



DUHOK GOVERNORATE WATER AND SANITATION STRATEGY 2018 – 2023

Toward a Resilient Duhok



By
Directorate of Water Dohuk
Directorate of Water Dohuk Outskirts
Directorate of Sewerage
Board of Relief and Humanitarian Affairs (BRHA)

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ABBREVIATIONS

AoO	Area of Origin
BRHA	Board of Relief and Humanitarian Assistance
DoH	Department of Health
DoSP	Department of Spatial Planning
GDW&S	General Directorate for Water and Sewage
GIS	Geographic Information System
GOI	Government of Iraq
IDPs	Internally Displaced Persons
ISIS	Islamic State in Iraq and Syria
IWRM	Integrated Water resources Management
KRG	Kurdistan Regional Government
KRI	Kurdistan Region of Iraq
Lcd	Liters per capita per day
m ³	Meter cube
MDGs	Millennium Development Goals
MMT	Ministry of Municipalities and Tourism
MoE	Ministry of Environment
MoF	Ministry of Finance
MoH	Ministry of Health
MoP	Ministry of Planning
NGO	nongovernmental organization
NRW	Non Revenue Water
O&M	Operations and Maintenance
PPP	Public Private Partnership
SDGs	Sustainable Development Goals
UfW	Unaccounted for Water
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UoD	University of Duhok
US\$	US Dollar
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
W&S	Water & Sewage
W&SS	Water and Sanitation Strategy

FOREWORD

It is my pleasure to present to you the Duhok Water and Sanitation Strategy 2018-2023. With contributions and support of many partners, it is hoped this strategy document will guide us in setting our future goals and specific objectives to effectively deliver results in water and sanitation during the next five years.

This strategy focuses on building a resilient sector based on a unified approach for comprehensive social, economic and environmentally viable water and sanitation development. Linking water scarcity with water security places heavy responsibility on all custodians of water in Duhok Governorate. While this strategy recognizes the main stakeholders, and their effort and achievements to date, it proposes a policy-driven implementation plan. This is intended to ensure coordination and integration of their efforts based on individual and collective accountability and efficiency.

This strategy also responds to the influx of families into our governorate due to the 2014 ISIS onslaught and occupation. This added extraordinary challenge in meeting growing water demands while facing the impact of climate change and water scarcity. It changed geopolitical scenarios that further challenged our commitment to pursue global sustainable development goals. It called for necessity and opportunity to prepare for a water-secure future for all who live in Duhok Governorate.

The strategy stresses an integrated approach to management of water resources and sustainable water and sanitation services in light of future imperatives. The challenges and tasks at hand are vast. There is a need to protect Duhok's water resources while ensuring equitable and efficient water allocation to meet social and economic needs with effective wastewater and sanitation services to underserved populations.

The provision of basic services such as water and electricity supply are fundamental for the future of region. The Government want to implement socially inclusive water management and deliver basic services to all of the population which could create an inclusive approach that would contribute to the post-ISIS era reconstruction.

Insufficient services could impede reconstruction and peacebuilding efforts. Such tensions have repercussions that could potentially threaten stability and peace in the region.

As Governor of Duhok, it is a pleasure to see such professional attention and effort devoted to environmental issues that affect Duhok Governorate. I call upon all partners to support implementation of this strategy and to contribute to achieving its recommendations.

Farhad Ameen
Governor of Duhok

1. EXECUTIVE SUMMARY

Water is part of our culture, heritage and our sense of identity. We use water for drinking, bathing, and recreation; it powers industry, supports agriculture sector, sustains ecosystems and tourism.

Water and sanitation sector faces many challenges resulting from climate change, limitations in water resources and sanitation management, financing and governance, poor infrastructure, weak sector coordination and cooperation. In order to overcome the challenges the clearly defined strategy for the sector is required.

This strategy has been developed in the participatory way by representatives of relevant directorates, organisations and agencies working in the water and sanitation sector and civil society of Dohuk Governorate. It recognizes the criticality of limited water resources, the shared responsibility of all citizens, the Government and civil society for management and protection and aims at sustainable utilization of Duhok's water resources. It defines four objectives to be achieved by 2023:

1. Water and sanitation related data management is introduced and maintained and data (especially on water quality and quantity) is available for everyone.
2. Water supply and sanitation services are managed and used in a sustainable way protecting environment and water resources while allowing economic opportunities.
3. Water and sanitation sector is managed in a participatory way and cooperation and coordination between related directorates is improved.
4. Water and sanitation related information sharing with stakeholders and general public is improved.

The strategy defines approaches and guiding principles related, among others, to data management, monitoring, service standards and performance including customer service and public participation.

2. INTRODUCTION

Duhok Governorate is located in north-west of Iraq. The area of Duhok Governorate is about 10,972 km².

Duhok City is one of the main cities in Kurdistan Region of Iraq. The population is 409,854 persons (October 2018). Other major cities are Zakho, Amediya, Summel and Akri. The population of all Duhok governorate is 1,557,021 persons.

Over 74% of the population of Duhok Governorate live in urban areas, and about 26% in the rural areas. Urban populations are expected to continue increasing annually by 2.9% rate.

Furthermore, Duhok Governorate hosts almost 86,500 refugees and over 530,600 IDPs as a result of conflict, violence and occupation of their areas by ISIS. 35% of them live in 21 camps (17 IDPs, 4 refugee) and 65% stay among hosting communities across Duhok Governorate.

The large displacement has led to a severe humanitarian crisis that has exceeded the capacity of the local government to manage. United Nations, humanitarian and development agencies have been supporting the local government of Duhok Governorate to meet basic needs of the IDPs and refugees with focus on shelter, water and sanitation, education and health.

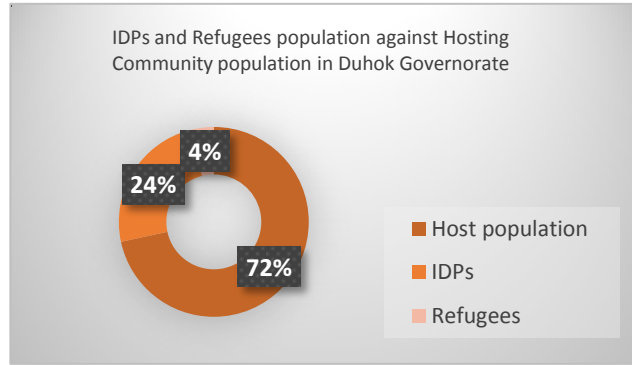


Figure 1: Proportion of IDPs/refugees to the HC

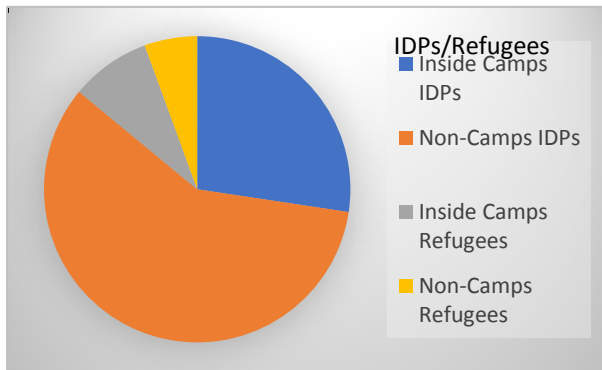


Figure 2: Location of IDPs/refugees settlement

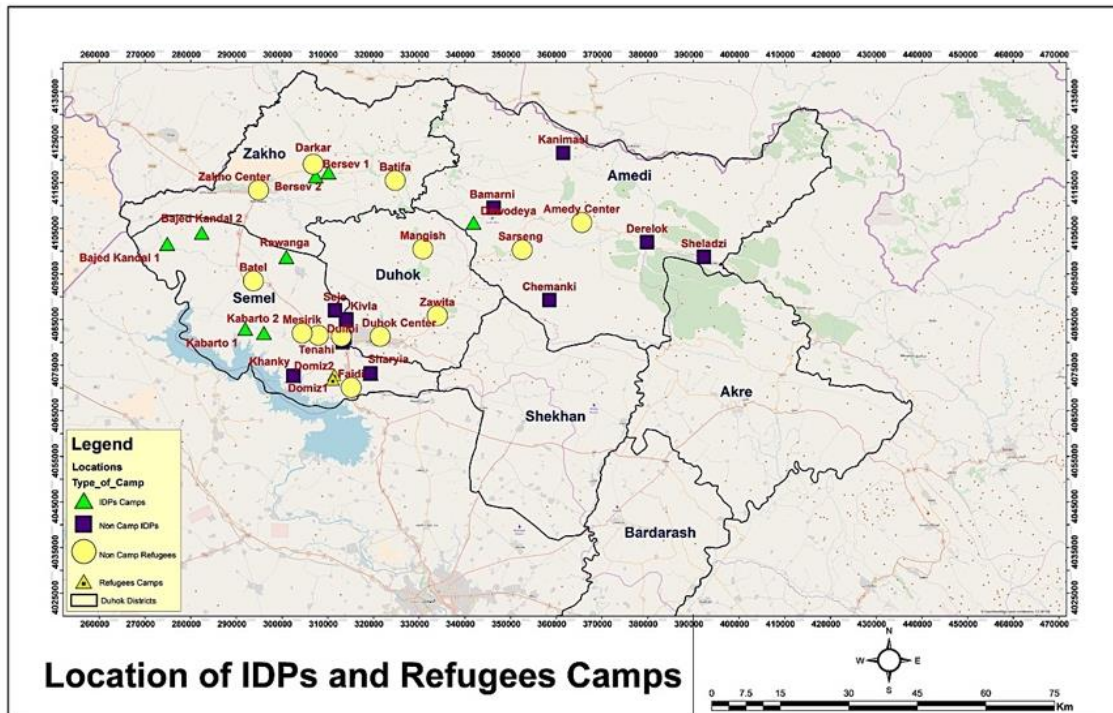


Figure 3: Locations of IDP camps and non-camp IDPs

Water consumption has increased due to the influx of refugees and IDPs and is still increasing due to population growth. Also the expansion of urbanization, industrial and agricultural development as well as misuse put scarce water resources on strain. Water

consumption in different parts of the KRI is from 350 to 550 liters per person per day, which includes also water loses (50-60%), as a result from leakages or illegal private connections to the public grid. It is foreseen that water consumption will increase by 15.8% by 2023. Over-exploitation and misuse critically affect the regional water balance. Despite recent improvements to the water infrastructure, the quality of services remains poor in terms of the continuity of services, water pressure and access to clean water.

Additionally, Iraq has been dealing with decreased rainfall, reduced water storage and drought as a result of a climate change. Annual precipitation in the Dohuk Governorate in the past 15 years has been declining as presented in the graph below.

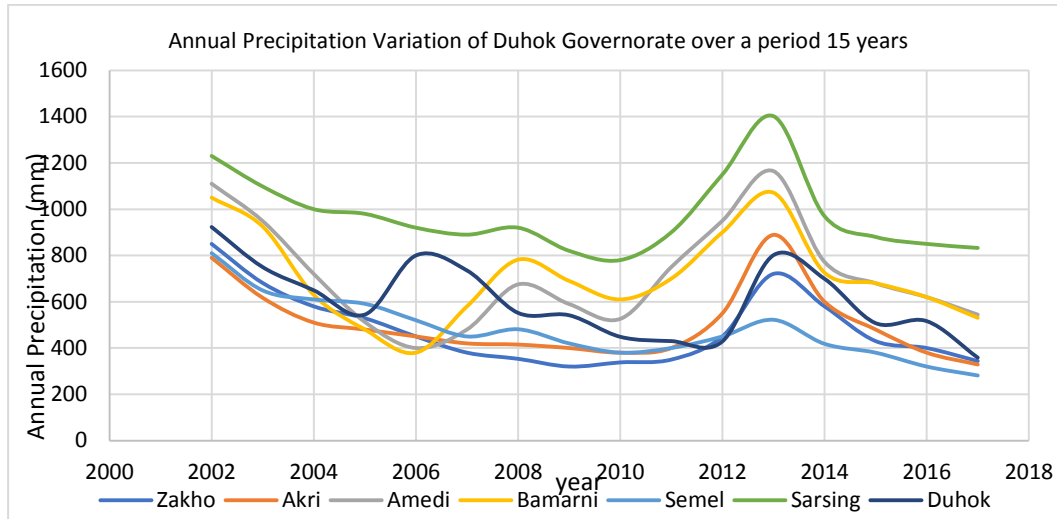


Figure 4: Annual precipitation of Duhok Governorate

The map below also shows which area of the Duhok Governorate has the highest and lowest distribution of precipitation reduction. Zakho, Summel and Bardarash recorded the lowest rainfall.



Figure 5: Distribution of precipitation reduction

Within next 5 years the water discharged to the two main sources of surface water in Iraq – Tigris and Euphrates – is expected to decrease to about 50-80% of the water discharged in 2009. The reduced water discharged to the main rivers is expected as a result of the drought affecting the region, as well as the damming of water resources in the neighboring countries. Some reports project that the Tigris and Euphrates rivers might be depleted by 2040 (IAU 2010).

Average Discharge of Water to Iraq

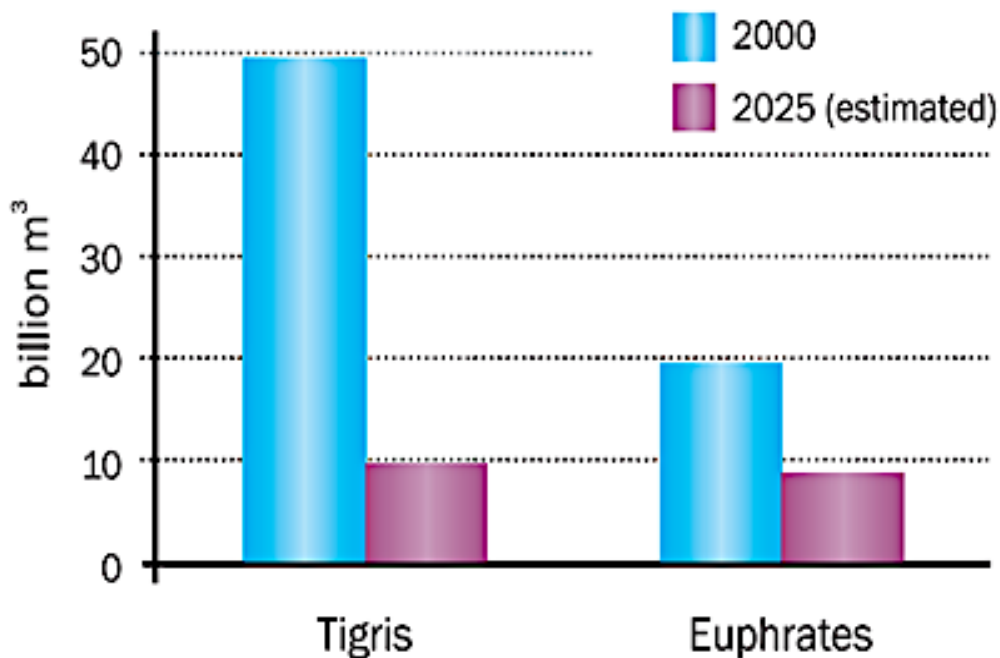


Figure 6: Average discharge of water to Iraq

Even though ground water makes most of water supply sources, no serious action has been taken to scientifically investigate and research the amount and condition of groundwater reserves in the KRI. There is also no action to seal the unauthorized wells. Moreover, there is no reliable statistics for the number of wells authorized. The latest unofficial data from the Duhok Groundwater Directorate was 3,620 authorized wells for drinking and other use, 1,260 wells for agriculture and 425 unauthorized wells.

Black water is collected mostly in septic tanks. They produce faecal sludge which require appropriate management to protect public and environmental health. Most households in Duhok empty their septic tanks at long intervals or when they become blocked and overflow. In most cases neither black water nor grey water are treated and are discharged directly to the environment at distances ranged from 3 to 15 kilometers from the cities and IDPs and refugee camps. The exemption are Shariya and Kabarto camps: in Shariya black and greywater are treated before discharge, whereas in Kabarto greywater and some additional blackwater from Domiz are treated.

Taking into account the above described situation and future of Dohuk Governorate the need to define a strategy to develop water and sanitation sectors appeared to be inevitable.

3. WATER AND SANITATION CHALLENGES IN DUHOK GOVERNORATE

Dohuk Governorate faces following challenges in the water and sanitation sectors that can be divided into the following clusters:

- ✓ **Climate change:**
 - Duhok increasingly and more frequently experiences conditions of water scarcity or water stress. The water flow of the Euphrates and Tigris rivers has reduced by 30% since the 1980s and is expected to further shrink by even up to 80% within next 5 years. The water crisis puts drinking water supply, agriculture and food production at risk.
 - Annual precipitation in the Dohuk Governorate in the past 15 years has been declining. The dramatically low rainfall during the winter of 2017/18 – approximately one-third below average – brought a very dry summer in 2018. Against this background of growing water scarcity, tensions and dispute over water allocation, distribution and priorities are likely to increase. Given the importance of water resources for region, water is a key factor for its stability and security.

- ✓ **Water resources and sanitation management, financing and governance:**
 - Water resources are not managed in a sustainable way and vast amount of water is wasted every day by users – there is poor monitoring of water and wastewater service delivery, insufficient tariffs and low enforcement of cost recovery resulting in financial challenges, fragmented services, underfunded departments. Additionally, there is no motivation of directorates to improve performance. The governorate's role in monitoring is poorly defined, and the governorates do not have sufficient technical capacity to assess system weaknesses. The technical capacity to monitor the performance of the directorates is weakened by the poor state of recordkeeping, reporting, and information systems.
 - Sector management capabilities and capacities are limited. Although many directors and employees in the sector are hard-working and well-intentioned, the neglect of the sector over the last few years has resulted in poor recordkeeping and reporting, limited understanding of system performance attributes and improvement needs, and inappropriate staffing composition and skills. Current systems and capabilities do not enable effective planning, budgeting and control.
 - No data management and not enough data exists for water and sanitation management. There is lack of information on water quality, water consumption and no serious action has been taken to scientifically investigate and research the amount and condition of groundwater reserves.
 - The financing system is inappropriate. First, annual financing is not conducive to the implementation of long-term investment programs, especially when public funding levels fluctuate unpredictably from one year to the next. Second, the sector must compete with other sectors for funds. Third, public financial regulations often make it difficult for sector managers to actually spend budgeted funds. This naturally results also in insufficient water and sanitation infrastructure funding.
 - The current institutional framework is not conducive to achieving sector objectives within a definite time-frame, or to guaranteeing that public funds are spent effectively or efficiently, or to ensuring that facilities are well operated and

adequately maintained. There is no legal framework, policy or strategy in the sector, fees collection is extremely limited, tariff system has not been fully implemented (water consumption metering). Roles and responsibilities are often overlapping.

✓ **Infrastructure:**

- Water infrastructure requires rehabilitation and extension mainly due to mismanagement, neglect and lack of investment as well as influx of IDPs and refugees, who put additional pressure on the infrastructure.
- Grey water, black water and sludge are not treated in any way and discharged directly to the environment causing environmental and health risks.

✓ **Sector coordination and cooperation:**

- Limited cooperation among agencies of government impedes the work of the relevant directorates and increases their costs. Overlapping roles and responsibilities of key public actors in the sector are the main cause of conflicts and poor service delivery, which is not reliable additionally due to lack of planning and uneven distribution of water in regard to locations and time.
- Lack of citizens' participation in understanding, planning and management of water and sanitation sectors. Residents and establishments do not always understand or respect the value of water or their obligation to use public water and sanitation infrastructure properly.

4. VISION FOR THE WATER AND SANITATION SECTORS IN DOHUK GOVERNORATE

“Duhok’s water is managed and protected to ensure its quality and availability for people, for nature, and for the economy, now and in the future, in partnership toward integration of human rights to provide water and sanitation for all.”

The management and protection of water is a shared responsibility between various government departments, municipalities, businesses, industry, and individuals. Each of us has a role to play. Residents need to be aware of how much water they use, practice water conservation, and respect the environment.

Water is a natural resource which is needed for drinking, bathing, and recreation; its powers many of industries, supports agriculture sector, sustains ecosystems, as well as tourism.

Water and sanitation management opportunities could include developing a better understanding of water resources and using this information to support sustainable economic development; implementing improved long-term management developed through joint work of all stakeholders; and evaluating opportunities to share more information with the public.

5. STRATEGIC OBJECTIVES

Basing on the current status and challenges in the water and sanitation sector, taking into consideration future of Dohuk Governorate and its inhabitants, four strategic objectives were defined to be achieved within the timeframe 2018-2023:

1. Water and sanitation related data management is introduced and maintained and data (especially on water quality and quantity) is available for everyone.
2. Water supply and sanitation services are managed and used in a sustainable way protecting environment and water resources while allowing economic opportunities.
3. Water and sanitation sector is managed in a participatory way and cooperation and coordination between related directorates is improved.
4. Water and sanitation related information sharing with stakeholders and general public is improved.

6. APPROACHES AND GUIDING PRINCIPLES

In order to achieve above defined objectives following approaches and measures are foreseen to be taken:

1. Water and sanitation related data management is introduced and maintained and data (especially on water quality and quantity) is available for everyone.
 - a. Data collection and monitoring system will be adapted and strengthened.
 - b. Regular reports on water quantity and quality will be elaborated on regular basis.
 - c. Comprehensive information will be available to inform decision-makers, stakeholders and the general public about the quality and quantity of Duhok's water.
2. Water supply and sanitation services are managed and used in the sustainable way protecting environment and water resources while allowing economic opportunities.
 - a. Physical water losses will be reduced through e.g. rehabilitation of infrastructure and pressure control among others.
 - b. Number of illegal connections and unauthorized wells will be reduced.
 - c. Sanitation infrastructure will be improved.
 - d. Water supply system will be optimized.
 - e. Wastewater discharge will take place in authorized places.
 - f. Energy efficiency will be improved by modernizing key infrastructure and use of renewable energy sources e.g. solar panels to supply pumping stations and wells.
 - g. Water consumption metering will be implemented.
 - h. Revenue collection will be increased through administrative improvements and the outsourcing of billing to third parties.
 - i. Awareness campaigns on water saving will be conducted.

3. Water and sanitation sector is managed in a participatory way and cooperation and coordination between related directorates is improved.
 - a. Public private partnership will be encouraged.
 - b. Thematic groups of stakeholders on key issues will be established.
 - c. Mechanisms to encourage, promote and facilitate women engagement and participation in the water and sanitation sector activities will be established.
 - d. Dialogue and debate about issues of gender in water and sanitation sector will be facilitated.

4. Water and sanitation related information sharing with stakeholders and general public is improved.
 - a. A Communication Strategy will be developed and implemented.

In line with Sustainable Development Goals (SDGs), the following principles will guide the implementers of the strategy:

Conservation and Accountability: Water will be recognized as a valuable resource with conservation and responsible water use encouraged. Reduce inequality and strengthen accountability at all levels

Sustainability: Take a long-term view of preserving healthy eco- systems. Sustain access to quality services, gender equality and empowerment, and promote local ownership

Stewardship: Consideration will be given to how everyone plays a role in water protection and management. Maximizing impact through a whole government approach looking into drinking water, sanitation, and hygiene, water sector governance, finance, and institutions.

Partnerships and Innovation: Opportunities for partnerships and innovative water management and sanitation services will be pursued.

Transparency and Communication: Progress will be reported publicly, and more information will be shared.

Resilience: Promote resilient development and integrate humanitarian and development programming

ANNEX 1: Scenarios