Drought Assessment Report
Diyala Governorate

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Context

Iraq is one of the most climate vulnerable countries in the Middle East (Kawa et al, 2018). Over 90 percent of the country is characterised as drylands and at risk from desertification (USAID, 2017). In 2019, there were 15,000 displacements triggered by water scarcity in the South of Iraq (IDMC, 2020c); 37,000 new displacements, including an estimated 18,500 children,¹ as a result of floods (IDMC, 2020a).

Climate displacement takes place against a backdrop of internal conflict-related displacement. IDMC (2021a) describes the displacement context in Iraq as volatile. The most recent war against the Islamic State of Iraq and the Levant (ISIL) (2013-2017) displaced 5.8 million people (SC, 2019). Many have been returning home since 2017, yet 1.4 million including 700,000 children,² remain in protracted displacement (IOM, 2020). Whilst dealing with large-scale climate and conflict-related internal displacement, Iraq also hosts large numbers of refugees from neighbouring countries (i.e., 290,000 refugees/asylum seekers, the majority from Syria) (ILO, n.d.). Key facts are shared in Table 1³.

| Geography & environment   | ▪ Climate hazards: rising temperatures, drought, sand or dust storms, and flash floods  
                          | ▪ Climate risks: water scarcity in south Iraq, flood loss and damage, disease, and conflict |
|---------------------------|-----------------------------------------------------------------------------------------------|
| People & society          | ▪ Human Development Index: medium (123 out of 189)  
                          | ▪ Population: 36 million with 50% less than 18 years old (population expected to double by 2050)  
                          | ▪ Urbanisation: two thirds of the population live in urban areas  
                          | ▪ Mobility: approximately 700,000 children (of 1.4 million) in protracted displacement (end of 2019) |
| Economy                   | ▪ Energy sector: accounts for 90% of government revenues; at risk of collapse from transition to low carbon energy  
                          | ▪ Agriculture: is the second largest contributor and source of livelihood for 25% of the population |

¹ Estimate based on child population percentage  
² Estimate based on child population percentage  
³SC - Iraq Case Study-July-2021  
⁴ The Human Development Index is used by the United Nations as a summary measure of a country’s achievement in three key dimensions: life expectancy, education and per capita income indicators.
Background

Hamreen Lake (capacity 2 billion m³) feeds the Diyala river, the main water source for the governorate, different channels are branched to cover different areas, including the Khresan river (in the cover photo). Hamreen Lake is fed through the Al-Wand River and discharges from Darbandikhan lake, with the latter losing 77% of its’ original catchment area due to dam construction and river diversion on the Iranian side. More than 1.5 million people rely on the river water sources for domestic use (drinking, hygiene, and cooking) and also for agriculture and livestock that make the top income generation for the population of Diyala. Diyala has been one of the most conflict-affected governorates in Iraq, with approximately 240,000 returnees and more than 70,000 individuals still in displacement. Despite the tremendous efforts by humanitarian, development, and government actors to restore the infrastructure of the governorate, still, people in the area are facing difficulties and challenges accessing basic services, coupled with hindered government efforts for re-stabilization due to oil prices slump amidst the COVID-19 pandemic.

The Iraqi Ministry of Water Resources announced at a press conference that over the last year, the water supply of both the Tigris and Euphrates rivers—the two primary water sources in Iraq—had decreased by 50 percent. Water scarcity is a periodic problem in Iraq due to climatic conditions and the fact that both the Tigris and Euphrates (as well as most of their rivers are tributary rivers) are vulnerable to upstream water use and damming in other countries. Iraq faces pressures on its water resources following years of conflict and under-investment in infrastructure. In many locations, basic services are in a state of decline and there is a growing imbalance between water supply and demand. OCHA field offices have been liaising with local actors to track potential water shortages and determine the possible humanitarian impact.

Due to its reliance on Lake Hamreen, fed by the Diyala River, which originates as the Sirwan River in Iran. The water levels in Lake Hamreen have dropped significantly over the past year, with the surface area covered with water shrinking by half, affecting irrigation and agriculture, and impacting potential returns. In inter-agency missions undertaken by the Diyala sub-office, IDPs from the Saadiya sub-district mentioned the dried-out irrigation channel from the Diyala River as one obstacle to return. Host communities in villages in Markaz Khanaqin and Jalawla also mentioned dried-out irrigation channels would require water pumping to continue agricultural activities.

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5 IOM DTM reports
6 OCHA Humanitarian Bulletin May 2021
The Ministry of Water Resources prevented most farmers in Diyala from planting summer crops due to concerns about diminishing water levels, which will negatively affect their income and may cause food insecurity. Areas potentially affected by water scarcity and drought in the coming months include return areas in North Muqdadiya, Jalawla, and Saadiya in Khanaqin, as well as Jbara and Qaratapa in Kifri, and Mandaly and Qazanya in Baladruz.

The Drought in Diyala is attributed to several reasons, ranked as below:

1. Utilization of the shared water resources by neighboring countries, and lack of joint water resource management. This includes the construction of 14 dams on the water sources and the diversion of rivers.
2. Climate change.
3. Mismanagement of irrigation facilities and low irrigation efficiency
4. Increase in demand, that corresponds to population increment, also resulting in surface water pollution.
5. One of Diyala river’s tributes (Sirwan) flow became zero.
6. The cultivation plan for the summer season has been officially canceled.

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7 OCHA Humanitarian Bulletin May 2021
8 FAO presentation to the inter-cluster coordination in Diyala, May 2021
Climate hazards & effects in Iraq

Climate change affects Iraq’s dryland settings through both sudden-onset weather events notably floods and sand or dust storms, and slow-onset processes such as rising temperature and declining precipitation that can lead to severe droughts (USAID, 2017). These climate trends are expected to intensify due to global warming, and are exacerbated by localised political, security and environmental factors. Key hydro-meteorological hazards and climate change projections are presented in Table 3.

Table 3: Key climate change projections for Iraq

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>● 2°C increase in average annual temperatures by 2050</td>
</tr>
<tr>
<td></td>
<td>● More frequent and prolonged heat waves</td>
</tr>
<tr>
<td>Precipitation</td>
<td>● 9% decrease in rainfall by 2050</td>
</tr>
<tr>
<td></td>
<td>● Rainfall events expected to increase in intensity</td>
</tr>
<tr>
<td>Sea level rise</td>
<td>● Expected increase in soil salinity. Coastal cities at risk of submergence (i.e., Basra, a city of 4 million inhabitants, could disappear by 2050)</td>
</tr>
<tr>
<td>Dust storms</td>
<td>● Dust storms events projected to increase threefold by 2030</td>
</tr>
</tbody>
</table>

Changing climate-related processes and events are predicted to lead to significant ecological and physical changes for dryland settings in Iraq. These include desertification, soil salinisation, loss of biodiversity, a rise in air pollution, and a reduction in water availability and quality (Price, 2018). Low rainfall and increased evaporation due to rising temperatures is contributing to the decline in river water flows (i.e., 1 billion cubic metres are lost annually from Mosul Dam alone), resulting in irrigation canals running dry and in a backflow of saltwater from the Persian Gulf that contaminates water and soil resources (Alwash, 2020; Porter, 2019). Soil salinity already threatens 70 per cent of irrigated land in Iraq (FAO, 2012). Complete desertification of large parts of Iraq is anticipated (MHE, KII).

Methodology

Save the Children Iraq conducted the Drought Need Assessment in Diyala Governorate including Khalis, Ba’aqoba, Muqdadyiah, and Baldroz Districts between 26 July- 3 August 2021. The primary objective of this assessment was to assess the impact of drought on target population livelihoods, agriculture, and livestock.

A sample of 223 Households was randomly selected for this survey, and respondents came from households that do farming, pastoralism, and do small business. Three Key Informant Interviews and eight Focus Group Discussions (8 Adults, 4 children).

Each district had three assessment teams each team comprising of two people (male and female) and delivered the interviews through a face-to-face meeting to a total of 223 respondents across all four.

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9 Data sourced from USAID (2017); Price (2018); Arcanjo (2020)

10 SC-Iraq Case Study-July-2021
<table>
<thead>
<tr>
<th>Type of interviews</th>
<th># of interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 FGDs Adults</td>
<td>- 4 FGDs with Women (23 women)</td>
</tr>
<tr>
<td></td>
<td>- 4 mixed (total 23)</td>
</tr>
<tr>
<td>6 FGDs with Children</td>
<td>- All mixed</td>
</tr>
<tr>
<td>4 KIIs</td>
<td>- All are men including 1 with Directorate of Water and 2 with Agricultural Department</td>
</tr>
<tr>
<td></td>
<td>- 1 with Mayor of Muqdadyiah</td>
</tr>
<tr>
<td>223 HHs interviews</td>
<td>- 30% Women</td>
</tr>
<tr>
<td></td>
<td>- 70 Men</td>
</tr>
<tr>
<td></td>
<td>- 13% Khalis</td>
</tr>
<tr>
<td></td>
<td>- 13% Ba’aqoba</td>
</tr>
<tr>
<td></td>
<td>- 28% Muqdadyiah</td>
</tr>
<tr>
<td></td>
<td>- 46% Baldrooz</td>
</tr>
</tbody>
</table>

**Situation Difference and Challenges**

- In all focus groups discussions conducted with adults and children, it was indicated the huge and negative difference in the situation all communities are noticing. Borhan from Diyala mentioned, “We had water at least three times per week while this year either we have one time per week or we don’t have at all”.

- All adults reported the lack of water impacted severely their lives and children’s health conditions causing poisoning as a result of using water wells as their main source of water. The livelihood situation is also affected, livestock and agriculture are their main source of income. “Every year we don’t have electricity in summer but this year water is not available as well, and it has a huge impact on us”.

  “Some families cannot leave their homes because there is no salary to support the family”.
Coping Mechanism: Procure water through water trucks, sometimes trucks are not available, the cost of the water is expensive, the community cannot offer added additional burden. According to the interviewed HHs, the main two methods respondents reported to cope with lack of water are purchasing water and reduce water consumption.

1- Reduce water consumption. In the regard of how the community will deal with the current situation if continues then half of the interviewed peoples through household's surveys will move to another location where they will have better access to water. “the weather is hot, we reduced the water consumption, we are not taking a shower every day, we reduced our hygiene” a child from Mandili added. Community members started digging wells. It has very bad quality containing sulfur, iron and salty, therefore, they have UTI, hair loss, allergy and some of the animals died. “our neighbor livestock died in the last few days” child added. “my family and other families have coordinated and digged out a well but the water has sulfur, we reduced the consumption of water and purchase water” child attended FGD added.

- 85% of interviewed people through HHs surveys reported spending on average 22 days with no access to water and all beneficiaries reporting the current year is the worst one comparing with previous years.
- The biggest challenge community facing is procuring water through water trucking, their costs have drastically increased

Source of Income

- Through focus group discussions with men and women, it was reported agriculture and livestock are their main sources of income. While through the HHs survey’s respondents reported their three main sources of income are agriculture, daily workers, and livestock. The access to these sources reduced because livestock lost weight or many have died and plants wore out. In one of the villages where the FGDs were conducted participants reported their village has 200 families and only 20 families are government employees while others are daily workers. Over 87% of HH respondents reported a significant reduction in their income comparing with last year. In the last three months, interviewed families have borrowed money for three main
purposes
including food, health, and agricultural purposes.

Water Networks: Diyala Governorate has a wide range of areas allocated for agriculture. These areas are rural and far from the city center. Local and central governments are not constructing any water network.

Family Dynamic
- The lack of water had impacted the family dynamic. It created and increased the level of tension, anxiety, and anger among family members. Caregivers are now not focusing on getting income for their kids but rather trying to collect water. It was confirmed through HHs surveys that women workload has increased with 99.5% reporting that. And, 83% mentioned family tension and anxiety are increased.

Conflict, Displacement, and Lack of Water
- The ongoing situation relates to the prevalence of desertification, damage to crops, the drought of the river, displacement of some families. Animals are poisoned through feeding on household organic garbage and the lack of grass. Interviewed community members explained that the constant fear due to insecurity and armed conflict in the previous years was easier than the drought crisis that occurred this year. Some of the families have been displaced from one area to another; they are going to places where there is water suitable for drinking and human use, and thus we start a new life either they will work as farmers or any other available opportunity.

The Lack of Water Impacts on Livelihood
- As most of the community members are farmers then the drought deprives their main sources of livelihood. Usually, adult’s incomes are agriculture and crops. The lack of water affects the animal breeder leading to the decline and death of livestock and decrease of fisheries, they wouldn’t have source Overall, an extra financial burden added to the head of the households, they have to
Community leaders reported over 50% of the Diyala population to consider agriculture as their main source of income which is heavily affected and this was confirmed with over 200 HHs interviewed through HHS surveys. Dryness caused 20% of the animals to lose weight, some of them poisoned as a result of water, as reliance has become on well water as a substitute for river water. Also, interviewed families through HH survey over 84% reported their livestock productivity reduced as a result of drought and 81% reported livestock death in the last six months. According to Directorate of Irrigation and Water Resources approximately 10516 people/household affected and reported reduction in crop/livestock production.

Community leaders through the interviews confirmed people procuring drinking water and the available public well is not for human use. However, all of that has added additional cost to their daily costs of living and the use of public wells, caused skin disease. The number of families living in the village is 200, including 20 employees. In the last thirty-days community have adopted various coping mechanisms including; spending savings, decreased expenditure, sold more animals and increased hours of daily labors because they don’t have enough for food and money.

Immediate Need

Over 50% of families depend on agriculture, their immediate priorities are drilling wells, as drilling them is expensive, provide drinkable well water as the current one is not suitable for human consumption, providing livelihood and daily income. According to the HHs survey, interviewed people reported their immediate needs are water, food, and cash.

Key climate risks for households in Iraq

i) Loss of agricultural livelihoods and food insecurity resulting from failure of subsistence crops; ii) water insecurity due to drought and low rainfall; iii) damage to key assets, infrastructure and traditional sites as a result of damaging floods and dust storms; and iv) health consequences - ranging from risk of death, severe dehydration and malnutrition, to rise in water and vector borne diseases due to poor water quality and respiratory diseases as a consequence of dust storms.

These climate risks are felt across Iraq. Farming communities are struggling with irrigation water shortages and soil degradation (Foltyn, 2021; IDMC, 2020c). Slowly, parts of the country are becoming uninhabitable and hostile to traditional arable and pastoral livelihoods (Fatli, 2019).
Central South Iraq - often referred to as the country's food basket - has seen its production capabilities decline by 50% over the last two decades (von Lossow, 2018). Iraqis are at significant risk of falling below the water poverty line (i.e., less than 1000m$^3$ per year per person) (al-Muqaddami et al, 2016). Urban dwellers are increasingly affected by dust storms leading to sometimes severe and chronic respiratory diseases. Already healthcare facilities are struggling to manage the rise in such infections (USAID, 2017). Heat waves are also on the rise, with temperatures reaching dangerous levels (i.e., temperatures in Baghdad reached over 50°C for three consecutive days in 2019) (Arcanjo, 2020). Water scarcity and pollution, leads to cholera outbreaks (USAID, 2017). In South Iraq, 118,000 people were hospitalised due to water contamination in 2019 (Porter, 2019).

**Metrological and Agricultural Situation**

- The groundwater for Diyala, in general, is between 90 to 120 meters, Muqaddiyah 30 to 72 meters, Baladruz 18 to 30 meters, Mandali from 60 to 100 meters. Within the governorate, Metrological Department reported having two types of groundwater, surface groundwater 25 to 45 m, artesian more than 90 m. There are no fixed groundwater schemes, but there are geological indicators and factors for soil quality depends on them. For example, in Muqaddiya district, the area deposit of sand and mud in which the groundwater level is close to the surface of the earth. In Baladruz and Mandali, is composed of rocks soil in which the water level is deeper and relatively far from the surface of the earth. Metrological Department reported having monitoring wells that monitor the groundwater level. There is one for each of Muqddiya, Baladruz, Qazaniya, Mandali, Jabara, Al-Azim, Saadiya, and three wells in Khanaqin, and two in Jalawla. These wells assist in observing the extent of the change in the level of water. during this season where we have water scarcity and drought, “we indicated that the water level in Baladruz decreased by more than five meters, meaning it became ten meters far from the surface. It is a real threat and danger that portends a disaster”. Muzfer Abdul-Hameed-Head of Planning Department and Deputy Head of Agricultural Directorate in Diyala.

- The water sources in Mandali are two, the first is shallow, and it is Wadi Harran, which comes from Iran. It covers the water supplying the water stations and irrigates the orchards distributed in Mandali, with an area of 4,500 dunams. The water was cut off February 17, 2021, after Iran built the Shah Dam. The water source is melting snow inside Iran was withheld, in addition to the presence of natural springs in Al-Haram area, but it needs to be maintained and cleaned.

- The second source of water is the wells next to the water resources, which are 27 wells with a diameter of 4 inches, but these wells do not work and do not produce because of the power outage and the absence of operators or guards. Also, the ministry of water resources does not have a plan and is not willing to operate these wells.
The greatest dependence in Diyala governorate is on surface water (rivers) only. In Mandali district, the people depending on wells, but the problem is that it needs desalination because the quality cannot be consumed directly by citizens. There are 9,000 wells distributed throughout the governorate, 8,000 wells for agricultural purposes, and 1,000 wells for water stations and the villages’ uses for washing and household matters. The productivity of wells is measured in a unit of liters per second, and the productivity of wells in Diyala ranges from 2 liters to 10 liters per second.

The crops planted in the winter season are wheat and barley and the summer is summer vegetables, in addition to covered and uncovered winter vegetables. We were provided with a list of the crops planted in the governorate. Planning and agricultural Department reported no drought-resistant crops in Diyala, but a plan and official memos are coming from the central government calling on agricultural researchers to adopt research and studies to develop and see if there are types of wheat and barley crops which are drought-resistant varieties or maybe a new type that instead of needing six watering to reduce them to four.

According to Planning Department at Directorate of Agriculture there are 133 thousand dunams at Diyala Basin, which are orchards that have been directly affected, and the water releases by the Irrigation Department in the rivers are only sufficient to preserve the trees from wilting. As for the wheat and barley crops, 500,000 dunums were planted last season, and we expect that the number will be reduced to 50 thousand dunums. The population of Muqadiya is 150 thousand people, and the Wajhiya District has 50 thousand people, 40% of the district rural and farms, the lack of water and drought led to complete disruption of this vital sector and negatively affected the people and lost their jobs. According to the Directorate of Agriculture, 70% of the people of Diyala Governorate rely on agriculture, government employees, and soldiers have their own orchards and farms. All respondents during the HHs surveys reported household consumption, agriculture and livestock are the main three sectors affected by the drought with multiple choices (223, 178,190).
• The percentage of water allocated to the individual varies 250 liters to 300 liters for drinking, cooking, and washing, and it does not differ from one season to another or from rural to city.

• The directorate of Agriculture reported developing an exceptional policy that shows the level of danger that threatens the whole governorate population. The first step that have been taken are to reduce and minimize the level of the risk is using shifting system to disseminate water equally among the land owners, remove excesses, purify the water network meaning (cleaning the rivers), comprehensive maintenance of pumping stations, establishing new pumping stations to have sustainable solutions. The government should strength and increase the amount of Khurasan River in Baquba, which contains the highest population density in the governorate. As for the challenges, the Diyala governorate has orchards and it is not possible to pass a season without irrigation, and certainly these orchards need relatively large quantities to irrigate them.

Challenges in Water Consumption

• Interviewed HHs reported through the survey their main types to access water which included water trucking and private boreholes. The average amount reported through the survey on purchasing water was around 170,000 IQD per month. “I started noticing my father purchasing water through water trucking to fill out our tanks, we are paying 3000-5000 per day, this water for different HHs purposes and we purchase water bottle, we cannot offer that, my father is a daily worker” child from Mandili added. The number of irrigation systems in Diyala is 259, covering 6000 dunums, 50% of them irrigated through wells and the other 50% through surface water, i.e. rivers and irrigation channels. No fees are collected for river water that is used for agriculture, but municipalities collecting fees with amount of 20 thousand Iraqi
dinars for each house, and these fees are collected through the water department in each district. Fees are used to operate the pipes, maintenance of internal network pipes that deliver water to citizens. The main challenges are including the number of points, including the lack of water storage compared to the actual need, there are no meters inside the houses to monitor consumption, the health and environmental challenge, and the lack of livestock and fisheries as a result of the expected drought and desertification. Because of the drought and the drop in the water level in the wells, the percentage of salinity and sulfates increased and became unsuitable for human and animal use led to have a new types of diseases that did not appear previously. The most stressed areas are Bohroz, Baldroz, Kana’an, Muqdayiah, Salam Sub-District, Mansoria Al-Jel Sub-District (locations are ordered in sequence). Livestock and Farmers population affected through the increase of feed prices, lack green spaces for grazing and the lack of water sources for irrigation, which led to sale huge numbers of livestock to reduce their expenses. Many animal breeders were forced to sell a number of their livestock, canceling the summer and winter agricultural plan, meaning there is no support for farmers. “The Ministry of Agriculture decided and officially canceled the summer plan, as well as the upcoming winter plan, except for ten thousand dunums, irrigated through wells”. A key informant added. Approximately, 200,000 people throughout the governorate face a challenge in obtaining water. The number of farmers for whom the agricultural plan was canceled is 10,500 farmers who only grow wheat and barley.

- The average rainfall for the previous ten years was 30.5 mm, but the average rainfall for the year 2021 is the lowest compared to previous years, and it reached only 17 mm. The total amount of water used for the whole of Diyala governorate currently is 45 cubic meters per second, which may reach 200 m³ / sec, depending on the agricultural season and the availability of water in strategic reservoirs and according to the agricultural plan set by the Ministry of Agriculture. Again, this amount is used for public needs, which include water stations and for industrial purposes. This percentage varies according to the agricultural plan and the agricultural season, which begins as an example for the year 2019-2020 from October until September of the year after. The amount of water used this year for cultivation from Diyala River amounted to 2,918,000,000 cubic meters, and from the Tigris 646,000,000 cubic meters and from Al-Adhem 247708800 cubic meters. The government is really scared of next year because the levels in the tanks have been significantly decreased.

- The amount allocated to the municipality is

\[11,553,600 \text{ seconds} \times 24 \text{ hours} \times 365 \text{ days} = 364,398,480 \text{ cubic meters per year.}\]

- The number of water reservoirs are 3. Hamrin reservoirs capacity is three billion m³, Al-Adhem one and a half billion m³, and Alwand 32 million m³. The main source for these three reservoirs are Diyala River, Al-Adhem River, Alwand River. The flowrate of these reservoirs are fluctuation but government does not know how much quantity entering the reservoirs, but the total volume of each is measured, and these variables that control the amount of water coming to the reservoirs are the rainfall, weather conditions and temperatures. The rate for the previous ten years

<table>
<thead>
<tr>
<th>Reservoirs</th>
<th>Previous 10 years rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamrin Lake</td>
<td>95 m³/sec.</td>
</tr>
<tr>
<td>Al-Adhem</td>
<td>35 m³/sec.</td>
</tr>
<tr>
<td>Alwand River</td>
<td>4 m³/sec.</td>
</tr>
</tbody>
</table>
The industrial reservoirs located in Diyala are three Lake Hamrin, Alwand and Al-Adhem, and according to a memo issued by the Ministry of Irrigation and Water Resources disseminated to all sub-departments in the governorates the volume of water reservoir cannot be shared and it’s very confidential. In general, these three lakes have severely affected by the lack of water as result of lack of rain.

Directorate of Irrigation and water resources was not able to provide SC with all three release rates for all three reservoirs but only for Hamrin Lake.

<table>
<thead>
<tr>
<th>Year</th>
<th>The release rate is as follows (Hamrin Lake).</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021</td>
<td>44 m3/sec</td>
</tr>
<tr>
<td>2020</td>
<td>87 m3/sec</td>
</tr>
<tr>
<td>2019</td>
<td>330 m3/sec</td>
</tr>
<tr>
<td>2018</td>
<td>92 m3/sec</td>
</tr>
<tr>
<td>2017</td>
<td>84 m3/sec</td>
</tr>
<tr>
<td>2016</td>
<td>111 m3/sec</td>
</tr>
<tr>
<td>2015</td>
<td>46 m3/sec</td>
</tr>
<tr>
<td>2014</td>
<td>75 m3/sec</td>
</tr>
<tr>
<td>2013</td>
<td>103 m3/sec</td>
</tr>
</tbody>
</table>

The elements that control these reservoirs are the abundance of seasonal rains, the agricultural plan for each year, the policy of managing the water resources of these reservoirs, and in general, it’s decreasing as result of climate change conditions in the middle east and the rise in temperatures than the usual rates for previous years.