



**Diyala Sewer**  
**Service Delivery Improvement Plan**  
**(SDIP)**

*Prepared by*

**Diyala Sewer Directorate**

*In cooperation with*

**GSP/Taqadum**

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**Diyala - 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 Sewer service delivery in Diyala province and enable the sewer 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 Sewer in Diyala to address issues related to its performance in delivering better services to citizens. The SDIP is based on results of the Sewer Directorate and consists of two stages:

- First stage is to identify status of operation and management systems of the water services in all districts and sub-districts of Diyala.
  
- 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 (if any).

## **2-Executive Summary**

The current analysis mechanisms used in reviewing performance indicators of Diyala Sewer 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 Sewer Services:** Management of Sewer service delivery is an important and effective element which the directorate of Sewer in Diyala aims to deliver to citizens. Whereas, the lack of this service delivery negatively affects the health of citizens. The delivery of this service in an efficient way is a proof of the directorate's professional work and considers one of the cultural requirements of our time, where the measurement standards of Sewer networks can't be followed now because these networks are still not in service, but as the Sewer treatment units in east and west sides of Baquba are completed, we hope that the directorate, by hard work, will overcome these logistic obstacles and make these units enter the service.

The following table shows the status of both projects:-

Table No. 1 explains waste water treatment projects.

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S. No.	Project name	Site	Completion rate		Design capacity	People served	Notes
			Planned	Actual			
1	Project of filtration station (waste water treatment unit in the east side of Baquba)	Kanaan	100%	90.5 %	48800M3/day		In progress
2	Project of developing studies and designs for the storm water and heavy water treatment stations, main and sub stations, and lifting stations of sewer in west side of Baquba/ 2 <sup>nd</sup> stage, as well as supply, execute, operate, and maintain projects.	Baquba	19.6%	6.75 %	56000 M3/day		In progress

**Management of Storm water discharge Services:** Management of Storm water discharge Services is an important and effective element performed by the Sewer centers in the (12) districts and sub-districts, where the directorate has efficient and experienced cadres to manage this service. The following table shows the reality of working lifting stations in Baquba district.

Table No. 2 shows the reality of working lifting stations in Baquba district.

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S. No.	Station name	Type	Capacity M3/h	No. of pumps	Type	Status	Working hours	No. of generators	Type	Size	Status	Working hours
1	Storm water pumping station in Al-Yarmook quarter/1	Storm water	2400 M3/h	3 plunger pumps and 1 backup	Germany	Operable	8 h	1	Volvo	200 K.V. A	Operable	8 h
2	Storm water pumping station in Al-Yarmook quarter/2	Storm water	1000 M3/h	3 plunger pumps	Germany	Operable	8 h	1	Volvo	200 K.V. A	Operable	8 h
3	Storm water pumping station of east side of Baquba	Storm water	3600 M3/h	5 plunger pumps	3 Japanese	Operable	8 h	1	MAN Volvo	670 K.V. A 500 K.V. A	Operable Operable	8 h
				1 plunger pump	2 Germany							
4	Storm water pumping station in AL Mustafa quarter	Storm water	1100 M3/h	2 plunger pumps	Germany Japanese	Operable	8 h	1	Volvo	200 K.V. A	Operable	7 h
5-	Storm water pumping station in Al-Tahreer / Apartment house	Storm water	600 M3/h	1 plunger pump	Italian	Operable	8 h	1	Perkins	100 K.V. A	Operable	8 h
				1 plunger pump	Germany							
6-	Storm water pumping station in Al-Tahreer / Al-Sadeeq St.	Storm water	1000 M3/h	2 plunger pumps	Germany	Operable	8 h	1	Perkins	100 K.V. A	Operable	8 h
				1 plunger pump	Germany							

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7-	Storm water and sewer pumping station in Al-Tahreer /Al-Sikak	Waste water	800 M3/h	4 plunger pumps	2 Swedish + 2 Germany	Operable	8 h	1	Perkins	275 K.V. A	Operable	8 h
		Storm water	1200 M3/h	2 plunger pumps	Japanese	Operable						
8-	Shaheed Mu'aid sewer station in Al-Tahreer	Waste water	600 M3/h	1 plunger pump	Turkey	Operable	5 h	1	Perkins	100 K.V. A	Operable	5 h
				1 plunger pump + diesel pump	Germany	Operable						

((A map shows the administrative boundaries of Diyala province ))



### **3- Stages of the service delivery improvement plan:**

Diyala Sewer 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 a scientific method in the analysis of all elements that causes a gap in the services provided to citizens indicator compared with the standard criteria. Annex No.1 shows certified standards to assess services delivered by Diyala sewer directorate.
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 affecting the gap in order to minimize them.
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 Sewer Directorate has relied on the use of measurements rates that have been collected in Baquba district center 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 (Annex No. 2):**

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. Diyala Sewer 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.

#### **4. Gradual approach**

The (SDIP) includes the following questions:

1. Where are we now?
2. Where do we want to be?

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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 Sewer 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 -weaknesses, -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

First: SWOT Analysis of Diyala Sewer directorate

### **Strengths**

- 1- The government interest in sewer sector and deliver best services to citizens.
- 2- Coordinate with local governments to allocate funds from regional development budget to carry out sewer projects in the province.

### **Weaknesses**

- 1) Overlapping works amongst works of service departments resulting in damages to networks due to execution of works.
- 2) Problems related to land acquisition.
- 3) Lack of specialized engineering staff, and therefore, it is required to build their capacities through (delegations, workshops, training courses, and studies)
- 4) The directorate manager and sewer centers officials have no financial and administrative authorities to deal with crisis during floods.
- 5) Lack of a comprehensive and long-term plan for sewer and storm water networks to lay out priorities.
- 6) Deliver services to the unconstructed quarters is not prioritized.
- 7) Lack of specialized vehicles resulting in poor service delivery to citizens.

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- 8) Lack of raw materials such as pipes and accessories to implement connections to networks.
- 9) Lack of financial allocations in the operational budget, investment budget, and regional development budget.
- 10) Lack of generators and plunger pumps to discharge storm water.
- 11) Bad security situation causes stoppage in projects, in progress, and the difficulty to conduct maintenance works.

### **Opportunities:**

- 1- In the province, there are strategic treatment projects in progress.
- 2- There is a desire in the province and the services departments to rehabilitate and establish infrastructure in the unserved areas, where the province, depending on the regional development budget, executed projects such as water, communication, storm water discharge projects, and paving streets in the quarters of Al-Tahreer, neighborhood No.313, Al-Tahreer neighborhood No. 305. There are other projects pending awarding with the same method.
- 3- The sewer directorate has a future vision to carry out waste water networks projects throughout the province.

### **Threats**

- 1- Lack of awareness among citizens and illegal uses and unauthorized connection to storm water networks.
- 2- Illegal establishment of residential areas in agricultural lands and establishment of slums areas, which negatively affects sewer and storm water networks.
- 3- Lack of experienced and efficient companies resulting in a delay in implementing projects.
- 4- Bad security situation causes stoppage in projects, in progress, and the difficulty to conduct maintenance works.
- 5- Lack of financial allocations to carry out storm water and waste water networks.
- 6- Lack of specialized vehicles resulting in poor maintenance and treatment.

### **Second: performance indicators:**

GSP/Taqadam Project supports local governments in improvement of service delivery oversight and supervision in order to advance level of services provided to citizens through adopting measurable standards in a manner that is similar to other developed countries. The service delivery standards rely on eight major basics since it is regarded as key service that need to be obtained in quantitative and qualitative manner through the following standards and indicators:

### **Indicators of storm water discharge network:**

- 1- Efficiency of executed networks
- 2- The extent of coverage of storm water discharge networks
- 3- Number of recorded flood incidents; and

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4- Addressing people complaints in an effective manner.

### Indicators of sewer networks:

- 1- The extent of coverage of waste water discharge networks
- 2- Efficiency of networks to discharge waste water
- 3- Ability to treat waste water.
- 4- Efficiency of waste water treatment.

Diyala Directorate of Sewerage acted according to these indicators. All indicators at Baquba district center levels were provided. The directorate reviewed performance indicators in comparison with standards, diagnosed weaknesses, identified value of gap and made recommendations that contribute to advancement of level of services provided in Diyala district center.

➤ Indicator of services for Baquba district center:

- 1- The extent of coverage of storm water discharge networks:
  - The indicator is 29.6%
  - The gap is 70.4%



It is clear that the size of the gap in the storm water discharge networks indicator is very huge which reflects the need to cover the gap. It is worth noting that there are many of the storm water discharge networks in progress in the quarters of Al-Tahreer area (neighborhood No.313, neighborhood No. 307). And there are other projects pending awarding in the neighborhoods No. 305 and 309).

### Elements causing gap and their effect

1- Human resources:

Lack of technical and engineering staff who follow-up and monitor project execution. And lack of sufficient and experienced staff for operation and maintenance. The effect of this element on the gap is high.

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- 2- Financial issues (Poor operational budget, investment budget, and regional development budget): lack of sufficient financial allocations to carry out storm water networks and for periodic maintenance. The effect of this element is high on the gap.
- 3- Infrastructure: It has no effect on the gap.
- 4- Supplies: There is a shortage in the equipment, supplies, fuel, tools and protective clothing. The effect of this element is high on the gap.
- 5- Capacity building: Build the technical capacities of the engineering staff, especially those who work in the lifting station. This element has a medium effect on the gap.
- 6- Technical constrains: overlapping of works of project- executing companies and previously executed networks which increases the problems of these networks. It has a medium effect on the gap.
- 7- Authorities: It is needed to increase the financial authorities vested to the directorate manager such as the authority to spend amounts exceed 100 million IQD, to conduct maintenance and treat fractures and generators failure without reference to the Directorate General (especially, on the time of crisis). It has a low effect on the gap
- 8- Coordination There is a need for further coordination with PC and G.O to increase the storm water projects and coordinate with other concerned departments (such as water directorate) to urge the companies to accelerate carrying out the delayed projects as soon as possible, overcome problems facing those projects, and handover them on time. The effect of this element is high on the gap.
- 9- Political interventions: They have negative effects on the priorities to carry out projects in some areas at the expense of others. The effect of this element on the gap is low.
- 10- Misuse of resources: It has no effect on the gap.
- 11- Maintenance and Operation: It has no effect on the gap.
- 12- Security conditions: Bad security situation and military operations in the province leads to stop the execution of projects. This element has a high effect on the gap.
- 13- Logistic support: It has no effect on the gap

Based on the above explanation, the following elements have the highest impact on the gap: 1) Financial resources (2) Human resources (3) Coordination (4) Security conditions.

S. No.	Standard	Arrangement of basic elements (which receives	Immediate solutions	Long term solutions
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		the figure 3 (high effect) that contribute to the reduction of the value of the gap, according to the priority		
1	Extent of networks coverage to discharge storm water	Financial resources	Provide financial resources within the operational budget and within the authorities vested to the manager to make connections between main lines.	Develop a five-year plan for the directorate to expand networks, provided that the gap is covered within five years.
		Human resources	N/A	Approach the Ministry to increase the number of technical and engineering staff to oversight networks projects
		Coordination	Set a committee from the directorate, G.O (technical deputy or technical assistant), security bodies, and other service departments to solve the problems facing the companies (related to materials provision)	

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- The indicator of dealing with citizens' complaints: The indicator for Baquba district center.
- The indicator is 90.9%
- The gap is 9.1%



To receive citizens' complaints, Diyala sewer directorate depends on the following:-

- Hot line
- Direct citizens' complaints at the sewer directorate or centers.
- Citizens' complaints registered at local councils
- Citizens' complaints registered at provincial council.

It is worth noting that the percentage of citizens' complaints by hot lines is 80%.

### Elements causing gap and their effect

#### 1- Human resources:

Lack of technical staff to deal with citizens' complaints. The effect of this element on the gap is medium.

2- Financial issues : Lack of operational budget to carry out storm water networks and for periodic maintenance. The effect of this element is high on the gap.

3- Infrastructure (insufficient and aging buildings): It has no effect on the gap.

4- Supplies: There is a shortage in the equipment, supplies, fuel, tools and protective clothing. The effect of this element is high on the gap.

5- Capacity building: provide qualified trainers and training curriculum and requirements. This element has no effect on the gap.

6- Technical constrains: It has no effect on the gap.

7- Authorities: is there any need to get new (administrative, legal, financial, technical) authorities?

It is needed to get administrative and financial authorities through vesting additional authorities to the directorate manager to allocate financial resources for maintenance. It has a low effect on the gap.

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- 8- Coordination There is a need for further coordination with PC and G.O to deal with citizens' complaints. The effect of this element is medium on the gap.
- 9- Political interventions: They have negative effects on the priorities to conduct maintenance works in some areas at the expense of others. The effect of this element on the gap is low.
- 10- Misuse of resources: there is illegal use and unauthorized connection to storm water discharge networks by citizens. It has a high effect on the gap.
- 11- Maintenance and Operation: vehicles used in projects are in need for regular maintenance. It has a low effect on the gap.
- 12- Security conditions: Bad security situation in the province leads to stop the maintenance works. This element has a medium effect on the gap.
- 13- Logistic support: It has no effect on the gap
- 14- Others (to be named): Illegal uses and unauthorized connection to networks as well as slums. It has a medium effect on the gap.

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

S. No.	Standard	Arrangement of basic elements (which receives the figure 3 (high impact) that contribute to the reduction of the value of the gap, according to the priority	Immediate solutions	Long term solutions
2	The extent of addressing citizens' complaints in an effective way	Financial resources (lack of the operational budget, investment budget, and regional development budget)	Increase the operational budget of the directorate and the manager's authority to expense 100 million at the time of crises.	Provide raw materials and spare parts for maintenance and operation to discharge storm water.
		Misuse of resources	Activate laws to punish and impose fines against violators	Vest the officials of the administrative units more authorities to set follow-up committees and remove illegal uses

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				and unauthorized connection to networks.
		Supplies	Provide equipment, fuel, and generators for emergency situations and vest the directorate an emergency fund within the operational budget for emergency situations.	Supply equipment and generators upon contracts signed between the directorate and the province to meet needs. Develop SMS service, hot lines, and develop a control section to receive and direct phones and text messages.

➤ Indicator of waste water service coverage

- The indicator is 4.21%
- The gap is 95.79



It is clear that the size of the gap in the sewer networks indicator is very huge which reflects the need to carry out sewer projects. It is worth noting that there is no treatment unit in Baquba or the province, although there are two major projects for waste water treatment in Baquba for both sides of the province. Based upon the financial allocations for the operational and regional development budgets, it needs

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ten years to cover the gap by establishing treatment stations and networks, taking into consideration the increasing in population and expansion of residential areas.

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**Elements causing gap and their effect**

- 1- Human resources:  
Lack of engineering staff to supervise projects in progress. The effect of this element on the gap is high.
- 2- Financial issues : Lack of financial allocations to carry out waste water networks and for periodic maintenance. The effect of this element is high on the gap.
- 3- Infrastructure: It has no effect on the gap.
- 4- Supplies: It has no effect on the gap.
- 5- Capacity building: There is a need to hold training courses specialized in projects management to build the capacity of the engineering staff and in maintenance to build the capacity of the technical staff. It has a medium effect on the gap..
- 6- Technical constrains: It has no effect on the gap.
- 7- Authorities: It has no effect on the gap.
- 8- Coordination (horizontal and vertical coordination): There is a need to coordinate with PC and GO to follow up sewer projects and allocate funds in the regional development budget to cover the gap gradually. The effect of this element is medium on the gap
- 9- Political interventions: They have negative effects on the priorities to allocate funds for projects. The effect of this element on the gap is low.
- 10- Misuse of resources: It has no effect on the gap.
- 11- Maintenance and Operation: It has no effect on the gap.
- 12- Security conditions: Bad security situation in the province leads to stop the projects, especially those projects located in the restive areas, and maintenance. It has a high effect on the gap.
- 13- Logistic support: It has no effect on the gap

Based on the above explanation, the following elements have the highest impact on the gap: 1) Human resources (2) Financial resources (3) Security conditions.

S. No.	Standard	Arrangement of basic elements (which receives the figure 3 (high effect) that contribute	Immediate solutions	Long term solutions

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		to the reduction of the value of the gap, according to the priority		
2	Extent of wastewater networks coverage	Financial resources (lack of the operational budget, investment budget, and regional development budget)	Urge the companies to accelerate carrying out the delayed networks-expansion projects as soon as possible and handover them on time.	Increase allocations of investment budget to establish sewer networks projects throughout the province.
		Human resources	N/A	Approach the Ministry to increase the number of technical and engineering staff to oversight networks projects
		Security conditions	N/A	Coordinate with security authorities to provide security to protect those who work in sewer expansion projects and maintenance and operation workers.

- The indicator of network efficiency to discharge wastewater: it can't be calculated because there is no treatment unit.
- The indicator of ability to treat wastewater: it can't be calculated because there is no treatment unit.
- The indicator of efficiency of wastewater treatment: it can't be calculated because there is no treatment unit.

**“Where do we want to be?”**

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Based on the information collected in as-in status report, it is possible to develop and illustrate goals and objectives of the directorate that can be inferred from mission and vision of the directorate. It is obligatory to set performance standards and objectives according to SMART Standard (specific, measurable, assignable, realistic or time-related).

### Vision of Diyala Sewer directorate:

Deliver all services of storm water and waste water treatment stations throughout the province.

### Mission of the Directorate:

Deliver best services to citizens and protect the environment.

### Directorate goals

First: - Deliver sewer (waste water and storm water) services to all citizens and improve the reality of health and services.

### Objective goals:-

- Cover all areas of Diyala province with storm water and waste water networks.

### The Strategy followed:

- 1- Execute sewer, waste water, and storm water networks
- 2- Establish the lifting and pumping stations in a way that fits the nature of areas, heights or Plateaus, in the province.
- 3- Provide specialized vehicles,
- 4- Provide equipment and tools;
- 5- Impose fines against citizens and factories owners who violate the sewer disposal instructions and zero tolerance for citizens' interests.
- 6- Establish centers and buildings for departments of Diyala directorate.

Second: - Establish a developed treatment unit

### Objectives Goals;

- Keep the environment clean and improve health

### Strategy followed:-

- 1- Establish a treatment unit for all districts and sub-districts;
- 2- Establish parklands near the treatment units
- 3- Hold training courses for engineering and technical staff.

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Third: - Improve the reality of health and services through providing the Sewer directorate of Diyala and its departments with specialized vehicles.

Objective Goals:-

-Supply high-tech specialized vehicles and train the drivers how to use them.

Strategy followed:-

- 1- Clean main lines to discharge large quantity of storm water;
- 2- Clean sub-lines to discharge storm water from streets;
- 3- Increase the awareness of citizens to reduce illegal uses and unauthorized connection to heavy water and storm water networks and not to throw industrial wastes such as vehicles oil in sewers.
- 4- Provide electric plunger pumps to lift storm water;
- 5- Provide generators for all stations.

### 3 - 5 “How can we reach there?”

Diyala Directorate of Sewerage in cooperation with USAID-funded GSP/Taqadum Project filled out gap analysis form as developed by GSP/Taqadum Project in order to contribute to gap analysis. The importance of the form for service delivery gap analysis comes from:

1. It uses scientific method to analyze all the effective elements which lead to a gap in service delivery indicator in comparison with standard.
2. It prioritizes the effective elements that lead to gap in service delivery by size of effect.
3. It proposes immediate and long term solutions to address the effective elements with the aim to reduce them.
4. Results of analysis, i.e. the proposed immediate and long-term solutions shall form inputs for preparation of service delivery improvement plan of the province.

The directorate relied on use of average measures collected in the 12 administrative units with concentration on the least effective units to set successful solutions with the aim to reduce the gap and improve service delivery to people through immediate and long term solutions. The successful usage of the form shall yield accurate results that help identify correct, realistic and achievable solutions to reduce the gap and improve the service.

### 4 – 5 “How can we ensure success?”

To ensure the success of SDIP, it is important to conduct continuous monitoring of progress assessment standards and indicators in order to improve the performance and external factors at all levels, and record findings and reactions using proper mechanisms for report writing to decision-makers including a detailed description of

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the problems and challenges, what is required, why and how, and create reliable database containing all required data provided that all data dedeed to be updated continuously. It is required to establish a unit within the directorate to coordinate activities and assess the performance on a monthly basis in line with objectives approved. The unit shall send the reports to DG of Diyala sewerage.

### 5. Suggestions proposed by GSP/Taqadum for immediate solutions:

- 1) Activate the collection of waste water fees and increase these fees as well as increase citizens' awareness to protect sewer networks.
- 2) Develop awareness programs to protect sewer and storm water networks from dirt, oils and acids. Awareness campaigns should start from schools.
- 3) Redistribute the vehicles of the directorate by needs, administrative units, and population served according to certified standards.
- 4) Develop SMS service, hot lines, and develop a control section to receive and direct phones and text messages.
- 5) Conduct a questionnaire to know citizens' opinions about services delivered to them and compare results to identify and correct weaknesses.
- 6) Link as many as stations to emergency lines in the province and try to get support from local and central government to achieve this objective.
- 7) Lack of a clear and practical strategy in distributing networks on the administrative units by population, need, percentage of coverage.
- 8) Networks should be maintained and cleaned.
- 9) It is needed to conduct preventive maintenance according to a timetable identified by the sewer centers in the districts and sub-districts to increase the actual age of networks.
- 10) Vest the sewer directorate of Diyala the authority to expense 100 million Iraqi dinars per month.
- 11) Huge damages to executed networks, many illegal uses and unauthorized connection to sewers by violating citizens. Accordingly, this needs enforce effective laws and impose fines against violators.
- 12) Directorate vehicles should be supplied with a GPS system to maximize utilization of time and resources.
- 13) Activate laws and impose fines against violators.
- 14) Set a supreme committee composed of the concerned departments (water, communication, electricity, sewerage) in the province to develop layouts for all networks to ensure safety of other departments' networks during execution of projects.
- 15) Activate and use the GIS system and update maps continuously.
- 16) Use the GPS System to utilize the directorate vehicles perfectly.

### Conclusion

It is important that the Directorate of Sewer manage its works in an effective and efficient way in order to provide better services to citizens using available resources.

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Further, the Directorate should develop a realistic strategic plan and feasibility studies for projects to be implemented in order to reduce gaps in service standards, leading to better services.

Lastly, the Directorate of Sewer should be enabled to find financial resources to support its operational budget and assist it in enforcing applicable laws to prevent illegal uses to the sewer network.

S. No.	Standard	Description of standard	Standard value	Data required to measure the standard	Description	Unit of measurement
2	The extent of coverage of storm water discharge networks	This standard represents the percentage of streets covered with storm water networks out of lengths of total streets.	100%	a) Total length of main and sub-streets in the coverage area.	Streets, with a width of 3.5 M, are considered	Km
				b) Total lengths of main and sub networks.	Buried and covered networks are counted only	Km
				Indicator calculation = $a/b \times 100$		%
3	Number of recorded flooding incidents	Number of flooding incidents due to rainfall which was registered in the services departments during a year	Number/year	a) Determine the number of flood potential points in the coverage area and number them as M1, M2, M3,	Flood Potential points are defined as areas that are exposed to a flood and which are estimated by experience. They are located in the main streets , intersections and streets longer than 100 m.	Number
				b)Number of registered flood incidents during a year	The number of floods affecting traffic or natural life recorded in each point M1, M2, M3, .....	Number
				Indicator calculation = $a/b \times 100$		%

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S. No.	Standard	Indicated standard value	Actual value	Description	Unit of Measurement
1	Efficiency of executed networks	This standard represents the efficiency of storm water networks for covered streets out of total streets included.	100%	a) Total length of main and sub-streets in the coverage area which suffers from permanent problems for the nearest 100M.	Streets with pipes (which their diameter is about 315mm) are calculated only.
				b) Total lengths of executed networks.	Covered networks are calculated only.
				Indicator calculation= $a/b \times 100$	

s. No.	Standard	Description of standard	Standard value	Data required to measure the standard	Description	Unit of measurement
4	The extent of responding to citizens' complaints in an effective way	Total number of complaints concerning storm water which is addressed within 24 hours from receiving of complaint	100%	a) Total number of all complaints received from citizens during a month	Complaints registered at the citizens' service desk	Number
				b) Total number of complaints that are dealt with during one hour from the time of receive	The number of complaints handled in a sound and satisfactory manner during 24 hours or after a day from registering the complaint	Number

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				Indicator calculation = $a/b \times 100$ <b>Monthly updated</b>	%
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Item	Standard	Description	Unit of standard	Needed information to measure the standard	Description	Unit of measurement
1	<b>Extent of coverage by sewer disposal networks</b>	This standard represents extension of embedded sewer disposal networks to include each house or facility whether trading, industrial and other facilities in the district	100%	A. total number of housing units or facilities in the district	Housing units or facilities that are registered with directorates of real estate registration or those to whom construction permits were issued	Number
				B. total number of housing units of facilities that have direct connection with network of sewer disposal	Housing units and facilities that are subscribed or connected with network of sewer disposal Housing units and facilities that are connected with network of rainwater discharge or these with open discharge channels are not counted	Number
				Periodical updating $100 \times \frac{B}{A} =$ indicator calculation		
2	<b>Efficiency of the network to discharge wastewater</b>	This standard measures quantity of wastewater that is discharged through the network in proportion to total quantity of water provided through water networks to citizens within area of service	100 %	A. Quantity of water provided to citizens on a monthly basis	Measure the quantity of product on a monthly or daily basis which is pumped into the network on a daily basis with daily measurement taking into consideration losses in the network or carrier lines (25% in minimum)	Million liters on a monthly basis
				B. quantity of wastewater discharged through the network	Quantity of wastewater at entrance of treatment projects	Million liters on a monthly basis
				$\left(\frac{B}{A} \times 0.75\right) \times 100 =$ indicator calculation (Annually updated)		

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3	<b>capability to treat wastewater</b>	Capability of secondary treatment of wastewater produced from use of water supplied by water projects	100 %	A. quantity of water supplied to citizens through the network on a monthly or daily basis	Measure the quantity of product on a monthly or daily basis which is pumped into the network on a daily basis with daily measurement taking into consideration losses in the network or carrier lines (estimated 25% in minimum)	Million liters on a monthly or daily basis
				B. real capacity of treatment of wastewater	Calculate the real capacity of wastewater treatment projects within the same month	Million liters on a monthly or daily basis
				Annual update $\left(\frac{B}{A} \times 0.75\right) \times 100 =$ indicator calculation		%
4	<b>efficiency of treatment of wastewater</b>  (BOD<40mg/l, TSS=60mg/l, PH=6.5-8.5)	The efficiency of treatment of waste water is measured through checking the percentage of samples inspected from secondary treatment output to see if they comply with or exceed the standards	100%	A. total number of samples tested within a month	Number of samples drawn during a month from secondary treatment unit output by directorates of environment, health or any relevant authority within a period of month	Number
				B. total number of samples tested which comply with the standard specifications within the month	Out of total number of samples drawn in the item above, number of samples tested and which comply with standard specifications	Number
				Monthly update $100 \times \frac{B}{A}$ = indicator calculation		%
5	<b>Extent of Efficiency of responding to people</b>	Total number of complaints concerning	100%	A. total number of all complaints received from citizens during a month period	Complaints registered at office of complaints in	Number

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	<b>complaints</b>	water supply which are addressed within 24 hours from receiving of complaint			effective systems of registration and tracking	
				B. total number of complaints considered and handled during a month period of time	The number of complaints handled in a sound and satisfactory manner during 24 hours or after a day from registering the complaint	Number
				$\text{Monthly update } 100 \times \frac{B}{A}$ = indicator calculation		%