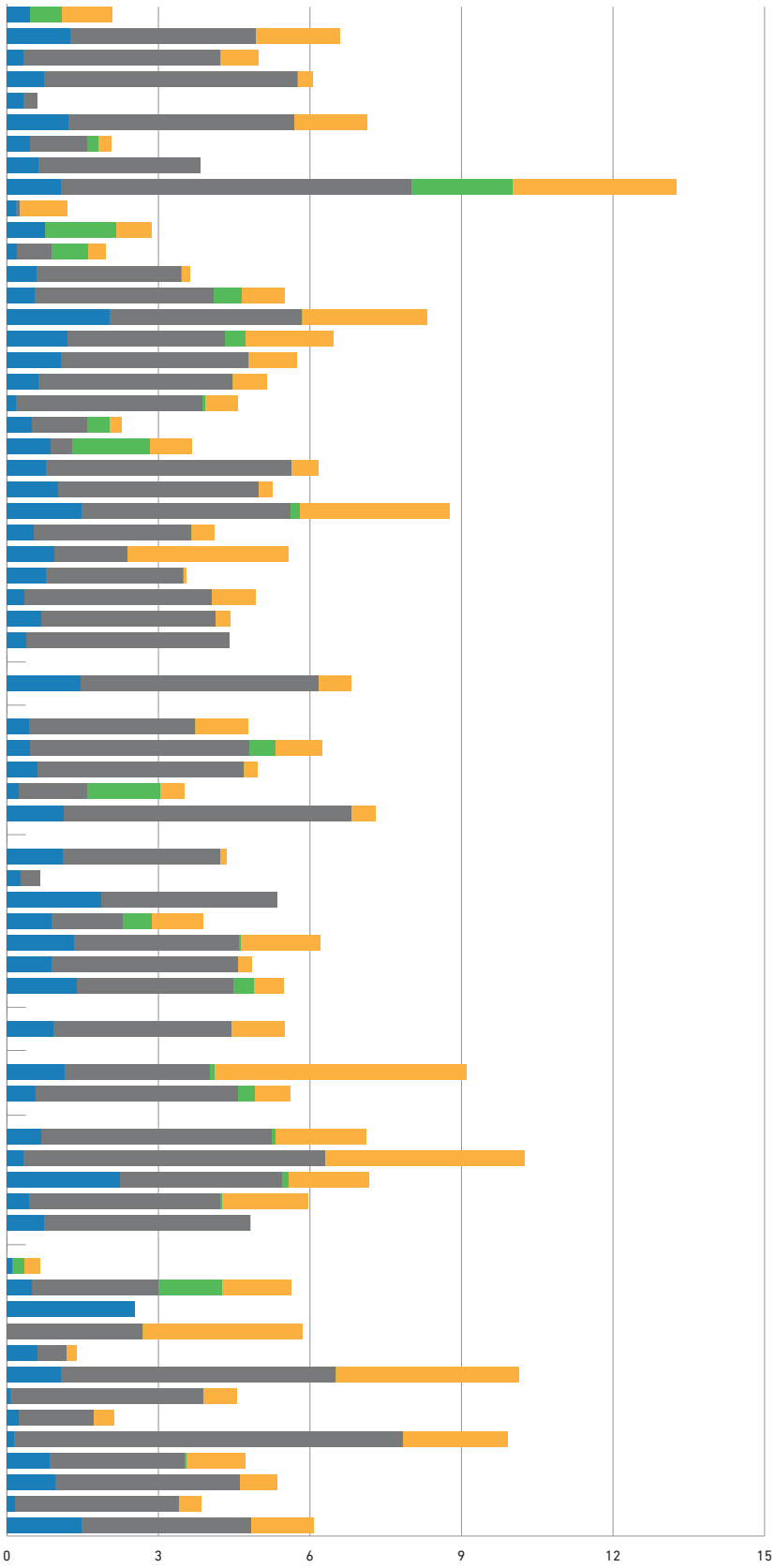
Allocation off Operation Costs for Every Cubic Meter of Water Sold - Large Service Providers West Bank

	Employees Costs	Water Purchases	Energy Costs	Other Operational Costs
Jerusalem Water Undertaking	2.15	3.46	0.67	1.46
Nablus Municipality	1.36	0.30	2.09	1.37
Hebron Municipality	0.94	3.92	0.24	1.10
Tulkarm Municipality	0.97	0.02	0.36	1.14
Water Supply and Sewerage Authority "WSSA" Bethlehem	1.22	3.63	0.29	0.46
Qalqiliya Municipality	0.26	0.00	0.55	0.57
West Jenin Water Utility	1.31	0.96	1.40	2.50
Tubas Joint Service Council	0.76	3.97	0.06	0.74
Jenin Municipality	2.08		0.93	2.27
Jericho Municipality	0.88	0.16	0.32	1.30
Beituniya Municipality	1.17	6.35	0.00	1.34
South East Nablus JSC	0.93	3.27	0.05	1.22
Northwest Jerusalem Joint Service Council	0.86	3.32	0.03	0.58
Rural Dura JSC	2.73	3.41	0.00	0.81
Al 'Eizariya Municipality	0.77	4.71	0.01	0.64
Meithalun JSC	0.90	3.91	0.00	0.48
Yatta Municipality	1.11	3.85	0.00	0.72
Dura Municipality	1.29	2.89	0.05	1.96
Qabatiya Municipality	0.78	3.50	0.00	0.00
Halhul Municipality	0.67	4.44	0.13	1.38
Bani Na'im Municipality	0.87	3.10	0.00	1.05
Abu Dis Cooperative Society for Water	0.00	0.00	0.00	0.00
Ya'bad Municipality	0.00	1.08	1.62	0.00
As Samu' Municipality	0.90	4.66	0.02	0.53
Salfit Municipality	0.43	1.64	0.47	0.69
Surif Municipality	0.39	3.89	0.00	1.11
Biddya Municipality	0.91	1.17	0.00	1.09
Sa'ir Municipality	0.79	4.06	0.02	1.99
Beit Liqya, Kharbatha Al Misbah JSC	0.70	3.45	0.03	0.91
Tarqumiya Municipality	0.82	3.32	0.05	2.37
Beit Ummar Municipality	0.25	4.78	0.04	0.85
Adh Dhahiriya Municipality	1.31	3.36	0.04	2.40
Arraba Municipality	0.35	2.85	0.00	0.00

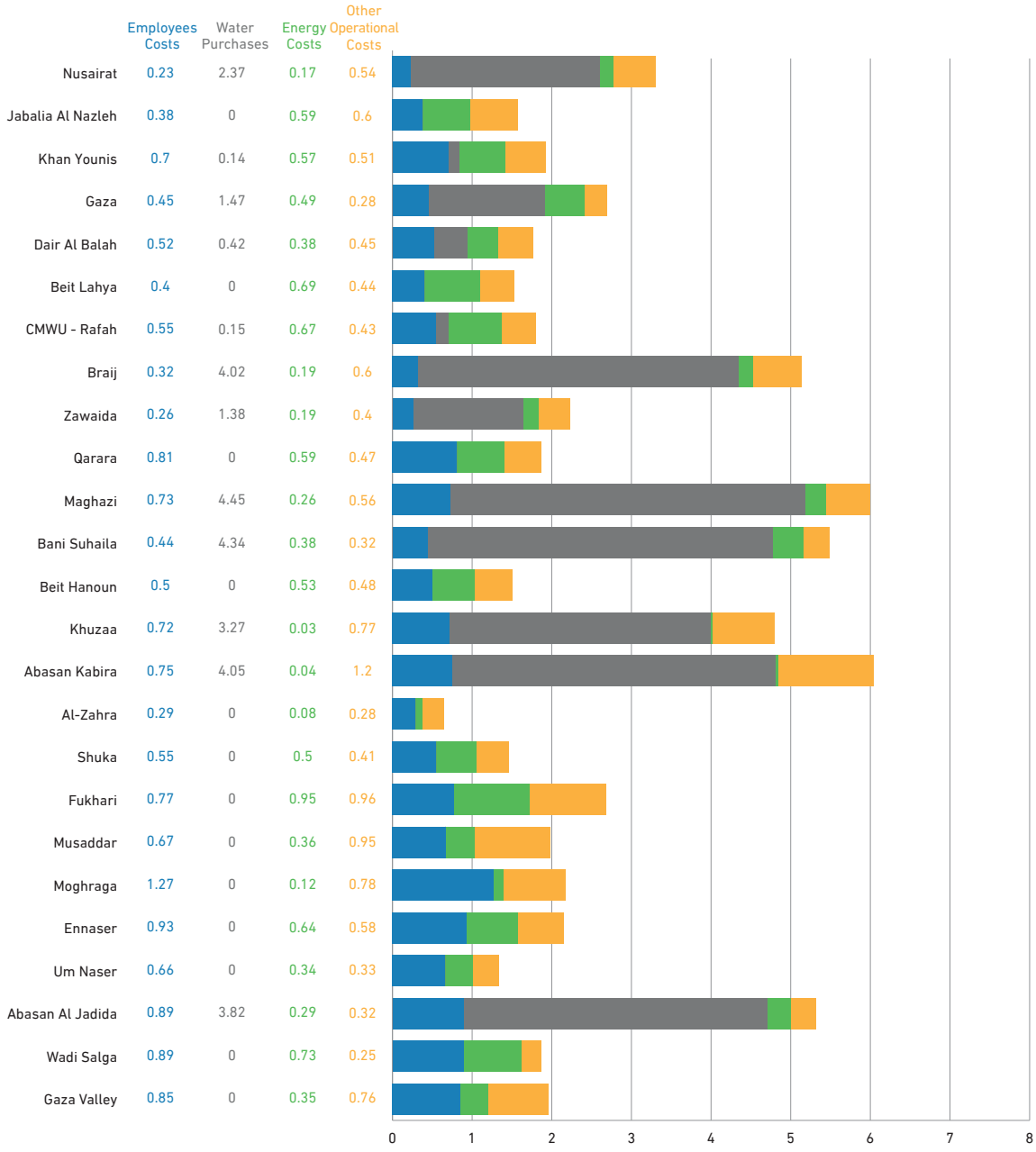


Allocation off Operation Costs for Every Cubic Meter of Water Sold - Midsize Service Providers | West Bank

	Employees Costs	Water Purchases	Energy Costs	Other Operational Costs
Deir al Ghusun Municipality	0.45	0.00	0.63	1.00
Beita Municipality	1.25	3.67	0.00	1.67
Aqraba Municipality	0.32	3.91	0.00	0.76
Beit Furik Municipality	0.73	5.01	0.02	0.30
Qaffin Municipality	0.33	0.26	0.00	0.00
Bani Zaid Al Gharbia Municipality	1.21	4.47	0.00	1.46
A'ttil Municipality	0.46	1.13	0.22	0.25
Barta'a ash Sharqiya Water Association	0.63	3.20	0.00	0.00
A'sira ash Shamaliya Municipality	1.07	6.93	2.01	3.24
Habla Municipality	0.18	0.06	0.00	0.95
Anabta Municipality	0.76	0.00	1.41	0.69
A'zzun Municipality	0.19	0.70	0.72	0.35
Beit Fajjar Municipality	0.59	2.84	0.02	0.18
Jaba' Municipality	0.55	3.54	0.56	0.84
Beit Ula Municipality	2.04	3.80	0.00	2.48
Ash Shuyukh Municipality	1.19	3.13	0.39	1.76
Qabalan Municipality	1.07	3.71	0.00	0.96
Ubeidiya Municipality	0.63	3.84	0.00	0.68
Deir Samit Municipality	0.17	3.70	0.05	0.65
Illar Municipality'	0.49	1.10	0.43	0.25
Bal'a Municipality	0.86	0.43	1.54	0.83
Huwwara Municipality	0.77	4.86	0.00	0.54
Nahhalin Municipality	1.01	3.97	0.00	0.27
Taffuh Municipality	1.47	4.15	0.17	2.98
Az Zawiya Municipality (Salfit)	0.52	3.13	0.00	0.46
Tuqu' Municipality	0.94	1.44	0.00	3.20
Qarawat Bani Hassan Municipality	0.77	2.71	0.02	0.04
Silat adh Dhahr Municipality	0.34	3.71	0.00	0.87
Jamma'in Municipality	0.68	3.44	0.00	0.30
Kafr Ra'i Municipality	0.38	4.02	0.00	0.00
Qatra Water Resources	0.00	0.00	0.00	0.00
Al Jib Municipality	1.45	4.72	0.00	0.65
Beit Iba VC	0.00	0.00	0.00	0.00
Beit A'wwa Municipality	0.43	3.30	0.00	1.05
Kharas Municipality	0.45	4.34	0.53	0.92
Za'tara Municipality	0.61	4.08	0.00	0.26
Birqin Municipality	0.24	1.34	1.45	0.49
Beit Kahil	1.12	5.70	0.00	0.47
Qibya VC	0.00	0.00	0.00	0.00
Kafr ad Dik Municipality	1.11	3.11	0.00	0.12
Kafr Thulth Municipality	0.27	0.38	0.00	0.00
Beit Lid Municipality	1.86	3.49	0.00	0.00
Baqa Ash Sharqiya Municipality	0.89	1.40	0.58	1.02
Dar Salah VC	1.33	3.26	0.03	1.58
Husan VC	0.89	3.68	0.00	0.28
Burqa VC	1.39	3.09	0.41	0.59
Jannatah Municipality	0.00	0.00	0.00	0.00
Ni'lin Municipality	0.92	3.51	0.00	1.06
Salim VC				
Nuba Municipality	1.15	2.87	0.09	4.99
Beit 'Ur at Tahta Municipality	0.57	3.99	0.35	0.69
Ash Shawawra VC	0.00	0.00	0.00	0.00
A'jja Municipality	0.68	4.55	0.08	1.81
Shuqba VC	0.32	5.98	0.00	3.94
Karmil Municipality	2.23	3.21	0.13	1.60
Sarta VC	0.44	3.78	0.04	1.70
Az Zababida Municipality	0.74	4.08	0.00	0.00
Az Za'ayyem Municipality	0.00	0.00	0.00	0.00
Zeita Municipality	0.11	0.00	0.23	0.31
Kafr Al Labad Municipality	0.49	2.51	1.25	1.39
Sanur VC	2.53		0.00	0.00
Kifl Haris Municipality	0.00	2.69	0.00	3.17
Jayyus Municipality	0.60	0.57	0.00	0.21
Bruqin Municipality	1.06	5.45	0.00	3.62
Harris VC	0.07	3.81	0.00	0.68
Far'un VC	0.23	1.48	0.00	0.41
As Sawahira Ash Sharqiya Municipality	0.13	7.71	0.00	2.07
Faqqu'a VC	0.84	2.68	0.03	1.17
Battir Municipality	0.96	3.64	0.00	0.75
Deir Ballut Municipality	0.16	3.24	0.00	0.45
Seida Municipality	1.48	3.34	0.00	1.25



Allocation off Operation Costs for Every Cubic Meter of Water Sold | Gaza Strip



The topographic nature of the service provider's area and the lack of alternative power sources in the West Bank are the two main reasons for high energy costs in relation to the operations provided by the service provider. It is evident that energy costs account for 40% of operational costs in municipalities like Nablus, Anabta, Qalqilya, Yabad, and Bala'a. This is because there are no alternative power sources available, and there is a need for numerous water pumping plants operating at different elevations. However, for some service providers who rely on purchased water, energy costs are almost zero.

It is worth mentioning that the high cost of energy may be related to energy losses. It's essential to conduct a thorough review to ensure that energy losses are minimized. Additionally, service providers should ensure that the pumps used to distribute water are efficient to reduce energy consumption. This proactive approach can help service providers lower their operational costs and improve the overall efficiency of their water distribution systems.

In comparison to service providers in the West Bank, service providers in the Gaza Strip incur significantly higher energy costs as a proportion of their operational costs. This is primarily due to the relatively high price of energy in the Gaza Strip. Service providers in Gaza that rely on electricity generators powered by fuel, such as Beit Lahia, Beit Hanoun, and the CMWU -Rafah, may spend more than 35% of their total operational costs per cubic meter on energy.

It's important to note that this energy cost indicator is closely related to other indicators, such as non-revenue water and the percentage of purchased water. When the percentage of non-revenue water is reduced, it also leads to a reduction in the percentage of purchased water. These indicators are interrelated and provide insights into the efficiency and sustainability of water service provision.

3. Collection Efficiency - Water Service

Indicator Definition	Calculations	Reference Criterion
This indicator assesses the service providers' capacity to collect payments for the water they have sold, including any outstanding debts from the current financial year or previous years, over the course of the evaluation period.	Collected amounts from water sales during the year ÷ total value of water sales (NIS) × 100%	≥ 95%

The financial liquidity of service providers plays a crucial role in ensuring sustainable services. This indicator reflects the service providers' capability to collect their revenue from sales made in the current year or from previous years. This collection is essential for covering the service providers' operational costs and safeguarding the rights of their customers.

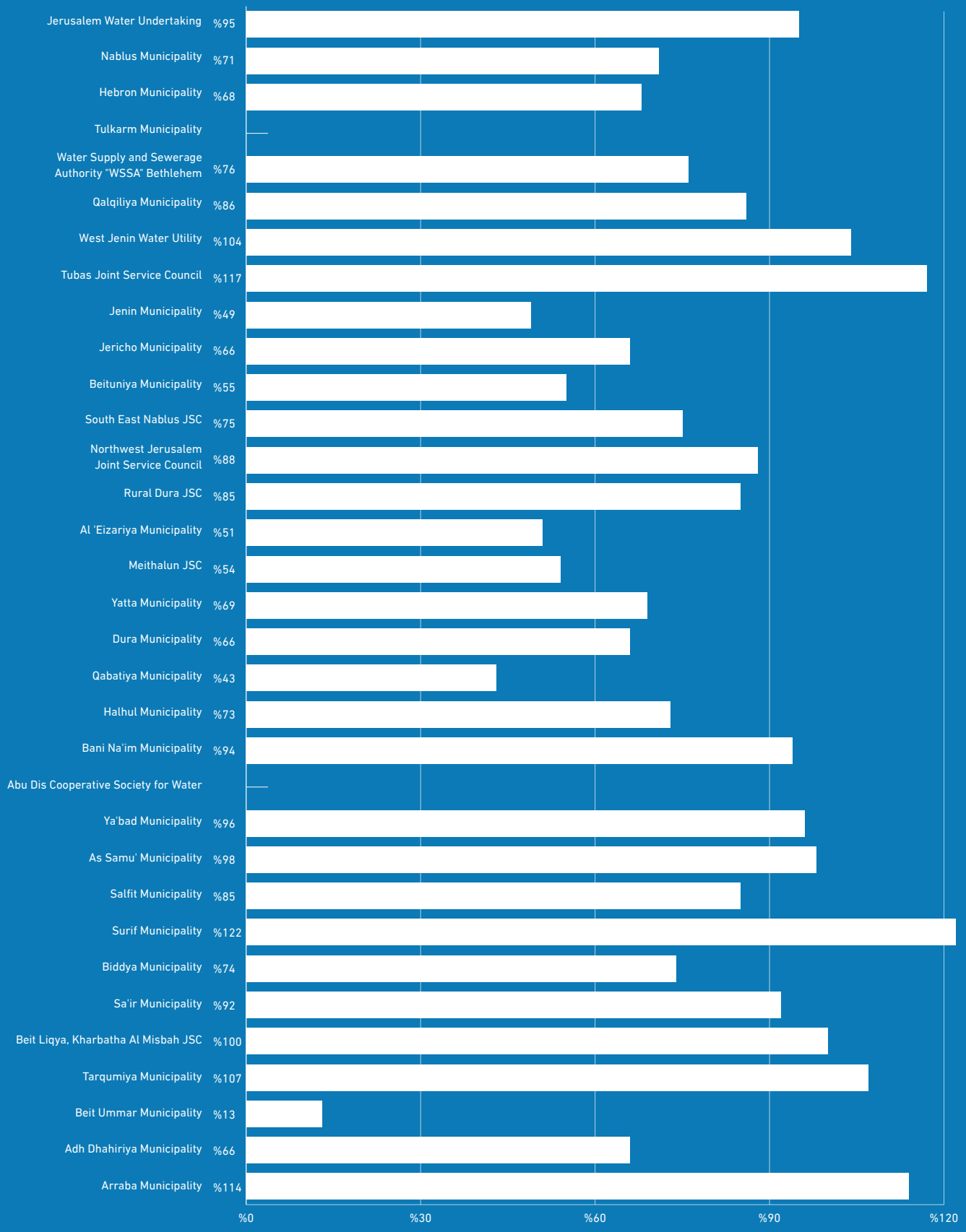
Service providers should focus on effective planning to improve their revenue collection rates, enhance customer loyalty, provide higher service quality, and ensure customer satisfaction.

Examining the results, we can observe that the overall collection percentage increased in Westbank to reach 81%, while in Gaza this percentage decreased from 2021 to 2022 by 11% reaching 40% only. Despite offering various facilitation procedures such as discounts and fee exemptions for late payments, these percentages are calculated based on the collection of water sales for the current year and outstanding debts from previous years.

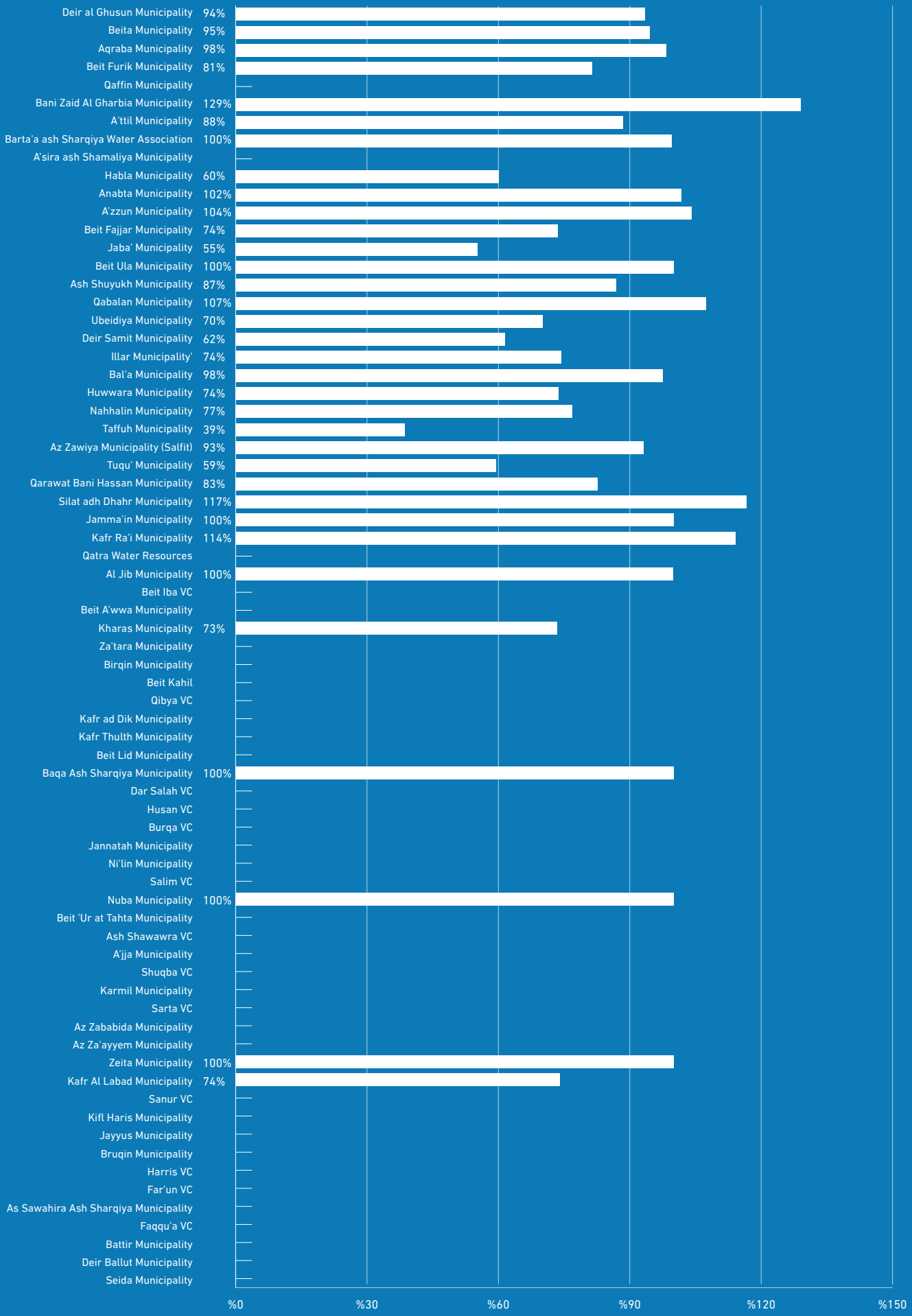
In the West Bank, municipalities like Beit Ummar and Za'tara achieved relatively low collection percentages of 13% and 24%, respectively. In contrast, Khuzaa municipality in the Gaza Strip recorded an impressive 90% collection percentage, while um Al Nasser and Al Shuka municipalities had lower percentages of 16% and 22%, respectively. These figures reflect the efficiency of service provider employees in their collection efforts and the willingness of consumers to pay for the service.

It's important to note that over 100 service providers in West Bank have installed prepaid water meters, accounting for 29% of all water meters. This has contributed to improved collection percentages. However, some service providers in the West Bank reported percentages exceeding 100%, which is likely due to collecting both current bills and portions of previous debts. As of the writing of this report, there is no clear strategy for service providers to separate current and past collections, resulting in cumulative recording. In the Gaza Strip, the situation is concerning, as none of the service providers achieved a 100% collection percentage.

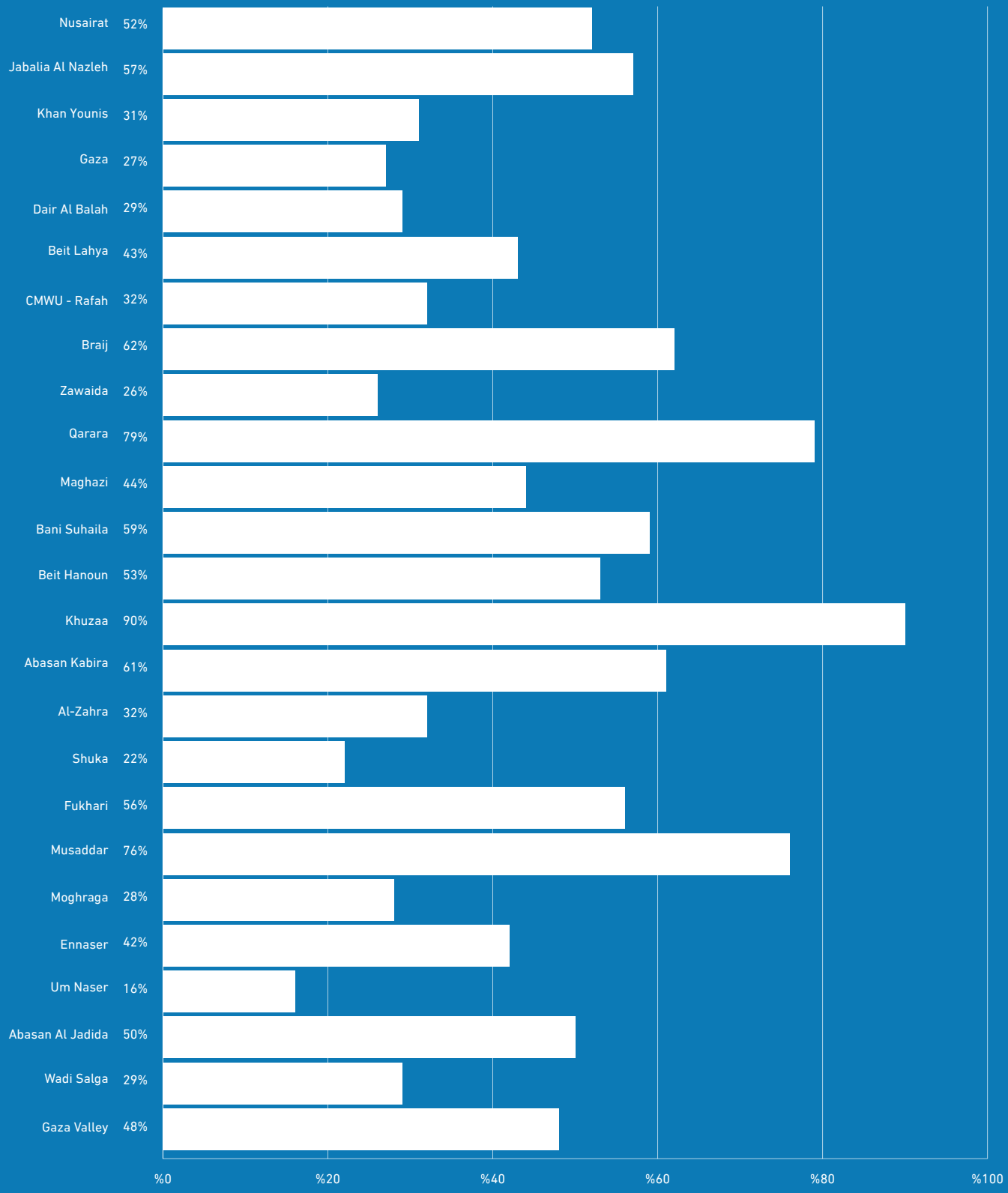
Collection Efficiency - Large Service Providers | West Bank



Collection Efficiency - Midsize Service Providers | West Bank



Collection Efficiency | Gaza Strip



4. Working Ratio (Efficiency Ratio) - Water Service

Indicator Definition	Calculations	Reference Criterion
This indicator measures the efficiency and effectiveness of the tariff system in covering the operational costs of a service provider. When the indicator is less than 1, it indicates that the tariff system is capable of covering operational expenses (Opex) and potentially generating additional funds for capital expenditures (CapEx).	Operating, maintenance, and administrative costs (NIS) (excluding depreciation) ÷ operating revenues	between 1 and 0.95

This indicator serves as a standardized tool for service providers to assess the extent to which billed operating revenues cover operational costs. It also provides insight into the potential financial margin available to cover development and CapEx expenses. Additionally, the indicator facilitates year-to-year comparisons to gauge progress and identify areas of improvement.

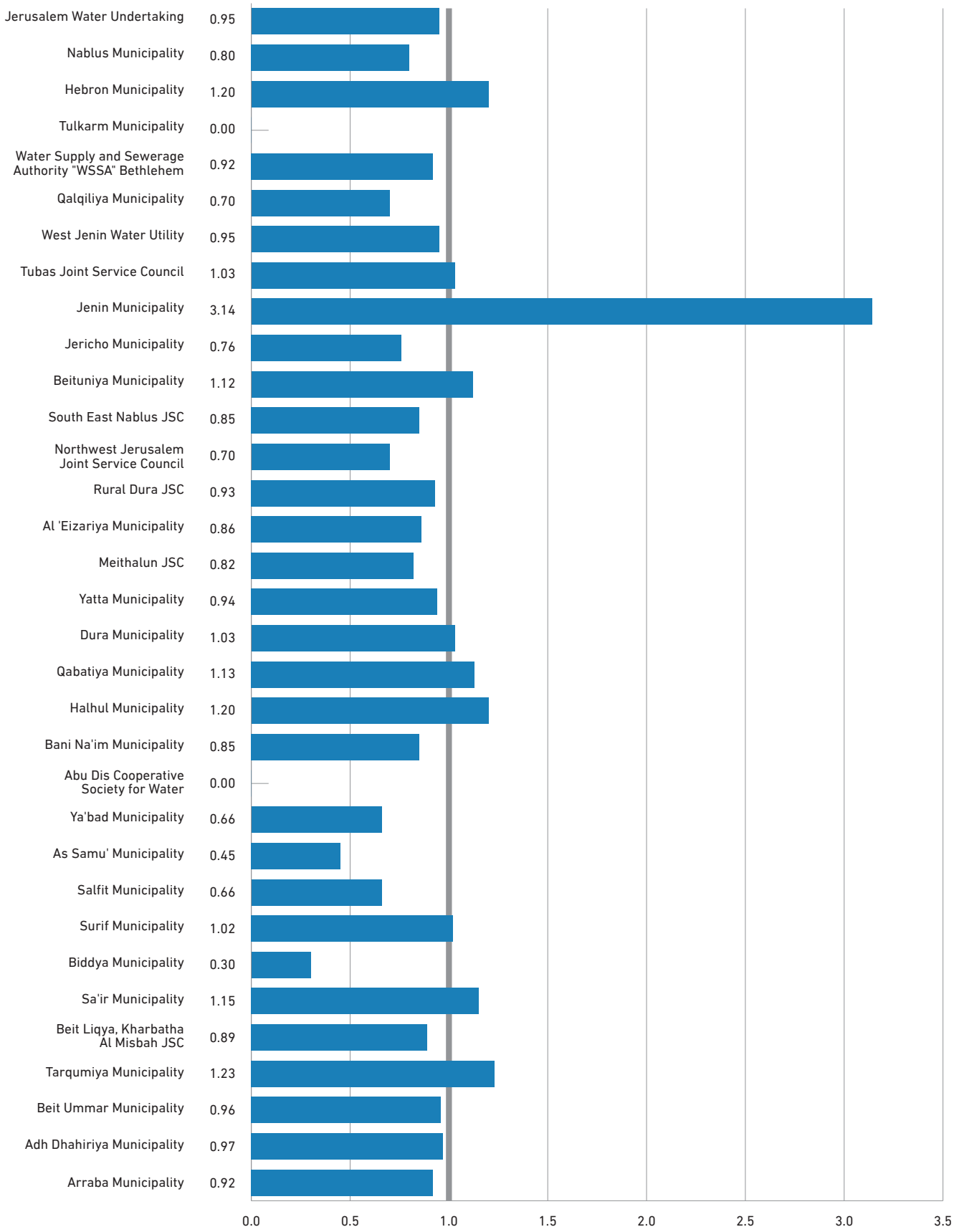
The working ratio, when based on accurate and reliable billing data, serves as an indicator of whether the tariff system is sufficient to cover operational and maintenance costs or not.

It is important to highlight that a significant number of service providers in the West Bank and the Gaza Strip have values greater than 1 for this indicator. This signifies a significant issue with the tariff systems applied by these service providers, as their operational costs exceed their annual revenues even if all revenues were collected in full.

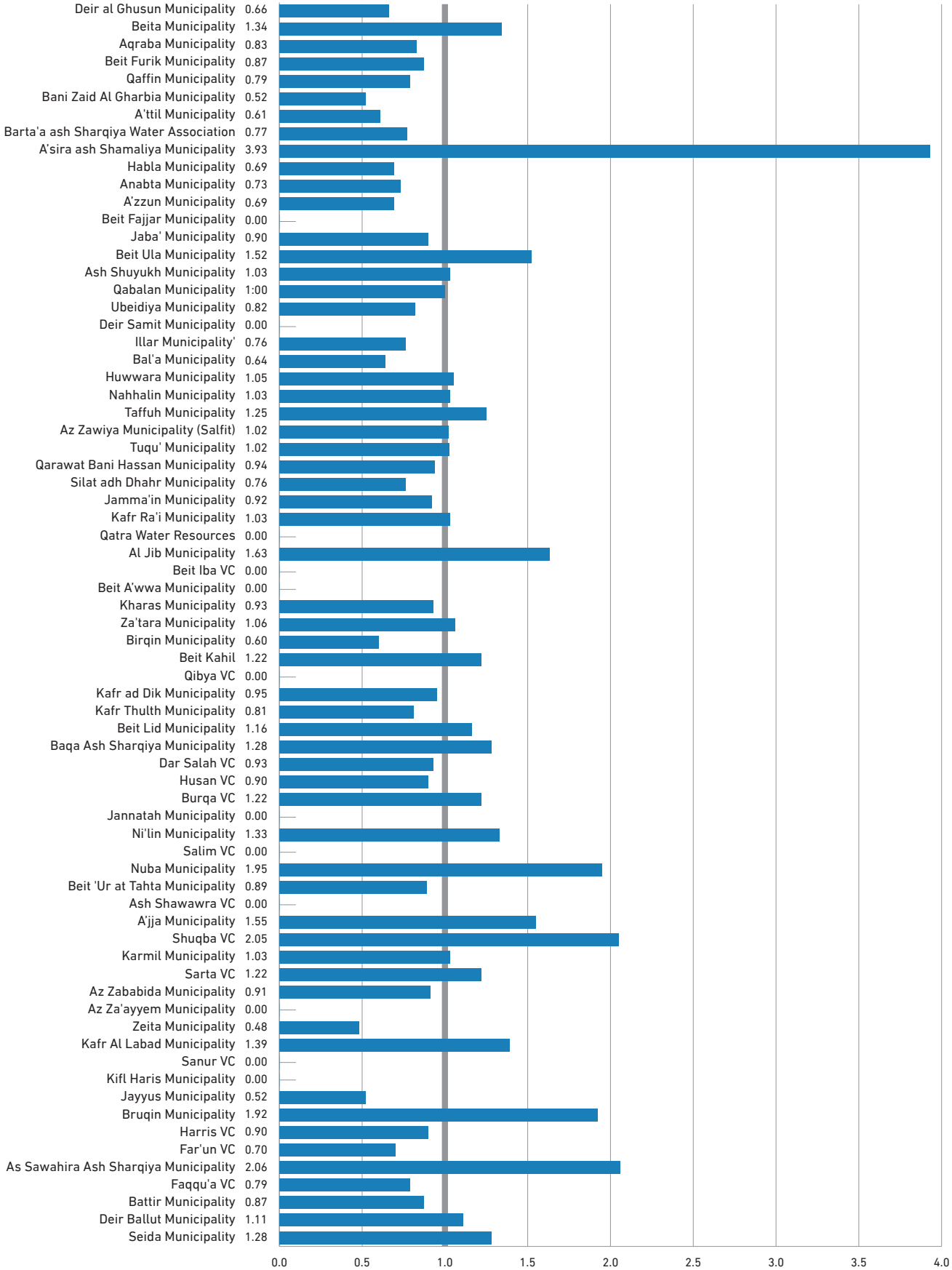
Municipalities need to achieve a working ratio less than "1" to maintain a healthy and sustainable financial status. They should also review their financial data and ensure that surplus from water and wastewater services complies with the law, providing financial liquidity for development while adhering to principles that promote fairness in the tariff system for consumers.

In the West Bank, the highest working ratio was observed in Jenin and A'sira ash Shamaliya Municipalities, primarily due to a high level of non-revenue water and high operational costs. As previously mentioned, these non-revenue water amounts represent significant losses for the service providers. In the Gaza Strip, operational losses are prevalent in a majority of service providers, with the highest ratios in Abasan al Jadeeda, Abasan Al Kabeera, and Al Maghazi.

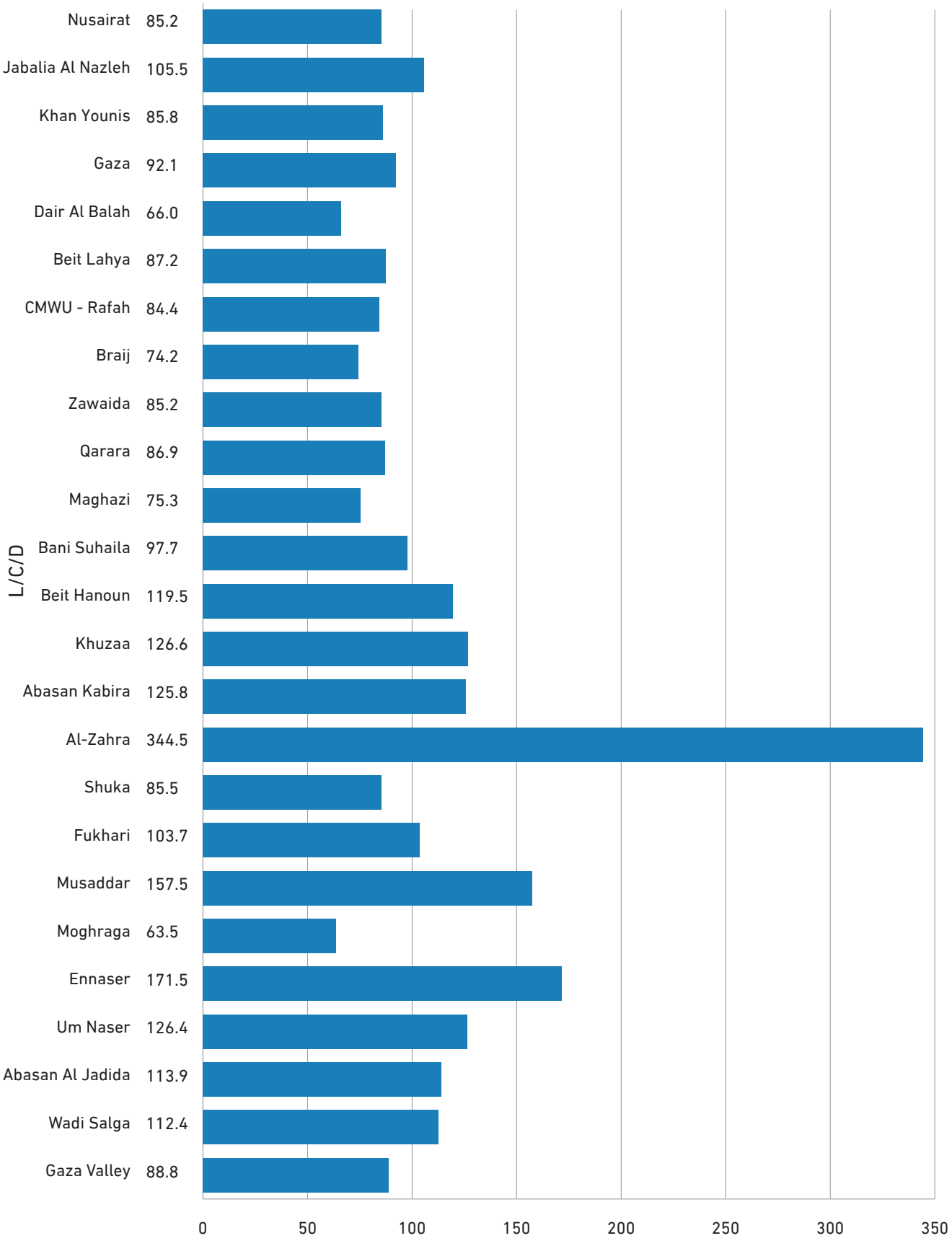
Working Ratio (Efficiency Ratio) - Large Service Providers | West Bank



Working Ratio (Efficiency Ratio) - Midsize Service Providers | West Bank



Working Ratio (Efficiency Ratio) | Gaza Strip



Wastewater Service

1. Operating Costs per m^3 of Wastewater

Indicator Definition	Calculations	Reference Criterion
This indicator measures the average operating costs for every cubic meter of collected wastewater	Total operating, maintenance, and administrative costs (excluding depreciation) ÷ the total collected wastewater in cubic meters	N/A

This indicator reflects the operating costs associated with the process of collecting, pumping, and treating wastewater, as well as the operating and maintenance costs related to these activities, whether these costs have been paid or not. It's important to note that these costs do not include depreciation costs related to capital expenditures (CapEx) associated with the wastewater service.

The provided data for this indicator is still inaccurate, as service providers base their calculations on the assumption that 70%-80% of the billed water eventually turns into wastewater that is collected and pumped into wastewater treatment plants, disposal facilities, or even directed to agreed-upon pipelines leading to other areas. However, none of the municipalities have provided accurate numbers that closely reflect the actual amounts of wastewater collected and pumped. Some municipalities have more accurate data, especially those that measure the quantities of wastewater through pumping plants or wastewater treatment facilities, like Biet Lahia and Jericho Municipalities. This highlights the need for more accurate and reliable data collection and reporting in this area.

The absence of cost centers for service providers makes it difficult to accurately calculate the costs related to wastewater services. Currently, the calculation assumes that 40% of the total operating, maintenance, and administrative costs for both water and wastewater services are allocated to the collection, pumping, and treatment of wastewater. This percentage is internationally accepted as a standard when cost centers specific to wastewater services are not available or when detailed cost breakdowns are not provided by the service providers.

However, having dedicated cost centers for wastewater services would significantly improve the accuracy of cost calculations and help service providers better understand their expenditure related to wastewater management.

In the West Bank, similar to the Gaza Strip, there is a lack of accurate data related to wastewater management for many service providers. Many wastewater service providers do not have dedicated cost centers specifically for wastewater services, and they often merge the costs with water services, making it challenging to calculate wastewater costs accurately.

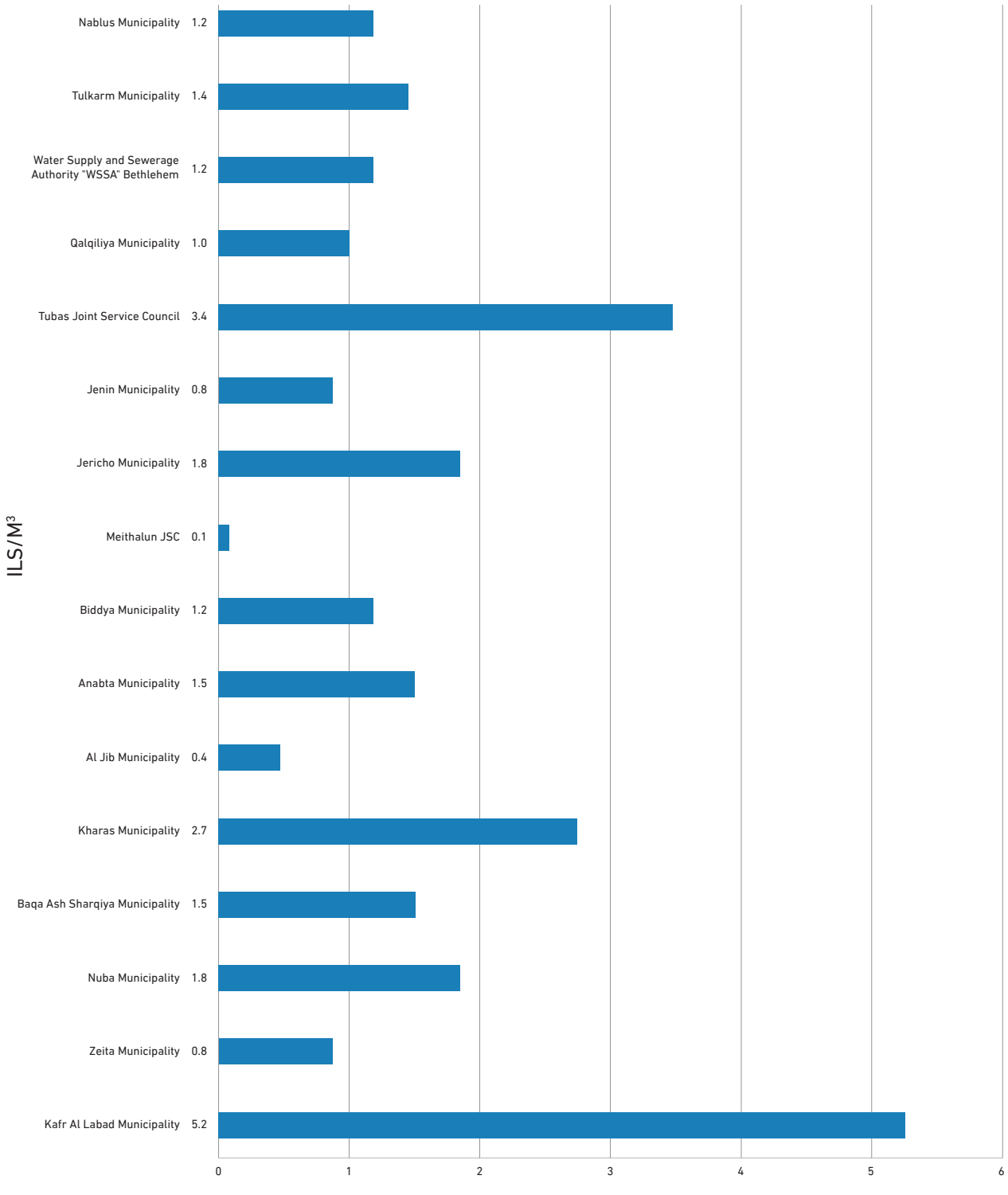
The variation in operating costs among service providers can be attributed to factors such as the number of subscribers in the service, the length of the wastewater network, energy costs for treatment and pumping, staff costs for operation and administration, and other associated expenses.

The importance of this indicator becomes evident as the number of treatment plants increases and the costs of energy, pumping, maintenance, and chemicals for wastewater treatment rise to meet Palestinian and international standards. Therefore, this indicator should consider the significance of development plans and

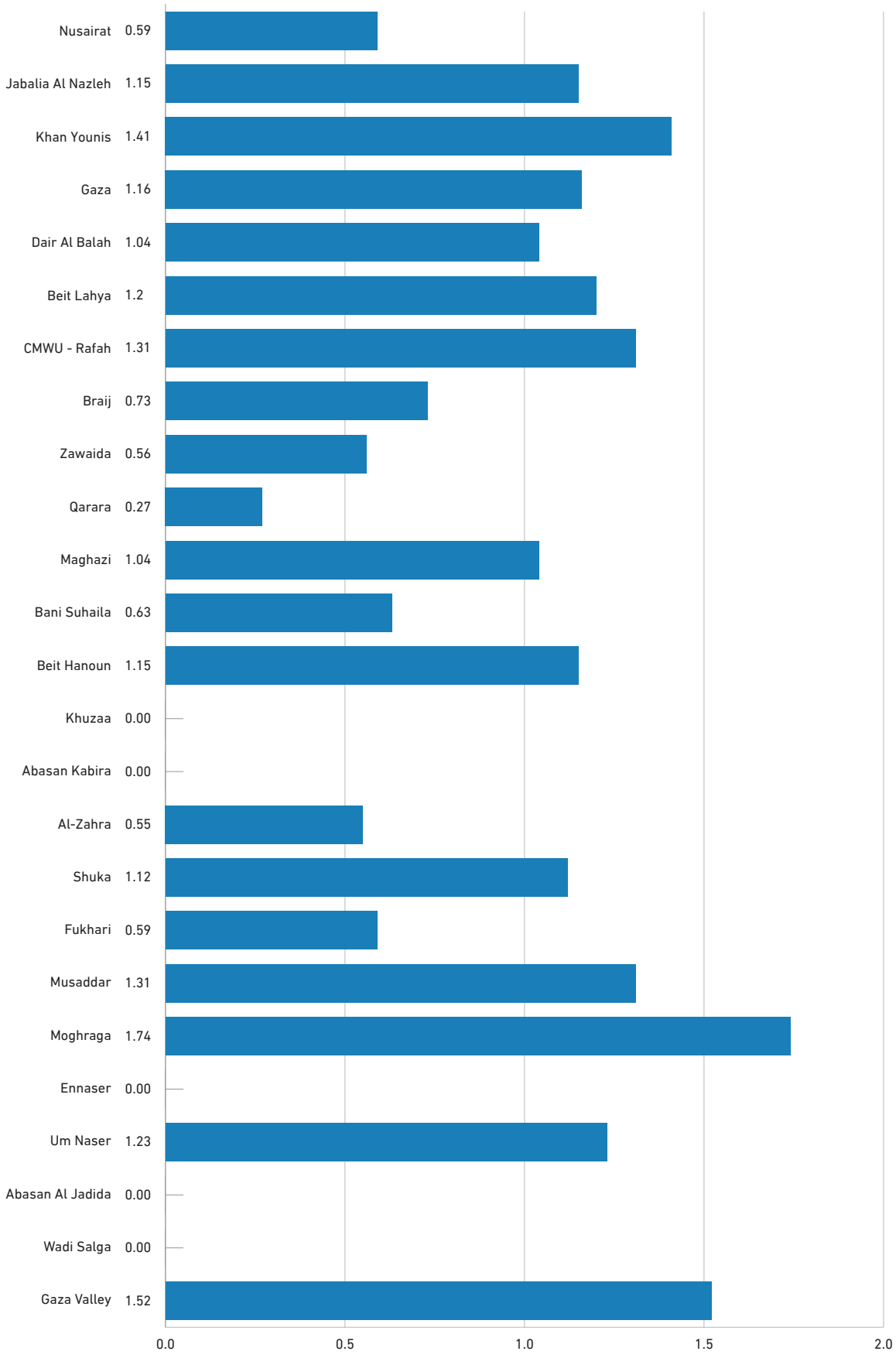
tariff systems for service providers to account for the high costs, depreciation, and infrastructure development required to manage the increasing volume of wastewater generated due to the growing population.

In the Gaza Strip, municipalities with treatment plants tend to have higher operating costs for wastewater services, including Gaza City, Khan younis, CMWU - Rafah, and North Gaza Municipalities. These municipalities incur greater expenses for wastewater treatment compared to those that share treatment costs with other municipalities.

Operating Costs Per M³ of Wastewater | West Bank



Operating Costs Per M³ of Wastewater | Gaza Strip



2. Collection Efficiency - Wastewater Service

Indicator Definition	Calculations	Reference Criterion
It measures the ability of service provider to collect their annual sales amounts and dets from the current year and previous years in the evaluation period.	The fees of wastewater collected through the year ÷ total value of wastewater service annually (NIS) × 100%	≥ 90%

This indicator should be evaluated in the context of the efficiency of water service collection because most service providers do not issue separate bills for water and wastewater. Instead, they typically combine the fees for both water and wastewater in a single bill. Consequently, the collection process for service providers relies on the total bill value, which may include other items besides water and wastewater charges.

The variation in how wastewater service fees are calculated among different service providers can be attributed to factors such as the number of subscribers, the presence of pumping plants, and the cost of wastewater treatment in central treatment plants. Many service providers calculate wastewater fees as part of the water service charges, while others have fixed fees for wastewater added to the water service.

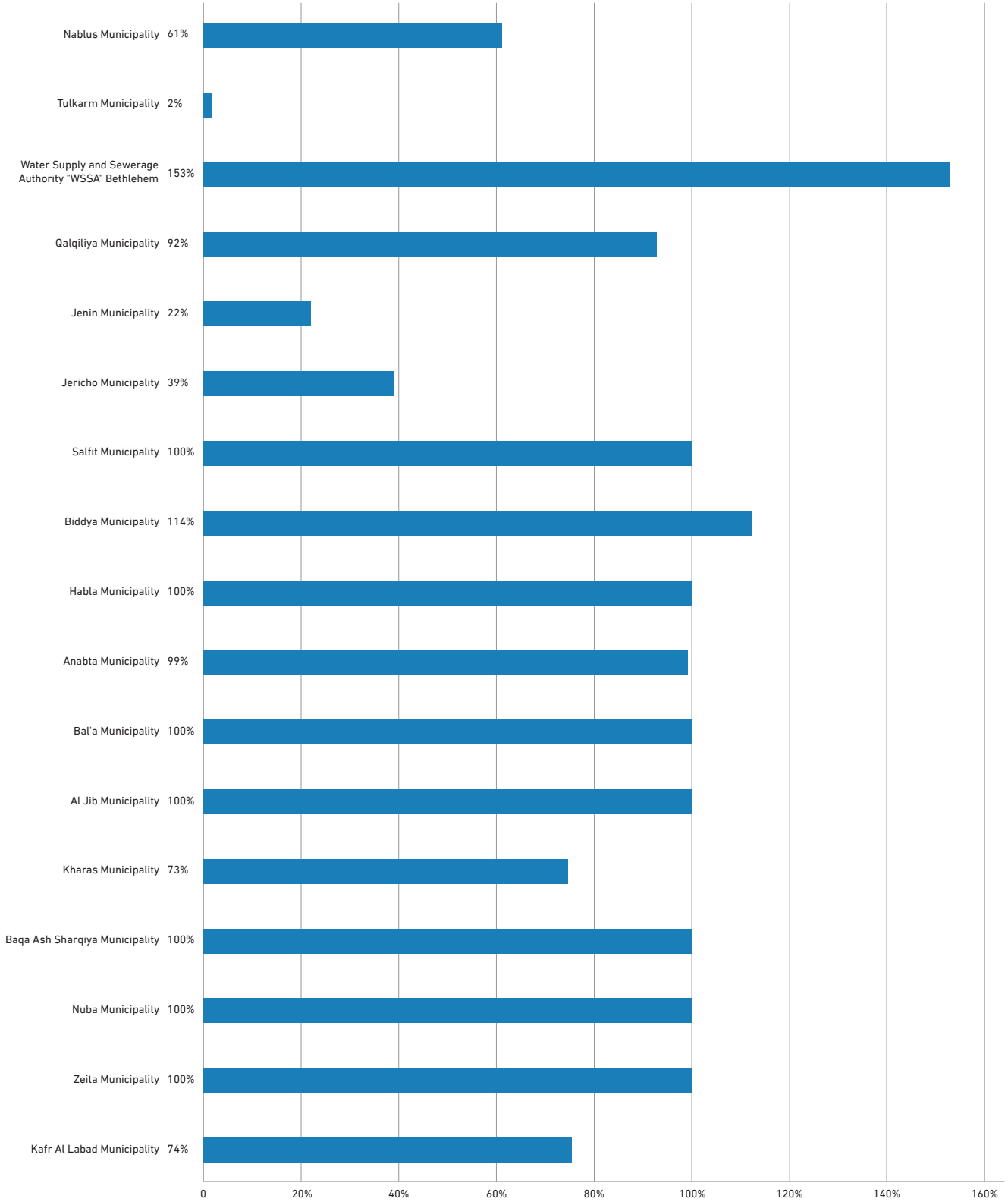
In the Gaza Strip, there are five municipalities that do not offer wastewater services: Abasan Kabira, Abasan Jadida, Kuzaa, Al Nasser, and Wadi Salga . In these areas, the population relies on outdated wastewater collection methods using basins, which poses significant risks to underground water and the environment. Similarly, in the West Bank, many municipalities do not provide wastewater services and urgently need to develop wastewater collection and treatment systems to avoid future hazards.

In the Gaza Strip, Al Musaddar Municipality achieved a collection rate of 99%, meeting the reference criterion for collection efficiency. On the other hand, Bani Suhila had the lowest collection rate at 8.8%. This variation can be attributed to the fact that the payment for wastewater service often depends on citizens' willingness to prioritize water bill payments in the absence of a binding system for consumers.

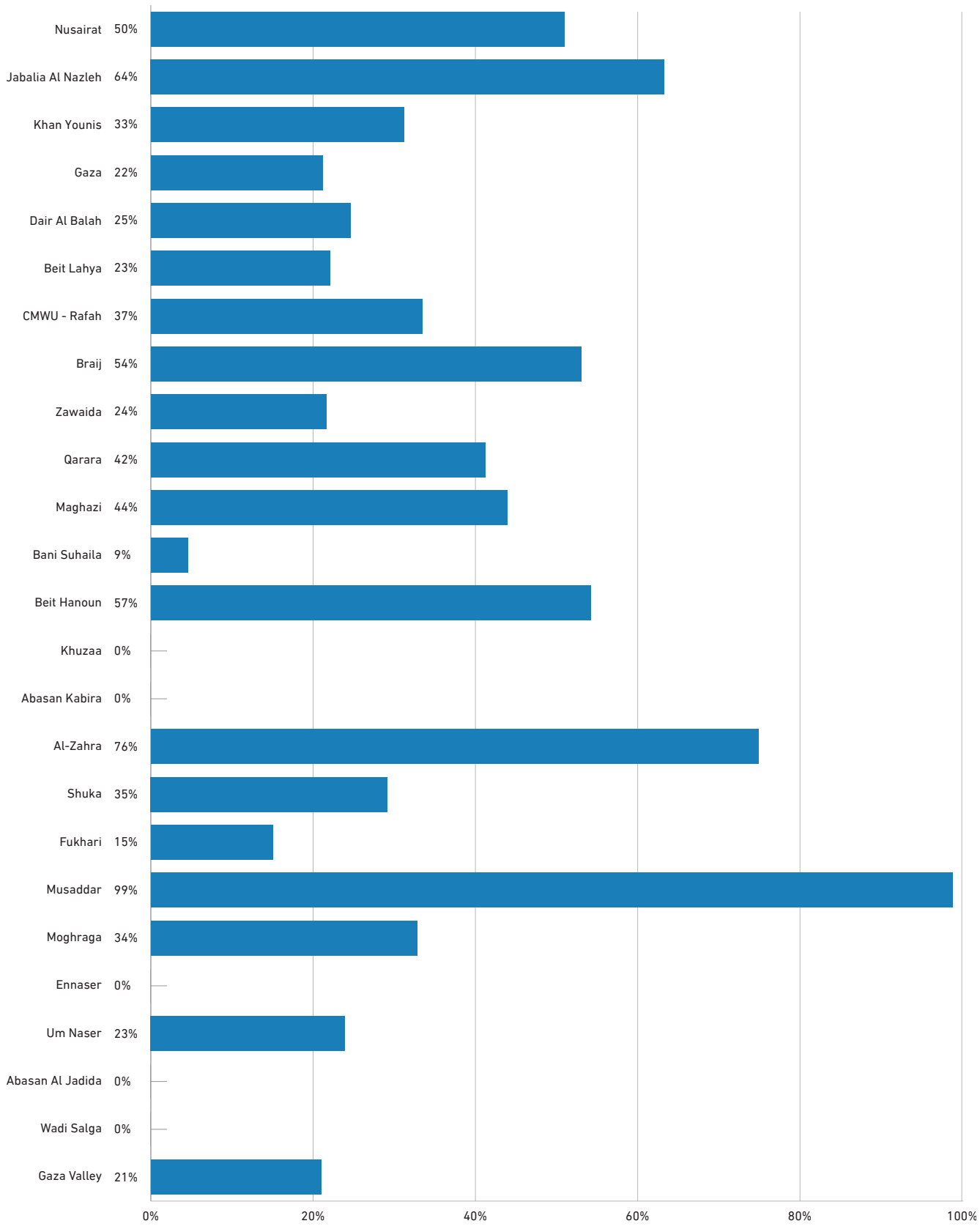
Collection rates among service providers in the West Bank also vary, with some exceeding 100% (indicating partial debt collection) and others having very low rates, such as Jenin and Tulkaram. As previously mentioned, the expansion of treatment plants increases the operational costs of the service. Therefore, service providers should make efforts to improve the collection of wastewater service fees and establish a standard for separating water and wastewater services to obtain an accurate indicator for planning service enhancements.

It's worth noting that some service providers, like Hebron Municipality, do not bill consumers for waste-water service, highlighting the need for an immediate and effective tariff system to ensure the financial sustainability of wastewater services.

Effeciency of Collections - Wastewater | West Bank



Effeciency of Collections - Wastewater | Gaza Strip



Third: Water Quality Indicators

In 2022, the WSRC emphasized the importance of intensifying efforts to assess the outcomes of water quality tests. The data collection method used differs from other indicators, primarily due to the monitoring mechanism employed by relevant authorities at the national level.

This report by the council presents the quality indicators for water provided by SPs. These indicators primarily rely on the ratio of passed tests that meet standards to the total number of tests. The key indicators are as follows:

Indicator Definition	Calculation formula	Reference Standard
Percentage of passed water samples (taken from the network, including main water pipelines), containing free chlorine residual within the network and main pipelines	(Number of water samples tested that contain free chlorine residual matching the standards ÷ Total number of samples tested for this purpose) × 100%	(0.2 - 0.8) mg/L
This indicator provides an impression of the effectiveness of the water purification process using liquid chlorine (sodium hypochlorite). In order to meet Palestinian water quality standards, and achieve high performance levels, it is essential to maintain free chlorine residual concentrations in the water within the range of (0.2-0.8) mg/L. Chlorine is primarily used for microbial disinfection and as an oxidizing agent, and it can remove or chemically transform some chemical substances. However, several factors can influence the calculation of this indicator, including the number of tests conducted, contact time of chlorine with water before reaching consumers, the distance water travels, and the condition of water networks.		
Percentage of passed water samples for testing total coliform bacteria	(Number of water samples tested that match the standards ÷ Total number of samples tested for this purpose) × 100%	3 CFU/ 100 ml
Percentage of passed water samples for testing fecal coliform bacteria	(Number of water samples tested free of fecal coliform bacteria ÷ Total number of samples tested for this purpose) × 100%	0 CFU/ 100 ml
Microbiological testing indicators for total coliform and fecal coliform bacteria are considered key indicators adopted by the WHO to measure the safety and suitability of drinking water. The consumption of drinking water may contain human or animal waste, among the greatest risks to human health. This can lead to the rapid spread of waterborne infectious diseases through distribution systems. Therefore, these indicators are essential for assessing the effectiveness of water purification processes in eliminating sources of biological contamination and detecting any sources of pollution that may result in the undesirable growth of microorganisms harmful to public health. These tests also serve as a tool to study the condition of water sources and their suitability for human consumption		
Percentage of passed water samples (taken from the source) for testing nitrate	(Number of water samples tested that meet the standards ÷ Total number of samples tested for this purpose) × 100%	50 mg/L
The nitrate index is one of the fundamental indicators adopted by WSRC. The associated testing is considered a key chemical indicator that must be periodically examined in drinking water before purification and continuously monitored. This is due to the general and varying increase in nitrate concentrations in Palestine, from one governorate to another. Furthermore, it serves as an essential tool for studying the status of water sources and their suitability for human consumption		
Percentage of microbiological tests conducted	(Number of bacterial tests conducted on chlorinated water during the assessment period ÷ Number of bacterial tests on chlorinated water required by standards or regulations during the assessment period) × 100%	Not applicable
This indicator generally measures compliance with the required number of microbiological tests according to the established instructions that align with WHO standards. As a result, it helps SPs specifically review their monitoring performance and improve the number of tests		

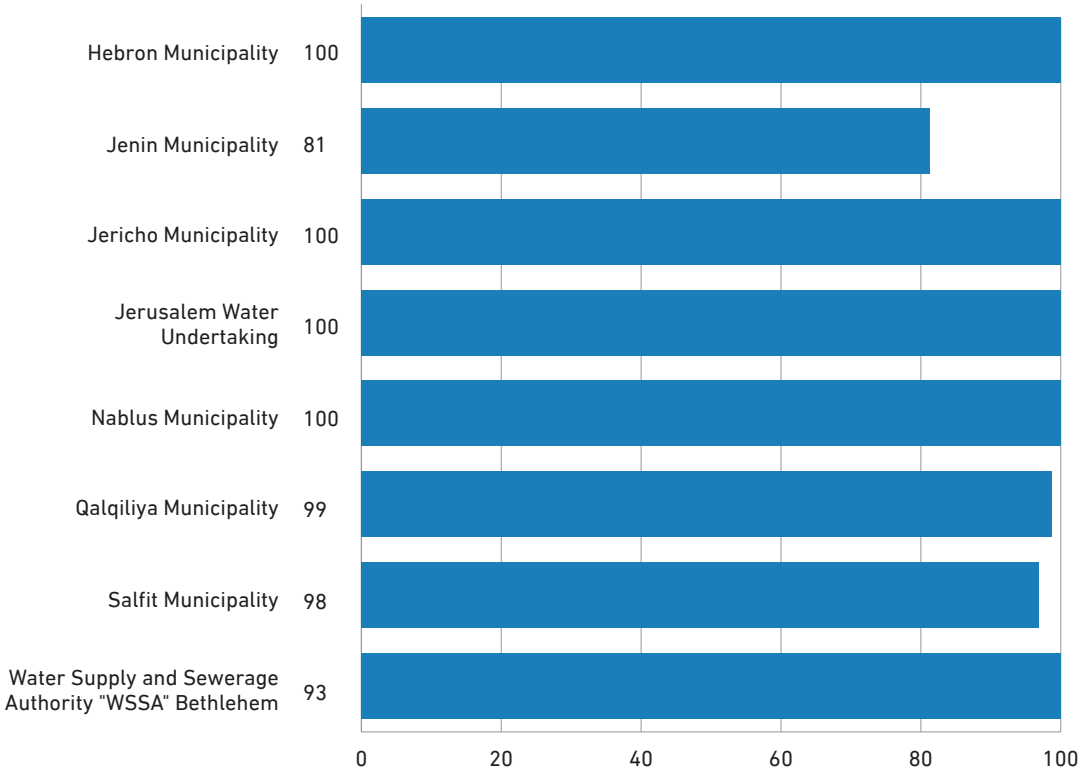
Based on the review and analysis of the data, the Council presents the results and outputs of water quality indicators across three main axes, as follows:
First: Results and outputs of water quality tests conducted by SPs (West Bank).
Second: Results and outputs of water quality tests (Gaza Strip).
Third: Water quality tests conducted by the Palestinian MOH (West Bank and Gaza Strip).

For more detailed information on all the data, SPs and relevant authorities can refer to the water quality report, which will be released in November, and it will present the tests conducted for each SP separately. While this report provides a concise summary of the water quality indicators and key outputs for the first and second axes mentioned above, as follows:

First: Results and outputs of water quality tests conducted by SPs (West Bank):
Data for water quality tests in 2022 were collected for the seven main indicators from SPs who conduct water tests and have their own results. These providers consist of nine SPs in the West Bank governorates, as indicated in the performance indicators charts.

Based on this, the indicators were as follows:

Percentage of passed water samples (taken from the network, including main water pipelines) containing free chlorine residual within the network and main pipelines



The free chlorine residual indicator should ideally reach 95% or higher. However, some SPs may achieve lower percentages due to several reasons. One reason is network deterioration, and in some cases, the length of the network can have an impact. For instance, in Tulkarm municipality, the network is relatively short, which keeps the indicator very low. Therefore, it's not possible to increase the chlorine concentration

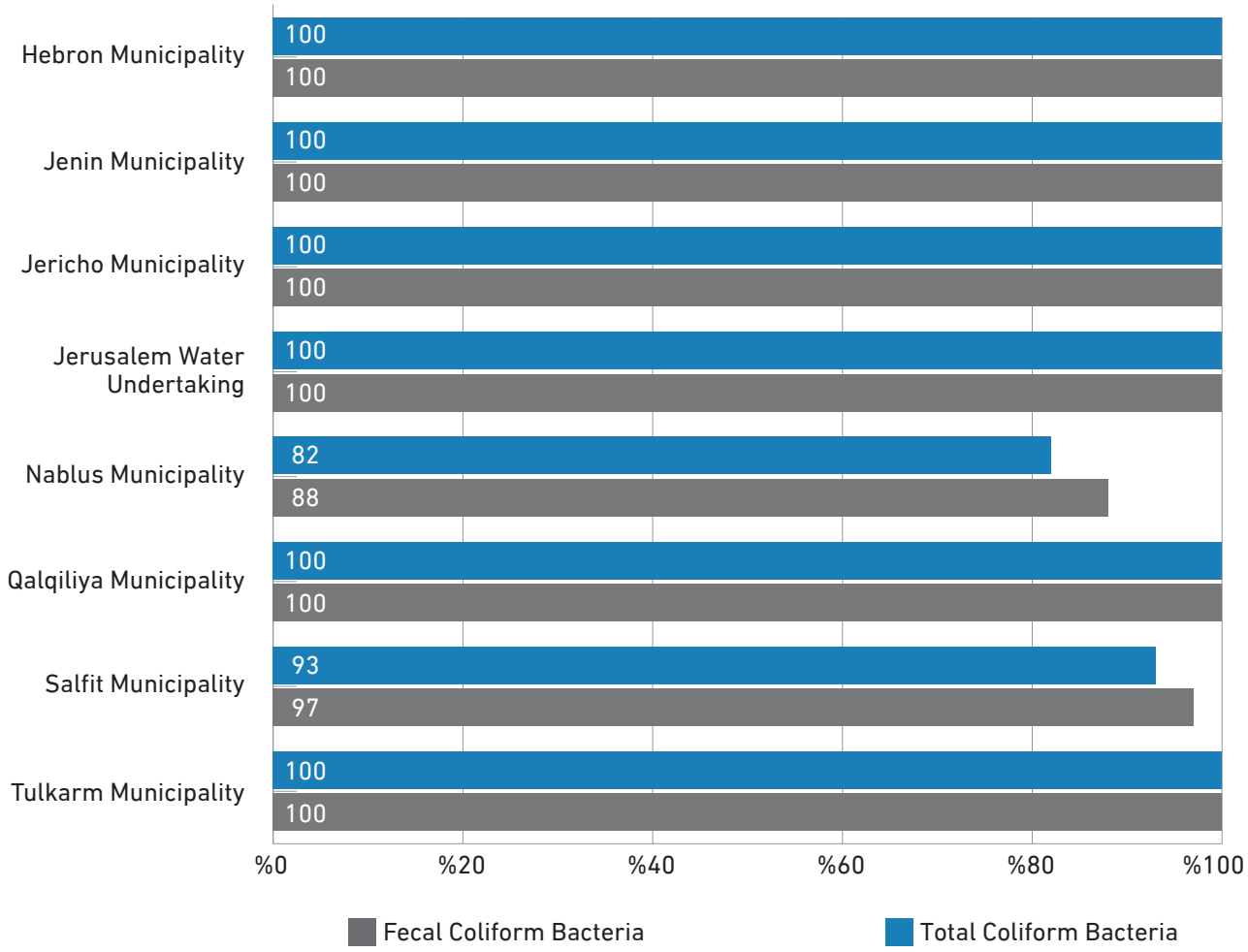
in the well water sources beyond 0.5 mg/L due to citizens' complaints about the chlorine odor. Often, chlorine concentrations entering the network are less than 0.2 mg/L. Nevertheless, microbiological testing remains a critical monitoring tool in such cases to ensure the water is free from any contamination.

Low free chlorine residual concentrations at the end of the network may also result from technical issues, such as a lack of expertise in calibrating chlorine pumps at water sources. Therefore, it is recommended that SPs hire well-trained technicians to monitor water treatment units and provide a chlorine concentration testing device. Data indicates that 32% of SPs in the West Bank do not possess this device.

It's worth noting that some SPs, such as Nablus and Salfit municipalities and the JWU, have adopted modern electronic systems for recording chlorine concentration readings from pumping stations to the network.

The free chlorine residual should not be less than 0.2 mg/L when the water reaches the consumer, according to Palestinian standards. This level is necessary to ensure its effectiveness in case of microbiological contamination in the consumer's storage tank.

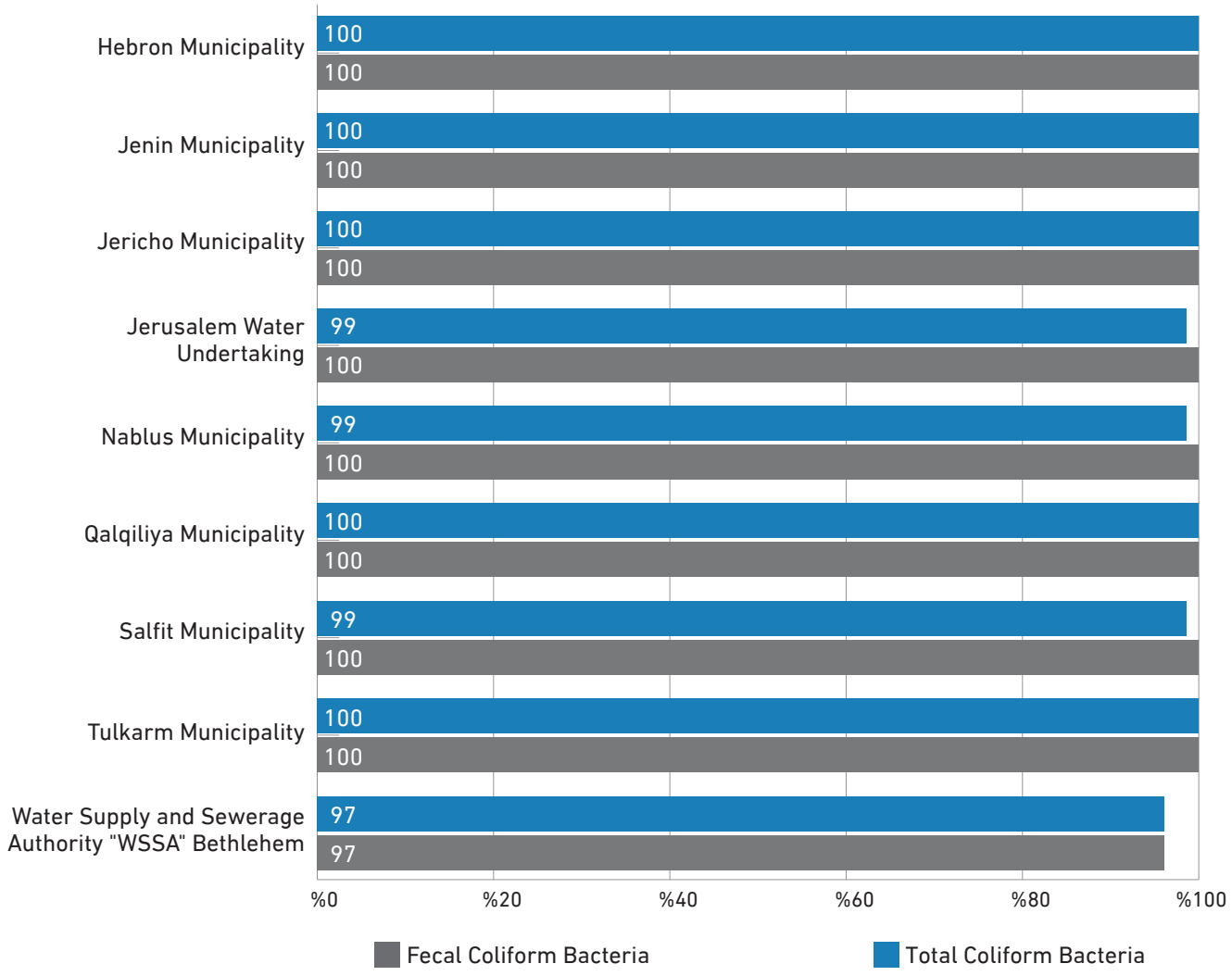
Percentage of passed water samples (taken from the source) for testing total coliform bacteria and fecal coliform bacteria



Note: WSSA in Bethlehem is committed to conducting microbiological tests on their only water source, which is Beit Fajjar well, as part of their monitoring program. However, this report does not include data related to this source as it does not serve the residents of Bethlehem, but rather another area.

Regarding the microbiological tests on network water, the success rate was very high for all service providers. This is considered a satisfactory indicator and is associated with the effectiveness of water chlorination at the sources with appropriate concentrations, resulting in low bacterial contamination in the water networks.

Percentage of passed water samples (taken from the network, including main water pipelines) for testing total coliform bacteria and fecal coliform bacteria



Some SPs achieved poor performance in the nitrate indicator compared to other indicators. This is due to several reasons, including agricultural activities and the extensive use of fertilizers. Additionally, the large number of cesspits can lead to wastewater leakage into water sources, where such cesspits account for 90% of the problem causing high nitrate levels in water sources, as seen in the case of Tulkarm city. Some service providers may resort to blending water from sources with nitrate concentrations exceeding 50 mg/L with other sources to overcome this problem.

The nitrate test remains one of the crucial chemical indicators that must be monitored in water sources according to the Palestinian mandatory technical instructions for water Intended for human consumption (108-2023).

• **Percentage of microbiological tests conducted**

After reviewing the data related to this indicator, it is found that the percentage of microbiological tests conducted by SPs was very high, exceeding 100% for most of them. This is due to conducting a significant number of tests that are in line with, and often exceed, the standards for water sources and networks.

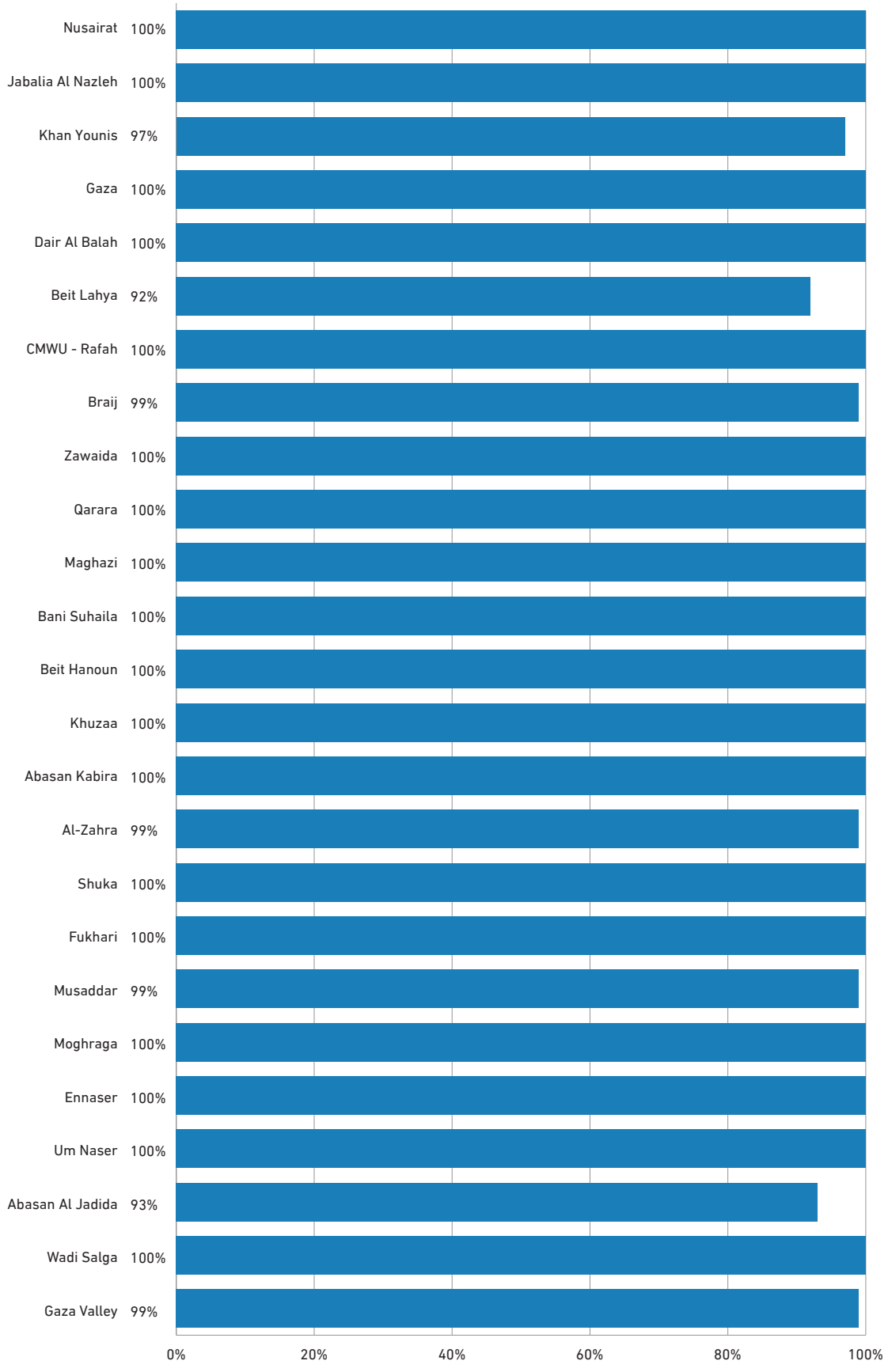
Second: Results and outputs of water quality tests (Gaza Strip):

There is no doubt that the quality control process for water quality indicators in Gaza Strip follows the same Palestinian standards, but with specific considerations that align with different factors. These include having fewer SPs in Gaza compared to the West Bank, with no more than 25 SPs. The quality control primarily relies on only two entities, the MOH and (CMWU), due to the limited financial resources and shortage in human resources.

Based on this, we collected the data in its original form and then sorted and analyzed it for each SP. This allowed us to obtain results of nitrate tests on wells and microbiological tests on wells and water networks carried out by the MOH. Additionally, we relied on the data from the CMWU regarding free chlorine residual tests in the water networks carried out monthly. Furthermore, we also obtained additional nitrate results for wells from CMWU. As for the municipality of Khan Younis, they provided their data separately, which was subsequently integrated into the final dataset.

Based on the data collected, the water quality indicators were as follows:

Percentage of water samples (taken from the network, including main water pipelines) containing free chlorine residual within the network and main pipelines



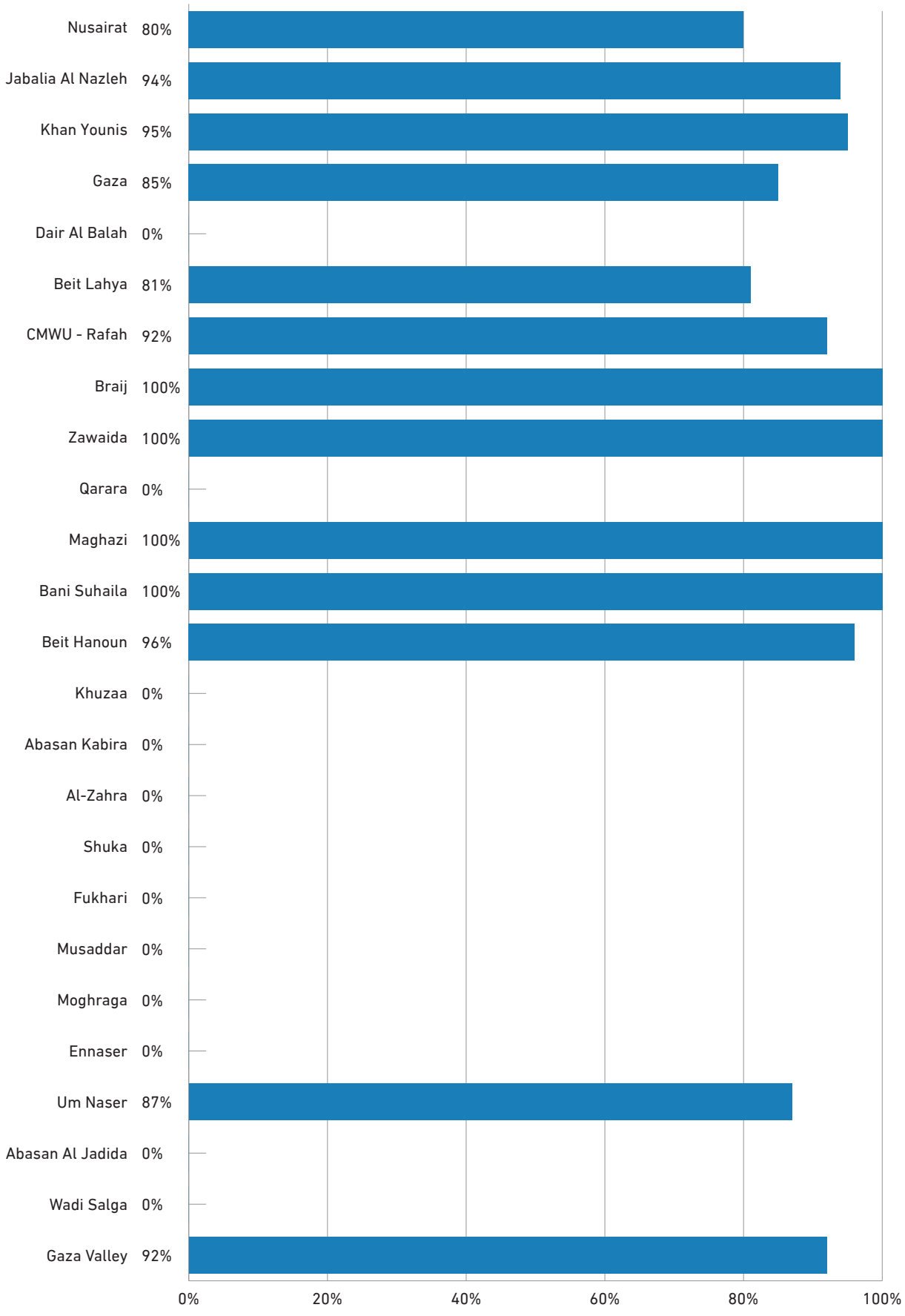
It is worth to mention the role of CMWU in monitoring the chlorination of water wells. They are responsible for supplying liquid chlorine (sodium hypochlorite) to SPs as per the required quantities and monitor this process. Additionally, all SPs were previously provided with chlorine concentration testing devices. Therefore, each SPs must adhere to the required number of tests as per the CMWU's schedule.

The CMWU may occasionally face challenges in providing chlorine, and municipalities are informed of these situations. The issue is resolved by the Utility eventually providing the necessary chlorine supply, in addition to their responsibilities for the mechanical maintenance of the pumps. There are more than 300 wells, used by SPs, that pump water into the distribution system, and these wells have chlorination systems. However, it should be noted that a portion of these systems is not functioning, reaching up to 10%.

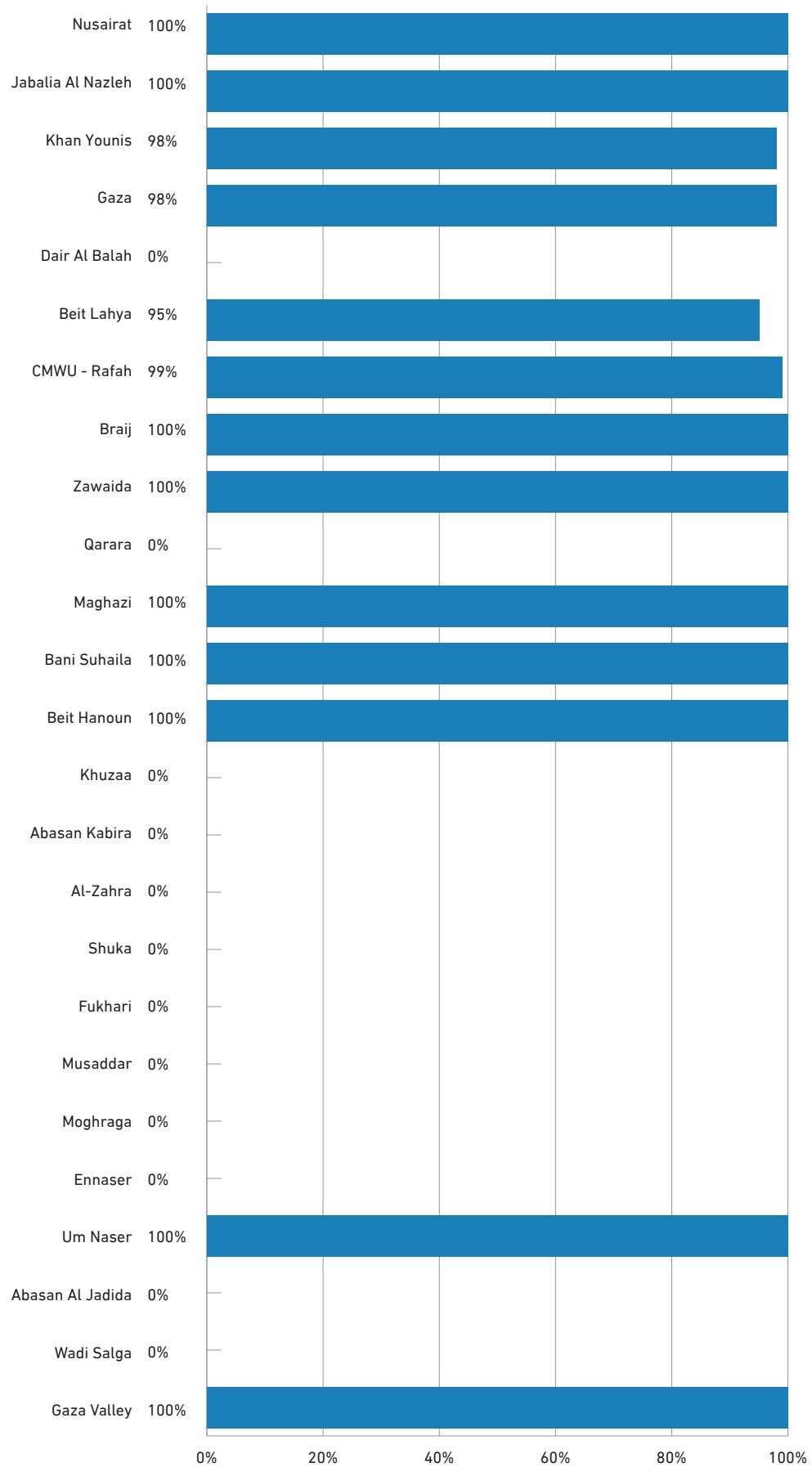
WSRC recommends that SPs make a greater effort to secure liquid chlorine for disinfecting water wells during crises. In addition to this, they should also take responsibility for monitoring and repairing chlorine pump systems on water wells when there is a technical malfunction in the electrical panel. It's essential to ensure that all pumps on the wells are functioning correctly.

The real challenge in the future remains in obtaining more accurate readings for chlorine testing, relying on concentrations ranging from 0.2 (mg/L) to 0.8 (mg/L) of free chlorine residual in the networks according to the Palestinian standard (PS 41-2005). It's important not to settle for readings that simply indicate the presence of chlorine in the water. This is what the CMWU aims to implement in collaboration with relevant authorities.

Percentage of water samples (taken from source) free from total coliform bacteria contamination

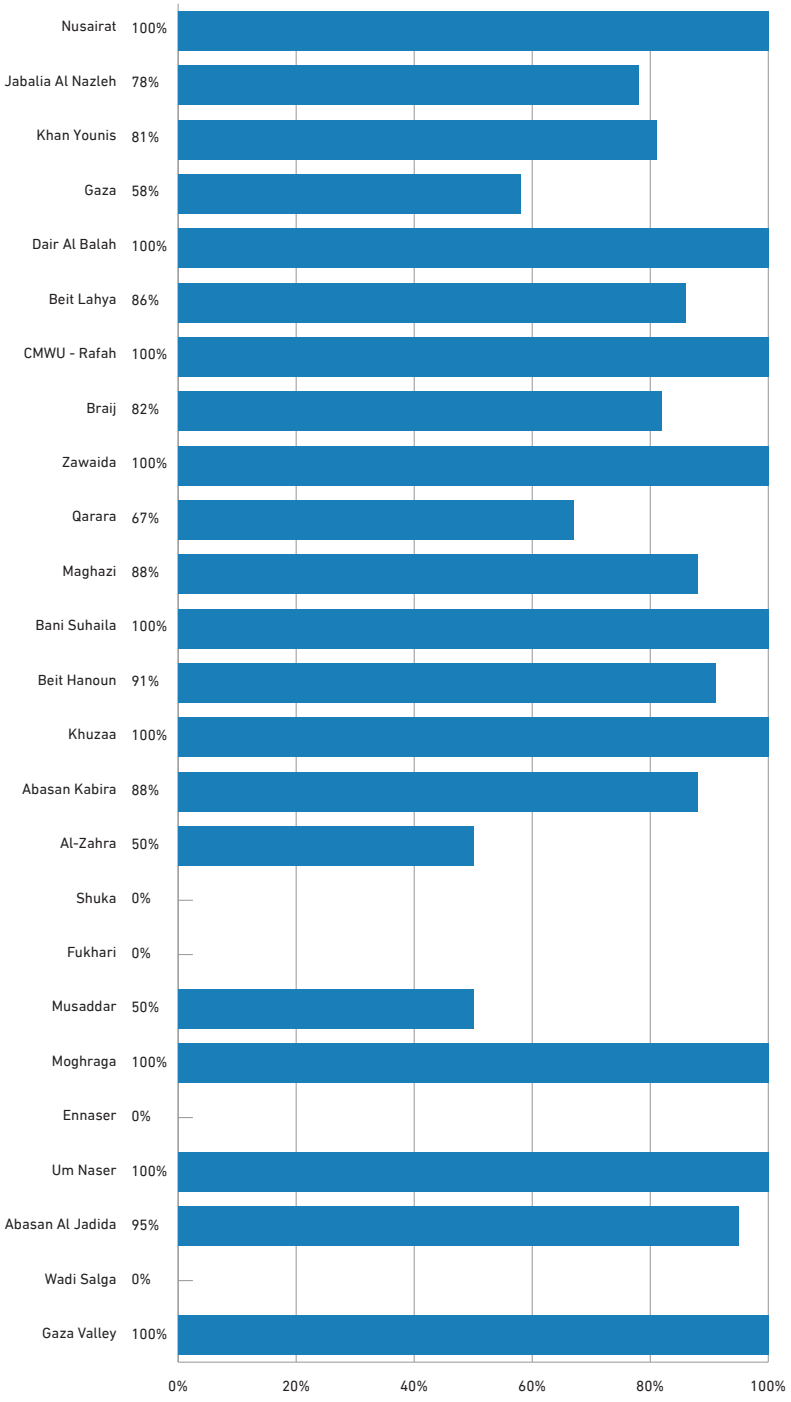


Percentage of water samples (taken from source) free from coliform bacteria contamination

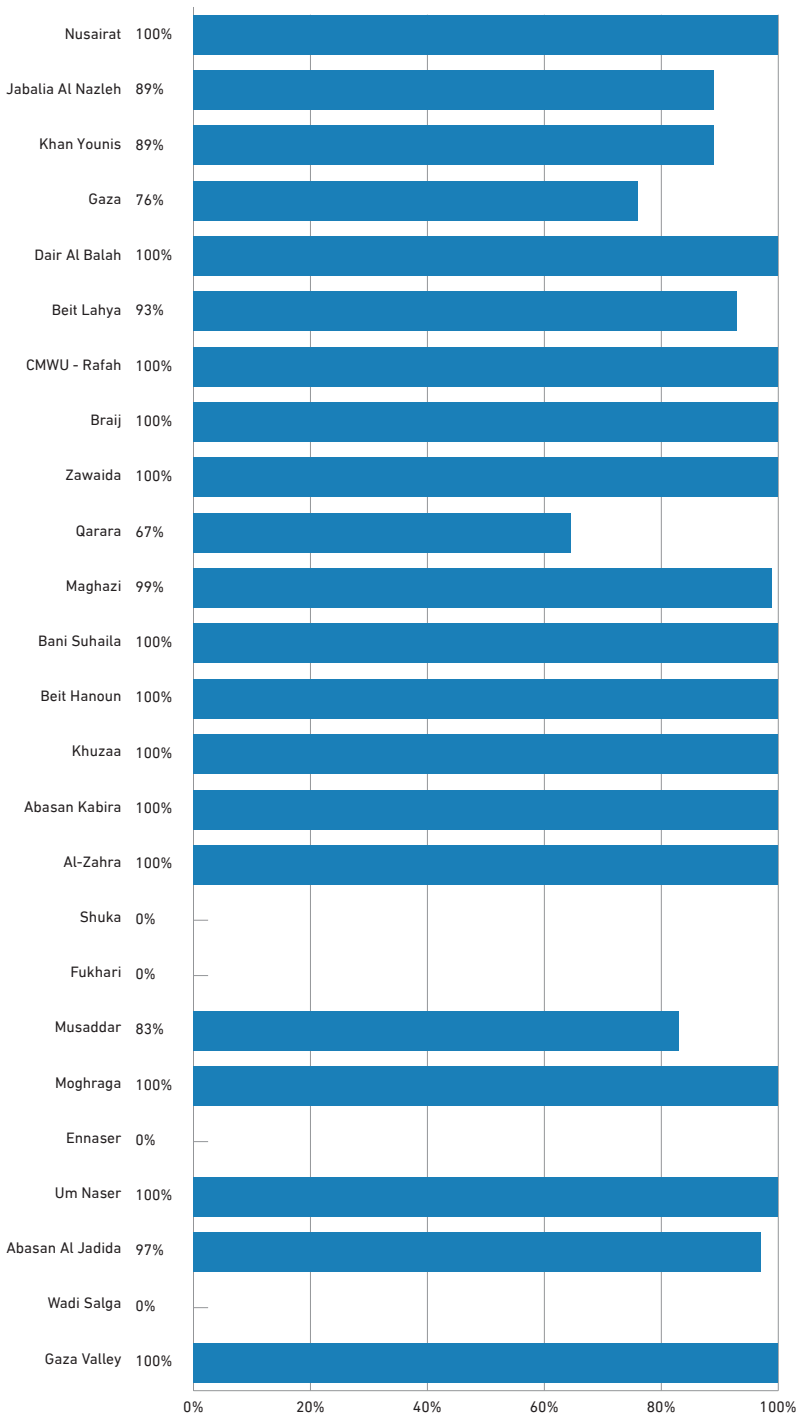


The results of the microbiological indicators on sources provide an impression of the effectiveness of the chlorination process and help to detect any external contamination of water sources. Testing for fecal coliform bacteria before the disinfection process is an operational indicator for the approval of any water source according to the reference values specified in the Palestinian mandatory technical instructions for water intended for human consumption (108-2023). Based on the data mentioned above, there is a possibility of no microbial contamination for municipalities of Bani Suhaila, Maghazi, Zawaida, and Braij, where the success rate in the tests for total coliform and, consequently, fecal coliform bacteria reached 100%, based on the number of tests conducted by the MOH.

Percentage of water samples (taken from the network, including main water pipelines) free of total coliform bacteria contamination



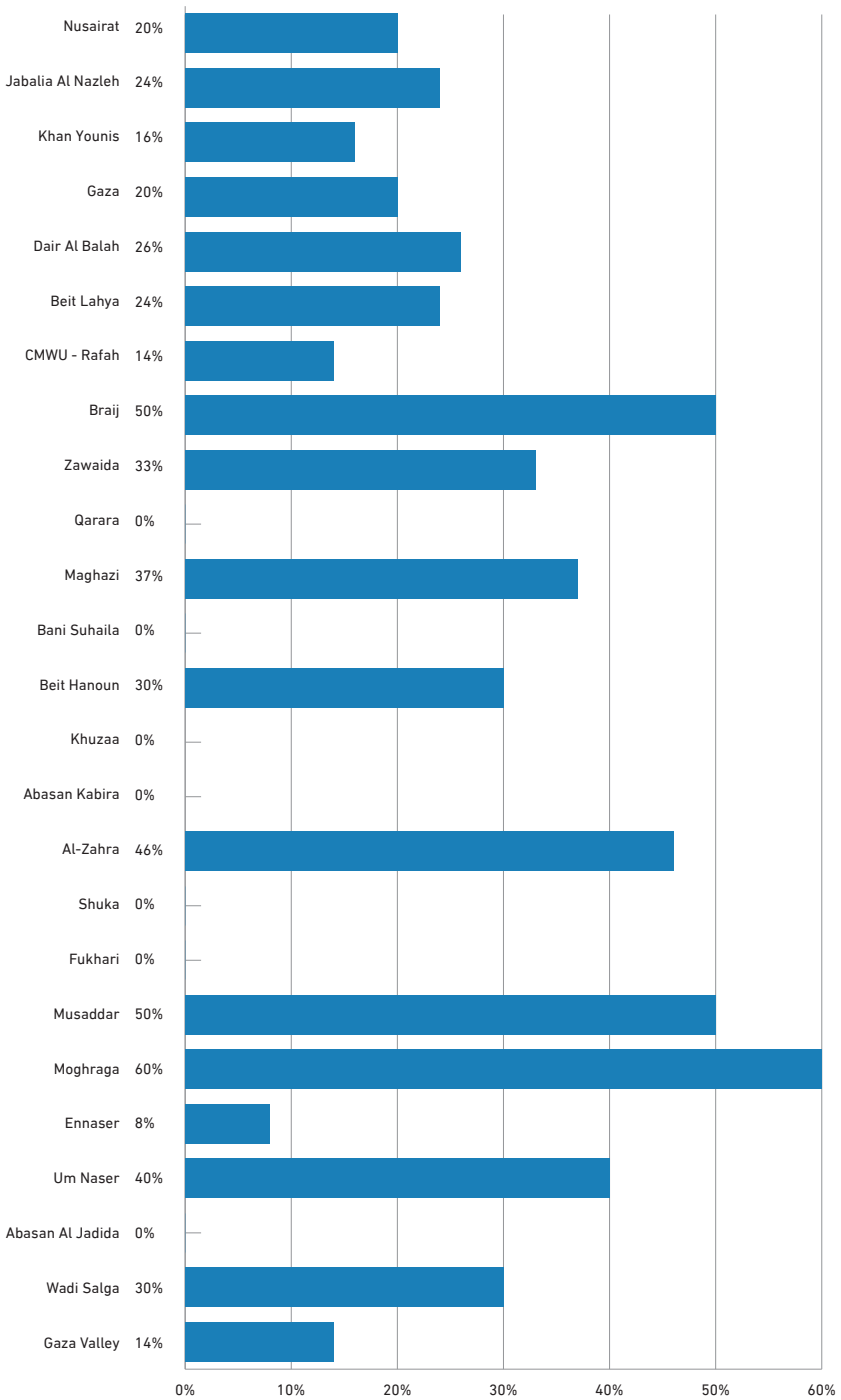
Percentage of water samples (taken from the network, including main water pipelines) free of fecal coliform bacteria contamination



Microbiological indicators for water networks might be lower than those for water sources because water travels through network systems that can be lengthy or deteriorated, affecting the levels of free chlorine residual in the water. Free chlorine naturally evaporates over time and also interacts with any substances in the water during its transport, resulting in lower concentrations at the network's endpoints.

Regarding the tests for fecal coliform bacteria, it is logical for the indicator to be higher than that for total coliform bacteria, as shown. Meanwhile, the empty readings indicate the absence of data due to a lack of sample collection by SPs, resulting in data gaps.

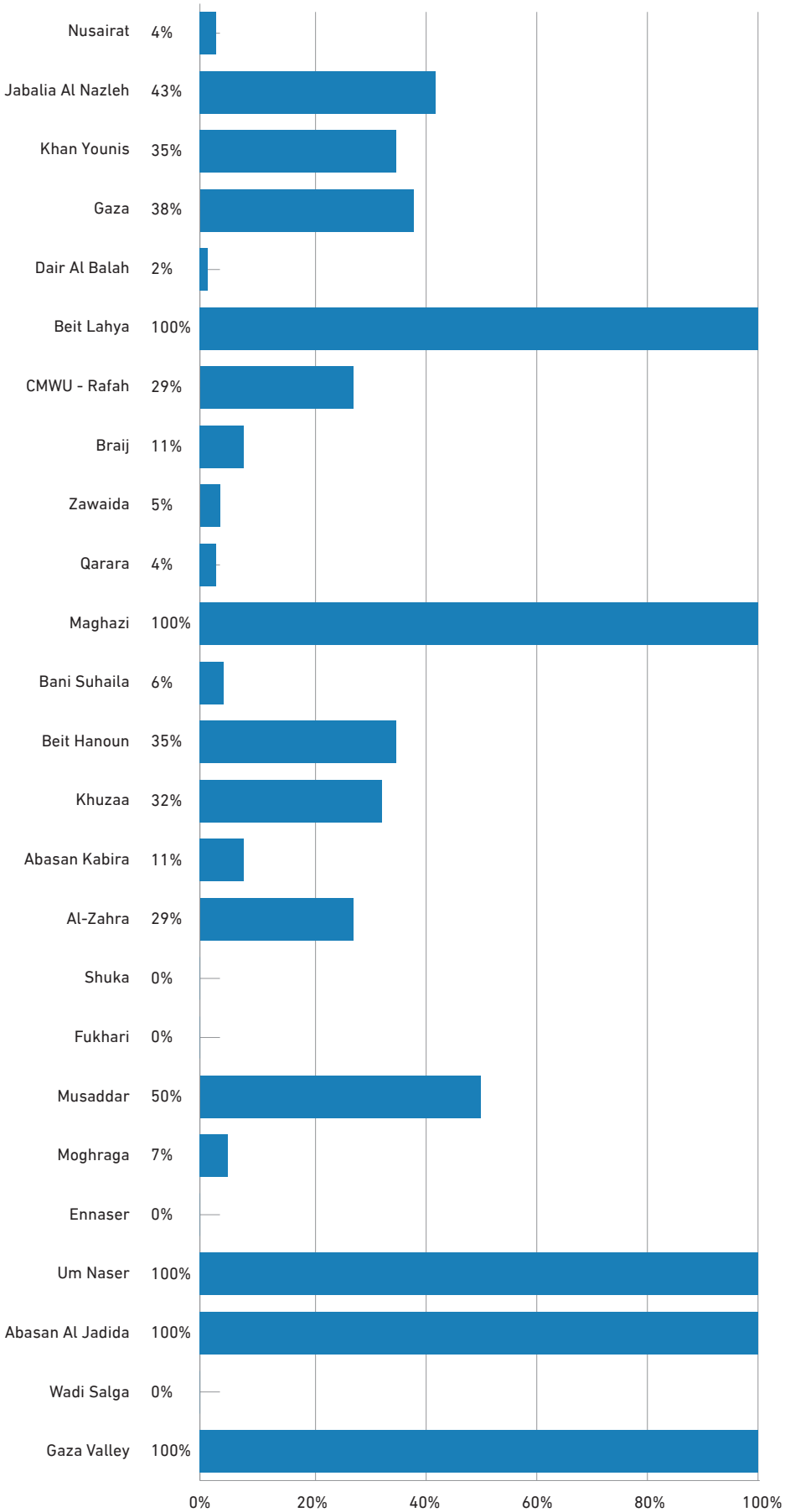
Percentage of water samples (taken from the source) free of nitrate contamination



As is well known to all regulatory authorities, the nitrate indicator remains the least fortunate among all the indicators in the Gaza Strip, as shown by the above results. This can be attributed to several reasons, including the leakage of untreated or partially treated wastewater into the groundwater layer, as well as the use of agricultural pesticides, which can cause pollution and render the water unsuitable for drinking. Chemical and biological contamination of water can lead to increased rates of serious diseases.

From the data, we can see that the nitrate indicator is very low for most service providers, as the test results are high, reaching concentrations of 300 mg/L or more in some wells. However, according to Palestinian standards, the permissible level of nitrates should not exceed 50 mg/L.

Microbiological tests conducted



The indicator of microbiological tests conducted is considered general and important at the same time. It reflects the total tests conducted relative to the required number of tests according to the standards. It depends on the tests carried out by the MOH in all governorates based on the available resources. We can see that it has reached more than 100% in some municipalities, meaning that a number of tests were conducted in proportion to the Palestinian standards, and yet more. The required number of tests to be conducted is calculated based on the population, according to a specific formula established by the WHO and adopted as a reference in the Palestinian mandatory technical instructions for water intended for human consumption (108-2023). It's also worth noting that some municipalities are not fully compliant with submitting the required samples to the MOH according to the prepared plan, which has left their indicator blank. Additionally, it's important to consider that the tests conducted are part of a monthly action plan set by environmental health inspectors to cover as many wells and water networks as possible under the SPs' jurisdiction.

All SPs should carefully review the indicators' results and work towards improving the water quality associated with them. It's important to note that this data is annual, but addressing the issues related to it should be immediate through collaborative efforts between the MOH's inspectors and the SPs.

Here are some observations based on the collected variables:

1. Regarding the water quality complaints indicator, the municipality of Al-Naser received a large number of complaints on quality of water, compared to other complaints received, with a percentage of up to 63%. It was followed by the municipality of Dair Al-Balah at 32% and the municipality of Al-Moghraga at 22%. The remaining municipalities had complaint percentages ranging from (0-13) %. The real importance of these percentages is related to the extent to which the SP commits to addressing and resolving complaints, directly and in cooperation with relevant authorities.
2. Any blanks in the indicators for some municipalities indicate a lack of data. Therefore, all SPs should commit to submitting the monthly results of free chlorine residual tests in water to CMWU, as well as complying with the guidelines set by the MOH regarding the number of required samples for microbiological and chemical tests.
3. Water in the Gaza Strip remains unsuitable for drinking, but all regulatory authorities should commit to monitoring its quality for other uses safely.

Fourth: Customer Satisfaction Indicators

Although water and wastewater services are primarily related to customers or "consumers," and the extent of their satisfaction with the quality and continuity of services, most service providers in the West Bank and Gaza do not maintain accurate records that can be relied upon regarding customers' complaints, inquiries, classifying those complaints and inquiries, and the actions taken in each case, or the time spent addressing or responding to customers' complaints and inquiries.

It is worth noting that most municipalities in the Gaza Strip have received funding from donors, and have established and equipped customer service and complaint centers. However, very limited efforts have been made to update and modify the documentary cycles and bureaucratic procedures that facilitate customers' transactions.

It is clear that most water service providers in the West Bank do not have reliable and accurate data related to citizens' complaints. Therefore, there is currently difficulty in calculating this indicator, despite the WSRC's

encouragement to implement and activate the complaint systems available, to enable them to manage them effectively.

The lack of accountability by responsible authorities and organizers of the service sectors associated with municipalities regarding customer satisfaction indicators and the failure to verify the existence of records of customer complaints and inquiries, in general, has an impact on the lack of interest from service providers in documenting customer complaints, their details, how to deal with them, and the time spent responding and dealing with them.

However, with the continued encouragement from WSRC to service providers, and reminders of the importance of measuring customer satisfaction indicators, we have noticed this year a response from the Gaza Municipality and the Coastal Municipal Water Utility - Rafah. They have established a computerized system for recording and tracking complaints and responding to them. While these systems are simple and need further development, they preserve the efforts and dedication of the employees in providing better services.

Article 24, paragraph 13 of Water Law No. 14 of 2014 grants the Water Sector Regulatory Council the legal status to address complaints between service providers and consumers. In accordance with this provision, WSRC has established a system for receiving and processing customer complaints through its website. This system aims to track complaints and resolve them in collaboration with service providers to ensure that interests of all parties are met.

Fifth: Other Indicators

1. Employee Productivity Index - Water Service

Indicator Definition	Calculations	Reference Criterion
This index measures the efficiency of the human resources available at service providers in maintaining good and comprehensive service levels. It also assesses organizational inefficiencies that negatively impact the quality of the provided service	Total number of employees (Water Service) ÷ Number of active subscriptions × 1000 subscribers	The general benchmark is 2.6 employees per 1000 subscriptions

This indicator is typically used to measure the efficiency of human resource management and the effectiveness of task execution. The value of this index is calculated by dividing the total number of full-time employees by the number of service subscriptions multiplied by 1,000. This index does not apply to service providers with less than 1,000 subscriptions.

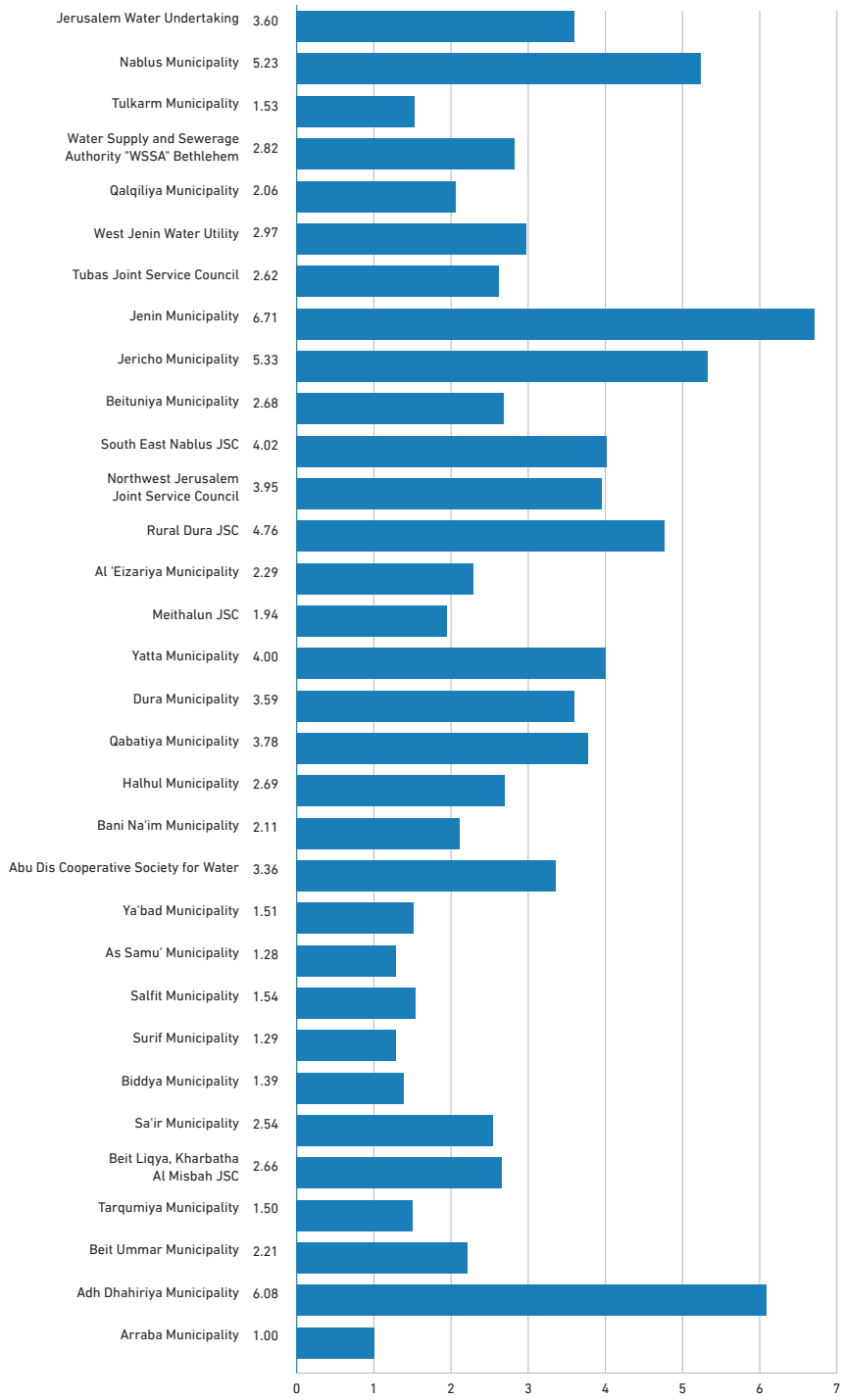
This index eliminates the disparities between service providers' sizes and relates them to the number of employees per 1,000 subscribers to enable the measurement of productivity levels. This index is closely related to the operating cost index, as it is essential to consider the contribution of employee costs to the service per cubic meter of water, with the number of employees per subscription. The relationship between these two indices is directly proportional, meaning that as the number of employees per subscription increases, the operating costs also increase. Therefore, it is crucial for service providers to understand this relationship to establish a natural balance between the two indices.

In this indicator, like some other indicators, it's not possible to make absolute comparisons among service providers. The need for employees varies based on the differences in the operational processes performed

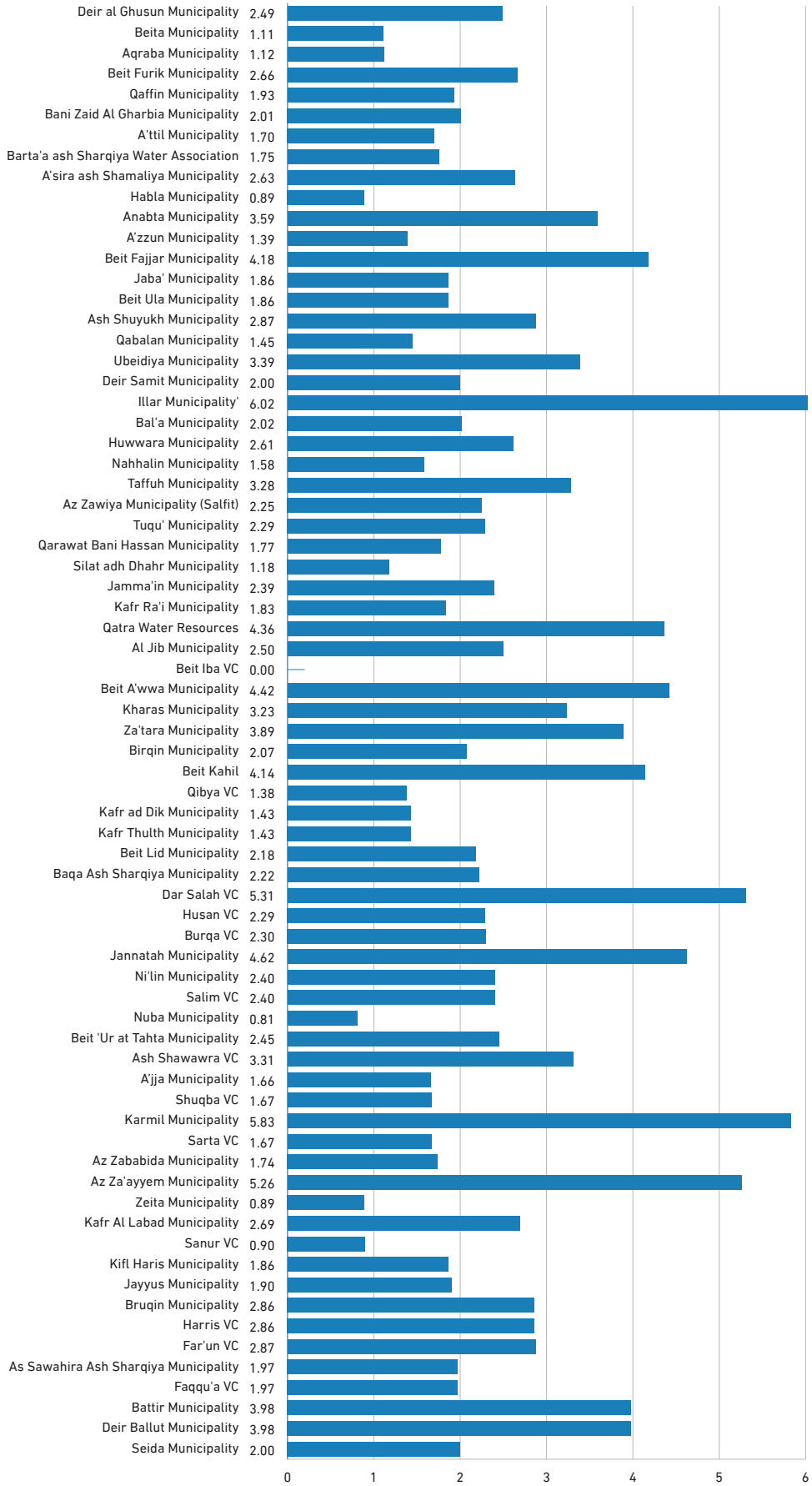
by the service provider. For example, the number of employees will differ between a service provider that manages its own wells and pumping stations, and a provider that only purchases and distributes water.

An overall view of the data from service providers clearly shows an increase in the number of employees in many municipalities and service providers such as Jenin, Adh Dhahiriya, and Illar in the West Bank, and in municipalities like al masdar, Wadi al Salqa, and um An Naser in Gaza. This gives the impression of exaggeration and an unnatural increase in the number of employees, which affects the overall performance and raises the costs of service providers.

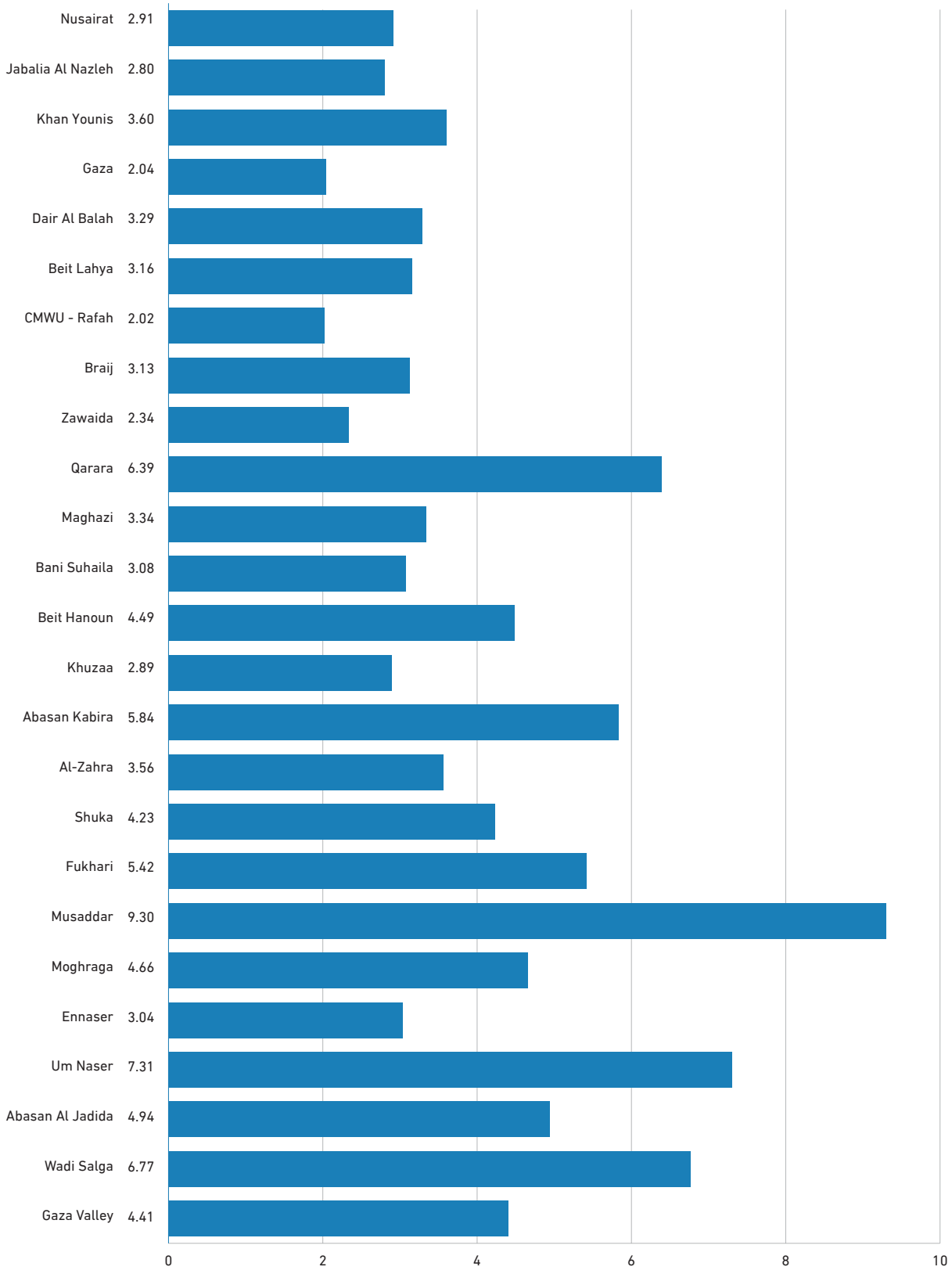
Employee Productivity Index - Large Service Provider | West Bank



Employee Productivity Index - Midsize Service Provider | West Bank



Employee Productivity Index | Gaza Strip



As shown in the above charts, service providers with fewer than 1000 subscriptions were excluded as the index is calculated based on dividing the number of employees per 1000 subscriptions.

2. Employees' Participation by Gender - Water Service

(Female Employees as a Percentage of Total Employees)

Indicator Definition	Calculations	Reference Criterion
This indicator determines the level of female presence in water service institutions compared to the total number of employees of both genders	Number of female employees ÷ Total number of employees of both genders (Water Service)	Not applicable

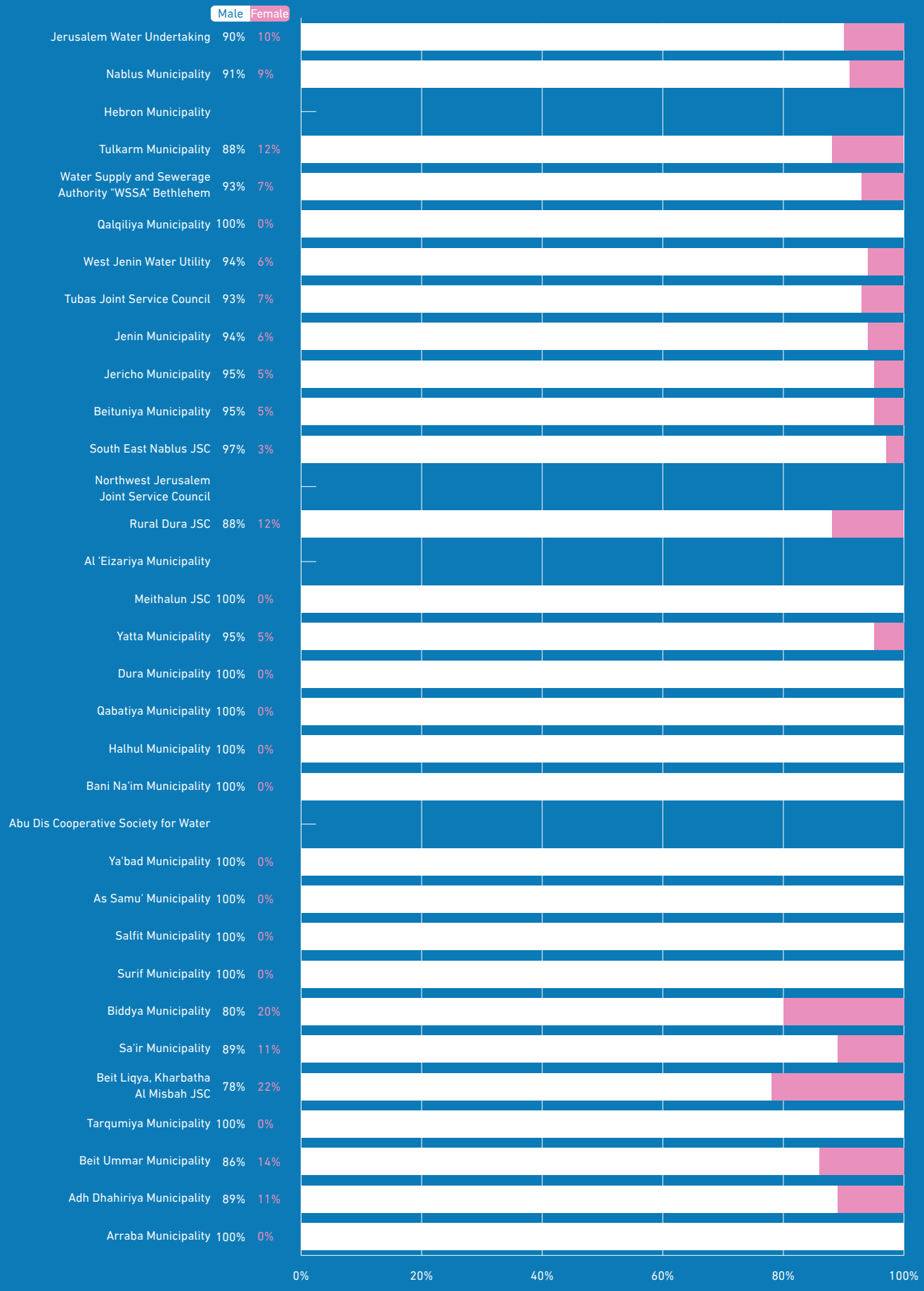
WSRC monitors gender considerations in water and wastewater services for the year 2022 through several indicators. Regardless of the efforts made by the relevant authorities and donors to improve women's participation in water and wastewater services, the results of this indicator are still very low in both the West Bank and Gaza Strip.

The reason for this low ratio is that most employees who are fully dedicated to water services are male and are primarily involved in tasks like collecting fees, maintenance, guarding, and operating wells, which are traditionally male-dominated roles. On the other hand, females in municipalities are often found in roles related to reception, secretarial work, or financial departments, but they are not counted in the workforce for this indicator since the indicator looks at employees who are fully dedicated to the service directly.

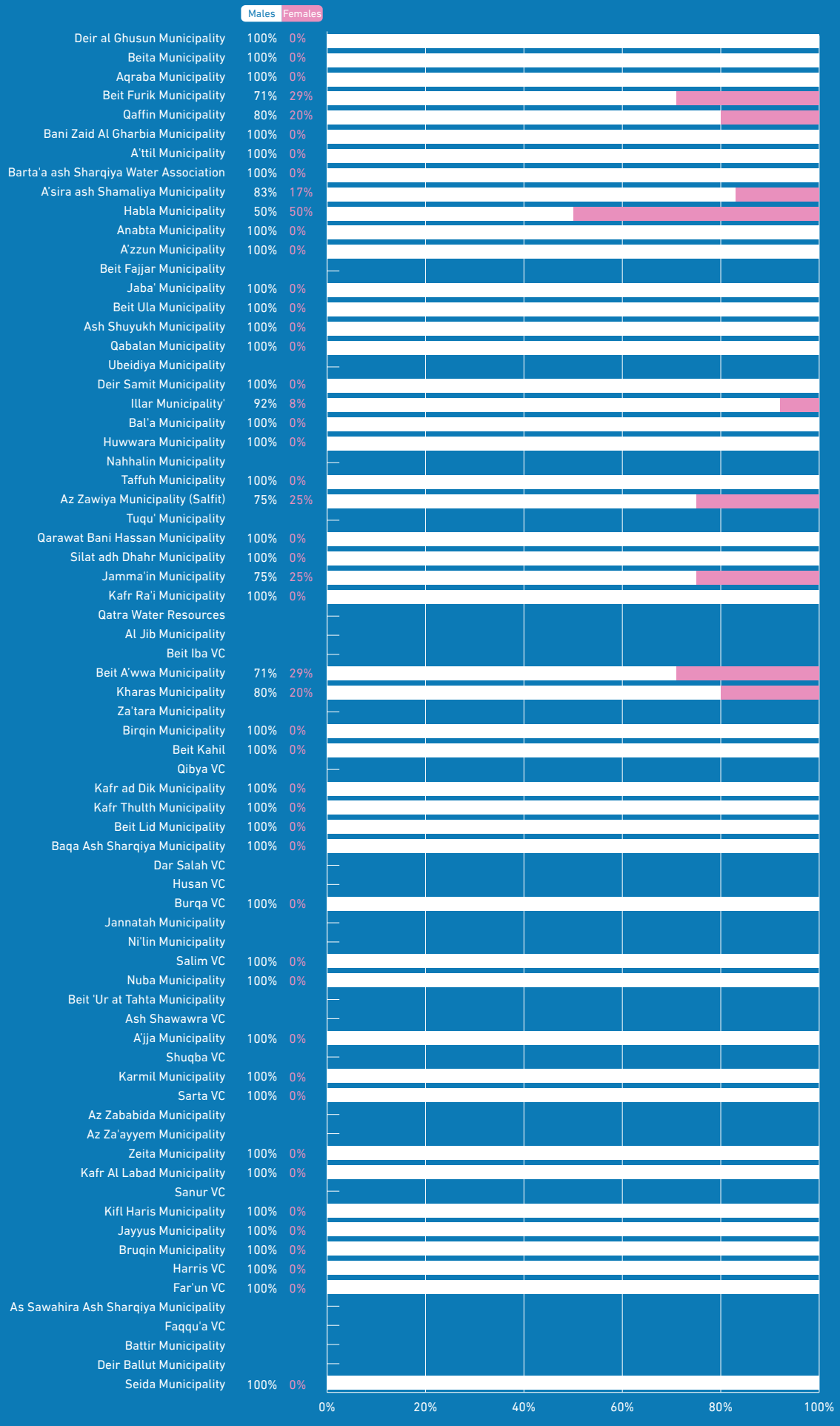
Accordingly, the focus should not be solely on the number of female employees in water and wastewater services but on the nature of the tasks they perform. While many national and international initiatives call for empowering women and enhancing their roles in various fields, there is a lack of real implementation on-ground of such principles in the water and wastewater services field.

Considering the potential added value of women's participation in water services and the success achieved by some service providers led by women, addressing and promoting a gender perspective is essential at various levels. This includes supporting higher education for women in relevant fields, creating incentive programs to encourage service providers to adopt women's inclusion policies, raising awareness, and improving the physical environment related to service providers' facilities.

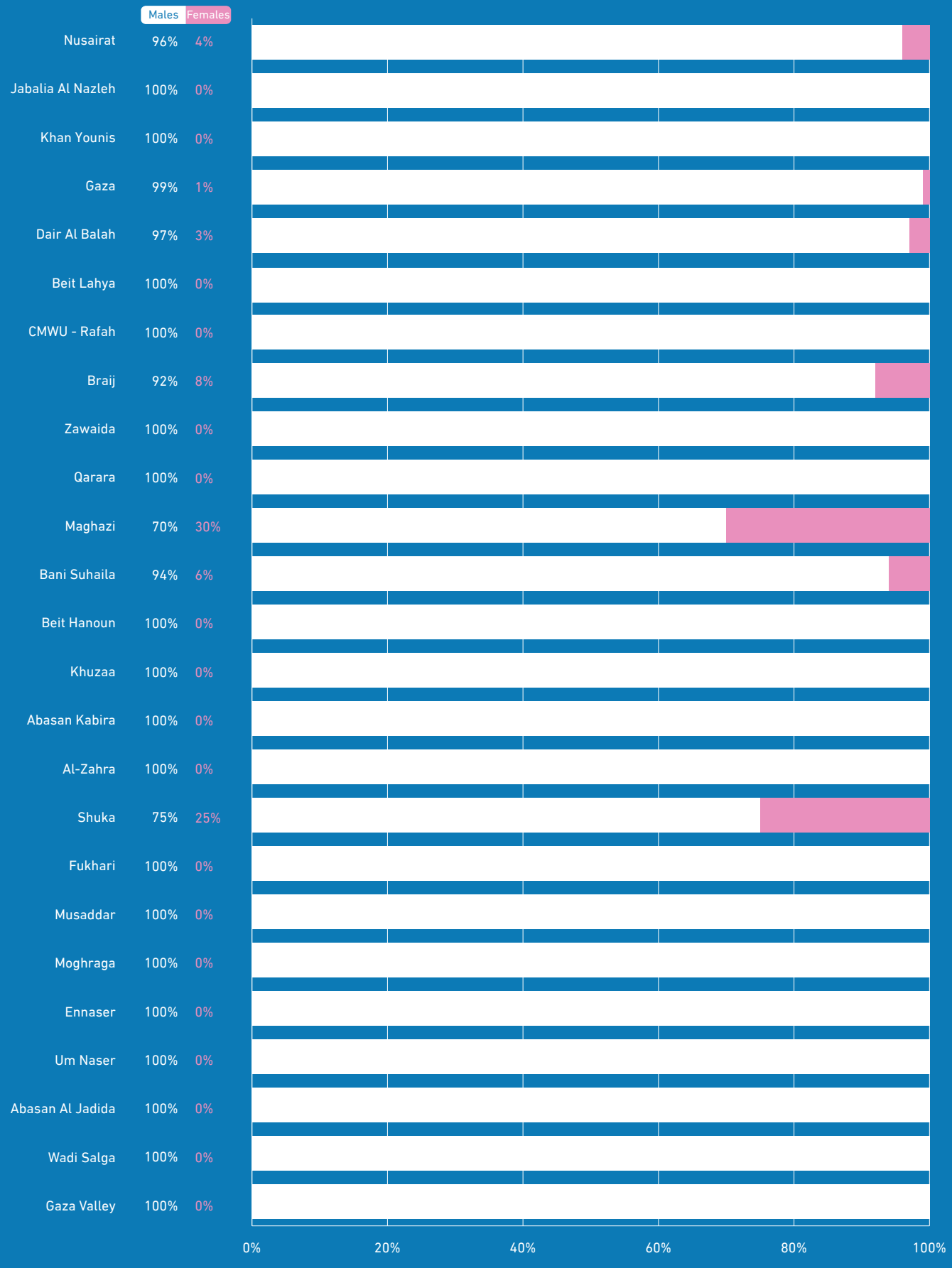
Gender Representation in Water Service - Large Service Provider | West Bank



Gender Representation in Water Service - Midsize Service Provider | West Bank



Gender Representation in Water Service | Gaza Strip



Operation and Inspection

The Water Sector Regulatory Council, with its limited human resources, has been consistently working year after year to fulfil its responsibilities in accordance with Law No. 14 of 2014 concerning water. Recently, it has taken various measures and activities related to Clause 7 of Article 24 in the Water Law regarding the Council's authority in monitoring operational processes. This is done for the following objectives:

- Ensuring the accuracy of the collected data.
- Ensuring the necessary measures are taken to guarantee the quality of water and protect water resources from pollution and depletion.
- Ensuring the existence of preventive and routine maintenance plans, regardless of the size of the service providers.
- Taking adequate measures to be prepared for emergency situations.

The concept of monitoring by WSRC is defined as the systematic and continuous set of processes to ensure that water and wastewater service providers implement the plans and objectives outlined within the licenses granted to them. It also identifies possible suggestions to achieve these objectives and correct any deviations if they exist.

The monitoring mechanisms adopted by the Water Sector Regulatory Council to assess the performance of water and wastewater service providers are divided into three parallel and complementary levels, as follows:

Level 1: Post-Monitoring
This involves collecting and analyzing data to generate performance indicators related to technical, financial, service quality, and customer satisfaction aspects. This is done retrospectively, after the intended operational period has ended. This level of monitoring is the one available for WSRC due to various obstacles.

Level 2: Real-Time Monitoring
This level involves monitoring the levels of services provided to citizens on a daily basis and in real-time (with the shortest possible time lag). Regulatory and oversight bodies in the water sector worldwide perform this function to activate one of the core roles assigned to the council as a representative of water and wastewater service customers' interests. It ensures the quality of services and addresses any individual or general complaints in cases where the service provider does not take adequate and timely actions to resolve them.

Level 3: Quality and Efficiency Monitoring of Operational Processes with Various Components
This level of monitoring is related to auditing and reviewing all the procedures, policies, operational and financial processes that led to the service levels monitored at the first and second levels. It involves setting instructions, recommendations, incentives, and penalties that result in improved technical and financial operational levels. These improvements should be reflected in customers' bills and the sustainability of operational processes for service providers.

Therefore, this level of monitoring allows the council to use a variety of administrative and operational tools to enhance the efficiency of service providers' employees. It also facilitates the provision of technical support, training, and technical assistance targeted to these providers. Additionally, the third level helps WSRC review the applied tariff and prices, and request any necessary amendments.

During the previous period, the Water Sector Regulatory Council has taken several measures to work on operational monitoring. These measures include:

1. The council began participating in operational inspections of service providers in 2017, by preparing operational inspection guidelines, inspection templates, and reference lists. Service providers were classified into three groups based on relevant set of criteria, which were discussed with various relevant parties.
2. In 2020, a training guide for operational inspection was prepared, and it was tested on 24 trainees, representing 12 service providers.
3. In 2022, the guide was updated and tailored to the operational status of service providers. Once again, participants from 12 service providers were trained, and the operational process monitoring system will be tested with major service providers for an in-depth study of its application mechanism and service providers' readiness to implement the system.
4. A meeting was held with representatives of the first group of trainees, including mayors, deputy mayors, water utilities officials, or municipalities board members, and department heads, in an orientation session to identify the added value of operational inspections, expectations, and responsibilities that lie on them. It is expected that each service provider will designate one or more of its employees to be granted the necessary authority to collect and analyse data and procedural evidence used by the service provider.
5. The next step is to print the final training material, provide additional training, and commence inspections on additional service providers. Specific monitoring mechanisms will be adopted for each service provider, depending on the size and type of operational processes they carry out.
6. The ultimate goal of operational process monitoring is to encourage service providers to conduct regular evaluations, which involve preparing periodic reports based on the size and operations of the service provider. WSRC will work with service providers to facilitate this process and review the reports prepared by service providers to ensure their alignment with the service reality.

Notes related to the Report 2022

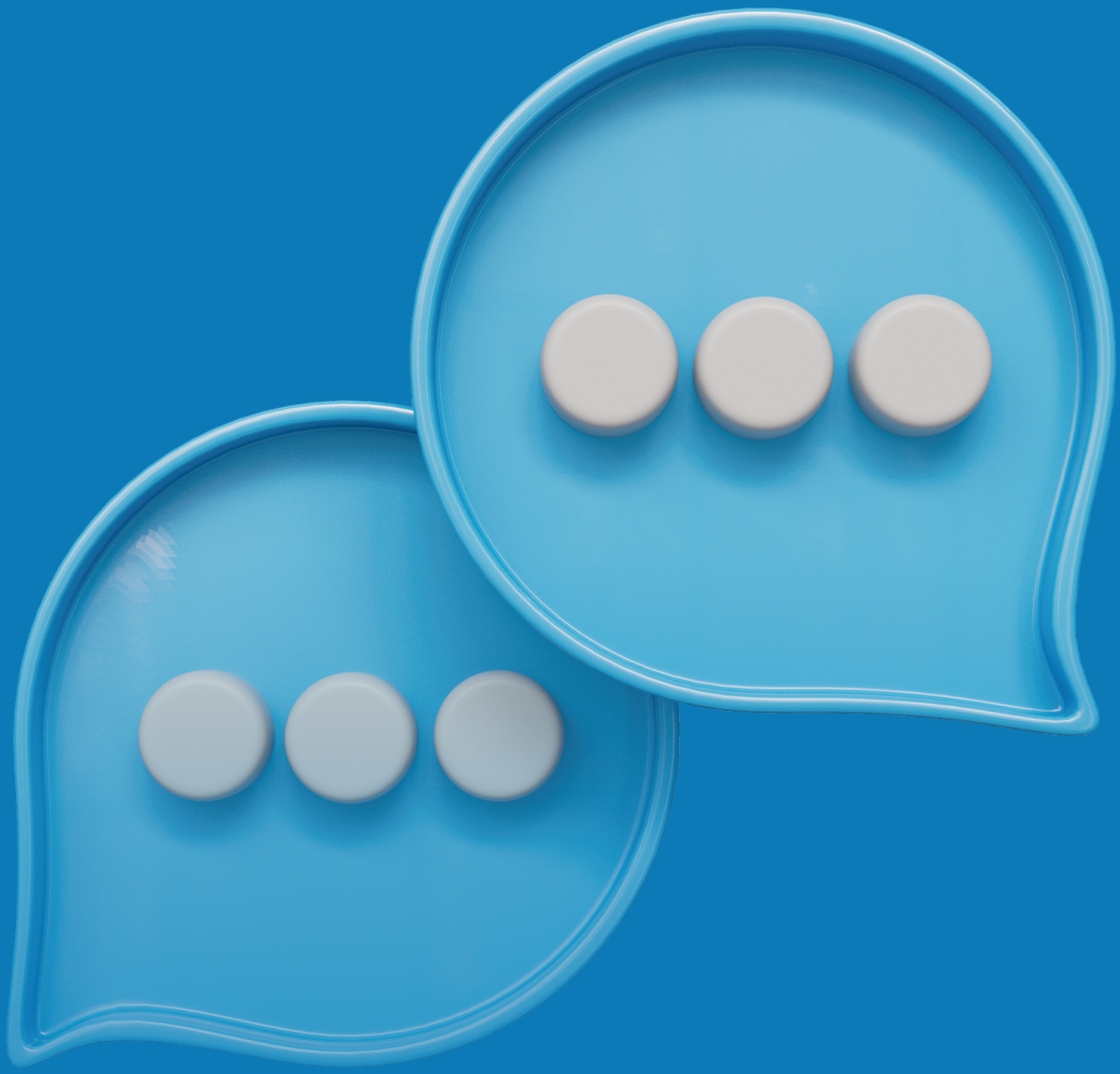
West Bank

1. Many service providers, mainly municipalities, still do not separate water accounts from other accounts at the municipality, especially regarding expenses. This practice affects the accuracy of water-related data within municipalities.
2. Most service providers do not categorize subscriptions by usage type (domestic, commercial, industrial, and touristic). This affects the calculation of the daily domestic consumption rate per person.
3. Non-revenue water (NRW) percentages are high in some municipalities, such as Balaa and Jenin, which increases the cost per cubic meter of water and results in a significant loss of the limited water supply. Investigating the reasons for this high loss and attempting to reduce it to an acceptable level are required.
4. Several service providers have operational costs for water services higher than their revenues, indicating the inefficiency of their tariff system. This threatens the financial and technical sustainability of their services. Therefore, it is necessary to initiate tariff review procedures according to the unified tariff system.
5. We observed that some water sources are not chlorinated, which is a dangerous practice with impacts on public health and the community.
6. Some service providers play an important role in monitoring private wells, such as the Jericho Municipality, which follows a methodology that monitors the water supply process from the source, ensures the operation of chlorine pumps, and conducts various water quality tests to provide safe drinking water.
7. Monitoring local water sources (private wells) is the responsibility of service providers. Data indicates that 24% of them in the West Bank purchase water from private wells, totalling approximately 105 wells.
8. There are still shortcomings in cooperation between environmental health inspectors at the Ministry of Health and service providers, due to the limited human resources responsible for water quality control at the Palestinian Ministry of Health.
9. Limited resources in laboratories affect the process of water quality control. Therefore, directing support to establish new laboratories would assist service providers in improving water quality control.

Gaza Strip

1. The improvement in the non-revenue water (NRW) percentage is attributed to the efforts made by municipalities in monitoring the network, conducting inspection tours and monitoring illegal connections, as well as the development and maintenance of most network lines that were damaged due to the 2021 aggression on Gaza. Additionally, household subscriptions have been separated.
2. In several municipalities, there is an increase in the collection rate for wastewater services, as a significant portion of wastewater subscribers pay their financial dues. In contrast, fewer subscribers pay their joint financial dues for water and wastewater services.
3. In the small municipality of Khuzaa, located in a small geographic area, the collection rate for water services reached 90%, including discounts granted to subscribers (on the current bill and accumulated balances). However, this theoretically does not cover the annual water bill for 2022.
4. Al-Zahra municipality has the highest per capita daily water consumption, despite its small size. This is due to the increase in the population resulting from the establishment of residential cities with the presence of several universities and courts that consume large amounts of water daily, but are not recorded in the Central Bureau of Statistics data.
5. The quantities of water purchased from the Israeli side and seawater desalination stations show an increase, as part of the Palestinian Water Authority's plan to recovering the aquifer. This is due to the elevated salinity of water produced from the wells.
6. The mechanism for obtaining data on water quality control tests was established in partnership with the Palestinian Ministry of Health and the Coastal Municipalities Water Utility. These tests were conducted during 2022. WSRC conducted a thorough review and held several meetings with relevant authorities to verify the accuracy and reliability of the data.
7. Through reviewing the quality control operations, a lack of cooperation between service providers, health inspectors, and the Palestinian Ministry of Health regarding water tests was noticed. The reason is the shortage of human resources and resources at both parties.
8. Some service providers still lack proper monitoring and quality control of the water that is pumped into the distribution network. Additionally, several water sources are not chlorinated due to technical failures or other reasons in chlorine pumps.

General Recommendations



Here are some general recommendations based on the 2022 performance monitoring report of water and wastewater service providers:

1. It is essential for relevant authorities to provide clear instructions to cancel the incentive discount policy and procedures, applied by most service providers in the West Bank and Gaza Strip, to improve collection rates from subscribers.
2. Service providers should separate the accounts for water and wastewater services from other accounts within the municipality, by applying the cost and revenue centers principle. In addition, the accrual basis should be applied in accounting systems to determine operating costs accurately and comprehensively.
3. Service providers should refer to the water balance and analyse it when considering investments to reduce water loss or adjusting tariff structures. They should also include a clear action plan to deal with the water loss components.
4. Direct service providers should classify subscriptions according to tariff categories as per the law, before implementing changes to the tariff structure.
5. Develop a plan for protecting the safety and purity of water sources from pollution, in coordination with the Palestinian Water Authority, and establish mechanisms for handling pollution incidents and response times to ensure the provision of safe water.
6. Activate chlorine pumps at all water sources managed by service providers, whether springs, wells, or other sources used as water supplies for consumers.
7. Service providers should use devices to check the concentration of free residual chlorine in water to ensure water quality control.
8. Improve cooperation between the Environmental Health Inspectors at the Ministry of Health and service providers to better serve both parties and achieve the public interest.
9. The Palestinian Ministry of Health should strive to employ more inspectors to cover larger population clusters within a year, thereby increasing the number of inspections conducted in areas served by service providers.
10. Many service providers purchase water from private or local wells. This requires continuous monitoring of the quality of the water provided by these wells to avoid any water quality issues.
11. Enhance water quality control by providing the necessary resources to establish new laboratories serving various service providers in different governorates.

What's Next?

After eight consecutive years of diligent monitoring of water and wastewater service providers, it has become evident that WSRC plays a vital role in analyzing the entire service landscape from a water sector reform perspective. **Therefore:**

1. WSRC will continue to develop water policies in cooperation with the Palestinian Water Authority, relying on the data available to the Council.
2. WSRC will keep monitoring specific key indicators, determined in accordance with the Palestinian Water Authority, on a quarterly basis. These indicators include the percentage of non-revenue water, collection rates, daily per capita water allocation, etc.
3. It has become necessary to assess the impact of the Council's performance on the water sector through an impartial report that clarifies the influence of the Council, its interventions, and its regulatory measures. This report shall be published regardless of the findings.
4. WSRC aims to review tariffs for the largest number of service providers to achieve financial sustainability in line with the plans set by the Palestinian Water Authority.
5. WSRC is obliged to gradually issue licenses to all service providers starting from the beginning of 2023, following the issuance of the licensing system. An agreement has been reached with the Palestinian Water Authority on the final format and content of the license application and its issuance procedure.
6. WSRC shall provide intensive training to service providers on operational processes inspection, based on the recently prepared guide on this subject.
7. Monitoring compliance with the governance rules for water and wastewater service provision will remain a top priority in the Council's annual inspections.

Appendix

Annex: Key performance indicators for small-size WSPs

Name of WSPs	Water Service Coverage	Average daily water consumption per capita at domestic level (l / c / d)	Average daily water sold per capita based on total population (l / c / d)	Average daily water sold per capita based on total population (l / c / d)	Non-Revenue Water (including bulk sales) (%)	Non-revenue water per connection per day (l / c / d)	Average Selling Price per cubic meter of water sold (NIS / Cubic meter)	Operating costs per cubic meter of water sold (NIS / cubic meter)	Working Ratio "Water Service" (No)	Collection Efficiency "Water Service" (%)	% of male working in Water Service	% of female working in Water Service
Shufa VC	100%	118	118	32%	8,639	224	2.5	4.71	1.67		100%	0%
Wadi Al Far'a VC	90%	80	81	37%	8,292	239	3.8	5.35	1.28	100%	100%	0%
Beit Dajan VC	98%	76	76	21%	2,382	103	11.3	5.92	0.52	59%	100%	0%
Tell VC	94%	81	82	9%	666	43	4.9	4.21	0.76	100%	100%	0%
Saffa VC	100%	80	80	20%	1,028	105	5.0	5.78	1.11	100%	100%	0%
Iktaba VC	92%	90	91	49%	9,726	588	5.0	5.5	1	47%	100%	0%
Al Fandaqumiya VC	100%	46	46	41%	5,329	178	6.3	6.53	0.98	119%	100%	0%
Deir Istiya Municipality	99%	74	74	25%	1,514	138	3.9	3.94	0.91	131%	100%	0%
Kharbatha Bani Harith VC	95%	63	90	18%			5.3	8.28	1.49	100%		
Sabastiya Municipality	100%	127	130	21%	941	130	3.2	1.48	0.45	116%	100%	0%
Beit Wazan VC	80%				5,303	416	9.4		1.84		100%	0%
Hajja VC	97%	102	102	29%	1,655	143	5.2	5.36	0.97	52%	100%	0%
Beit Sira VC	100%	88	91	33%	3,041	215	4.7	5.24	1.02	103%	100%	0%
Kufeirit VC	100%	116	116	35%	-	256	4.8	5.82	1.15	103%	100%	0%
Kafr Qaddum VC	100%	85	87	21%	1,402	114	3.6	4.67	1.25	65%	100%	0%
Burin VC	100%	81	89	68%	12,130	794	5.0	3.03	0.53	102%	100%	0%
'Urif VC	88%	56	52	9%	344		3.8	6.22	1.46	19%	100%	0%
Kafr Jammal VC	100%	66	66	39%	3,572	242	2.6	5.41	1.89	100%	100%	0%
El Kaum VC	75%	60	60	14%	689	47	8.0	10.09	0.88	71%	100%	0%
Masha VC	100%	60	132	21%	3,042	136	3.5	3.7	2.26	45%	100%	0%
Bazzariya VC	100%	73	75	31%	3,194	133	5.8	3.46	0.6	100%	100%	0%
As Sawiya VC	100%	62	101		682		2.5		0.18	103%	100%	0%
Ar Ramadin Municipality	88%	43	45	26%	1,229	182	5.9	7.58	1.11	84%	100%	0%
Sanniriya VC	100%	155	155		1,067	66	2.9	3.48	1.14	100%	100%	0%
Raba VC	100%	52	52	22%	2,446	89	5.1	4.73	0.76	78%	100%	0%
Al Mughayyir VC	82%	49	49	25%	2,987	92	6.2	5.81	0.84	97%	100%	0%
Beitillu VC	100%	70	70	10%	1,026	51	5.0	4.26	0.76	99%	100%	0%
Amatin VC	79%	110	110	19%	1,528	90	3.8	5.69	1.39	23%	100%	0%
Khallet al Maiyya Municipality	81%	23	23	22%	408	77	9.0	7.41	0.76	63%	100%	0%
Ar Rihiya VC	90%	44	46	52%	6,627	559	5.4	6.32	1.14		100%	0%
Zeita Jamma'in VC	100%	151	158	10%	4,038	85	4.0	3.3	0.82	75%	100%	0%
Al'izab Algarby JSC	98%	187	187	11%	900	78	2.8	2.75	0.85	47%	100%	0%
A'sira al Qibliya VC	100%	42	42	25%	751	75	5.4	5.1	0.94	92%	100%	0%
Fahma VC	78%	73	72	25%	7,326	96	7.0	7.95	1.13	65%	100%	0%
Bil'in VC	100%	122	122	23%		142	4.0	3.98	0.89	100%	100%	0%
Nazlat 'Isa VC	100%	106	106	24%	3,374	149	3.0	2.42	0.76	96%	100%	0%
Mothalth Ash Shuhada VC	100%	34	41	34%	-	152	5.6	5.31	0.79	100%	100%	0%
Beit Imrin VC	100%	70	70		451		6.2	3.34	0.51	80%	100%	0%
Talluza VC	97%	116			8,447	635	-				100%	0%
Qusin VC	83%	88	88		333		5.3	5.51	1.03	63%	100%	0%
Jammala VC	100%	47	47	76%	8,385	534	5.9		2.49	52%	100%	0%
Rafat VC	91%	68	68	60%	6,495	380	4.0	7.3	1.85	54%		
Al Jalama VC	100%	88	88	9%	672		4.3	3.81	0.88	11%	100%	0%
Ramin VC	100%	76	76	51%	11,673	277	4.6	7.4	1.35	100%	100%	0%

Annex: Key performance indicators for small-size WSPs

Name of WSPs	Water Service Coverage	Average daily water consumption per capita at domestic level (l / c / d)	Average daily water sold per capita based on total population (l / c / d)	Average daily water sold per capita based on total population (l / c / d)	Non-Revenue Water (including bulk sales) (%)	Non-revenue water per connection per day (l / c / d)	Average Selling Price per cubic meter of water sold (NIS / Cubic meter)	Operating costs per cubic meter of water sold (NIS / cubic meter)	Working Ratio "Water Service" (No)	Collection Efficiency "Water Service" (%)	% of male working in Water Service	% of female working in Water Service
An Nabi Elyas VC	100%	234	234	26%	2,250	205	4.0	2.93	0.62	69%	100%	0%
Yasid VC	100%	50	52	29%	1,294	108	11.6	10.57	0.79		100%	0%
Mirka VC	94%	53	53	14%	559	42	6.1	6.39	1.03	100%	100%	0%
A'rrana VC	100%	97	95	16%	1,458	93	4.3	2.16	0.49	100%	100%	0%
Jinsafut VC	100%	38	39	47%	2,519	186	5.0	7.12	1.37	100%	100%	0%
Al Lubban ash Sharqiya VC	100%	71	72	40%	3,547	265	6.0	4.56	0.75	43%	100%	0%
Deir Qaddis VC	106%	114	114		1,090	49	3.6	4.1	1.1	100%	100%	0%
Marda VC	100%	74	74	12%	663	53	3.5	4.36	1.08	100%	100%	0%
A'bud VC	100%	90	90	33%	3,539	178	-		0		100%	0%
Deir al Hatab VC	100%	98	100	27%	4,037	245	5.0	4.16	0.82		100%	0%
Jit VC	100%	94	73	23%	2,378	142	4.4	4.33	0.95	73%	100%	0%
'Einabus VC	100%	37	37	28%	2,339	108	4.9	6.29	1.15	98%	100%	0%
Jalqamus VC	93%	56	58	38%	2,413	187	6.9	5.48	0.75	101%	100%	0%
A'zzun A'tma VC	90%	147	147	14%	1,143	105	3.1		0.24	83%	100%	0%
Kafr Sur VC	100%	163		20%	6,538	260	5.6	5.1	0.82	60%	100%	0%
Ash Sheikh Sa'd VC	100%	58	58	28%	5,637	300	4.8	4.64	0.97		100%	0%
Bir Al Basha VC	93%	59	59	15%	1,065	56	5.1	5.17	0.95	49%	100%	0%
Kafr Laqif VC	100%	175	175	9%	1,429	49	5.3	4.27	0.74	100%	100%	0%
Tura VC	100%	72	72	26%	959	89	5.0	7.69	1.44	131%		
Baqat al Hatab VC	100%	60	78	25%	3,276	146	5.0	5.16	0.97	55%	100%	0%
Ras A'tiya / Ras at Tira VC	100%	164	166	17%	2,429	235	1.7	2.11	1.13	66%	100%	0%
Kafr A'bbush VC	100%	81	81	32%	5,821	209	5.2	6.65	0.89	34%	100%	0%
Marah Rabah VC	80%	88	104	39%	12,125	405	4.0	5.48	1.35	40%	100%	0%
An Nassariya VC	91%		143	47%	18,274	620	3.5	6.29	1.77		100%	0%
Ras karkar village council	100%	89	89		1,045		4.9	4.8	0.96	109%	100%	0%
An Naqura VC	100%	85	87	36%	1,186	243		3.3			100%	0%
Kafr Zibad VC	100%	88	88	41%	4,300	206	5.7	7.14	1.21	83%	100%	0%
Ar Ras VC	100%	232	232	17%	619	93	3.8	3.98	0.82	89%	100%	0%
Al Midya VC	100%	72	72	21%	1,323	92	4.0	5.68	1.39	100%	100%	0%
Al Funduq VC	100%	96	96	15%	2,396	66	5.0	4.37	0.86	41%	100%	0%
Beit Hasan VC	71%	53	53	59%	4,715	497	3.5	9.18	2.61	100%	100%	0%
Deir Ghazala VC	90%	191	190	18%	1,333	154	5.0	6.66	1.27	60%	100%	0%
An Nazla ash Sharqiya VC	100%	76	76	28%	4,400	228	3.4	3.15	0.84	54%	100%	0%
At Tira VC	100%	76	76	15%	656	64	5.0	4.1	0.67	100%	100%	0%
Nazlat ash Sheikh Zeid VC	100%	81	81	58%	7,189	388	4.5	1.71	0.33	100%	100%	0%
Budrus VC	100%	87	87	37%	5,529	267	4.7	7.06	1.47	100%	100%	0%
Jurat ash Sham'a VC	100%	104	114	24%	4,818	269	3.0	3.74	1.22	25%	100%	0%
Wadi Fukin VC	100%	108	108	27%	3,137	178	-	4.47	0		100%	0%
Beit Amin VC	100%	123	123	21%	1,097	143	3.0	3.41	1	95%	100%	0%
Al Ma'sara VC	94%	81	81	30%	2,674	183	-		0		100%	0%
Odala VC	100%	84	88	13%	1,545	73	3.8	4.28	1.12		100%	0%
Beit 'Ur al Fauqa VC	100%	105	105		225		4.5	3.82	0.83	110%	100%	0%
Al Janiya VC	101%	90	96		1,973		4.8	5.06	0.97	98%	100%	0%
'Isla VC	100%	145	145	47%	7,626	496	3.8	5.7	1.36	30%	100%	0%
Ar Rama VC	100%	75	75	15%	1,800	68	5.5	5.38	0.86	100%	100%	0%

Annex: Key performance indicators for small-size WSPs

Name of WSPs	Water Service Coverage	Average daily water consumption per capita at domestic level (l / c / d)	Average daily water sold per capita based on total population (l / c / d)	Average daily water sold per capita based on total population (l / c / d)	Non-Revenue Water (including bulk sales) (%)	Non-revenue water per connection per day (l / c / d)	Average Selling Price per cubic meter of water sold (NIS / Cubic meter)	Operating costs per cubic meter of water sold (NIS / cubic meter)	Working Ratio "Water Service" (No)	Collection Efficiency "Water Service" (%)	% of male working in Water Service	% of female working in Water Service
Ar Rama VC	100%	75	75	15%	1,800	68	5.5	5.38	0.86	100%	100%	0%
Shabtin VC	100%	77	86	47%	7,865	377	5.0	7.17	1.36	90%	100%	0%
Al Nazla Al Gharbiya VC	96%	106	113	17%	1,341	103	2.6	2.13	0.77	84%	100%	0%
Qira VC	100%	77	79	22%	688	121	3.7	6.03	1.49	100%	100%	0%
Al Jarushiya VC	100%	124	124	31%	6,432	252	3.0	3.01	0.95	100%	100%	0%
Seir VC	100%	252	252	24%	1,733	199	3.0	4.7	1.41	100%	100%	0%
Iskaka VC	86%	88	89	17%	550	79	5.5	3.96	0.64	62%	100%	0%
Ijnisinya VC	100%	96	117	29%	650	141	2.4	9.4	2.32		100%	0%
Umm at Tut VC	100%	37	37	32%	2,427	113	5.3	6.5	1.1	99%	100%	0%
Umm Salamuna VC	110%	100	102	7%	1,695	50	5.2	2.8	0.54		100%	0%
Saffarin VC	100%	65	65	45%	3,342	240	5.0	4.42	0.86	100%	100%	0%
Marah Ma'alla VC	100%	78	78	41%	9,096	340		4.93			100%	0%
Az Zawiya VC	100%	40	45	58%	2,335	357	4.7	6.45	1.24	107%	100%	0%
Hitta VC		59	59	22%	2,108		3.8	4.1	1.08	11%	100%	0%
Al Maniya VC	100%	94	94	38%			-	4.23			100%	0%
Al Khuljan VC	100%	66	66	15%	1,199	49	4.5	7.19	1.6	88%		
Al Assa'ssa VC	100%	171	171	30%	6,868	282	-	3.71	0			
Far'ta VC	100%	60	60	49%	12,470	342	4.9	8.45	1.45	100%	100%	0%
Umm Dar VC	100%	79	79	39%	2,596	192	4.5	5.76	1.18	100%	100%	0%
Falamya VC	100%	112	112	25%	3,460	219	2.7	3.09	1.13	68%		
Kur VC	100%	58	58				6.7		1.22	79%	100%	0%
Umm ar Rihan VC	100%	146	146	26%	4,962	165	5.0	5.57	1.02		100%	0%
Masafer Yatta VC	68%	32	32	19%		104	6.0	10.85	1.48	51%	100%	0%
A'rab al Jahalin VC	100%	26	26	33%	1,538	349	-	4.01	0		100%	0%
An Nazla Al Wusta VC	100%	145	145	26%	424	207	3.1	3.27	0.83	69%	100%	0%
Khallet al Haddad VC	100%	104	104	36%	5,357	337	-		0			
Nisf Jubeil VC	100%	159	159	9%	361	67	3.5	2.38	0.67	100%	100%	0%
Jubara VC	72%	208	220	10%	639	58	2.1	2.37	0.85	97%	100%	0%
'Ein Shibli VC	85%	96	96	26%	2,070	236	5.0	2.06	0.41	76%	100%	0%
Fahma al Jadida VC	93%	65	65	35%	2,251	235	5.0	8.15	1.63	54%	100%	0%
A'mmuriya VC	100%	141	141				5.0	4.67	0.91	72%	100%	0%
Dhaher al Malih VC	100%	88	88		600		5.0	4.7	0.94	100%		
Sarra Municipality	92%	-			1,327						100%	0%
Wadi Du'oq VC	100%	84	84	30%	1,446	176	5.0	8.31	1.49	100%	100%	0%
Telfit VC	100%			34%	780	97	5.8		1.7	158%	100%	0%
Khallet Sakariya	54%	75	75				2.5	2.76	1.1		100%	0%
Birin VC		96	97		8,333				0.63			
Jalbun VC							3.5	2.67	0.75	104%	100%	0%

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