

Rehabilitating Hamdan Jessir Water Treatment Plant



17300 w 10 Mile Rd.
Southfield, MI 48075 USA

Tel: (248) 424-7493

Fax: (248) 424-8325

Website Address: www.lifeusa.org

E-Mail Address: life@lifeusa.org

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Introduction:

Prior to the 1991 Gulf war, the population of Iraq enjoyed a relatively high level of water supply and sanitation services. The sector operated efficiently, utilizing then-current technologies. Over 95% of the urban population and over 75% of the rural population had access to safe potable water. About 218 water treatment plants and about 1200 compact water treatment units were operating throughout the country. Sanitation services covered about 75% of the urban communities (25% connected to sewerage systems and 50% with on-site septic tanks) and about 40% in rural areas.

Since 1991, the water supply and sanitation sector has experienced steady but devastating decline. Aging infrastructure, poorly maintained equipment, leaking water and sewer networks and low technical capacity are some of the key problems of the sector. Diseases associated with poor sanitation, unsafe water and unhygienic practices had increased to alarming rates. It is estimated that water related diseases are responsible for about 25% of all deaths of children in Iraq. Only 9% of the urban population outside Baghdad is served by sewerage systems, while the northern and rural areas do not have piped sewerage systems. Moreover, the unavailability of a continuous power supply due to infrastructure damages has crippled the ability of the ministries and water and sanitation authorities to manage and to operate basic services.

Like people in so many parts of the world, Iraqi citizens now face daily challenges in securing safe drinking water. Drinking water and wastewater treatment systems, already degraded before the war, were further damaged by both bombs and looters. In the aftermath of combat, frequent power outages and a shortage of chlorine threatened to usher in a public health disaster for Iraq's 27 million citizens. A broad-based effort by the United Nations and humanitarian relief organizations has restored basic water services in many areas, and appears to have headed off widespread outbreaks of cholera and other waterborne diseases. However, establishing a safe and reliable water supply remains a long-term task.

In the capital city of Baghdad, the water supply and sewerage systems have fallen into despair from years of neglect and general lack of maintenance, recent war damages and subsequent looting, as well as disruptions in electricity supply. Water production capacity is about 2.1 million cubic meters per day compared to a basic demand of about 3.4 million cubic meters per day. This situation is further exacerbated by a water loss rate of 50 to 60% resulting from leaking distribution networks and frequent leakage. Newly developed areas in city suburbs are not served with any potable water and the population depends entirely on raw water of low quality provided by vendors. In addition, Baghdad's three sewage treatment plants are inoperable, allowing the untreated domestic waste to flow into the Tigris River, which is the main source of the city's water supplies.

Rehabilitating Hamdan Jessir Water Treatment Plant

According to a US based charity, 300,000 metric tons of raw sewage escape into the Tigris River daily.

Since 2000 Life for Relief and Development has started a plan to participate in implementing a number of projects to rehabilitate water treatment stations in order to improve the quality of drinking water. LIFE has already finished rehabilitating four water treatment plants (WTP) in Basrah, three WTP in Diyallah, three WTP in Anbar, three WTP in Missan, in addition to installing two new WTP in Missan and replacing the water network pipes and providing water testing and training for the operators. This year LIFE completed the rehabilitation of Hamdan Jessir WTP in Basrah, and Al-Halabsa WTP in Falluja.

Project Information:

1. **Funding Agency:** Veterans for Peace
2. **Executing Agency:** Life for Relief and Development.
3. **Project Budget:** US\$ 25,245.
4. **Project Location:** Basrah Governorate / Abu Al-Khaseeb / Hamdan Jessir
5. **Project Starting Date:** Originally planned date: December 16, 2006
Actual starting date: December 16, 2006
6. **Project Completion Date:** Originally planned date: February 1, 2007.
Actual completion date: March 26, 2007.

Project Objectives:

1. To further improve the quality of produced potable water.

The installation of the new purification units with its sedimentation tank, chlorine unit filters, aluminum sulfate unit and accessories will assist the plant in producing purified drinking water.

2. To increase the quantity of drinking water in order to meet the needs of the population in the area.

The project included enhancing the output of the plant with the standby function of new pumps in case any of the old parts breakdown or face overload. Before the rehabilitation, people were unable to find an appropriate alternative water resource in the case that the WTP was down until the problem was repaired. Now people will continue having access to drinking water because of the alternative standby pumps. The extension of the cables from the main electricity net will help maintain the WTP work, avoiding the past experiences with many hours cut through the old feeding net of electricity.

3. To reduce the water-borne diseases and diarrhea cases.

Rehabilitating Hamdan Jessir Water Treatment Plant

Providing purified water will positively effect the health situation of the population in the area, and reduce the referral cases to the health centers and hospitals. The water purification process will provide palatable drinking water, avoiding contamination and virtually eliminating chemicals means of transmitting diseases through that water.

Project Implementation:

Hamdan Jessir water treatment plant was initially designed as a Water Treatment Unit to meet the needs of the inhabitants with safe drinking water, but instead it functioned just as a pumping station. It was neglected due to the lack of spare parts (for pumps chlorinators, Aluminum sulfate injectors, mixers and some fitting, filters and valves....etc) and the impact of the sanctions and two wars; which caused the neglect in the maintenance of the water plant.

The project intended to supply new water pumps for the low lift and high lift, new complete aluminum sulfate unit including injectors, mixers and tanks, and a chlorine unit. The project also included repairing the main electrical board, cleaning, painting and repairing the sedimentation tank, and rehabilitating the operator room. Other work included changing of the filters, damaged valves (to insure an efficient water filtration), and replacing the intake area and suction line.



Issues affecting project implementation:

- The absences of the Basra Water Directorate engineer who Changes items of the BOQ.
- The need for new items and for additional work; which was out of scope of our budget.
- Dangerous security situation especially on the local holidays.
- Guarding against theft during the project duration.

Rehabilitating Hamdan Jessir Water Treatment Plant

There were minor obstacles that hindered the implementation for a while such as; finding an alternative water resource for the people during the rehabilitation period, the frequent down-time of electricity (almost no electricity) and the hard working conditions in the area. LIFE's efforts together with the General Corporation for Water System and local community who had good merits that led to overcome all these difficulties.

Issues affecting project impact:

LIFE expected that the plant's technical staff who are responsible for its daily functioning may be of insufficient experience. Therefore, LIFE will organize a training course for the technical staff or provide them with all necessary maps, charts and operational instruction guidelines for the station operation.

The next issue that LIFE faced was the individuals' misuse of the drinking water as, for example, its use to water farms, washing cars, as well as pipe leakage. Supported by the local community, LIFE initiated an effort to advise the beneficiary population on the appropriate use of drinking water and avoid wasting this valuable resource (through distributing brochures).



There was a need for expanding the capacity of the plant's Compact Units (CU), the next step to follow up and upgrade the efficiency of the CU, to meet the needs quantity and quality.

Reporting:

A Life engineer reported about the work progress on a weekly basis. In addition, a joint report was made with Basrah Water Directorate at the completion of the work.

Target Population:

The rehabilitation of Hamdan Jessir Water plant has bridged a gap of the population's needs in Basrah Governorate as the inhabitants in the area suffered a great deal due to the low-quality water, and the insufficient water quantities supplied to the area. After the rehabilitation (with added equipment and facility), the plant functions have improved and this is reflected in the quality and quantity of the supplied water to the targeted beneficiaries, who are estimated to be about 4,500 people in the area.

Rehabilitating Hamdan Jessir Water Treatment Plant



Impact on Target Population:

Rehabilitation of this water plant has a significant impact on the target population:

- A direct impact reflected in
 - The supply of purified water (of good quality) to people. The quality of water is monitored on a bi-weekly basis by the health office in each Governorate.
 - A provision of adequate quantity of drinking water, reducing the gap of the needs of the population in the area.
- An indirect impact on the health of the target population which would be visible after, in average a year or more from the starting date of work in the plant. To assess this impact a survey will be carried on the number of water-borne diseases and diarrhea cases.



Rehabilitating Hamdan Jessir Water Treatment Plant

Notes:

The population in the area expressed their sincere thanks and consideration for all parties who contributed to the completion of the rehabilitation work in the station and to all who paid attention to their suffering.

- The LIFE staff conducted some visits to the community; and tried to do some interviews with the beneficiaries asking them about the difference of the performance of the compact unit, type of water and the quantity. They mentioned that the quantity of water and the pressure drop of the water are very low; as a result, most of the homes with a good distance away from the CU didn't receive water. After the rehabilitation and the operating of the CU all of them received the water and are very happy with type of water that they received.
- The LIFE staff consistently followed up with Basrah Water Directorate on the CU and gave them the raw material, aluminum sulfate and chlorine, for purification.

LIFE would like to take this opportunity to express its utmost appreciation and thanks to Veterans for Peace who have gracefully provided the necessary funds for the project.

Conclusion:

In conclusion, it is of the utmost importance to continue the rehabilitation of water treatment plants and/or installing new ones in order to reduce the suffering of the Iraqi people, and reduce the number of innocent civilians who are suffering from water-borne diseases and diarrhea. We hope to continue this urgently needed work, with the support of gracious and committed partners like Veterans for Peace.