

Resilience - Oriented Indicators Overview

Yemen Water Sector Performance Indicators
of The Water and Sanitation Local Corporations (LCs) in
Aden, Sana'a, Ibb, Taiz and Hodeidah

4th Quarter

October – December 2018





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1 Overview

The urban population in Yemen receives drinking water through a limited number of water supply systems that are mostly public and managed through the Water and Sanitation Local Corporations (LCs) and their affiliated water utilities and branches, while others are private like water tanker suppliers. In multiple systems, sewerage services are somewhat available and cover only a low percentage of urban population.

Good quality of service is of the utmost importance for the LCs given the significant impact of water and sanitation services on life and public health of the urban communities. Therefore, since the conflict and its repercussions in 2015 have greatly exacerbated the situation in Yemen, the LCs operate under various institutional, administrative, operational and financial conditions. They have encountered challenges in securing an enabling environment and resilience that allows improvements in service quality, cost recovery, and external support level, etc.

The ability of the LCs to deliver acceptable services relies on a range of features/elements such as infrastructure availability and status, access to energy and consumables, qualified personnel, efficient financial and performance-oriented management. Equally, the current situation in the context of the LCs has confirmed that fragility and

conflict can be extremely disruptive to these interrelated elements and that service quality could be degraded to no return by the “vicious cycle” of managerial, financial and operational downfall, and in due course leads to customer dissatisfaction with the service they receive, and low revenue collection by the unwillingness to pay for those services that, sooner or later, undermine the sustainability of service delivery.

One of the crucial implications of poor sanitation and low access to clean drinking water has had catastrophic hygiene and health effects, as the majority of the unserved population is being forced to rely on unsecured alternatives, making them harmfully susceptible to water-borne diseases such as endemic Cholera. As a result, the number of suspected cases of cholera has been monitored regularly since the outbreak in 2016 and, according to recent statistics from the Emergency Operation Center (WHO)¹, approximately 171,089 of suspected cholera cases have been reported between October and December 2018.

The outbreak of cholera has placed an additional burden on the social responsibility and mandate of the LCs to control further prevalence and severity of Cholera. On the other hand, the WASH Cluster, together with the other Humanitarian Societies have mobilized the possible efforts to support the LCs with urgent operational resources to secure the continuity of safe drinking water supply and wastewater treatment, including the disinfection of contaminated water sources and networks, and the distribution of chlorine tablets alongside nationwide awareness campaigns.

Last but not least, the dedications of the LCs’ staff in view of the critical operational aspects and available possibilities, were essential in maintaining service continuity - even at the minimum level.

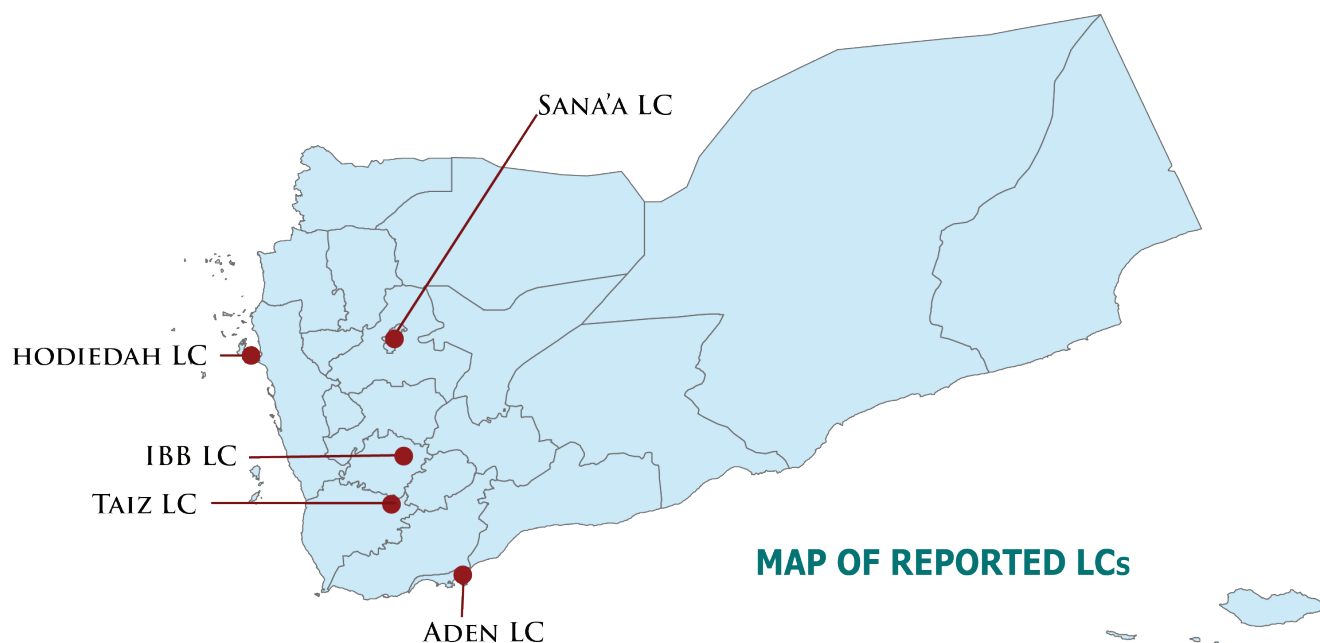


1. Emergency Operation Centre (WHO) (<http://yemeneoc.org/bi/>)

2 Performance Monitoring Methodology

Ever since the conflict broke out in late March 2015, the LCs have not been able more to report their performance data via the PIIS 'Performance Indicators Information System' as a result of interrupted organizational work and data flow. Thus, the Ministry of Water and Environment 'MWE' with the assistance of the GIZ IDWS Program, have initiated a manual process to monitor and report Key Performance Indicators 'KPIs' of selected LCs serving in metropolitan cities of Sana'a, Aden, Taiz, Hodeidah and Ibb. These reports on performance monitoring highlight financial, technical and operational indicators which are usually used to reflect the critical array of tasks the LCs have had undertaken to provide their customers with appropriate services.

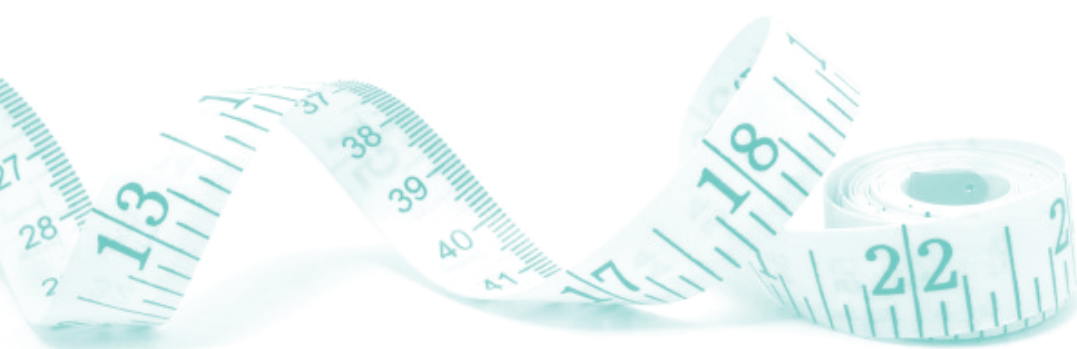
So far, the monitoring periodicity is performed on a quarterly basis, covering in this version the fourth quarter (October-December) of 2018, along with a brief technical analysis of 23 resilience-oriented performance indicators to assist sector stakeholders in identifying actual and potential performance trends of each reported LC. The concluded results should not be assumed only as a one-sided monitoring exercise by GIZ IDWS Program. The monitoring was, worth to mention, carried out with data submitted and signed by the LCs' management through appointed focal points staff. The GIZ IDWS team made every effort to improve data quality by means of validation, analysis and subsequently, reviewing the results if necessary with the LCs for further scrutiny.



3 Emergency Water Sector Performance Indicators

The LCs' performance is inextricably bonded to 1) water coverage and reliability, 2) the operating and maintenance capacity, 3) the conditions of the production and distribution infrastructure and 4) the viability of the financial system. This report measures the resilience of the LCs in terms of the following category of key resilience-oriented performance indicators:

a. Service Coverage of Piped Water Supply	<ol style="list-style-type: none"> 1. No. of population of urban centers (capita). 2. Number of IDPs in served area (capita). 3. Number of population served through water supply network (capita). 4. Water supply service coverage = population served through water supply network vs total population (%).
b. Service Days	<ol style="list-style-type: none"> 5. Number of service days of piped water supply per month.
c. Storage Capacity and Production	<ol style="list-style-type: none"> 6. Storage capacity (m³). 7. Storage capacity (l/capita). 8. Total quantity of water pumped in the network (m³ /month). 9. Per capita quantity of water pumped in the network (l/capita/day).
d. Energy Cost	<ol style="list-style-type: none"> 10. Energy Cost per m³ of water produced (YER/m³).
e. Performance of Pumps and Generators	<ol style="list-style-type: none"> 11. Number of main pumps for the water supply system. 12. Number of functional water pumps in service. 13. Number of main functional pump failures due to technical reasons (-/month). 14. Number of working hours of all operating pumps that pump water (hour/month). 15. Number of working generators in the operation of pumps. 16. Number of working hours of all operating generators used to run the functional pumps that pump water (hour/month).
f. Financial Viability	<ol style="list-style-type: none"> 17. Collected revenues (YER/month). 18. Billed amount (YER/month). 19. Total operational costs (YER/month). 20. Collected revenues vs billed amount (%). 21. Actual operational cost coverage (%). 22. Monthly governmental subsidies (YER). 23. Percentage of basic monthly salaries paid (%).



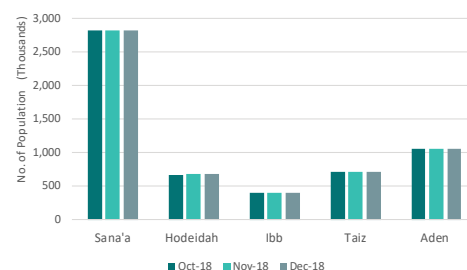
4 Technical Analysis

a. Service Coverage of Piped Water Supply

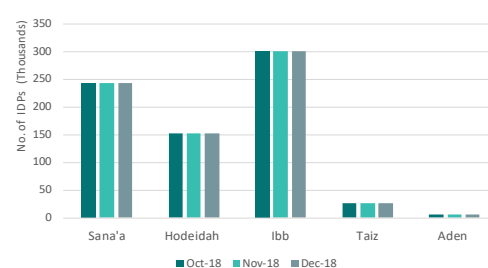
In the service area of the reported LCs, an average of 52% of the total urban population (5,654,661) is almost connected to the public water supply system and has remained stagnant since early 2018. Network rehabilitation and extension projects funded by government and/or donor organizations, due to the prolonged conflict, have been suspended or completely terminated. Therefore, since 2015, water coverage varies from LC to LC given the urban expansion and the dependent of a significant portion of the population not having access to piped water supply on other sources of unimproved services and multiple providers active in the LCs' service areas. The water tankers, as an example, are perceived to be an alternative major source of water supplies to those who are not connected or do have poor/inequitable access to the public network. Due to low levels of per capita income, people are often too overwhelmed to actually afford the prices of water tankers not equivalent to the piped water tariffs. In most times, the water tariff charged by the LCs is on average about 3-4 times lower than that charged by private suppliers.

Furthermore, the massive influx of IDPs seeking safe areas and shelters had to a large extent aggravated the burden of these LCs to adequately comply with the situation demands and the humanitarian aid efforts. IOM has identified, from 23rd October to 6th November 2018, an increase of 1,454 households displaced from Hodeidah bringing the total number of displaced households to 75,840 (an estimated 532,830 individuals) forced to leave their homes since the escalation of conflict in early June 2018. To address the acute service deficiency gap, most relevant humanitarian actors have commenced installing emerging water supply schemes in the majority of IDPs settlements, along with urgently-aided assistance provided to the LCs to cope with the prevailing impact of the crisis and in an effort to mitigate further complications for the host communities.

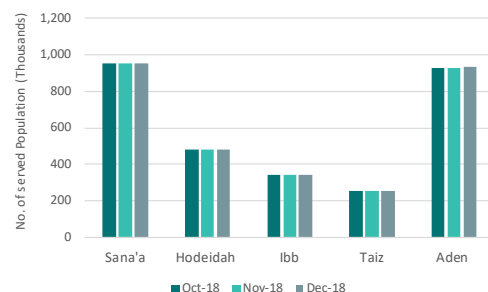
1. Number of population of urban centers (capita)



2. Number of IDPs in served area (capita)



3. Number of population served through water supply network (capita)



4. Water supply service coverage = population served through water supply network vs. total population (%)



b. Service Days

The objective of the LCs is to provide customers to a much larger extent with high-quality water and sanitation services. The quality of these services could, therefore, be measured by their ability and the level of services they can provide to their customers. In the local context, being connected does not always imply that water for a reliable and frequent supply is guaranteed. The power supply interruptions, operational failures and deteriorated/damaged networks, which resulted in an enormous decline in water production and supply, are adverse factors for achieving service quality. To address some drawbacks, the LCs have attempted with external fuel subsidies to overcome the power shortage by deploying additional pumps and electric generators to maintain water supply.

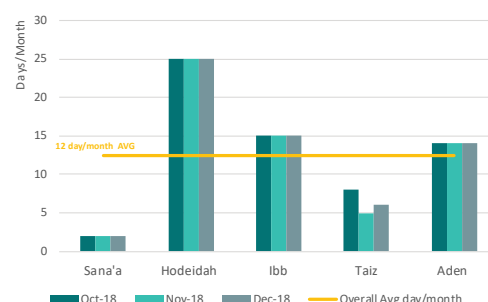
Shortage of water supply (twice a month) could consequently be attributed to the low volume of water produced by Sana'a LC (664,146 m³/month) in comparison to Hodeidah LC (1,019,562 m³/month) supplying with an average 25 days per month. In the same sense, Ibb LC has been able to boost water supplies since the 3rd Quarter from 12 to 15 days a month despite low average water production figures (402,794 m³/month) similar in supply frequency to the second biggest LC among the five - Aden LC (14 days a month). Whereas water supplies by Taiz LC were gradually improved, mainly covering the geographical service range of the LC to serve on average 6 days/month. Overall, LCs of Aden, Hodeidah and Ibb have met the acceptable performance in this quarter with shared average 18 days of water supply per month.

The policy of rationing the distribution of water varied among the LCs and is relatively dictated by specific factors. The data provided by the LCs, unfortunately, complicated the further analysis of the equity of water supply and distribution. Nevertheless, direct observations at least revealed that not all connected customers are receiving fair services in certain areas, and this can be primarily regarded to technical and financial factors, three of which:

- The scarcity of water resources and frequent power cuts hindering adequate water production.
- The weakness of the network pressure that compromises fair distribution for those at the far end of the main pipelines.
- In perspective of the urgent need to collect cash revenues, some LCs deliberately schedule water supplies to zones and neighbourhoods accommodated with high-income customers.

Finally, the frequency of supply is an indicator interlinked with other operational and financial performance of the LCs, and alarming for a potential damage to the physical network and its components. In addition, it also assists to extrapolate to which extent poor supply could directly contribute to public health concerns as well as measuring the impact of relevant humanitarian assistance provided to the LCs.

5. Number of service days of piped water supply per month



Average no. of service days per month



c. Storage Capacity and Production

The absolute minimum water requirement for urban consumption depends (but not limited) on the water resources availability, storage and production capacity, non-revenue water 'NRW' rates, etc. The storage capacity of the LCs of Sana'a, Hodeidah, Ibb and Aden is serving 38, 52, 12 and 102 l/capita respectively. In Taiz LC, some wells are connected to the water reservoirs, or water is extracted and directly pumped into the network. Depending on the security conditions and accessibility, the LC was capable in this quarter to operate certain reservoirs with a storage capacity 22,000 m³.

Likewise, water production (per capita share) is expressed as total monthly water supplied to the network and the number of served people. The average daily per capita water production varies significantly this quarter among the LCs. According to the World Health Organisation (WHO) guidelines³, 50 litres is the acceptable minimum water requirement for direct human consumption and for basic hygienic considerations. LCs of Aden and Hodeidah have accordingly reported the highest average daily per capita share reaching 119 and 69 l/c/d respectively. The reasons behind this high level of production are the incessant demands for water and the operational efficiency of large water supply.

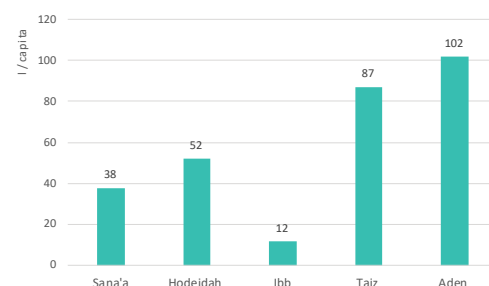
Whereas other LCs have quite low water production values, much lower than the WHO guidelines. Production levels are very low in some areas reaching an average of 27 l/c/d, as is the case in Sana'a LC, 26 l/c/d in Ibb LC, and 17 l/c/d in Taiz LC. Ultimately, the possibility of expanding coverage depends on the availability of adequate water production capacity in the service area relative to the resident population. If these LCs were to connect their entire population, they would have to invest both in water production capacity and distribution networks to achieve universal coverage.

l/c/d. = Liter per Capita per Day

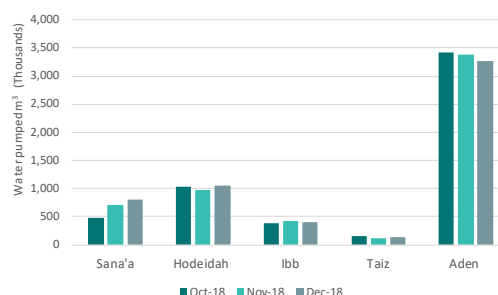
6. Storage capacity (m³)



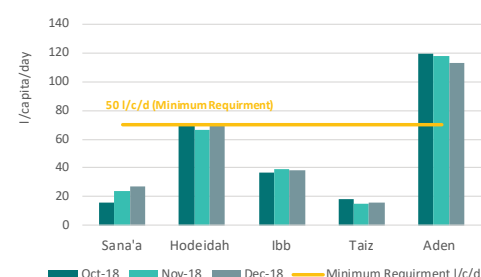
7. Storage capacity (l/capita)



8. Total quantity of water pumped in the network (m³/month)⁴



9. Per capita quantity of water pumped in the network (l/capita/day)⁵



3. The right to Water (page 13) – WHO

https://www.who.int/water_sanitation_health/en/righttowater.pdf

4. The water quantity represents the production, not the billed water.

5. The calculation of per capita share of the water produced is based on LCs figures. The water supply provided by the private sector and/or humanitarian agencies was not monitored by the LCs and hence was not calculated in this report.

d. Energy cost

The frequent/entire cut-off of the National Electrical Grid posed a genuine challenge for the LCs to rely on and obtain enough fuel for the operation of electric power generators. In times of scarcity and price inflation, the LCs have exhausted most of their efforts to obtain fuel through subsidies, whereas energy costs were and still are one of the highest cost factors of the total operational costs.

For a thorough assessment of the LCs' financial performance, the analysis of the energy costs in this report was based on distinguishing the actual costs incurred by the LCs from those subsidized by the humanitarian organizations. The LCs were, therefore, requested to split and report their energy costs accounts without indicating the costs of subsidized fuel. For instance, energy costs account for 0% of the total operating costs of Sana'a and Hodeidah LCs, as fuel was permanently supplied on a monthly basis via the UNICEF, exempting these LCs from massive overloads of running costs. Unlike Ibb LC, which has not been supported by fuel during this quarter, was enforced to bear inflated costs on average of 260 YER/m³ sharing roughly 52% of the total operating costs.

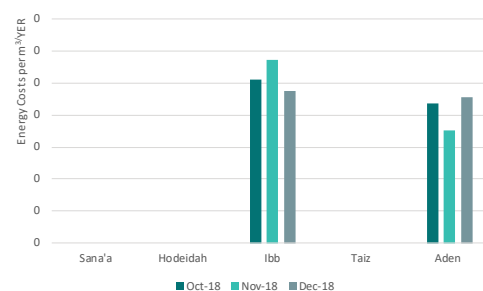
Taiz LC is similarly another fuel recipient wholly subsidized by the World Food Program 'WFP' to maintain the basic water supply for almost free of charge, despite the fact that the LC remains financially vulnerable to tolerate other operating expenses.

In this quarter, Aden LC reimbursed altogether the costs of the public electricity and fuel at a doubled average price 208 YER/m³ compared with the 3rd Quarter, which accounts for an intolerable proportion of the total operating costs, explaining the extent to which energy costs block other liabilities.

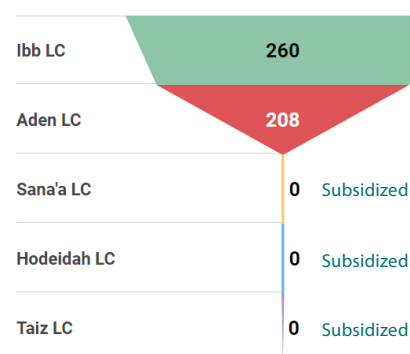
Reduction on energy expenses⁷

The water utilities have to be released from their staggeringly huge power costs. Options to resume public power supply have to be investigated provided that suitable prices per kWh are applied. If security or other constraints do not allow for public electricity supply, alternatives should be found. Some of the LCs, like Dhamar, Hudaydah, and Sa'ada introduced pilot projects for the use of solar power for operating wells. The necessary investments for solar power measures have been estimated and incorporated in the investment plan for those LCs where it is applicable. In Dhamar, Hudaydah including the affiliated utilities, Abyan, Lahij, Aden and Sa'ada solar power would be a suitable alternative to the generators. First estimations indicate that the use of solar systems would reduce the operational cost by about 30 % of current electricity cost. Other options for other alternative energy sources as wind energy, geothermal energy, and biogas have to be investigated through Feasibility Studies individually for the LCs as outlined in more details in Chapter 6.4.3.

10. Energy cost per m³ of water produced (YER/m³)⁶



Average energy cost (YER/m³)



6. 1 Euro € ≈ 817 YER

1 US \$ ≈ 718 YER (Dec, 2018)

Source: InfoEuro (http://ec.europa.eu/budget/contracts_grants/info_contracts/infoeuro/index_en.cfm)

7. GIZ IDWS/Damage Assessment Study DAS Stage 3 – Part 1: Resilience Strategy Report – Enhancing the Resilience of the LCs during Conflict and in Post-conflict Scenario - 2018

e. Performance of pumps and generators

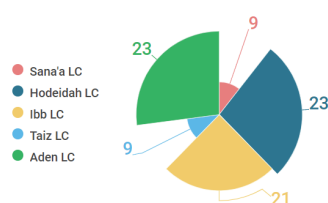
The everlasting outage of the national power system has yet created additional stress for the LCs in dealing with water production and supply. In parallel, relief organizations have provided urgent consumables and equipment such as spare parts, pumps, generators for empowering the LCs' resilience to assume adequate service delivery. The LCs were also challenged, on the other side, to pursue the optimum functionality and momentum of their electromechanical assets for sustainability.

In this quarter, LC Sana'a has deployed 53 of the 104 main pumps (51%) to maintain the water production rate by an average of 9 hours a day. In lieu of that, certain indications of insufficient running pumps combined with other parameters such as the water resources scarcity and depth of wells might also have a direct interplay with the performance of service provision (twice a month only). In relevant circumstances, the LC must set up substantial operational plans to assign additional water wells equipped with suitable production system to scale up the frequency of water supply.

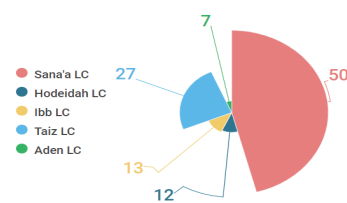
Meanwhile, Hodeidah LC was only able to operate on average 24 out of 41 main pumps at a low performance by (-5%) compared with the 3rd Quarter. This can be regarded to the highest records of pump failures due to overworking (23 hours a day) and lack of preventive and regular maintenance measures. On the contrary, Ibb LC was able to steadily employ the full capacity of the water production to run approximately 85% of the main pumps at 21 hours per day and to maintain a reliable supply for most of the city. Taiz LC was capable to run an extra number of operational pumps to achieve an increment in water production rates this quarter from 6 to 9 hours a day in spite of the fragile access security to operating wells.

Compared to other LCs, Aden LC operated about 93 of the 126 water pumps for water production on average 23 hours a day. This promising capacity of running pumps and production can also be viewed as a triple privilege for Aden LC in terms of regular inspection and maintenance, the availability of the public electricity system and the minimal dependence on electric generators (7 generators only).

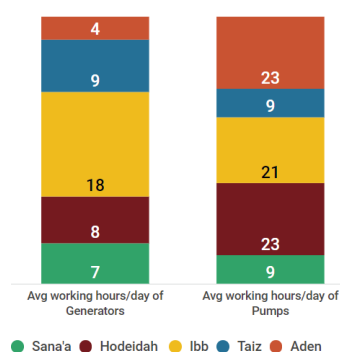
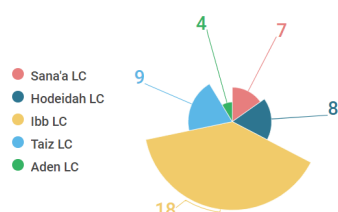
14. Number of working hours of all operating pumps that pump water (h/day)



15. Number of working generators in the operation of pumps.



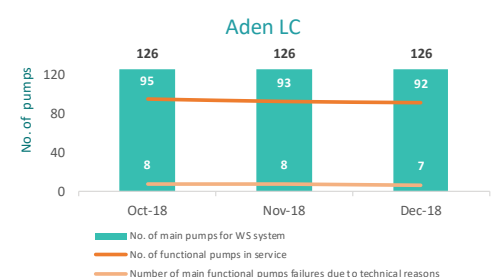
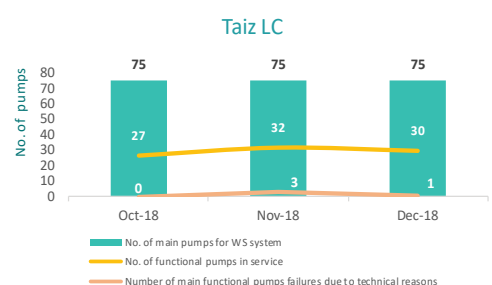
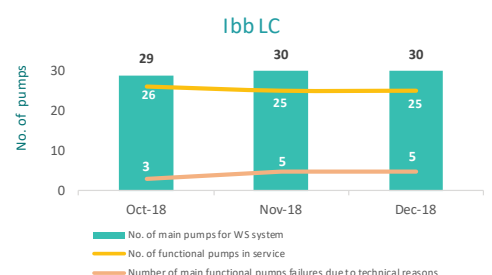
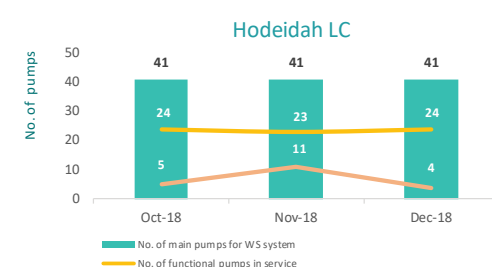
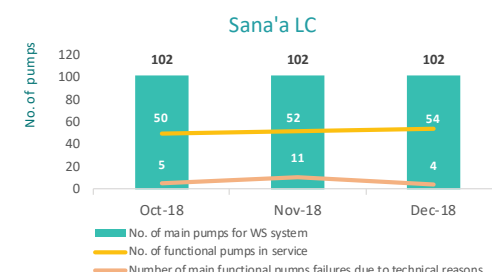
16. Number of working hours of all operating generators used to run the functional pumps that pump water (h/day).



11. Number of main pumps for the water supply system⁸

12. Number of functional water pumps in service

13. Number of main functional pump failures due to technical reasons (-/month)



8. The number of pumps represent the pumps in well fields and in pumping station in network.

f. Financial Viability

The collection ratio reflects the level of importance the LC management pays to improved services, the efficiency of the LCs' staff in performing their duties and the level of consumers' willingness to pay. Depending on the tariff and customer structure, revenues from water sales, sanitation and new connections are in normal circumstances; the main source of revenue for the LCs and, if collected efficiently, would be sufficient to cover the total operating costs. These comprise costs for monthly running expenses like salaries, fuel, electricity, spare parts for O&M and some minor other costs. Salary and fuel are the highest cost factors in the overall operating costs leading to a reduced budget for the necessary activities.

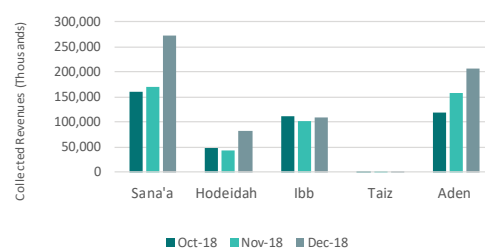
As a result of ongoing efforts to enhance their financial resources, service charges were effectively billed by Sana'a LC since beginning of 2018. The GIZ Water Program also supported the LC with Personal Digital Assistance (PDAs) to improve the effectiveness of billing collection. This improvement was associated in this quarter with 77% increase in collection efficiency and 25% in collected revenues from the customers, in addition to collecting part of the old and outstanding debts balances in December 2018. The LC was costly exempted from the energy supplies constantly subsidized by the UNICEF to insure full cost coverage overstepped in this quarter 100% on average.

Hodeidah LC's collection efficiency had improved by 17% over the 3rd Quarter despite the security turmoil in the city. The LC has also incurred enormous operating costs with an average deficit in cost coverage of 81%. Ibb LC was financially experiencing soar in running costs by 34 % in conjunction with a steady average collection efficiency of 91%. This, indeed, was reflected in the ability to cover only 54% of operating costs (16% drop).

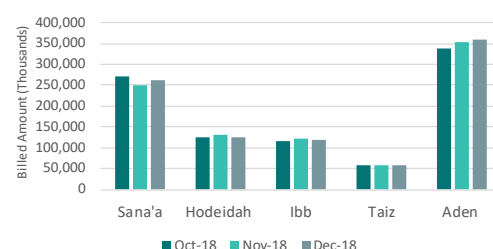
To this moment, since energy costs and salaries are externally subsidized. Taiz LC does not rely in fact on water sales and revenues to cover their operating costs (3%). Nonetheless, the low collection efficiency of 2% clearly indicates inactive reading and billing procedures, lack/ damage in meters connections and infrastructure. In light of the external mobilization to support the LC through the rehabilitation of the water and sewer networks and installation of new connections, the LC must simultaneously revitalize their financial viability and express their readiness to assume effective billing and collection management.

Despite the efforts paid by Aden LC to enhance their billing and collection system against the acceptable level of service provided to their customers. A slight drop in collection efficiency was recorded by 4% accompanied by 18% regress in costs coverage (23%) compared with the 3rd Quarter. The LC must gradually attempt to recover and skip from the state of conflict repercussion and strive for improved financial footing to withstand unexpected tragedies such as a discontinuity of external subsidy.

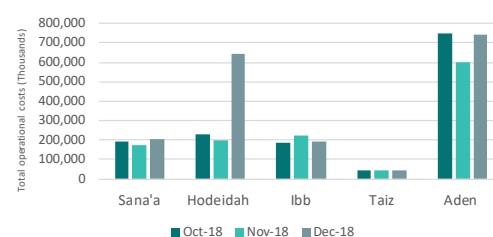
17. Collected revenues (YER/month)⁹



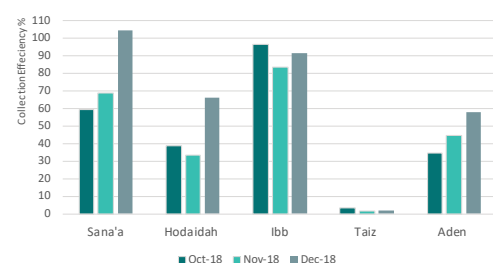
18. Billed amount (YER/month)



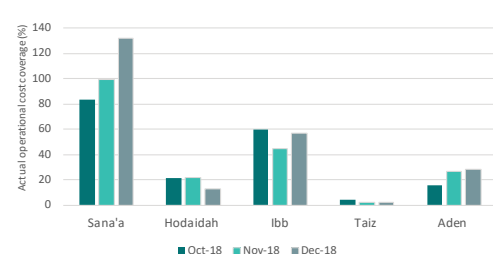
19. Total operational costs (YER/month)



20. Collected revenues vs. Billed amount (%)



21. Actual operational cost coverage (%)



9. Revenues including domestic, commercial & governmental collection

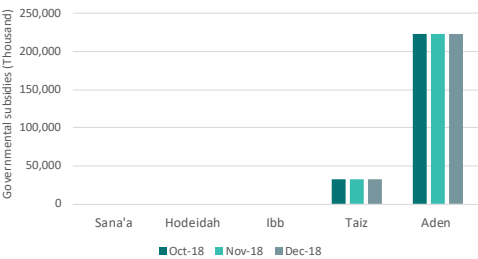
Monthly governmental subsidies

For fewer LCs, financial support is provided only in kind of emergency subsidies given the fact that investment support from the government has dropped dramatically since 2015. As an example, while most LCs depend entirely on their water sales, LCs of Aden and Taiz receive a fixed monthly allocation to pay their staff salaries from the Ministry of Finance ‘MoF’ in Aden. In this quarter, Aden LC has obviously received additional allocations by 18% from MoF to bolster their financial capacity.

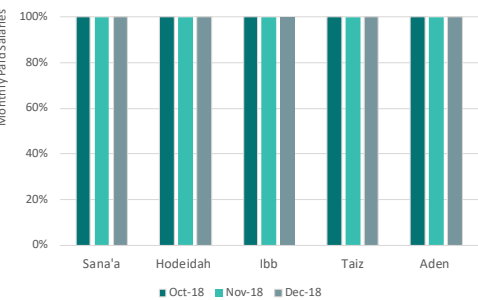
Percentage of basic monthly salaries paid (%)

Efficient coping strategy and external assistance have gradually enabled the LCs in managing salary payments, which varied significantly according to respective operational and financial conditions. It should be noted that payroll is reported for the actual payments received monthly by the employees, regardless of the fact that some LCs endure accumulated late payments of the basic salaries retroactively. In this respect, it was observed all the reported LCs were eventually capable to cover in this quarter 100% of monthly salaries, except LCs of Aden and Taiz, which secure their employee salaries from the Ministry of Finance on a regular basis.

22. Monthly governmental subsidies



23. Percentage of basic monthly salaries paid (%)



5 Resilience factors¹⁰

Disruptions of water supply and sanitation services can be caused by adverse effects on any one of the components that make up the service: people (e.g. skilled staff), hardware (e.g. infrastructure, equipment) and consumables (e.g. fuel, equipment, spare parts). Neither of these components is sufficient on its own. It is pointless having the spare parts required to repair electric generators, for instance, if the only technical staff able to install them are lacking the pertaining capacities and skills.

The LCs must increasingly strive to become more resilient and maintain services during/post-conflict. They must, therefore, address long-standing vulnerabilities in order to mitigate the cumulative effects of the conflict and gradually reduce their dependence on external short-term assistance.

At present, external assistance programmes, instead of sporadic crisis interventions, must seek to intervene in technical and investment measures. While these interventions may be essential during relief efforts, the resumption and strengthening of the LCs' capacity are equally synonymous with building resilience. It is the resilience that allows the LCs to maintain the reliable delivery of services in the short, medium and long-term. The table beside presents the identified resilience factors with their expected impact after the implementation of related activities.

RESILIENCE MEASURES AND IMPACT

Main Activity	Resilience Factor	Impact
Technical Assistance – Capacity building	Improve governance and management skills on top level.	<ul style="list-style-type: none"> • Support and guide the LC management during the crisis in the decision making of required actions and measures. • Enable managers and key staff to prepare and introduce customized policies and procedures to increase the performance of the utility. • Enhance the coordination and cooperation among the different stakeholders (donors). • Enhance monitoring, evaluation and accountability of the LC to increase the performance.
Technical Assistance – Capacity building, Financial support, Consultancy support, equipment support	Enhance the work capacity and skills of the employees. Human resource development	<ul style="list-style-type: none"> • Operate the utility more efficient and organized. • Improve coordination and cooperation among different departments. • Improve and increase the service for customers. • Manage professionally the exceptional work. Environment and the new technologies. • Reduce administrative water losses and increase revenue collection.
Technical Assistance – Financial support, Awareness building; Coaching, Investments	Strengthen the financial capacity of the utility.	<ul style="list-style-type: none"> • Ensure financial means at least to cover the minimum needs for operation of the utility. • Enable urgently needed repair and maintenance of the infrastructure. • Initiate pro-poor projects. • Keep motivated staff. • Enhance financial sustainability.
Technical Assistance – Awareness building, Operation Management Support	Improve customer management and customer relation.	<ul style="list-style-type: none"> • Increase service coverage and numbers of customers. • Enhance billing and collection procedures. • Increase collection efficiency and revenues. • Establish good customer relation to improve payment moral.
Investment – Rehabilitation, Maintenance, Extension	Increase water service coverage and supplied quantities.	<ul style="list-style-type: none"> • Increase water availability for urban residents. • Improve water supply condition. • Reduce physical water losses. • Increase number of customers. • Improve water quality.
Investment – Rehabilitation, Maintenance, Extension	Improve and extend sewer system.	<ul style="list-style-type: none"> • Improve hygiene and health situation for urban residents. • Protect environment and water sources. • Increase number of customers.
Investment	Provide renewable energy system (Photovoltaic).	<ul style="list-style-type: none"> • Operate water and sanitation facilities sufficiently. • Operate LC offices during working hours. • Reduce operation and maintenance costs.

10. GIZ IDWS/Damage Assessment Study DAS Stage 3 – Part 1: Resilience Strategy Report – Enhancing the Resilience of the LCs during Conflict and in Post-conflict Scenario - 2018

Annex Resilience Emergency Indicators Sheet Oct - Dec 2018

Urban Water Sector - Sana'a LC, Aden LC, Hodeidah LC, Ibb LC & Taiz LC

No.	Data / Indicator	LC	Unit	1 st Q			2 nd Q			3 rd Q			4 th Q		
				Jan-18	Feb-18	Mar-18	April-18	May -18	June -18	July-18	Aug -18	Sept -18	Oct-18	Nov -18	Dec-18
1	عدد السكان في المراكز الحضرية المخدومة من قبل مزود الخدمة (شهري في نهاية الشهر) Number of Population of urban centers	Sana'a	Cap	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334	2,821,334
		Hodeidah		655,686	657,452	659,223	660,999	662,780	664,566	666,356	668,151	669,952	671,756	673,566	675,381
		Ibb		396,786	396,786	396,786	391,557	391,557	391,557	391,557	391,557	391,557	391,557	391,557	391,557
		Taiz		700,049	701,983	703,922	703,916	705,210	706,506	707,805	709,106	710,409	711,715	713,015	714,315
		Aden		1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074	1,052,074
2	عدد النازحين الى مناطق امتياز مزود الخدمة (شهري في نهاية الشهر) Number of IDPs in the served Area	Sana'a	Cap	158,604	158,604	158,604	166,380	166,380	215,346	275,400	275,400	275,400	243,738	243,738	243,738
		Hodeidah		-	-	-	-	-	133,830	121,602	121,602	121,602	151,692	151,692	151,692
		Ibb		99,687	99,687	99,687	150,000	150,000	190,392	150,000	150,000	150,000	300,000	300,000	300,000
		Taiz		-	-	-	-	-	387,426	29,148	29,148	29,148	26,220	26,220	26,220
		Aden		-	-	-	-	-	50,178	8,088	8,088	8,088	6,636	6,636	6,636
3	عدد السكان المخدومين بالمياه من قبل مزود الخدمة (شهري في نهاية الشهر) Number of population served through water supply network	Sana'a	Cap	911,370	911,370	911,370	954,580	954,580	954,580	954,580	954,580	954,580	954,580	954,580	954,580
		Hodeidah		476,322	476,756	477,288	477,820	478,212	478,212	478,625	478,506	478,345	479,024	479,274	479,486
		Ibb		324,280	326,720	328,000	330,000	331,640	332,650	333,310	334,610	336,200	338,980	341,660	342,100
		Taiz		225,266	182,752	76,176	150,021	226,109	156,345	123,332	165,001	184,705	252,672	250,961	254,672
		Aden		781,254	784,920	786,456	921,004	923,202	923,832	924,840	926,289	926,310	928,375	930,741	933,093
4	نسبة عدد السكان المخدومين بالمياه من قبل مزود الخدمة من اجمالي السكان (شهري في نهاية الشهر) Water supply service coverage = population served through water supply network vs total population	Sana'a	%	32	32	32	34	34	34	34	34	34	34	34	34
		Hodeidah		73	73	72	72	72	72	72	72	71	71	71	71
		Ibb		82	82	83	84	85	85	85	85	86	87	87	87
		Taiz		32	26	11	21	32	22	17	23	26	36	35	36
		Aden		74	75	75	88	88	88	88	88	88	88	88	89
5	عدد ايام تزويد الخدمة خلال الشهر (تزويد المياه من خلال شبكة التوزيع) Number of service days of piped water supply per month	Sana'a	day / month	1	1	2	2	2	2	2	2	2	2	2	2
		Hodeidah		25	25	25	25	25	25	25	25	25	25	25	25
		Ibb		7	7	7	7	12	12	12	12	12	15	15	15
		Taiz		6	5	1	5	6	5	3	4	6	8	5	6
		Aden		18	18	18	18	18	18	18	18	18	14	14	14

No.	Data / Indicator	LC	Unit	1 st Q			2 nd Q			3 rd Q			4 th Q		
				Jan-18	Feb-18	Mar-18	April-18	May -18	June -18	July-18	Aug -18	Sept -18	Oct-18	Nov -18	Dec-18
6	إجمالي كمية المياه المضخة من خلال شبكة التوزيع Total Quantity of water pumped in the network	Sana'a	m ³ / month	496,906	383,908	819,326	804,320	855,672	686,021	835,225	791,194	783,839	477,222	702,124	813,093
		Hodeidah		1,135,689	935,422	1,081,749	1,051,616	1,077,058	1,040,184	858,594	864,086	916,727	1,030,222	981,850	1,046,615
		Ibb		510,892	510,922	479,325	524,057	476,644	512,375	448,593	440,696	421,887	382,533	418,281	407,567
		Taiz		95,920	68,065	24,980	67,011	131,566	91,625	77,022	69,182	93,722	145,145	120,294	127,659
		Aden		3,291,000	3,103,000	3,406,000	3,358,777	3,616,639	3,179,221	3,369,701	3,426,156	3,206,819	3,427,110	3,383,816	3,273,520
7	نصيب الفرد من المياه المضخة في الشبكة Per capita quantity of water pumped in the network	Sana'a	l / cap / day	18	14	29	27	29	23	28	27	26	16	24	27
		Hodeidah		77	63	73	71	73	70	58	58	62	69	66	70
		Ibb		51	50	47	51	46	50	43	42	40	36	39	38
		Taiz		14	12	11	14	19	19	20	14	16	19	15	16
		Aden		136	128	140	118	126	111	118	119	112	119	117	113
8	تكلفة الطاقة لكل متر مكعب منتج من المياه خلال الشهر Energy Costs per m ³ water produced	Sana'a	YR / m ³	0	0	0	0	0	0	0	0	0	0	0	0
		Hodeidah		46	50	90	0	0	0	0	0	0	0	0	0
		Ibb		171	171	183	167	184	171	165	206	195	256	287	237
		Taiz		0	0	0	0	0	0	0	0	0	0	0	0
		Aden		90	108	111	111	93	152	113	129	98	219	177	227
9	الطاقة التخزينية الشهرية المتاحة Storage capacity	Sana'a	m ³	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000
		Hodeidah		25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
		Ibb		4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
		Taiz		11,500	11,500	11,500	22,002	22,002	22,002	22,002	22,002	22,002	22,002	22,002	22,002
		Aden		94,783	94,783	94,783	94,783	94,783	94,783	94,783	94,783	94,783	94,783	94,783	94,783
10	نصيب الفرد من الطاقة التخزينية المتاحة Storage capacity share per capita	Sana'a	l/cap	40	40	40	38	38	38	38	38	38	38	38	38
		Hodeidah		52	52	52	52	52	52	52	52	52	52	52	52
		Ibb		12	12	12	12	12	12	12	12	12	12	12	12
		Taiz		51	63	151	147	97	141	178	133	119	87	88	86
		Aden		121	121	121	103	103	103	102	102	102	102	102	102
11	إجمالي عدد المضخات الرئيسية Total number of main pumps for the water supply system	Sana'a	No.	102	102	102	102	102	102	103	104	105	102	102	102
		Hodeidah		41	41	41	41	41	41	41	41	41	41	41	41
		Ibb		29	29	29	29	29	29	29	29	29	29	30	30
		Taiz		75	75	75	75	75	75	75	75	75	75	75	75
		Aden		126	126	126	126	126	126	126	126	126	126	126	126

No.	Data / Indicator	LC	Unit	1 st Q			2 nd Q			3 rd Q			4 th Q		
				Jan-18	Feb-18	Mar-18	April-18	May -18	June -18	July-18	Aug -18	Sept -18	Oct-18	Nov -18	Dec-18
12	عدد المضخات الرئيسية العاملة والتي تضخ المياه خلال الشهر Number of functional pumps in service	Sana'a	No.	43	36	54	54	56	55	54	54	52	50	52	54
		Hodeidah		29	29	29	29	29	29	26	26	26	24	23	24
		Ibb		26	26	26	26	26	26	26	26	26	26	25	25
		Taiz		31	27	19	24	28	28	20	16	27	27	32	30
		Aden		90	100	106	94	93	93	95	93	92	95	93	92
13	عدد ساعات عمل (تشغيل) المضخات (كل المضخات العاملة والتي تضخ المياه) في الشهر Number of working hours of all operating pumps that pumps water	Sana'a	h / month	9,828	7,764	13,837	16,974	18,623	15,477	18,326	17,412	17,118	10,317	14,887	17,958
		Hodeidah		19,550	15,780	17,927	17,759	18,352	18,242	15,206	15,539	16,242	17,145	16,134	16,976
		Ibb		14,391	14,392	13,502	15,720	15,720	15,720	16,260	16,260	16,260	16,260	16,260	16,260
		Taiz		5,302	3,797	1,264	3,610	7,227	4,694	3,977	4,261	5,798	8,886	7,622	7,303
		Aden		64,601	64,682	64,366	61,931	64,533	59,079	61,053	61,243	57,670	64,469	64,587	64,478
14	عدد الإعطال الناتجة عن اسباب فنية خلال الشهر للمضخات الرئيسية العاملة في ضخ المياه Number of main functional pumps failures due to technical reasons	Sana'a	/ month	6	4	7	12	5	6	7	6	8	5	11	4
		Hodeidah		8	10	7	16	12	8	14	15	13	10	12	8
		Ibb		3	3	3	3	3	3	3	3	3	3	5	5
		Taiz		0	4	1	2	1	0	0	4	0	0	3	1
		Aden		-	-	-	7	5	9	8	8	9	8	8	7
15	عدد المولدات العاملة في تشغيل المضخات Number of working generators in the operation of pumps	Sana'a	YR / month	6	6	49	52	52	52	52	52	49	47	52	52
		Hodeidah		11	11	11	11	11	11	10	10	10	12	12	12
		Ibb		12	12	12	12	12	12	12	12	12	12	13	13
		Taiz		27	26	18	23	26	26	18	14	26	26	27	27
		Aden		-	-	-	6	6	6	6	6	6	7	7	7
16	عدد ساعات عمل (تشغيل) المولدات (كل المولدات العاملة المستخدمة في تشغيل المضخات لضخ المياه) خلال الشهر Number of working hours of all operating generators used to run the functional pumps that pumps water	Sana'a	No	2,548	2,205	9,127	12,533	15,406	12,178	14,709	13,115	13,361	7,071	11,134	13,690
		Hodeidah		2,701	2,921	3,130	5,484	5,490	5,420	2,211	2,197	2,683	2,574	3,407	3,040
		Ibb		4,912	4,913	4,609	7,140	7,140	7,140	7,080	7,080	7,080	7,080	7,080	7,080
		Taiz		5,302	3,797	1,264	3,643	7,307	4,759	4,004	3,481	5,005	8,108	7,610	7,286
		Aden		-	-	-	878	930	1,235	1,512	1,566	1,566	815	933	824
17	قيمة الإيرادات الشهرية المحصلة Collected revenues	Sana'a	YR / month	107,995,495	126,904,963	120,528,387	137,281,901	136,472,408	117,608,430	159,634,358	137,172,315	154,667,829	159,907,925	171,139,196	272,061,627
		Hodeidah		75,224,010	74,474,656	78,612,051	69,441,783	56,829,220	31,159,535	45,203,460	63,793,432	31,489,736	48,422,794	43,314,119	82,068,907
		Ibb		111,929,351	105,317,621	104,125,088	101,655,753	103,695,045	90,430,797	128,283,843	95,703,011	112,597,492	112,004,637	101,552,406	108,718,178
		Taiz		245,000	301,000	511,500	649,880	1,284,000	1,442,980	1,311,600	1,800,000	2,017,000	1,970,000	1,022,800	960,500
		Aden		124,455,515	116,641,407	124,485,813	122,502,882	103,572,012	70,329,130	257,358,780	111,440,948	99,503,244	118,021,981	57,873,571	07,371,527

No.	Data / Indicator	LC	Unit	1 st Q			2 nd Q			3 rd Q			4 th Q		
				Jan-18	Feb-18	Mar-18	April-18	May -18	June -18	July-18	Aug -18	Sept -18	Oct-18	Nov -18	Dec-18
18	قيمة الإيرادات الشهرية المفوترة (قيمة مبيعات المياه الشهرية المفوترة) Billed amount	Sana'a	YR / month	233,018,823	233,098,029	242,708,174	250,412,935	263,701,936	247,407,726	251,603,779	254,069,346	262,151,806	269,968,942	249,191,685	260,937,161
		Hodeidah		130,297,953	114,570,797	120,689,068	129,545,587	127,783,997	126,588,513	129,199,752	118,378,877	122,962,007	125,497,422	129,962,358	123,799,959
		Ibb		122,096,750	128,118,681	115,575,324	130,903,158	127,062,768	136,595,765	124,378,480	124,786,029	120,162,710	115,926,023	121,345,328	119,144,687
		Taiz		58,405,496	58,405,496	58,405,496	58,451,610	58,451,610	58,496,464	58,526,717	58,564,106	58,619,550	58,619,550	58,619,550	58,619,550
		Aden		369,991,199	366,253,993	351,006,382	340,342,134	332,527,223	312,926,450	327,895,831	339,928,507	270,000,000	339,208,660	354,634,839	358,116,216
19	إجمالي التكاليف التشغيلية Total operational costs	Sana'a	YR / month	151,830,890	190,576,588	179,967,557	191,909,769	291,525,780	165,837,810	203,047,692	182,243,220	170,679,087	191,041,311	172,364,219	206,708,790
		Hodeidah		144,669,788	113,378,469	163,237,192	113,901,721	155,577,191	231,132,726	161,803,261	305,816,091	238,850,024	229,731,990	198,047,896	644,181,821
		Ibb		148,877,285	158,482,479	156,139,001	147,175,871	155,121,489	177,786,575	148,976,661	170,933,038	162,495,622	188,090,192	226,148,600	192,244,805
		Taiz		22,678,776	20,211,550	9,193,500	18,434,803	38,094,600	26,388,450	24,842,750	7,116,000	7,118,800	43,490,208	43,104,800	44,121,200
		Aden		295,909,085	336,166,277	0	371,889,702	335,662,317	482,614,742	379,381,281	442,794,696	315,080,741	750,013,716	597,597,009	744,210,249
20	نسبة التحصيل Collected revenues vs billed amount	Sana'a	%	46	54	50	55	52	48	63	54	59	59	69	104
		Hodaiah		58	65	65	54	44	25	35	54	26	39	33	66
		Ibb		92	82	90	78	82	66	103	77	94	97	84	91
		Taiz		0	1	1	1	2	2	2	3	3	3	2	2
		Aden		34	32	35	36	31	22	78	33	37	35	45	58
21	التغطية التشغيلية المحصلة للكلفة Actual operational cost coverage	Sana'a	%	71	67	67	72	47	71	79	75	91	84	99	132
		Hodaiah		52	66	48	61	37	13	28	21	13	21	22	13
		Ibb		75	66	67	69	67	51	86	56	69	60	45	57
		Taiz		1	1	6	4	3	5	5	25	28	5	2	2
		Aden		42	35	-	33	31	15	68	25	32	16	26	28
22	قيمة الإعانات (المعونات) الحكومية الشهرية لمزود الخدمة Monthly governmental subsidies	Sana'a	YR	0	0	0	0	0	0	0	0	0	0	0	0
		Hodeidah		0	0	0	0	0	0	0	0	0	0	0	0
		Ibb		0	0	0	0	0	0	0	0	0	0	0	0
		Taiz		33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000	33,000,000
		Aden		182,146,000	182,146,000	182,146,000	182,146,000	182,146,000	182,146,000	182,146,000	182,146,000	182,146,000	223,309,328	223,309,328	223,309,328
23	نسبة الرواتب الأساسية الشهرية المدفوعة للموظفين Percentage of basic monthly salaries paid	Sana'a	%	50%	50%	50%	50%	50%	50%	50%	100%	50%	100%	100%	100%
		Hodeidah		0%	0%	0%	50%	50%	50%	100%	100%	50%	100%	100%	100%
		Ibb		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Taiz		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
		Aden		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

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