Sector 5 Irrigation System Rehabilitation

Building resilience for smallholder farmers in Deir-ez-Zor Governorate

End of Activity Review

Syria Country Office - April 2022

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

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EXECUTIVE SUMMARY

Agriculture has been the main source of income for most of the population in the Deir-ez-Zor Governorate, Syria's second largest Governorate. With an annual rainfall less than 150 mm/year, the Euphrates River has historically provided the main source of water supply for the land, the livestock, and the people in Deir-ez-Zor. During the crisis, the irrigation systems from the Euphrates were severely damaged in Deir-ez-Zor. To cope, farmers relied on underground water to irrigate their fields, which increased the soil salinity resulting in reduced agriculture production. Additionally, many households in the area reported inadequate food consumption due to lasting impacts of the crisis, which included destruction of public infrastructure, economic recession, loss of lives and properties, and outmigration, particularly of youth.[1]

In 2019, WFP conducted a Seasonal Livelihood Programming (SLP) in Al-Mayadeen District.[2] The rehabilitation of the irrigation system of Sector 5 was one of the top priorities identified through the SLP. Located to the south-east of Deir-ez-Zor City in Al-Mayadeen, this irrigation system serves the villages of Mahkan, Quriyeh, Swedan Shameh and Gharibeh. The villages have up to 5,200 hectares (ha) of cultivatable land of which 3,565 ha are irrigated by the Sector 5 scheme. The project was implemented in collaboration with the Food and Agriculture Organization (FAO) and included technical inputs from the Ministry of Agriculture and Agrarian Reform (MAAR) and the Ministry of Water Resources (MoWR), and with direct involvement of the local community. The rehabilitation was completed in December 2020 with a total cost of USD 2.83 million. WFP and FAO invested in conducting technical assessments, rehabilitating the pumping and lifting stations, and building the capacity of local partners and communities on issues related to the maintenance of the canals to ensure the continuity and longevity of the investment, including the creation of four water user associations and 143 subgroups responsible for the field canals.

A review of the project was done in the third and fourth quarters of 2021 with the following results:

- The project enhanced access to water for agricultural activities in Sector 5 target villages. Beginning in December 2020, 1,188,000 m^3 of water was pumped through the system gradually increasing to reach 6,415,200 m^3 in May 2021 (GOLD, 2021). Since the completion of the project, a total of 37,864,800 m^3 of water was pumped through the system over a period of six months.
- Access to irrigation water enabled farmers to increase the overall cultivated area in Sector 5 target village to 3,565 ha in the 2021 winter season, more than double the area of land that was cultivated in 2019 (1,642 ha) and exceeding what was planned under the Deir-ez-Zor Governorate Agricultural Plan for 2020/21 (3,330 ha) by 263 ha (2021, MAAR).
- There was a nearly five-fold increase in the total crops production from 2,801 tons in 2019 to 15,640 tons in 2021, higher than the two-fold increase in the area of cultivated land, signalling gains in overall productivity of cultivated lands benefitting from the project. The expanded access to irrigation water allowed farmers to increase land productivity by practicing intensive farming where 462.5 ha were used to cultivate multiple crops in a given agricultural season.
- The total production of winter crops was 11,386 tons in 2021, a 8-fold increase from the 1,415 tons produced in 2019 prior to the project. The total production of summer crops increased 3-fold, with a total yield of 4,254 tons, as compared to 1386.5 tons in 2019.
- Wheat is the main winter crop in Deir-ez-Zor, its production increased by almost 10-fold reaching a total of 11,000 tons in 2021 compared to 1,275 tons in 2019.
- As a result of the increased supply of wheat, local bread prices trended favourably lower in the area (al-Quriyeh market) in 2021 compared with the prices in previous years.
- An increase in the total number of livestock was observed in the Sector 5 target villages following the completion of Sector 5 rehabilitation project, with qualitative evidence indicating an increase in access to fodder and water possibly as a result of the project.
- Following completion of Sector 5, only 14 percent of beneficiaries reported that they did not have enough food or money to buy food as compared with 100 percent before the rehabilitation. This was further marked by a 52 percent reduction in consumption coping strategies after the project.

[1] WFP. 2019. Season Livelihood Programming Report: Syrian Republic, Deir-ez-Zor Governorate.

[2] Seasonal Livelihood Programming is a tool used by WFP to identify short and long-term livelihood interventions in a given community through a consultative process.

- Most beneficiaries reported that the intervention had improved their production of crops, some of which were consumed by their families, and/or had increased their income (87 percent and 63 percent, respectively).

Overall, the Sector 5 project benefitted 16,000 households, securing the livelihoods of 11,500 farmers with direct access to irrigation water by enabling them to resume farming activities as well as livestock keeping activities. Additionally, an estimated 4,500 household benefited indirectly through income generated as daily workers in farming and livestock activities, or as traders or daily workers in the local market.

The project yielded positive impacts for women and girls. With an increase in productivity, demand for daily laborers for weeding and harvesting benefitted women who are traditionally responsible for these roles. Women also began participating in the labor market as produce traders and vegetable processors. With the increased sense of stability, families started to report reduced interest in early marriage and were more invested in sending their children including girls back to schools.

The rehabilitation of irrigation infrastructure in Sector 5 was critical for restoring agricultural production and strengthening farmers' resilience to achieve enhanced levels of socio-economic stability. This project was vital for enhancing protection of natural resources and sustaining agricultural cultivation practices in the area. Projects such as Sector 5 can have a powerful and far-reaching impact on the resilience of communities recovering from years of crisis.

BACKGROUND

Deir-ez-Zor Governorate, second largest governorate in Syria, is located on the banks of the Euphrates River. It is home to the largest city in eastern Syria and seventh largest in the country, the city of Deir-ez-Zor (Figure 1).

Over the years, agriculture has been the main source of income for most of the population in the Governorate. With an annual rainfall less than 150 mm/year, the Euphrates River has historically been relied upon as the main source for water supply for the people in Deir-ez-Zor, including for agriculture.

Figure 1: Deir-ez-Zor on map of Syria

During the crisis, the irrigation systems were severely damaged in Deir-ez-Zor. To cope, farmers relied on underground water to irrigate their fields, which increased the soil salinity resulting in reduced agriculture production. Additionally, many households in the area reported inadequate food consumption due to the lasting impacts of the crisis, which include destruction of public infrastructure, economic recession, loss of lives and properties, and outmigration, particularly of youth.[3] Beyond being highly food insecure, Deir-ez-Zor is highly exposed to natural shocks, such as drought.[4]

The crisis also created a shift in the workforce structure of the agricultural sector, where women increasingly joined the agricultural workforce. With many women becoming the sole breadwinners in their households, many turned to agriculture as a source of livelihood to support their families. Accordingly, being new to this labor market, female farmers tended to have limited farming skills, in comparison to their male counterparts, as well as limited experience in producing and marketing their products, often lacking access to information about funding and training opportunities.[5]

As the security environment gradually stabilized in many parts of Syria and access has improved, the opportunity for livelihood interventions that support resident communities, returnees, and internally displaced populations (IDPs) and facilitate access to key production inputs (particularly water), became increasingly possible.

The Integrated Context Analysis[6] (ICA) conducted by WFP showed that the area of Sector 5 is one of the areas with the highest food insecurity and the most extreme exposure to shocks. To understand the needs of the local communities, WFP conducted a Seasonal Livelihood Programming[7] (SLP) consultation at district level in 2019. As a result of the livelihoods prioritization exercise, the local communities highlighted the need to rehabilitate the irrigation network.

[3]WFP. 2019. Season Livelihood Programming Report: Syrian Republic, Deir-ez-Zor Governorate.

[4]In the framework of the Integrated Context Analysis (ICA), Deir-ez-Zor was categorized as "Area 2a", characterized by medium food insecurity and high exposure to natural shocks – both drought and floods (VAM, 2020).

[5]FAO - News Article: Syrian women food producers learn new skills from Italian farmers

[6] The Integrated Context Analysis is part of WFP's Three-Pronged Approach (3PA).

[7] Seasonal Livelihood Programming consultations are part of WFP's Three-Pronged Approach (3PA).

The community's prioritization exercise matched with WFP's strategic reorientation for livelihoods and resilience activities initiated in 2019. This reorientation focused on transitioning from household-level activities towards communal assets rehabilitation, restoration of food systems, and value chains. Hence, WFP identified the rehabilitation of the Sector 5 irrigation system in Deir-ez-Zor as a priority for early recovery in coordination with the Food and Agriculture Organization (FAO) and local communities. The rehabilitation of communal irrigation networks in Deir-ez-Zor was identified as critical to help smallholder farmers in the area stabilize their food security and resume their agricultural activities, their main livelihood source.

The rehabilitation of the Sector 5 irrigation system fit well within WFP's Strategic Outcome 2 of the Interim Country Strategic Plan (ICSP 2019-2021), which focused on enabling food insecure families in urban and rural areas affected by the crisis to meet their basic food and nutrition needs and increase their self-reliance. The project was implemented in collaboration with the Food and Agriculture Organization (FAO) and included technical inputs from the Ministry of Agriculture and Agrarian Reform (MAAR) and the Ministry of Water Resources (MoWR), and with direct involvement of the local community. This project was the first intervention of its type geared towards building community resilience through the rehabilitation of community agrarian assets.[8]

[8] WFP Syria livelihood multi-layered approach is articulated around different levels interlinked with each other, all contributing to the iCSP 2019-2021 Strategic Outcome 2:

- Rehabilitation of community assets that protect access to food and promote self-reliance for the entire communities
- Conditional FFA supporting food insecure households meeting food and nutrition needs in exchange for their participation in livelihood activities
- Restoration and enhancement of staple food value chains (primarily bread) improving food security and nutrition of crisis-affected communities

PROJECT OVERVIEW

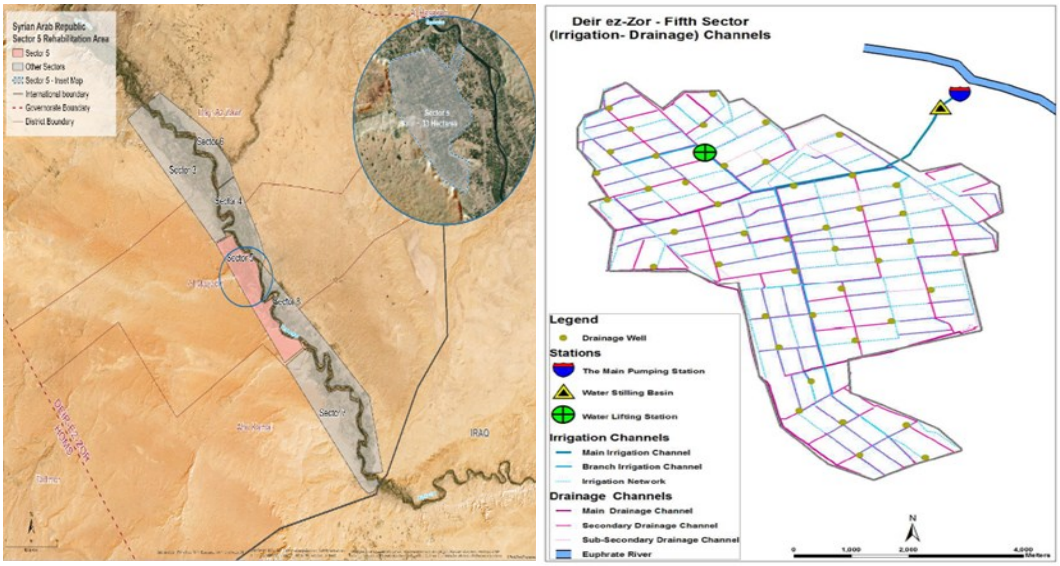
Sector 5 irrigation system is located to the south-east of Deir-ez-Zor City in Al-Mayadeen area. It consists of 170 km of irrigation channels, 44 drainage wells, a main pumping station and a lifting station (Figure 2), all of which were badly damaged during the crisis. The irrigation sector serves four main villages: Mahkan, Quriyeh, Swedan Shameh and Gharibeh. The villages have up to 5,200 hectares (ha) of cultivatable land of which 3,565 ha are irrigated by the Sector 5 scheme.

Before the crisis, the villages of Sector 5 were mainly reliant on irrigated agriculture and animal raising activities. These villages suffered major losses due to the destruction of the communal irrigation systems and water pumps that used to transport the water from the main river to the farms. In 2019, only 31 percent of the available agricultural lands were cultivated, with wells providing the main irrigation source. Moreover, an assessment by MAAR in 2019 found the number of livestock in the area at only 13 percent of pre-crisis levels (SLP Report, 2019).

In response to these challenges, the Sector 5 irrigation system rehabilitation project was designed to address the livelihoods needs of the four nearby villages based on consultations with the local community, with the following project goal:

To improve agricultural productivity of food insecure and vulnerable farmers, restore their livelihoods and strengthen their food security in the four target villages belonging to Sector 5 – namely: Mahkan, Quriyeh, Swedan Shameh and Gharibeh.

Figure 2: Sector 5 Water system location and irrigation system



In order to achieve the overall goal, the following outcomes were outlined for the project:

1. Improve agricultural productivity through:
3. Encourage households to return to their areas of origin and reactivate the economic life.

The project aimed to directly and indirectly support up to