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Governance Strengthening Project
(GSP)

Diyala Water

Service Delivery Improvement Plan (SDIP)

Prepared by

Diyala Water Directorate

In cooperation with

GSP/Taqadum

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Diyala - Iraq

1. Introduction

- The Service Delivery Improvement Plan (SDIP) is a strategic work plan designed to address a variety of management issues, with the aim of improving the delivery of Water services in the field of primary Water services in the province of Diyala, and to empower the Department to achieve its short, medium and long term objectives. The SDIP plan will enable the development of a long-term vision for the management of the department and at the same time will ensure that the issues will be day after day under control. This plan includes the planned application of resources in order to achieve these goals and also aims at helping Diyala Water Department in addressing issues related to improving its performance and providing better services to citizens. In addition, this plan is based on the achievements of the Water Department, and consists of two phases:-
- The first stage is to determine the status of Networks, operation and management of the available resources in Diyala, the district center of Baquba.
- The second stage is to come out with the (SDIP) plan to address issues related to delivery of Water services performance and to provide immediate and long-term solutions to the deficiencies, if any.

Administrative boundaries of Diyala Province

Diyala lies to the east of the capital, Baghdad, and located about 57 km away, with the Diyala River running through it. The river flows from Iranian territory and pours into the Tigris River. Diyala is famous for the cultivation of citrus fruits. The Baquba district is the provincial center and affiliated to it are the district of Balad Ruz and Muqdadiyah, which is famous for the cultivation of pomegranates, Khanaqin and Khalis. the province is also famous for Hamrin Mountainous series and its beautiful basin. The province also houses Diyala Dam and Lake Hamrin.

Executive Summary:

The current analysis mechanisms used in reviewing performance indicators of Diyala Water Directorate in providing services, compared with national standards, to ensure quality and sustainable services and timely response to citizen complaints and requests, have resulted in a set of basic elements and a set of immediate and long-term solutions that will improve service delivery to citizens, as follows:-

Management of water service delivery is an important and effective element in promoting healthy society by ensuring suitable environment which reflects positively on the growth of the economy and health of society. On the other hand, lack or bad services would affect negatively on the society public health. Service management is based on vital elements which should be effectively and efficiently invested to provide integrated services with high quality to citizens.

Other important elements are financial resources (investment and operational budget, revenues from rentals and sale of municipal properties, etc.), human resources (the directorate employees, engineers and those who work in municipal sectors) and other resources such as equipment and vehicles. Financial resources are not the only element that governs and directs the delivery of services; rather, the management of these resources through organized processes and preplanning are also important. All these would achieve the goals of the Directorate and local government, as well as the national strategic goals.

It is worth noting that financial integration of the Directorate with other service sectors and the preparation of the operational budget in consistent with the investment budget have a positive effect on the efficiency and sustainability of services.

Finding a scientific and rational balance between the costs of producing pure water unit compared with wages earned for each unit of consumed water so as to ensure the economic viability and optimal use of resources and the sustainability and operation of projects.

4. Stages of work on the service delivery improvement plan:

Diyala Water Directorate and in cooperation with USAID GSP/Taqadum program completed the gap analysis model developed by Taqadum program to actively contribute to the gap analysis. The importance of gap analysis in the services provided to citizens is that:-

1. The use of the scientific method in the analysis of all elements that cause gap in the indicators of the services provided to citizens compared with the value of standard.
2. Determine the priority of the elements influencing the gap in services through the power of their influence.
3. Put the proposed immediate and long-term solutions to address the elements the gap in order to minimize it.
4. The results of the analysis which represent proposed immediate and long-term solutions will be the input for the preparation of relevant service delivery improvement plan in the province.

Diyala Water Directorate has relied on the use of measurements rates that have been collected in the 16 administrative units with a focus on the most vulnerable units in order to develop effective solutions to reduce the gap and improve the services provided to citizens through the immediate and long-term solutions. The successful use of the model will lead to get accurate results that help determining the right and realistic and executable solutions in reducing the gap and improving the service.

Analysis of elements causing the gap in the service performance:

It Included analysis of (14) elements that are associated with one of the service standard listed previously and relating to the administrative, legal, financial, technical aspects where after completing the analysis, weaknesses or deficiencies were identified in each element and the proportion of its influence in the gap, and thus the most influential elements in the events of the gap were chosen. Diyala water directorate identified these elements and developed immediate and long-term solutions that effectively contribute to the reduction of the value of the gap. In the next chapter, all performance indicators will be analyzed in comparison with standard via using elements analysis in detail, and finally to develop solutions for the elements of the most influential events in the gap. Annex No. 1 includes a guide to use gap analysis of the services provided to citizens which was applicable by Diyala Directorate of Water.

5. Gradual approach

The (SDIP) includes the following questions:

1. Where are we now?
2. Where do we want to be?
3. How can we get there?
4. How can we ensure success?

"1-5 "Where are we now?

To answer this question, it requires a comprehensive and objective review and a review of the current state of performance and practices of water departments in Diyala and should be measured through key performance indicators. The data related to 'Where are we now? "Can be obtained by using the relevant technologies.

First: ((SWOT analysis by diagnosing strengths -weakness, -opportunities-threats.

Second: Key Performance indicators analysis - these two techniques help to understand and summarize the environment and the performance of the Directorate.

The SWOT analysis helps to identify realistic short, medium and long-term goals in order to:

• Correct weaknesses

• Enhance strengths

• Prevent threats

• Seize opportunities

• Achieve vision

SWOT Analysis of Diyala directorate of water

Strengths

1. The existence of three central water treatment plants in the province center, there are 26 central water treatment plants, in addition to 142 water treatment plants and water compact units.
2. There are four central water treatment plants in progress (Bani Saad water project, Jadeed Al-Shat water project, Al-Salam and Sarajek Al-Mansooriya water treatment plant and Saddat Al-Juboor water treatment plant.
3. There are skilled and experience cade managing and executing central water treatment plants, water compact units, networks and conveyance lines.
4. GIS system is in place .There are a technical training center to train directorate of water staff.

5. The existence of a central laboratory in the directorate to examine the raw water and the produced water to ensure its conformity with the standard specifications.
6. The existence of infrastructure, such as conveyance lines which covers most of the province areas.
7. The availability of 140 tank trucks to distribute water to the citizens of the remote and non-serviced villages.

Weakness

1. Outage of raw water supply to water treatment plants and water compact units, in most of the province areas that is due to security situation.
2. Aging water treatment plants and water compact units, filters and pumps.
3. Lack of labs in the districts and sub-districts and insufficient number of lab technicians, such as chemists and biologists.
4. Link central water treatment plants to the National emergency grid.
5. Levy water service charges according to water meters not current estimated system, in order to identify the actual consumption of water.
6. Lack of modern water leak detectors to detect broken pipes and leakage to reduce wastes of drinking water.

Threats

1. Outage of raw water supply to water treatment plants and water compact units based on Diyala River and its branches, due to the security situation.
2. Outage of power supply feeding water treatment plants, water compact units and water networks, which are power-dependent**,** voltage fluctuation,
3. Pollution due to military operations causing oil leak and deteriorated security status.
4. Illegal use and unauthorized tapping to conveyance lines.
5. Irregular and unofficial water subscriptions, most of citizens abstain to pay water service charges resulting in poor revenues.
6. Poor citizens' awareness to rationalize consumption of water.
7. Poor follow up by local councils to control illegal use and unauthorized tapping to water networks.

Opportunities

There is an overall attention by the GO and the PC to execute integral infrastructure projects including installation of new water networks, communication network, storm water networks, paving roads and streets, in addition to electricity works, these work will reduce the gap pertaining the coverage of the water networks .There are currently a

number of projects in progress, such as (rehabilitation of Quarter 307 and quarter 313 and quarter 305.

2-There are central strategic water treatment plants in progress, which will highly contribute in supplying citizens with drinking water.

Second, the performance indicators:

Taqadum project works on providing support for local government to improve the oversight process and monitoring the services delivery down to raise the level of services provided to citizens through the adoption of standard measurable criteria, similar to the rest of the civilized world. Standards-based service delivery stands on 6 key bases in drinking water service as an essential service which should be accessed both quantitatively and qualitatively and through the following standard and indicators:-

1. Service Coverage
2. The amount of water provided per capita
3. Continuity of service
4. Quality of supplied water
5. Measuring supplied water
6. Dealing with citizens' complaints

Diyala Water Directorate has adopted work according to these standard and indicators were provided at the level of the province, districts and sub-districts. The performance indicators have been reviewed in comparison with the standards standard and diagnose the weaknesses and determine the value of the gap and make recommendations that contribute to improve the performance of service delivery across the province.

- **Coverage indicator: People served with direct connection to the net**

The reality of the coverage of water networks in the districts center of Baquba is 96 %, which is the value of the coverage indicator for and the value of the gap is 4%, which is a very good rate, however there are a number of projects water nets, in progress in the district center and rehabilitation of aging water networks.

Elements causing gap and their impact:

1. **Human resources:** There is a need to increase the number of the existing number of the engineers, who are over sighting the network projects. The effect of this element on the gap is low.
2. **Financial issues:** The funds allocated to undertake laying out networks are funded by the regional development funds ; the funds allocated to execut laying out network projects are allocated within the rehibilation of the overall infrastructure of the included neighborhoods, layout of networks are included

within other works, such as layout of communication networks ,pavement of roads and streets and electricity works. This is what actually happing in the rehabilitation of infrastructure works concering the alleys No. 313 and 307 , Al-Hasan street project and the technical institute street project . For example lay down of networks shall be included within those peojcts , even if the old networks in the targeted neighborhoods are new or old , if the old networks do not require replacement this will result in waste of funds . As for the operational budget which is insufficient to execute layout of water networks, for most of the the directorate's operational resources are from (Ministries and directorate's revenues) and expended on paying of daily wages, emergency maintenance works, and procurement of necessary materials to water treatment plants and water compact units . Allocate cash funds to execute the vested authority (100) million Iraqi dianr (Operational budget for expending items concerning commodities , maintenance and operation) depending on the population density . The effect of this element on the gap is high .

3. **Infrastructure**: This element has no effect on the gap.
4. There is a need to increase the provison of pipes and their accessories "Joints" to coonect close neighborhoods to the network. Within the operational budhet of 2013 , the directorate has executed connection works to water treatement palnsts and water comapcts units at a length of 67.7 Km, throughout Diyala province .In 2015 there was a need for pipes at a leghth of 80 Km ,with their accessories ,within the operational budget . In order to translate the figures to funds 2,850,000,000 Two billion ,eight hundred and fifty million Iraqi dianr was expended to connect water compact units and near neighborhoods to the networks and fix broken pipes . Baquba district received the highest share of the above cited amout , 1,600,000,000 / One billion and six hundred million Iraqi dinar allocated from the operational budget . The optimal need for 2015 is 5,850,000,000 Five billion and eight hudred and fifty million to cover the need for fixing broken pipes and comnnecting new neighborhoods and water compacts units to networks and carrying out maintenance for networks .
5. **Capacity building**: The effect of this element on the gap is low.
6. **Technical obstacles**: Water networks routes overlap with other services, such as, sewage lines, communication lines and septic tanks. The effect of this element on the gap is medium.
7. **Authorities** : Financial authorities , there is a need to expand the director financial authorities, that are 100 million Iraqi dinar expended from the operational budget , allow him to spare part of the funds to purchase pipes and their accessories to connect new neighbors to the water nets and repair broken pipes . The effect of this element on the gap is medium.

8. **Coordination**: There is a dire need for more coordination with other concerned services departments, such as electricity, sewage, water resources and communications to avoid or prevent overlapping among their works. The effect of this element on the gap medium.
9. **Political interventions**: There are some political interventions represent in changing some of the specifications of the water work nets ,which opposes the technical opinion . The effect of this element on the gap is low.
10. **Misuse of resources:** Illegal use and unauthorized tapping to water networks by citizens , irrigation of crops and car washing units from water networks and stores ,without obtaining required approvals and subscriptions ,which require activation of legislations and laws to lift violations and impose fines ,such as the decision No. 296 of 1990 ,which vests .Absence of follow up to lift these violations , there are no laws in place against Illegal use and unauthorized tapping to water networks . There is a need to vest the governorand head of administrative unites the authority to impose fines against trespassers. The effect of this element on the gap is high.
11. **Maintenance and operation:** Illegal use unauthorized and improper tapping to water networks by citizens in neighborhoods establish in rural areas that are not served by networks , which resulting in broken networks , anuthorized tapping by industrial and occupational stores to the network ,which is resulting in hudge damages to the network requiring to unjustified maintenance works ,waste of funds and time . The effect of this element on the gap is high.
12. **Security situation:** Deteriorated security situation has resulted in damages in water networks, halt or delay of maintenance works. The effect of this element on the gap is high.
13. **Logistic support**: There is a need to supply the requirement of occupational safety and financial support to the outstanding staff. The effect of this element on the gap is medium.

Based on the above explanation, the following elements have the highest impact on the gap: 1) Financial resources (2) Equipment (3) Misuse of resources (4) Security situation.

S.No	Standard	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to reducing the value of the gap, according to the priority	Immediate solutions	Long term solutions
1	Service coverage (People served through direct connection to the networks	Financial issues	1-Increase the directorate revenues by bolstering collection means. 2-Reasonable increase of water service charges. 3- Collect water service charges from slum areas.	Increase the financial allocation of the investment budget and regional development funds ,in order to establish water treatment plants ,water networks and RO plants to produce bottled water to increase the directorate revenues
		Equipment	Increase the number of supplied pipes and joints to enable the directorate to connect new neighborhoods to the water network	Increase the financial allocation of the operational budget to purchase connection. requirement and Increase the financial allocation of the investment budget excavators

		Misuse of resources	1-Active the instructions on the imposing fines to enable head of administrate units to impose fines against trespass ,according the decree No. 296 dated on 1990 2-Cooperate with the GO to instruct the security agencies to lift illegal use and unauthorized connection by car wash stations, farmers, stores and factories. to the networks. 3- Organize duly subscription transactions to new houses establish in rural areas.	
		Security situation	There are no remedies at the present time	There are no remedies at the present time

Indicator of amount of supplied water, The National standard for the amount of water supplied per capita per day (Liter/ day / person) is 450 liters / day in the center of the city ,but Diyala directorate of water has adopted 300 and 360 (Liter/ day / person ,as a standard, for the central projects established in Baquba district center serving rural areas (villages and districts) located outside the city center ,therefore the standard 300 (Liter/ day / person) was adopted as a rate ranging from 250 to 450 liter .

The reality of the coverage of water networks in Baquba district center is 266 (Liter/ day / person), accordingly the value of the gap is 12%. The real problem facing this indicator is the scarcity of water and outage of raw water feeding central water treatment plants and water compact units in addition to the security situation causing damage to water facilities.

Currently, there are 26 central water treatment plants, in addition to 142 compact units throughout the province. As for Baquba district there are two central water treatment plants, the capacity of the first one is 3200 m^3 /h and the second is 400 m3 /^{h} and 8 water compact units. The total produced amount in Baquba district is 71520000 L/day.

Elements causing gap and their impact:

1. **Human resources** :There is a need to increase the number of engineering staff ,in particular (Chemical engineer , electrical engineer ,and mechanical engineer) to operate and maintain the water treatment plants , also there is a need for more drivers to drive the water trucks and specialized trucks amounting at 140 water trucks (110 are operable and 30 are inoperable) The effect of this element on the gap is low.
2. **Financial issues**: Poor funds allocated in the operational, investment and regional development funds to establish central treatment projects and poor revenues. The effect of this element on the gap is high.
3. **Infrastructure:** Aging water treatment plants and water compact units that are requiring rehabilitation and regular maintenance, also the Programmable Logic Controller is inoperable. The effect of this element on the gap is medium.
4. **Equipment**: Poor provision of fuel to operate the generators during power outage and shortage of voltage converters to address voltage fluctuation.
5. **Capacity building**: Poor capacity buildings of the operators and maintenance staff, who all lack required qualifications. The effect of this element on the gap is low.
6. **Technical obstacles**: Aging filters, inoperable generators and Programmable Logic Controller. The effect of this element on the gap is high.
7. **Authorities**: Lack of financial, legal and technical authorities. The effect of this element on the gap is medium.
8. Coordination: There is a need to increase the coordination with electricity department to supply water treatment plants and water compact units with stable power and electrical current and to coordinate with the directorate of water resources to supply continuous and sufficient quantities of raw water. The effect of this element on the gap is medium.
9. **Political interventions**: There are some political interventions represented in the noncompliance to priority lists in establishing water treatment plants and water compact units. The effect of this element on the gap is low.
10. **Misuse of resources:** Illegal use and unauthorized tapping to water networks and conveyance lines by citizens, irrigation of crops and car washing units from water network, causing waste and pollution of water. The effect of this element on the gap is medium**.**

11. **Maintenance and operation**: Absence of preventive maintenance, depending just on contingent maintenance .There is a need for regular maintenance to sustain the continuity of operation. The effect of this element on the gap is high.
12. **Security situation**: The security situation has a direct and negative impact on carrying out maintenance. The effect of this element on the gap is low.
13. **Logistic support**: There is a need to supply spare parts, work and safety tools. The effect of this element on the gap is low.
14. **Others:** The rise of the population number in some areas due to displacement and immigration because of the military operations and deteriorated security situation, which requires additional amounts of water to cover the gap. The effect of this element on the gap is low

Based on the above explanation, the following elements have the highest impact on the gap: 1) Financial resources (2) Equipment (3) maintenance and operation (4) Technical obstacles (5) Security situation.

S.No	Standard	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to reducing of the value of the gap, according to the priority	Immediate solutions	Long term solutions
2	the amount of water supplied per capita per day (Liter/ day / person) is 450 liters / day in Baquba center and 360 liters / day in the districts and sub-districts and 250 liters / day in the rural.	Technical obstacles	1-Connect projects to National emergency grid. 2- Supply projects with voltage converters 3- Fix the PLC systems	1-Reoperate the raw water networks in Baquba to reduce and control consumption of drinking water. 2-Establish water treatment plants fed by main rivers, which always have high levels of water .laydown conveyance lines to the city.
		Financial issues	1-Increase the directorate revenues by	Increase the financial allocation of the investment budget and regional

			bolstering collection means. 2-Reasonable increase of water service charges. .	development funds, in order to establish central water treatment plants with high production capacities to cover the gap, instead of limited life projects.
		Maintenance and operation	1-Develop a timetable for regular and continuous preventive maintenance to sustain the operation continuity and life of the equipment	Establish a workshop in the directorate to maintain and repair water pumps and chlorine devices. Supply spare parts ,technical cadre to undertake maintenance works
		Equipment	Increase the provision of pipes and different types of joints required for connection to water networks. Supply central water treatment plants with PLC and chemical martials	Increase allocations of the operational budget to purchase the required materials and spare parts .Increase the investment budget to purchase specialized trucks and excavators.

- **Continuity of service**: The operating rate for the central water treatment plants and water compact units is 17 hours /day, thus the indicator of the continuity of service is 89% and the value of the gap is 11% in Baquba district center, which contains to central water treatment plants and eight water compact units.

Analysis of influential elements in the gap

1. **Human resources**: The effect of this element on the gap is low.
2. **Financial resources**: Poor financial allocations allocated for the rehabilitation of water treatment plants and water compact units. The effect of this element on the gap is high.
3. **Infrastructure** : This element has no effect on the gap

4. **Equipment:** Poor provision of required materials, spare parts, fuel, pipes and pumps to sustain the continuity of the service. The effect of this element on the gap is low.
5. **Capacity building**: The effect of this element on the gap is low.
6. **Technical obstacles**: Damaged and inoperable pumps, generators, illegal use and unauthorized tapping to the water network, causing un-continuity of the service. The effect of this element on the gap is medium.
7. **Authorities:** There is a need to increase the financial authorities to need for purchasing necessary materials to maintain the continuity of service.
8. **Coordination:** Poor power supply and fluctuated voltage feeding water pumps drop in the river's water level. The effect of this element on the gap is medium
9. **Political interventions**: This. Element has no effect on the gap.
10. **Misuse of resources**: There element has no effect on the gap.
11. **Maintenance and operation**: Aging and damaged water treatment plants, water compact units, equipment and filters, deposition tanks and pumps .The effect of this element on the cap is high.
12. **Security situation:** un-continuous power supply in some districts, poor provision of fuel to run the generators, shortage of disinfection materials, deteriorated **security situation**. The effect of this element on the cap is high.
13. **Logistic support**: The effect of this element on the cap is low

Based on the above explanation, the following elements have the highest impact on the gap: 1) Security situation (2) Equipment (3) maintenance and operation (4) Financial issues.

S.No	Standard	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to reducing of the value of the gap, according to the priority	Immediate solutions	Long term solutions
3	Service continuity	Security situation	Currently ,there are no solutions	Currently ,there are no solutions
		Equipment	Increase allocations of the operational budget to rise provision of equipment , pumps ,disinfection and filtration materials	Provide generators funded by both the operational and investment budgets
		Maintenance and operation	Develop short term plan to rehabilitate and maintain water compact units and pumps.	Develop rehabilitation and maintenance lists within the operational budget.
		Financial issues	Develop rehabilitation and maintenance lists within the operational budget.	Increase the financial allocation within the investment budget.

➢ Quality of supplied water

The indicator of the quality of supplied water throughout Baquba district is 99%, the gap is 1%

Based on the above explanation, the following elements have the highest impact on the gap: 1) Financial resources (2) Equipment (3) maintenance and operation (4) Technical obstacles (5) Security situation.

Elements causing gap and their impact:

1- **Human resources**: The effect of this element on the cap is low.
2- **Financial resources:** The effect of this element on the cap is high.
3- **Infrastructure:** There is only one lab in the directorate main office, and there are two labs in AL-Khalis and Miqdadiya, however these labs are equipped with simple equipment and insufficient technicians the effect of this element on the cap is medium.
4- **Equipment**: Insufficient lab instruments, lack of modern `equipment. The effect of this element on the cap is high.
5- **Capacity building**: The effect of this element on the cap is low.
6- **Technical obstacles**: The effect of this element on the cap is low.
7- **Authorities**: This element has no effect on the cap.
8- **Coordination:** This element has no effect on the cap.
9- **Political intervent**ion: This element has no effect on the cap.
10- **Misuse of resources**: Misuse of chlorine and alum systems, illegal use and unauthorized tapping to the networks, absence of imposition of fines .The effect of this element on the cap is low.
11- **Maintenance and operation**: Aging water treatment plants "Baquba water project", water compact units, pumps, filters, chlorine and alum systems the effect of this element on the cap is high.
12- **Security situation**: The effect of this element on the cap is high in hot areas.
13- **Logistic support**: Lack of mobile labs .The effect of this element on the cap is medium.

Based on the above explanation, the following elements have the highest impact on the gap: 1) Equipment (2) maintenance and operation (3) Security situation.

S.No	Standard	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to reducing of the value of the gap, according to the priority	Immediate solutions	Long term solutions
3	Quality of supplied water	Equipment	Rehabilitation of sedimentation tanks of central projects. Develop and execute regular maintenance for all water treatment plants and compact units	Establish laboratories in the remote districts and sub districts to facilitate follow up of water quality.
		Maintenance and operation	Equip central labs and filed labs with recent equipment, apparatuses to follow up the quality of produced water. Provide skilled lab technicians.	Establish laboratories in the remote districts and sub districts to facilitate follow up of the quality of water.
		Security situation		Establish laboratories in the operation and collection centers in the districts and sub-districts to follow up the quality of supplied water .

Efficiency of response to citizens' complaints

In Baquba district the value of this indicator is 96% and the value of the gap is 4%

1- **Human resources** : There is a need to appoint a number of employees to follow up citizens complaints to accelerate response to these complaints .The effect of this element on the cap is high
2- **Financial issues**: There is a need to allocate funds to carry out maintenance works and repair broken pipes .The effect of this element on the cap is high.
3- **Equipment**: Supply equipment to prevent water scarcity. The effect of this element on the cap is low.
4- **Technical obstacles**: Repair generators, specialized vehicles and trucks. The effect of this element on the cap is low.
5- **Coordination**: Coordinate with concerned agencies to address the problem of illegal use and unauthorized tapping to networks .Coordinate with local councils and PC to convey citizens' complaints .The effect of this element on the cap is medium.
6- **Misuse of resources**: Illegal use and unauthorized tapping to networks resulted in breaks and leakage to networks and conveyance lines .The effect of this element on the cap is high.
7- **Maintenance and operation**: There is a dire need to provide necessary spare parts and materials to address the gap of water scarcity .The effect of this element on the cap are high.
8- **Security situation**: It strongly affects maintenance works. The effect of this element on the cap is medium.
9- **Logiest support:** This element has no effect on the gap.

S.No	Standard	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to reducing the value of the gap, according to the priority	Immediate solutions	Long term solutions
4	Response to citizens complaints	Equipment	Provide fuel for the generators and spare parts and accessories to secure the sustainability and continuity of the operation of water	Establish CSD and provide staff to these offices to address citizens responses ,in timely manner

			treatment plants and water compact units. Rehabilitate and fix broken vehicles and trucks.	
		Maintenance and operation	Carry out preventive and regular maintenance to water treatment plants , water compact units	Increase the allocations of the operational budget to carry out preventive and regular maintenance to water treatment plants , water compact units and generators
		Human resources	Appoint worker on daily wages basis and train them on maintenance works	Create vacancies for engineering and technical posts
		Misuse of resources	Conduct awareness complains; seek the assistance of PCs and LCs to lift Illegal use and unauthorized tapping to networks.	There are no immediate solutions at the present time.

2. 5. **"Where we want to be?"**

Based on the information that has been collected in the analysis of the situation in 3.2.1 the goals and objectives of the Directorate can be developed and clarified, which are derived from the mission and vision of the water department. There should be an agreement on standards and performance goals, which fall under the name of the SMART (specific, measurable, achievable, realistic and time-bound).

Vision of Diyala Water Directorate:

Provide good quantity and quality of drinking water for all the inhabitants of the province in the urban and rural areas.

Message of Diyala Water Directorate:

Deliver best services in terms of quantity and quality address water scarcity; deliver safe drinking water with world-class specifications.

The goals of the Al-Diwaniyah Water Directorate:

1. Establish central water treatment plants with different capacities to produce dirking water in areas suffering from water.
2. Urge and instruct companies to accelerate the completion of unfinished strategic projects. (Bani Saad water project, Al-Jadeed water project, Al-Salam and Sarajek Al-Mansooriya water project and Saddat Al-Juboor water project.
3. Rehabilitee aging projects which feed intensive population in the districts and sub-districts, replace damaged and improbable networks.
4. Install networks to unnerved areas to increase the number of served areas.
5. Establish a central and recent lab according to the international standards to meet the high numbers of tests. Establish labs in the districts and sub-districts to follow water quality.
6. Eliminate illegal use and authorized connect to water nets and conveyance lines and reduce wastes.
7. Increase the quantity of supplied fuel required to run the generators, from 272000 /L/month to 600000 liter per month.
8. Create vacancies to operate and maintain water treatment plants and water compact units.
9. Provide and install water meters to the province to determine the real amount of con summed water, and determine new and gradual prices to the service charges.
10. Engage current technical staff in advance training courses.
11. Increase citizen awareness in rationalization of water.

Based on the vision, mission and goals of Diyala directorate of water, it appears that the directorate does not yet specify a strategy to reach the planned goals .When developing the strategy; it should be measurable, accurate, realistic, achievable and time –bound.

3-5 "How can we get there?"

Diyala Water Directorate and in cooperation with USAID GSP/Taqadum program completed the gap analysis model developed by Taqadum program to actively contribute to the gap analysis. The importance of gap analysis in the services provided to citizens is that:

1. The use of scientific method in the analysis of all elements that cause the gap in the indicators of the services provided to citizens compared with the value of the standard

2. Determine the priority of the elements influencing the gap in services through the power of their influence.
3. Put the proposed immediate and long-term solutions to address the elements the gap in order to minimize it.
4. The results of the analysis which represent proposed immediate and long-term solutions will be the input for the preparation of relevant service delivery improvement plan in the province.

Diyala Water Directorate has relied on the use of measurements average that have been collected in the 16 administrative units with a focus on the most vulnerable units in order to develop effective solutions to reduce the gap and improve the services provided to citizens through the immediate and long-term solutions. The successful use of the model will lead to get accurate results that help determine the right and realistic solutions that executable in reducing the gap and improving service.

4-5. How can we ensure the success?"

In order to ensure the success of Services Delivery Improvement Plan (SDIP), it is important to continuously control the standard and indicators of achieved progress evaluation to improve the performance and its external factors at all levels, and to provide data and reactions using the appropriate mechanisms in writing reports. This allows the management to determine the actual and potential success and failure in early enough time to facilitate timely adjustments. There should be a unit within the Directorate of Water in Diyala that will be responsible for coordinating the activities and performance evaluation in line with the agreed targets according to a monthly basis. This report will be submitted to the Director General of the Directorate of Water in Diyala and the preparation of progress and performance quarterly and annual reports. The Director General of the Directorate of Water of Al-Diwaniyah should supervise the implementation of SDIP and report to the Provincial Planning and Development Council PPDC and the governor office as needed. They will provide strategic guidance on the effective implementation of the plan.

5.) The recommendations proposed by Taqadum program for the immediate solutions:

1. Increase collection rates for service charges from citizens and make the contribution depends on the amount of consumption taken into account poor families. The levy amount shall depend on the domestic consumption. The first group is from 1m^3 to 3 m^3 ,the citizen pays 2000 Iraqi dinar ,per month, second group from 11m^3 to 20 m^3 ,the citizen pays 5000 Iraqi dinar, per month , second group from 21m^3 to 30 m^3 ,the citizen pays 20000 Iraqi dinar ,per month. The

incremental value of consumption will significantly eliminate the misuse of water and rationalize consumption. Fees of water service in Iraq is very low compared to neighboring, European countries and America (Please note that the amounts of collection control must be coupled with the installation of counter \ gauges in homes, stores and governmental departments)

2. Redistribute the existing number of vehicles and trucks according to the need among water directorates and served population. Currently there are 140 tank truck
3. The need to hold surveys of water services provided to citizens to find out the reality of the situation from the view of the beneficiary and compare the results figures to Diyala Water Directorate figures, to find out the shortcomings and correct them. Underprivileged
4. Link the largest number operable water treatment plants and water compact units with the National emergency grid.
5. Absence of clear and practical strategy on the method of distributing water networks among the administrative units, according to population, coverage rate. real need and underprivileged ratio.
6. The need to conduct maintenance for water treatment plants and compact units to reach the maximum capacity (available) and remove all obstacles that stand in the way of achieving this goal. Almost all projects and compact units are not working at maximum capacity (available). There is a need to find out the reasons and to develop immediate and practical solutions to reduce the scarcity of water.
7. The need for preventive maintenance operations according to a specific timetable by water directorates in the districts and sub-districts. These works must be carried out by a specialized staff. The preventive maintenance will increase the actual age of the water treatment plants and compact units, especially there is tarry in the establishment of the strategic projects.
8. Expand the financial authorities of the manager Al-Diwaniyah directorate of water for more than of 100 million Iraqi dinars per month, to enable him to perform the maintenance and operation works, fix the fractures, change old pipes and purchase required equipment and devices.
9. Ratio of fractures in networks are very high in some areas, and the reason is due aging networks and ill gal use of citizens, which led the citizens to unauthorized tapping to the nearby networks through making holes in the pipes and they make incorrect connection without permission of water departments in the province. This subject requires the application of the laws in force and facilitates licensing procedures and increase network coverage in areas that witnesses many cases of unauthorized tapping. Borken pipes in the networks cost the maintenance teams in the province expensive amounts each month and cause a huge waste in the water.

10. The water department should put (GPS) in all working vehicles for the optimal use of time and resources.
11. There must be collection of water service wages from the citizen to provide funds to support the operating budget of the directorate, which is reduced to a large margin from the previous year. Funds should be available by the ministry in 2015, will be few, limited and will be spent in specific sections, so the water department must find other sources of funding to provide permanent service.
12. Activate the proposal to set up RO plant to produce bottled water to increase the directorate revenues.
13. The need to set up a laboratory in each administrative unit, but there is a need to buy a mobile laboratory to ensure that the samples reach the laboratory in the province. There is a need to provide each project and complex with tools for taking samples and conducting tests on the ratio of chlorine and turbidity in the water (KIT). There is a need for training courses for personnel working in compact units and projects.

Conclusion:

The water department must manage its works efficiently and effectively in order to provide better services to citizens through the available abilities. Also, it must develop a realistic strategy to spend resources such as network coverage, for example, through the development of a real feasibility studies for projects to be implemented to reduce the gaps in service standard and thus ensure the best services. Finally, we have to enable the water department in the province to find funding resources to supplement its operational budget and also help in the application of existing laws to protect the infrastructure from vandalism.

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Annex No 1) Standard adopted by the DG of water in the province.

No.	Standard	Standard description	Standard unit	Data required for standard measurement	description	Measurement unit
1	People served through direct connection to the network	The total number of houses that have a direct connection to the network of drinking water out of the total number of total houses in the area.	%	A. Total number of houses in the area	Housing units registered in the Real Estate Registry Department that have building licenses	Number
				B. Total number of houses that have direct link with network	Housing units that have direct and systematic subscription with the network	Number
				Indicator calculation= $100 \times \frac{B}{A}$ (calculation is done quarterly)		%
2	The amount of water provided per person per day (450 liters in provincial centers, 360 liters in districts. 250 liters in sub-districts)	Total water provided per person per day, according to the Iraqi Specifications	Liter/ day/ person	A. Quantity of monthly supplied water	Measuring the daily product amount which is pumped to the network with consideration to measurements on a daily basis and find the total during the month, taking into account the non-calculation of the lost in network, which can be estimated at a minimum of 15%.	Liter/ month
				B. Number of people served in the area	Number of people who have a direct connection to the network within the service area	Person (number)
				C. Number of days monthly	Number of days per specific month	Day/month (number)
				Indicator calculation= B / $\frac{A}{C}$		Liter/day/person

3	Measuring the extent of the amount of water for subscription s	Total subscription supplied with meter out of the whole total subscriptions	%	A. Total number of houses that are directly connected to the network	Housing units that have subscription in water department	Number
				B. Total number of houses that are supplied with consumption meter	Housing units that are equipped with the gauges of consumption and are adopted in calculation of consumer water wage	Number
				Indicator calculation= $100 \times \frac{B}{A}$		%
3	Service continuity	Continuity of pumped water is measured in average hours of pumping water in the network during one day where the level of water height reaches in housing units, one floor at a minimum	Hour / day	1. Average of pumping hours per day	Daily pumping hours for a period of 7 days Is calculated and draw rate as a monthly average	Number
				Indicator calculation= number of hours in 7 days/7 (calculation is done quarterly)		%
4	Quality of water supplied to person	The quality of drinking water provided per person per day, which matches or exceeds the Iraqi standards specifications	%	A. Number of models drawn monthly related to water quality	The actual number of samples of water drawn for examination monthly. Models must be taken from the ends and exits and middle of network project.	Number/month
				B. Number of samples matching the specifications monthly	The total number of models that are drawn whose tests result match or exceed the applicable standard specifications water	Number/month
				Indicator calculation= $100 \times \frac{B}{A}$		Liter/day/person

5	The efficiency of dealing with citizens' complaints	The total number of complaints about water service, which are dealt with within 24 hours from the moment of receipt of the complaint	%	A. The total number of all complaints received from citizens during the month	Complaints registered within complaints office in registry and follow up system should be effective	Number/month
				B. the total number of complaints that have been directed and handled during the month C. 000000+	The number of complaints that have been handled correctly and satisfactorily within 24 hours or the next working day from the moment of registration of the complaint	Number/month
				Indicator calculation= $100 \times \frac{B}{A}$		%

Annex 2. A timetable clarifying the number, type, quality and location of generators in Diyala

Generators status in Diyala directorate of water					
S.No	Details		Generator capacity KV	Condition	Type
First	*Baqubah Center*				
	1	Baquba main office	75	Operable	Cummins
	2	Baquba central water treatment plant	1000	Operable	Cummins
			1250	Operable	Cummins
			1000	Inoperable	MWM
	3	Al-Tahreer water treatment plant	550	Operable	Perkins
			500	Inoperable	Volvo
		Al-Shaheed Mahjoob water compact unit	250	Operable	Perkins
	4	Al-Yarmook 1st water compact unit	250	Operable	Cummins
			250	Operable	Mitsubishi
	5	Al-Yarmook 2nd water compact unit	250	Operable	Cummins
	6	Al-Katoon Al-rahma water compact unit	83	Operable	Perkins
	7	Al-Katoon Al-Razi water compact unit	250	Operable	Volvo
			250	Inoperable	Perkins
	8	Baquba booster station	500	Inoperable	Volvo
			1000	Operable	Flacon
	9	Residential building water compact unit	30	Operable	Flacon

	10	Um Al-Edham water compact unit	250	Inoperable	Perkins
	11	Baquba old water treatment plant	500	Operable	Perkins
	12	Dor Al-Ziraah water compact unit	250	Operable	Perkins
	13	Al-Othmaiya water compact unit	250	Operable	Perkins
Second	*Kanan Center*				
	1	Kanan water treatment plant	1000	Operable	Cummins
			312	Inoperable	MWM
	2	Kanan water compact unit	250	Operable	Perkins
	3	Al-Hadaf water compact unit	250	Operable	Perkins
	4	Kareem Al-Naser water compact unit	250	Operable	Perkins
	5	Al-Badaa water compact unit	150	Operable	Perkins
		Kareem Shyaa water compact unit	250	Inoperable	Perkins
Third	*Al-Wajeehiya center*				
	1	Al-Wajeehiya water treatment plant	250	Operable	Perkins
	2	Al-Umraniya water compact unit	150	Operable	Perkins
	3	Dwaila water compact unit	75	Operable	Perkins
	4	Abu Jisra water compact unit	75	Operable	Cummins

	5	Abu Jisra water compact unit	75	Operable	Cummins
	6	Al-Aziya water compact unit	150	Operable	Perkins
	7	Bablan water compact unit	150	Operable	Perkins
	8	Khashab water compact unit	150	Operable	Perkins
	9	Al-Wajeehiya water compact unit	250	Operable	Perkins
	10	Brkina water compact unit	75	Operable	Deutz
Fourth	*Abu Saida*				
	1	Abu Said water treatment plant	1000	Operable	Cummins
	2	Zhairat water compact unit	250	Inoperable	Perkins
			150	Operable	Volvo
	3	Al-Awashiq water compact unit	75	Operable	Perkins
			150	Operable	Perkins
	4	Thayaba water compact unit	37	Operable	Perkins
	5	Ghalabi water compact unit	250	Operable	Volvo
Fifth	*Al-Miqdadiya center*				
	1	*Al-Miqdadiya* new water treatment plant	1000	Inoperable	Perkins
			1500	Operable	Perkins

			1500	Operable	Caterpillar
		Al-Miqdadiya old water treatment plant	500	Operable	Man
	3	Barwana water treatment plant	150	Operable	Perkins
	4	Himbes water compact	250	Inoperable	Perkins
	5	Nufal 2 water compact unit	75	Operable	Perkins
	6	Shaqraq water compact unit	75	Operable	Perkins
	7	Al-Abbara Al-Sadraniya water compact unit	250	Operable	Perkins
	8	Isyoud and Ezham water compact unit	250	Operable	Perkins
	9	Al-Tayyha water compact	75	Operable	Perkins
	10	Al-Ankabiya water compact unit	250	Operable	Perkins
	11	Al-Baikani Al-Bazani water compact unit	250	Operable	Perkins
	12	Wadi Hisan water compact unit	75	Operable	Perkins
	13	Nahar Al-Imam water compact	75	Operable	Perkins
	14	Sarah Q water compact unit	75	Operable	Perkins
	15	Al-Harwaniya water compact unit	150	Operable	Perkins
Sixth	*Balad roze Center*				

	1	Balad rose unified water treatment plant	625	Inoperable	Cummins
			500	Operable	Perkins
			550	Inoperable	Aqsa
	2	Al-Madina water compact unit	75	Operable	Perkins
	3	AL-Shaheed Ghazi water compact unit	2000	Operable	Cummins
	4	Baladroze old water project	250	Inoperable	Perkins
	5	Utba water compact	250	Operable	Volvo
	6	Imam Asker water compact unit	30	Inoperable	Perkins
	7	Million gallon water compact unit	250	Operable	Perkins
	8	Directorate main office	50	Operable	Perkins
	9	Bane Tamed water compact unit	250	Inoperable	Volvo
	10	Ghazi water compact unit	50	Operable	Perkins
Seventh	*Al-Khalkis*				
	1	Al-Khalkis new water treatment plant	1000	Operable	Cummins
			1250	Inoperable	Cummins
			850	Operable	Cummins
	2	Al-Sidney water compact	500	Operable	Man
	3	Al-Zahra water compact unit	1100	Operable	Perkins

	4	Sadiya Al-Shat water compact unit	150	Operable	Perkins
			255	Inoperable	Jeem
			211	Inoperable	Volvo
	5	AL-Tahwilah water compact unit	250	Operable	Perkins
	6	Al-Ommal Q water compact	250	Operable	Perkins
	7	Al-Shakha water compact unit	75	Operable	England
	8	Al-Ousood new water treatment plant	250	Operable	England
	9	Directorate main office	75	Operable	Perkins
	10	Al-Khzraja water compact unit	75	Operable	Perkins
	11	AL-Asimi water compact unit	75	Operable	England
	12	Al-Kuti water compact	110	Operable	England
	13	Al-Ahali booster station	81	Operable	Volvo
	14	Al-Bo Zail water compact unit	75	Operable	England
	15	Al-Kubat water compact unit	250	Operable	England
	16	Jizani al-jool water compact unit	250	Operable	Perkins
Eight	*Jadeed Al-Shat Center*				
	1	Al-Huwaish water treatment plant	500	Operable	Volvo
			580	Operable	Cummins

	2	Imam Hasn Water compact Unit quarter million gallon	100	Inoperable	Perkins
	3	Al-bo Abdi - Water compact Quarter million gallon	250	Operable	Perkins
			300	Operable	Cummins
	4	Al-bo Abdi - Water compact unit Quarter million gallon	83	Inoperable	Perkins
	5	Al-bu Ilka Water compact unit	100	Operable	Deutz
			83	Operable	Perkins
	6	Imam Hasn Water compact unit Quarter million gallon	250	Operable	Perkins
	7	Al-Tubani pumping station	250	Operable	Perkins
	8	Al-Hwaidh Water compact unit	250	Operable	Perkins
	9	Mansooriyat Al-Shat Water compact unit	250	Operable	Perkins
	10	Al-Tobani Water compact unit	250	Operable	Perkins
Ninth	Bani Saad Center				
	1	Bani Saad water treatment plant	750	Inoperable	Daewoo
			650	Inoperable	
			500	Operable	Aqsa
	2	Al-Saada and Al-Karamah water	250	Operable	Cummins

		treatment plant			
	3	Al-bardiya water compact unit	150	Operable	Perkins
	4	Al-Muradiya 1 water compact unit	211	Operable	Volvo
	5	Al-Muradiya 1 water compact unit	250	Operable	Perkins
	6	Al-Rasoul water compact unit	250	Operable	Perkins
	7	Al-Bazool water compact unit	75	Operable	Perkins
	8	Mohammed Skaran water compact unit	250	Operable	Perkins
	9	Skranat water compact unit	50	Inoperable	Daewoo
	10	Al-Waziriya water compact unit	50	Consumed	
	11	Al-Aytha water compact unit	100	Operable	Silencer
Tenth	*Al-Abbara center*				
	1	Abdulhameed water treatment plant	500	Operable	Perkins
			750	Inoperable	Cummins
			250	Operable	Perkins
	2	Dora water treatment plant	250	Inoperable	Perkins
			250	Operable	Perkins
	3	Al-Jazaer water treatment plant	250	Operable	Perkins
		Al-Abbara water treatment plant one million gallon	250	Operable	Perkins
	4	Al-Kuba	75	Operable	Volvo

		Zahra water treatment plant	250	Operable	Cummins
	5	Bo thbha treatment plant	250	Operable	Cummins
	6	Jizani mul jawad water treatment plant	150	Operable	Perkins
	7	Dora Al-Kabira water treatment plant	71	Inoperable	
Eleventh	*Al-Salam center*				
	1	Al-Ujaimi water treatment plant	250	Operable	Perkins
	2	AL-Salam water treatment plant	250	Operable	Perkins
			150	Operable	Perkins
	3	Sarajek booster station	1000	Operable	Perkins
			850	Operable	Cummins
	4	Suheb Al-Salam water treatment plant	150	Operable	Perkins
	5	AL-Bazween water treatment plant	75	Inoperable	
	6	Saryowat water project	150	Operable	Perkins
	7	Al-Khazan water	500	Operable	Perkins

		treatment plant			
	8	Al-Haroja water treatment plant t	500	Operable	Perkins
	9	Old Ojaimi water treatment plant t	100	Inoperable	Flacon
Twelfth	*Habhab center*				
	1	Old Hebhab water treatment plant	250	Operable	Perkins
	2	Old Al-hadeed water treatment plant	150	Operable	Perkins
	3	Al-Hadeed 1 water treatment plant	250	Operable	Perkins
	4	Al-Hadeed 2 water treatment plant	275	Operable	Perkins
	5	Jaizani Al-Imam water project	150	Operable	Perkins
	6	Al-Mansoriya Al-Shat water treatment plant	211	Operable	Volvo
	7	Al-Hashmeya Al-Kabira water treatment plant	75	Operable	Perkins

	8	Al-hashmiya Al-Saqira water treatment plant	50	Operable	Perkins
	9	Al-Hwaira and Al-Sawajen water treatment plant	150	Operable	Perkins
	10	Saif Saad booster station	500	Operable	Volvo
	11	Al-AMeriya water treatment plant	75	Operable	Perkins
	12	Al-Saleeb water treatment plant	250	Inoperable	Perkins
	13	Hebhab 400 water treatment plant	500	Operable	Volvo
Thirteenth	*Jalawla center*				
	1	Jalawla new water treatment plant	1100	Operable	Perkins
			150	Inoperable	Perkins
		Jalawla old water treatment plant	250	Operable	Perkins
	3	Jalawla pull station	1100	Operable	Perkins
			200	Inoperable	Perkins
			275	Inoperable	Flacon

			275	Inoperable	Flacon
			400	Inoperable	Iveco
			820	Consumed	Camter
	4	Al-Wihda Q water treatment plant	250	Operable	Perkins
	5	Jamila water treatment plant	300	Operable	Iveco
Fourteenth	*Khanakeen center*				
	1	Khanakeen water treatment plant	1000	Operable	Perkins
			1000	Inoperable	Cummins
	2	Azdi water compact unit	100	Inoperable	Fiat
	3	Arkoazdi water compact unit	250	Operable	Cummins
	4	Khankeen pull station	250	Inoperable	Al-Muhandes
	5	Kalat water compact	150	Operable	Perkins
	6	Tola frosh water compact unit	250	Operable	Perkins
	7	Imam water compact unit	250	Operable	Volvo
	8	Jali water compact unit	250	Operable	Jely
	9	Nafit khana water compact unit	500	Operable	Perkins
	10	Qarmeen water compact	50	Operable	Perkins
	11	Ali Sadoom water compact unit	75	Operable	Perkins
	12	Eleiwa booster station	250	Inoperable	Perkins

	13	Al-Akhwa water compact unit	75	Operable	Perkins
Fifteenth	*Al-Saadiya center*				
	1	Al-Saadiya water treatment plant	750	Operable	Perkins
			320	Operable	Perkins
	2	Himreen water compact unit	250	Operable	Perkins
	3	Al-Saadiya water compact unit	250	Operable	Perkins
	4	Center	750	Consumed	
Sixteenth	*Qura Taba center*				
	1	Qura taba water treatment plant	738	Operable	Volvo
			738	Operable	Volvo
			650	Inoperable	Aqsa
			625	Consumed	MWM
	2	Al-Salam water compact unit	250	Operable	Perkins
	3	Al-Faka water compact unit	65	Operable	Perkins
Seventieth	*Mandali center*				

	1	Mandali water treatment plant	650	Operable	Azbeer
			550	Operable	Aqsa
	2	Sahab water compact unit	50	Operable	Perkins
	3	Al-Jeser water compact unit	45	Operable	Perkins
	4	Al-Saada water compact unit	150	Operable	Perkins
	5	Directorate main office	30	Operable	Dawes
	6	Kebrat well	22	Operable	Dawes
	7	Hamayel water compact unit	75	Operable	Perkins
Eighteenth	*Jabara center*				
	1	Jabara water treatment plant	250	Operable	Perkins
			50	Operable	Perkins
			35	Operable	Perkins
			45	Operable	Iveco
	2	Jefet Al-Aitha water treatment plant	211	Operable	Volvo
Nineteenth	*AL-Mansooriya center*				
	1	Al-Mansooriya unified water treatment plant	1000	Operable	Spy
	2	Al-Mansooriya old water treatment plant	211	Operable	Volvo
			250	Inoperable	Perkins

	3	Al-Sulaiman And Al-Ebaiter water compact unit	150	Operable	Perkins
	4	Sharween water compact unit	100	Operable	Perkins
	5	Habeeb Al-Khaizaran1 water compact unit	75	Operable	Perkins
	6	Haber Al-Khaizaran 2 water treatment plant	75	Operable	Perkins
	7	Al-Tjdari water treatment plant	211	Operable	Volvo
	8	Dawood village water project	75	Operable	Perkins
	9	Al-Qawam water treatment plant	75	Operable	Perkins
	10	Al-Uboor water treatment plant	100	Operable	Iveco
	11	Al-Mansooriya water treatment plant	250	Operable	Perkins
	12	Al-Jahafel and Al-Izban water treatment plant	150	Operable	Volvo
			twentieth		
Twentieth	*Buhriz Center*				
	1	Abu hisaiwa water treatment plant	75	Operable	Flacon
	2	Abu Khamis water	35	Operable	Flacon

		treatment plant			
	3	Al-Na'uor water compact unit	100	Operable	Perkins
Twenty - first	*Al-Sad Al-Adheem*				
	1	Al-Sad Al-Adheem water treatment plant	250	Operable	Cummins
		Shamal Al-Khalis water treatment plant	250	Operable	Spy
			25	Inoperable	Deutz
	2	Al-Zerqaniya water compact unit		Operable	Perkins
	3	Al-Zerqaniya pull station		Operable	Perkins
	4	Al-Zerqaniya pull station		Operable	Cummins
	5	Al-Marfoo water pull station		Operable	Perkins
	6	Al-Marfoo water pull station		Operable	Perkins
	7	Al-Marfoo water pull station		Operable	Cummins
Twenty-second	*Qazaniya center*				
	Qazaniya Desalination station			Operable	Deutz
	Qazaniya water compact unit			Operable	Perkins
Twenty-third	AL-Muthariya center			Operable	
	One million gallon			Operable	Perkins
Twenty-fourth	Directorate main office			Operable	
	Directorate main office			Operable	Iveco
	Directorate main office			Operable	Aqsa/ silencer