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من الشعب الأمريكي

Governance Strengthening Project
(GSP)

Baghdad Water

Service Delivery Improvement Plan (SDIP)

Prepared by

Baghdad Water Directorate

In cooperation with

GSP/Taqadum

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Baghdad - Iraq

1-Introduction:

This Service Delivery Improvement Plan (SDIP) is a strategic work plan developed to address a variety of management issues. It is designed to improve Water service delivery in Baghdad province and enable the Water Directorate to achieve its short-, medium- and long-term goals. The SDIP will enable the Directorate to develop a long-term vision to run itself and ensure that problems will be gradually under control.

This plan will ensure planned use of resources to achieve these goals. SDIP also helps the Directorate of Water in Baghdad to address issues related to its performance in delivering better services to citizens. The SDIP is based on results of the Water Directorate and consists of two stages:-

- First stage is to identify status and management of the Water services.
- Second stage is to develop the service delivery improvement plan to address issues related to the delivery of services and provide immediate and long-term solutions.
- Second stage: Use the SDIP to address the issues related to the services delivery performance and the provision of immediate and long term solutions to the needs, if existed.

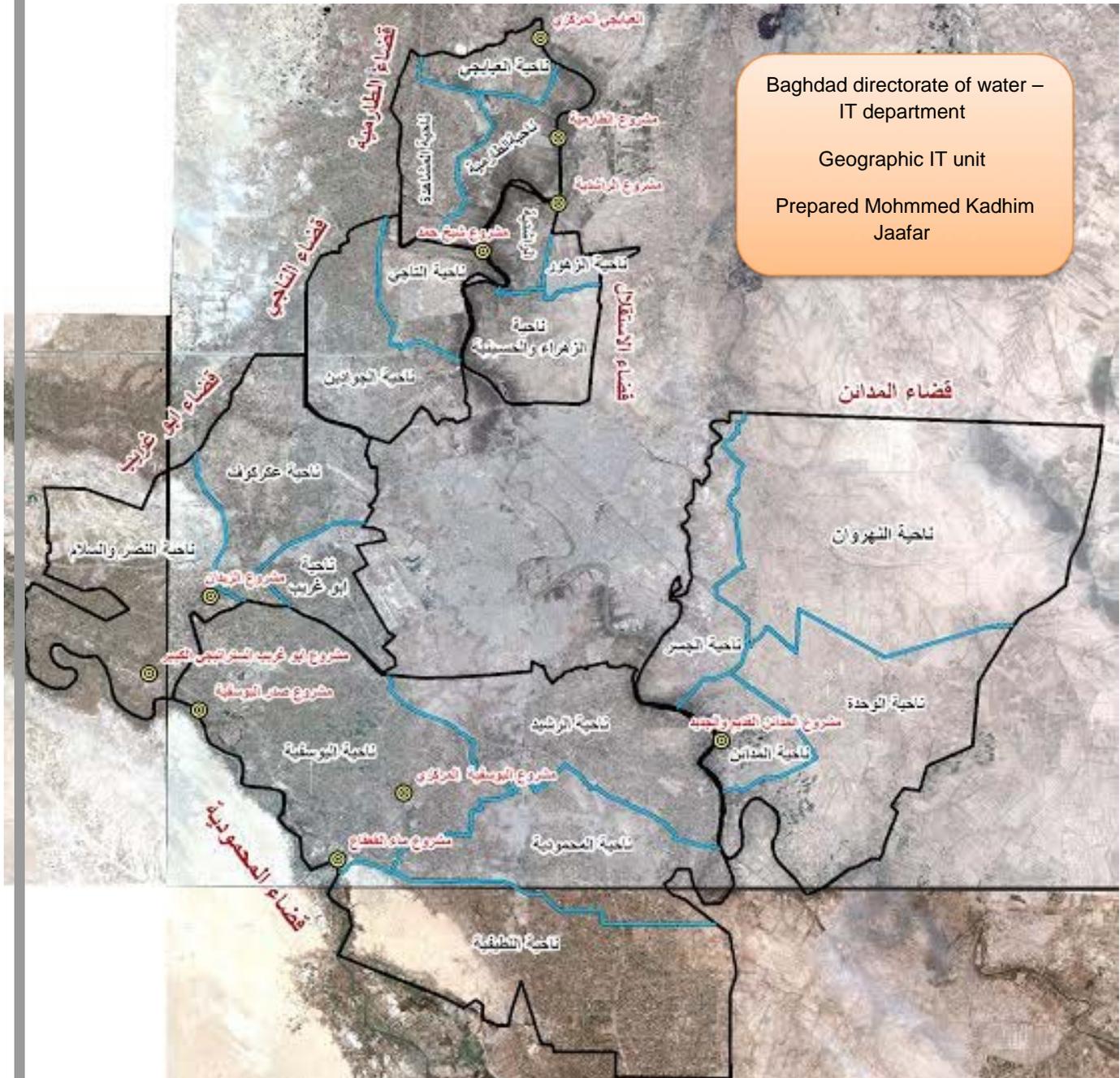
2-Executive Summary

The current analysis mechanisms used in reviewing performance indicators of Baghdad 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 Services: Management of municipal 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 municipal 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 the projects and their operation .



Administrative borders to the districts and sub-district of Baghdad province with central projects

3- Challenges and problems facing Baghdad Directorate of Water; and significantly contributing in providing poor quality of services to citizens

Classification by sectors (1- Financial- 2-Human resources -3- operation and maintenance -4- Authorities -05-Equipment)

- Financial : Represented by considerable reduction in the Annual monthly grant of the Ministry ,which are expended by the following items :-
 - Maintenance of water projects, water compact units and specialized vehicles and trucks.
 - Awards
 - Employees occupational allocations
 - Lack of collection revenues , most citizens do not the service charges , poor amount of drinking water subscription, lack of water meters ,which considerably assist in showing the exact consumption of water.
- Infrastructure : large number of fractures and aging networks
There are a number of unfinished projects ,which if completed will considerably contributed in solving provision of water throughout the province ,such as :-
 - AL-Mahmoodiya central water project
 - Al-Jiser central water project
 - Expanding Al-Nahrawan water project to 1000m³ /h
 - Expanding AL-Rashdiya water project to 1000m³ /h
 - Complete the works of Ground Storage Lake in AL-Jawadain sub-district.

Quality control

- Aging lab devices and apparatuses existing in water treatment plants and water compact units
- Carryout regular performance evaluation, using feedback approach through surveys, in order to improve the service and maintenance.
- It is very necessary to develop a periodic maintenance plan to maintain networks and sustain their work.
- Most of water project in the districts and sub-district are establish long time ago and are currently close to their life time and there is a dire need to rehabilitate them.
- Persistent outage in pumping pumps due to lack of regular maintenance.
- Landlords stipulated that if they donate their lands for water projects, the beneficiary body shall employ a number of their families in the projects, who lack the experience and require intensive triaging courses.
- Most of the staff working in water compact units are working on daily wages basis, if they leave work, the directorate will lose skilled and experienced workers.
- Difficulties of lands acquisition.
- Lack of specialized vehicles and trucks.

Stages of work on the service delivery improvement plan

Baghdad 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- Identifying the priority of the elements influencing the creation of the gap through their power of 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.

Baghdad 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 standards 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. Baghdad 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 standards 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 Baghdad 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?

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 Baghdad 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 Baghdad directorate of water

Strength

- 1- Water resources are available;
- 2- There is in place a section for planning and follow-up that contributes in current and future planning;
- 3- Availability of efficient and experienced engineering , technical staff to manage and implement projects;
- 4- There is in place a center for training and development to provide training to ministry and directorate staff;
- 5- Availability of financial allocations;
- 6- Modern technology is used in the directorates works such as GIS;
- 7- There are in place water treatment plants in districts and sub-districts;

- 8- There are in place water treatment plants with a capacity of 200 m³/h in different districts and sub-districts;
- 9- There are new water treatment plants, which are under construction such as the Central Al-Mahmoudiya t, Central Al-Rashdiya water treatment plants, Al-Jawadian Storage Lake, and several others; and
- 10- The Central Abu Gharib water treatment plants have been completed.

Weaknesses

- 1- Most central water treatment plants and water compound units are old and are in need to rehabilitation to ensure their efficiency;
- 2- There is procrastination in implementing underway projects;
- 3- Some conveying lines and networks are old and in need to rehabilitation;
- 4- Using an outdated system for collecting the service charges -according to Law No 27 of 1999;
- 5- Long and complicated procedures for getting approvals to establish water treatment plants or water compound units.

Opportunities

- 1- Donors and human organizations are paying considerable attention to service projects;
- 2- There is an investment law in place;
- 3- The Ministry's investment plan includes implementation of strategic water projects; and
- 4- The provincial Accelerated Reconstruction and Development Project (ARDP) plan includes central water projects and water treatment projects

Threats

- 1- Low Tigris and Euphrates water level in the last years;
- 2- Unauthorized tapping to the water conveying lines and networks, leading to waste and scarcity of water;
- 3- Some rivers are polluted with spots of oil and industrial wastes;
- 4- Frequent power outage which leads to fluctuating water pressure in water pipes;
- 5- Unstable funding resources;
- 6- Lack of citizen awareness on consumption and reasonable use of water;
- 7- Lack of clear sector designs in districts and sub-districts, resulting in difficulty in developing a map for consistent and balanced distribution of water on the long terms; and
- 8- Lack of high quality local-made equipment and construction materials to be used in water works and water treatment plants.

Analysis of 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 standards, similar to the rest of the civilized world. Standards-based service delivery stands on 4 key bases in drinking water service as an essential service which should be accessed both quantitatively and qualitatively and through the following standards and indicators:

1. Service Coverage
2. The amount of water provided per capita
3. Continuity of service
4. Response citizens' complaints

Baghdad Water Directorate has adopted work according to these standards 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 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:

The rate of the coverage of water in the districts and the sub-districts is 82.33%, and the value of the gap is 17.67%. Water systems coverage throughout the province of Baghdad varies from one administrative unit to another, whereas the coverage rate in most of the districts and sub-districts is 100% ,while there is less coverage in Al-Mahmodiya district and Al-latifiya district at a rate of 25% for each of them ,followed by Al-Nahrawan sub-district at a rate of 30% ,then Al-Jawadain sub-district ' previously Sab Al-Boor" at a rate of 80% ,then followed by Al-Zhraa and Al-Hussainiy sub-districts at a rate of 85%, and Al-Taji at a rate of 90% . We found out that the major reason behind the gap is the security situation, which is resulting in damaging the infrastructure.

Indicator	Mahmodiya	Al-Latifiya	Al-Yousfiya	Sab Al-Boor	Al-Taji	Abu Ghraib	Al-Naser and Al-Salam	Al-Tarmiya	Al-Abayji	Al-Mishada	Al-Zohoor	Al-rashdiya	Al-Madaen	Al-Whida and Al-Nahrawan	Al-Zhraa and Al-Hussainiya
Water coverage	%25	%25	%100	%80	%90	% 100	100 %	100 %	% 100	100 %	% 100	100 %	100 %	%30	85 %
Shortage	%75	%75	%0	%20	%10	%0	%0	%0	%0	%0	%0	%0	%0	%70	%15



Elements causing gap and their impact:

- 1. Human resources:** Poor number of permanent engineers and technicians. There is a need transfer temporary and daily wages staff on permanent staff, insure that they do not leave work if they are offered better opportunity, thus, the directorate lose skilled and experience staff. The effect of this element on the gap is low.
- 2. Financial issues:** The works assigned to networks comes from two sources regional development funds, whereas the PC determine a measurement at 10 to 15 Km to each new water treatment plant. The second source is the operational budget, which is insufficient to lay down I new water networks and the directorate revenues are expended into other items such daily wages, emergency maintenance works, repairing vehicles and trucks. The effect of this element on the gap is medium.
- 3. Infrastructure:** Aging water networks and damages in some water treatment plants due to military operations resulting in lack of provision of the service.
- 4. Miscue of resource:** Misuse of water resources (illegal use and unauthorized tapping to water networks, irrigation of crops and car washing units from water network and store negatively influence the continuity of the service. The effect of this element on the gap is medium.
- 5. Security situation:** Due to the deterioration of the security situation and military operations most of the projects are exposed to damages.

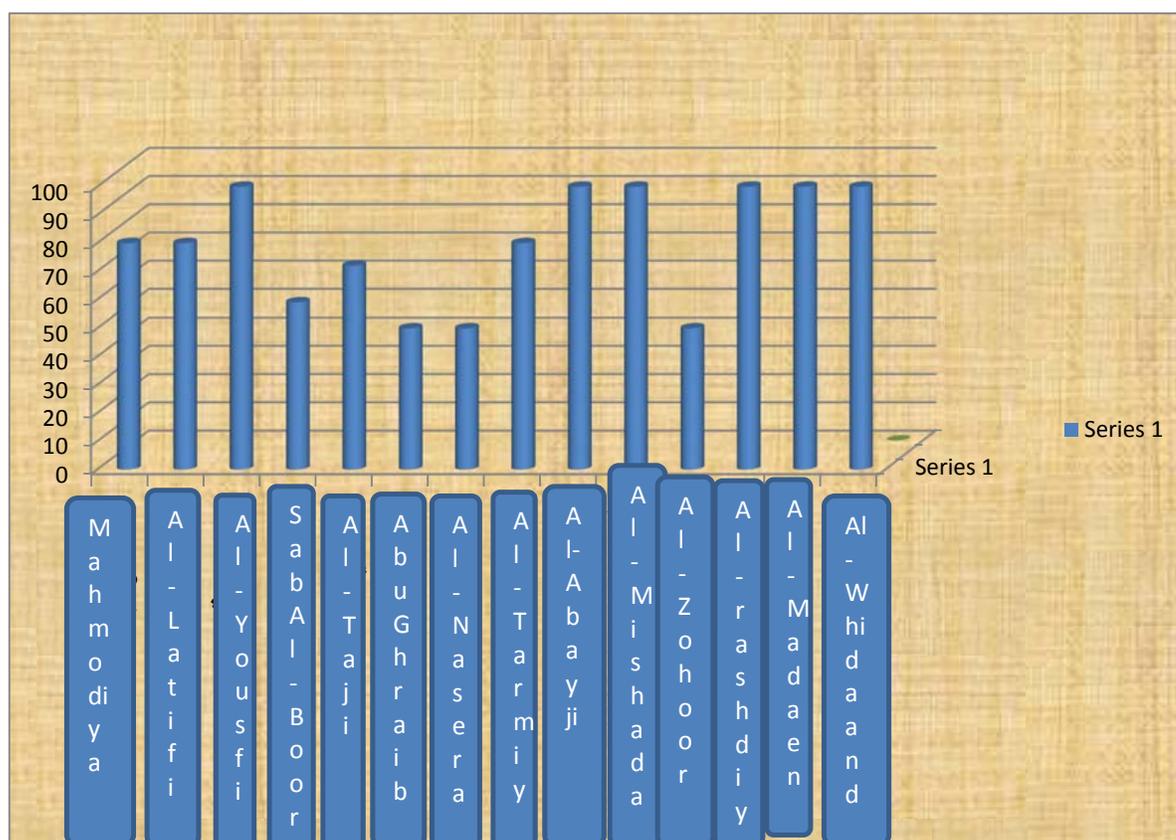
Based on the above explanation, the following elements have the highest impact on the gap: 1) Infrastructure and security situation.

Standards	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to the reducing the value of the gap, according to the priority	Immediate solutions	Long term solutions
Service coverage	Infrastructure	Use ration system and programed supply.	Expedite the implementation of Al-Tarmiya and Al-Taji unified project with a capacity of 8000m ³ /h
	Security situation	There is a cooperation between Al-Moahmodiya and Al-Latifiya districts to cover the need for drinking water by using tank trucks	In cooperation with the province accelerate the implementation of Al-Quqaa project and accelerate the implementation of Al-Al-Mahmodiya central project of a capacity of 4000m ³ /h. Accelerate the implementation of expansion works of Shishbar project with a capacity of 1000 m ³ /h.

Amount of supplied water per capita

The Standards of the supplied water per day (Liter/ day / person) is 450 liters / day in district is 350 liters / day and in the sub-districts , while according to the standard there is less coverage in AL-Zahraa and Al-Husseiniya is at a rate of 40% for each of them ,followed by Abu Ghraib ,Al-Naser Al-Salam and Al-Zohoor at a rate of 50% ,then Sab Al-Boor" at a rate of 59 % ,then followed by Al-Taji at a rate of 72%, then AL-Mahmodiya ,Al-Latifiya and Al-Tarmiya at a rate of 80% ,as for other districts and sub-districts the supply rate is at 100% , and the general supply rate throughout Baghdad outskirts is at 77.4 % , the value of the gap is 22.6% .

Indicator	Water coverage	Shortage
Mahmodiya	%80	%20
Al-Latfiya	%80	%20
Al-Yousfiya	%100	%0
Sab Al-Boor	%59	%41
Al-Taji	72 %	28 %
Abu Ghraib	%50	%50
Al-Naser and Al-	50 %	50 %
Al-Tarmiya	80 %	20 %
Al-Abayji	100 %	%0
Al-Mishada	100 %	%0
Al-Zohoor	50 %	50 %
Al-rashdiya	100 %	%0
Al-Madaen	100 %	%0
Al-Whida and Al-	100 %	%0
Hussainiya	%40	%60



Elements causing the gap and their impact:

1. **Human resources:** Water treatment plants and water compact units lack proper distribution of roles and responsibilities, staff job description and insufficient number of operators. The effect of this element on the gap is low.
2. **Financial issues:** Poor financial allocations, delay of budget approval, poor revenues and poor number of operators.
3. **Infrastructure:** Aging water treatment plants and water compact units, damage of some water treatment plants and water compact units due to military operations. The effect of this element on the gap is high.

4. **Misuse of water resources** (illegal use and unauthorized tapping to water networks, the irrigation of crops and car washing units from water network and store negatively influence the continuity of the service. The effect of this element on the gap is high.
5. **Security situation:** Due to the deterioration of the security situation and military operations in hot areas, most of the projects are exposed to damages and raw water outage in Abu Gharib sector resulted in not operating water treatment projects and only depending on the line of Baghdad secretariat . The effect of this element on the gap is high.

Based on the above explanation, the following elements have the highest impact on the gap: 1) Misuse of resources, 2) Infrastructure and 3) security situation

Standards	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
Amount of supplied water	Misuse of resources	Coordinate with the police stations in the districts and sub-districts to lift illegal use and unauthorized tapping .Active the media role to rationalize the consumption of water.	Draft deterrent laws and legislations against the trespassers and impose fines against illegal use and unauthorized tapping to water networks
	Infrastructure	Apply ration system in AL-Tajik district and Sab Al-Boor sub-district. Using Baghdad secretariat line as an alternative solution .	Accelerate the implementation of Al-Tarmiya and Al-Taji unified project with a capacity of 8000m ³ /h , which will significantly contributing in covering the gap of water shortage
		Increase Al-Zohoor district share of water up to 50%.	Complete Al-Zohoor water project with a capacity of 10000m ³ /h
security situation	Use tank trucks as an alternative solution to distribute water to cover water shortage in Abu-Ghraib district.	Coordinate with security agencies to secure raw water resources and coordinate with the department of water resources to find alternative water resources.	

		Cooperate with neighboring sub-districts to cover the shortage of water by tank trucks	In cooperation with the province accelerate the implementation of Al-Quqaa project and other water projects in AL-Mahmoodiya and expanding Shishbar water project.
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➤ Quality control

The indicator of the quality of supplied water throughout Baghdad outskirts is 79.87%, the least water quality is in Al-Madaen district at a rate of 70 %, followed by Al-Zharaa and AL-Hussainiya at a rate of 78.13 %, as for other districts and sub-districts the quality rate is about 80%.

Unexpected End	Mahmodiya	Al-Latifya	Al-Yousfiya	Sab Al-Boor	Al-Tajil	Abu Ghraib	Al-Naser and Al-Salam	Al-Tarmiya	Al-Abayji	Al-Mishada	Al-Zohoor	Al-rashdiya	Al-Madaen	Al-Whida	Al-Zharaa and Al-Hussainiya
Water cover	%80	%80	%80	80 %	80 %	%80	%80	%80	%80	%80	%80	%90	%70	80 %	%78
Short age	%20	%20	%20	20 %	20 %	%20	%20	%20	%20	%20	%20	%10	%30	20 %	%22

Quality control

Elements causing the gap and their impact:

1. **Infrastructure:** Aging networks and sedimentation tanks, the need to change the filters. The effect of this element on the gap is low.
2. **Equipment:** There is a need to import a good quality of chlorine and supply water compact units with chlorine cylinders to replace damaged ones. The effect of this element on the gap is low.
3. **Capacity building:** There is a need to hold on job training courses on maintenance of disinfection and deposition devices. The effect of this element on the gap is low.
4. **Misuse of resources:** Illegal use and unauthorized tapping to water networks negatively influence the continuity of the service. The effect of this element on the gap is high.
5. **Technical obstacles:** Rise of dissolved salts in Euphrates river effect the quality and taste of water. The effect of this element on the gap is high.

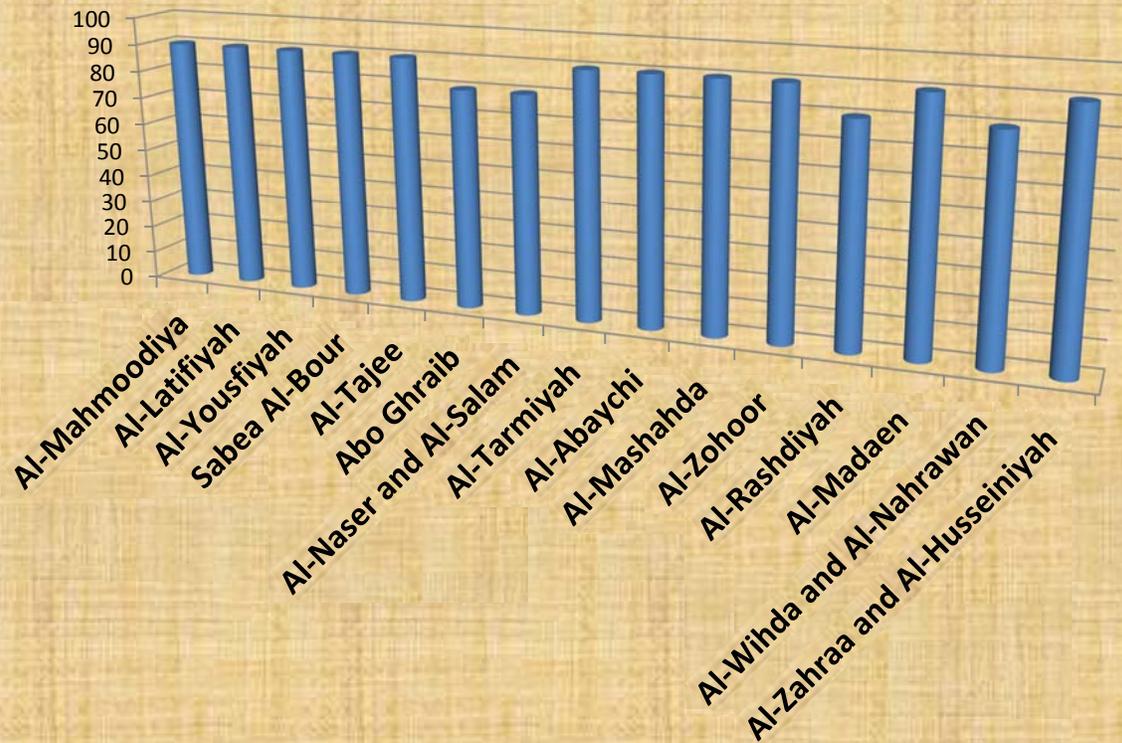
Based on the above explanation, the following elements have the highest impact on the gap: 1) Misuse of resources, 2) technical obstacles

Standards	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
Service Quality	Misuse of resources	Coordinate with the police stations in the districts and sub-districts to lift illegal use and unauthorized tapping to water networks. Active the media role to rationalize the consumption of water.	Draft deterrent laws and legislations against the trespassers and impose fines against illegal use and unauthorized tapping to water networks
	Technical obstacles	None	Add more RO stations to the projects with a capacity of 15000 m ³ /day, for most of the projects are just disinfection and filtration

Response to citizens' complaints

The efficiency of responding to the complaints of citizens has reached 87.3 % and the value of the gap is 12.3 %. The rate ranges from 80% in Abu Ghraib, Al-Naser, Al-Salam, Al-Rashdiya, Al-Wihda and Al-Nihrawan to 90% in other districts and sub-districts.

Indicator	Mahmodiya	Al-Latifya	Al-Yousfiya	Sab Al-Boor	Al-Taji	Abu Ghraib	Al-Naser and Al-Salam	Al-Tarniya	Al-Abayji	Al-Mishhada	Al-Zohoor	Al-rashdiya	Al-Madaen	Al-Wihda and Al-Nahrawn	Al-Zhrra and Hussainiya
Response	%90	%90	%90	90 %	90 %	%80	%80	%90	%90	%90	%90	%80	%90	%80	%90
Gap	%10	%10	%10	10 %	10 %	%20	%20	%10	%10	%10	%10	%20	%10	%20	%10



Response to citizen complaints

Response to citizens' complaints

Elements causing the gap and their impact:

1. **Human resources:** The effect of this element on the gap is low.
2. **Financial issues:** Insufficient financial allocation allocated to rehabilitate water projects. The effect of this element on the gap is high
3. **Infrastructure:** The effect of this element on the gap is low.
4. **Equipment:** lack of equipment and supplies required for continuity of operation, insufficient disinfection and filtration materials and pumps. The effect of this element on the gap is high.
5. **Capacity building:** The effect of this element on the gap is low.
6. **Technical obstacles:** The effect of this element on the gap is low.
7. **Authorities:** Lack of authorities to create account units and stores unit. The effect of this element on the gap is high.
8. **Coordination:** Poor power supply, fluctuated voltage, drop of river level, which is resulting in outage of water projects and compacts. The effect of this element on the gap is high.
9. **Political intervention:** The effect of this element on the gap is low.
10. **Maintenance and operation:** Aging water projects and compacts, equipment filters pumps and deposition tanks. The effect of this element on the gap is high.

11-Security situation: Due to the deterioration of the security situation and military operations in hot areas, most of the projects are exposed to damages and power outage, and difficulties in transporting fuel, disinfection and filtration materials to the projects sites. The effect of this element on the gap is high.

12-Logistic support: The effect of this element on the gap is low, there is a quick response to citizen complaints and a persistent outreach and central operation room based in the directorate to receive citizens complaints and distribute them to water centers in the districts and sub-districts, as well as there are Websites, social media and emails to receive citizen complaints and respond to them.

Where we want to be?

Based on the information that has been collected in the analysis of the situation in 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 Baghdad Water Directorate:

Work on the implementation of projects and water compacts and extending water networks to deliver safe drinking water with world-class specifications for all the inhabitants of the province in the urban and rural areas.

Message of Baghdad Water Directorate:

Provide drinking water to all areas throughout the province, and the elimination of the existing deficit in the service provided to citizens.

The goals of the Baghdad Water Directorate:

1. Increasing served people with pure water from 77.4 , which is the current rate to 100% , by increasing the proportion of drinking water through the completion of the implementation of strategic projects , which will supply 19000 m³/h
2. Reducing the proportion of waste in the water produced via rehabilitation of water projects , functioning water combats and water networks ,such as:
Al-Yousifiya central water treatment plant.
Sder Al-Yousifiya water water treatment plant.
Al-Madaen old water treatment plant.
Al-Rashidiya water treatment plant.
Abu Ghraib water treatment plant.
Al-Zaidan water treatment plant. Rehabilitate more than 30% of the water networks
3. Quality control of inputs and outputs of the water production process and water monitoring at the final consumer so that it is in conformity with international standards. , by supplying the districts with integrated labs and specialized lab technicians and transportation means, chlorine and alums.

4. Lay down new pure water networks to new neighborhoods to cover shortage of water supply.
5. Increase citizen awareness on rationalizing water use, engage them on training session on the negative effect of waste of pure water and authorized tapping to water networks.
6. Reduce waste of pure water and increase consumers awareness through rationalization via installing water gauges in the houses.

How can we get there?"

Baghdad 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. Usage of the scientific method in the analysis of all elements that cause gap in the services provided to citizens indicator compared with the standards.
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.

Baghdad Water Directorate has relied on the use of measurements average that have been collected in the 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.

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 standards 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 Baghdad 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 Baghdad, and the preparation of progress and performance quarterly and annual reports. The Director General of the Directorate of Water of Baghdad 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.

Standard standards 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 services 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 subscriptions	Total subscription supplied with gauge out of the whole total subscriptions	%	A. Total number of houses that are directly connected to network	Housing units that have subscription in water department	Number
				B. Total number of houses that are supplied with consumption gauge	Housing units that are equipped with the gauges of consumption and are adopted in calculation of consumer water wage	Number
				Indicator calculation= $100 \times \frac{B}{A}$		%
4	Service continuity	Continuity of pumped water is measured in average hours of	Hour/day	1. Average of pumping hours per day	Daily pumping hours for a period of 7 days is calculated and	Number

		pumping water in the network during one day where the level of water height reaches in housing units, one floor at a minimum			draw rate as a monthly average	
				Indicator calculation= number of hours in 7 days/7 (calculation is done quarterly)		%
5	Quality of water supplied to person	The quality of drinking water provided per person per day, which matches or exceeds the Iraqi standard 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
6	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	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
				C. 000000+		
				Indicator calculation= $100 \times \frac{B}{A}$		%