

Management of the Jalamah, Mirkan and Jawban Water Supply Networks in Northwestern Syria

Water User Associations and Social Cohesion



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ahmed.haj.asaad@geoexpertise.org

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Executive Summary

The project focuses on the restoration and management of the Jalamah, Mirkan and Jawban water supply networks. It is located close to Afrin in northwestern Syria. The work is conducted by the Geo Expertise team, which is composed of Syrian water engineers and technicians, in collaboration with the population.

The project provides safe water to over 21'600 persons, 50% are displaced persons, and has led to the creation of seven water user associations. The latter are in charge of the management of the water supply networks in collaborations with local councils. The local population is composed essentially of Kurds while displaced are Arabs and Turkmen from various locations (Rif Damascus, Damascus, Homs, Aleppo, Idlib and Deir Az Zour). Some of the Kurdish population left the area and part has returned. The movement took place in three waves; fleeing the Damascus regime then the people's protection forces and more recently the Turkish olive branch operation.

Beyond the management of water supply networks, water user associations play an important role in strengthening links between locals and displaced persons. Prior to the conflict water supply was managed by the state with no participation of the population or municipalities. State organizations have collapsed as a result of the conflict or are unable to provide restoration and management of water networks in most part of the country. In many locations, local councils (formal or informal) do not have competences to restore and manage water supply networks. Water, of unknown quality, is then provided by tanks at a high cost. This was the case in the villages supplied by the pumping stations of Jalamah, Mirkan and Jawban. Tanks delivered water to the population at an average cost of 2'600 Syrian pounds per cubic meter of water.

In Jalamah and Jawban water supply networks had to be partially restored by the Geo Expertise team but the pumping stations were functional. In Mirkan the pumping station and the water network was functional. The Jawban and Mirkan pumping stations deliver water to three villages each. The Jalamah pumping station delivers water to the village of Jalamah. Groundwater resources are sufficient in the Afrin area to meet the needs of the local and displaced populations.

Seven water user associations, one per village, were created including both local and displaced populations. Water user associations are responsible for collecting water fees and identifying maintenance needs of the network. The project paid for operational costs for 3 months in order to demonstrate the viability of the networks and allow water user associations to build up cash flow. The water fee in the study area is set up at 2'000 Syrian pounds per house and per month. It is estimated that 5% of the families will not pay the fee due to their economic situation. Water user associations elect three members who represent the association at the concerned pumping station. Their role in Jawban and Mirkan is furthermore to define the allocation of water per village.

The restoration and management of Jalamah, Mirkan and Jawban water supply networks is part of a program "Water for Basic Needs and Social Cohesion" conducted by Geo Expertise in collaboration with the Graduate Institute of International and Development Studies. It make use of the data collected by the Orontes River Basin research program led by the Graduate Institute of International and Development Studies. The project was funded by an NGO focusing on social cohesion in Syria.

Introduction

Access to water for both domestic and agricultural purposes remains a critical issue in many Syrian locations. Water is not only essential to emergency relief; it is also integral to longer-term prospects. Widespread insecurity and looting, the weaponization of water, the flight of trained personnel, a lack of spares and energy shortages have all severely degraded the country's water infrastructure.

The rehabilitation and management of water supply networks is a vital but complex issue. Indeed, beyond the restoration of infrastructure it is necessary to set up appropriate management bodies to assure the functioning and maintenance of water supply networks. Prior to the conflict water supply systems for domestic usages and for irrigation were managed by states services. In areas out of control of the Syrian government states services have collapsed, in areas under its control they are often unable to manage water supply networks.

Water user associations play an important role in managing the delivery of water to the population in collaboration with local councils (formal or informal) and civil society associations. Supporting the access to water is not only a response to a critical need but also a means to engage local bodies in negotiating with a more or less wide range of actors (water users, local power structures, economic actors...) to establish viable management systems. Water networks can supply less than a thousand to several thousand persons. Furthermore, large networks can be crossed by sectarian territorial limits and/or demarcation lines.

Needs in terms of water supply rehabilitation and management are variable depending on the context. In certain cases, pumping stations and water networks have been totally or partly restored thanks to the funding of international organizations but are not functional in the absence of appropriate management. Several water rehabilitations projects have provided pumps and generators allowing the provision of water but did not include the establishment of a management structure. Local councils are not always able to set up a management system to render the supply functional.

The Jalamah, Mirkan and Jawban water networks are located in the upper reach of the Orontes River Basin to the west of the city of Afrin. The projects make use of the data collected on water resources and exploitation collected by the Orontes River Basin research program led by the Graduate Institute of International and Development Studies. The management of the Jalamah, Mirkan and Jawban water networks was funded by an NGO focusing on social cohesion in Syria.

1. The Project Context

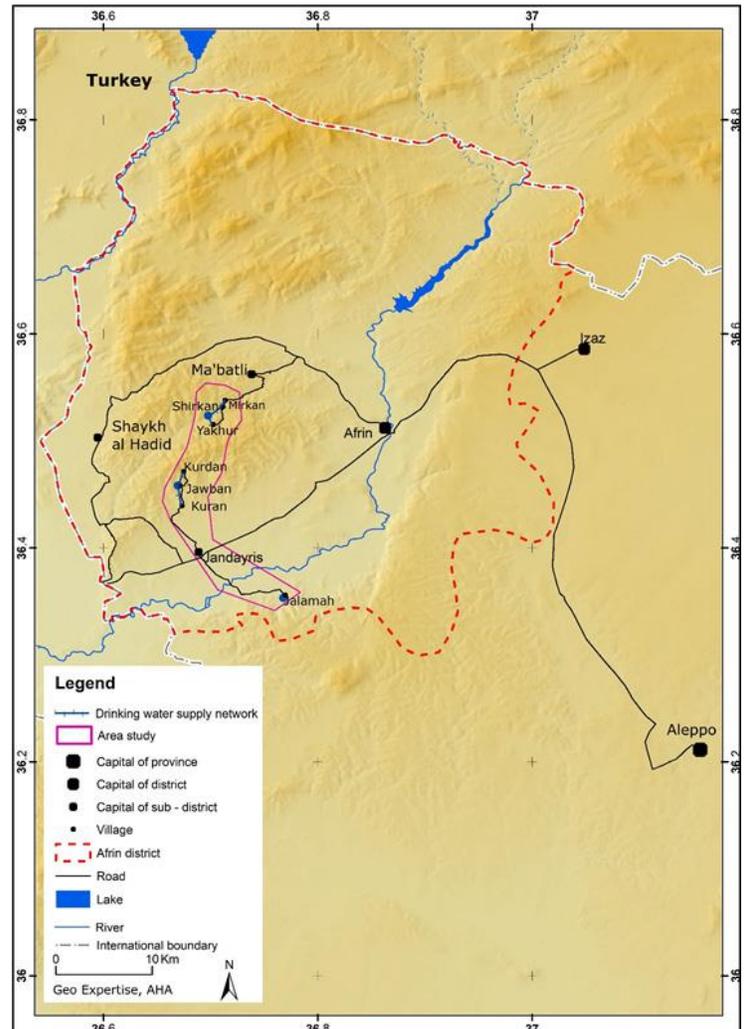
The station of Jawban supplies the villages of Jawban, Kurdan and Kuran. The station of Jalamah supplies the village of Jalamah. In the water pumping of Jawban station water is pumped from a well 275 m deep. The pumps are installed at a depth of 175 m. The well is equipped with a vertical pump. Water feeds a 50 m³ reservoir from which a horizontal pumps (50 HP.) feed two water towers: Kuran (130 m³) and Kurdan (50 m³). The station is equipped with a 200 KVA Generator. In Jalamah station, water is pumped from spring from with a horizontal pump (15 K.V.A.) feeding a 150 m³ reservoir. The station is equipped with a 32 K.V.A. generator

In Jalamah, Mirkan and Jawban, pumping stations are operational. But local councils were unable to manage the supply of water due to a lack of experience and competencies. Prior to the conflict, the water distribution network was entirely managed by the state. In Jalamah, there was a necessity to protect the spring basin and the operating room.

The situation of the Jalamah spring basin, which was a source of drinking water for the inhabitants of Jalamah, was unacceptable and dangerous with regard to population health. In fact, Jalamah received a large number of IDPs who reside in the city. Because of the population density and the lack of domestic water, the spring basin was transformed into a washroom for sheep's wool, carpets and clothes. The drinking water pond became a place for spreading laundry and wool. Adults and children took no hygiene preoccupation about the reservoir. They did not pay attention to protect the spring basin. This situation made the basin environment fragile, the spring vulnerable and the drinking water in danger of contamination. This situation created a latent conflict between locals and IDPs which could turn into a bloody conflict at any moment. The drinking water reservoir of Mirkan was not clean as it contained mud and algae.

The Jalamah, Jawban and Mirkan pumping stations can supply about 27'500 persons. It cover the need for safe domestic water for the total population estimated at about 21'600 people including about 50% IDPs. It is essential, that the concerned population is closely associated to the project.

Location of the project



Ensuring the continuous operation of drinking water stations was confronted to several weaknesses in its management. This is due to the following reasons:

- The culture of local collective work is weakened by a highly centralized state.
- The population does not have experience in managing the pumping station because water management was centralized.
- The strategy of humanitarian NGOs, regarding the drinking water supply is not clear about the participation of beneficiary in recovery costs.
- Prior of crises, the price of drinking water was subsidized by the state at between 40 - 70%. This difference in subsidies comes from the fact that the price of water was fixed in all Syria, while the costs of providing drinking water differ from one station to another. The cost depends on the level of groundwater, the availability and the topography.

- Poverty is high among locals and IDPs. It is a major constraint facing water user associations in the local management of the water drinking supply.
- The high and unstable price of diesel.
- The inflation rate, the exchange between the Syrian pound and US dollar the latter rose from 1'700 to 2'700 Syrian pounds. This affects the residents' ability to pay for drinking water.
- Technical problem, sometimes the station was exposed to major problem,
- A percentage of the beneficiaries do not pay because of poverty, displacement or evading payment. This percentage varies a lot from month to month due to the families' unstable financial income. It is estimated at 5% of the families.

We have identified several factors that increase the tension between IDPs and the local population

- Some have moved to the area with their livestock (goats and sheep) while the land in Afrin area is planted with olive, grapes tree and sumac. The vine leaf and sumac fruits are economic source for the local families. They gather grape leaves in spring and the sumac fruit at the beginning of the summer for sale. The stockbreeders (the majority of which are of Bedouin origin) let their herds graze inside the orchards. When the goats and sheep graze in the orchards, they graze the leaf of vine and the tree of sumac. This action caused economic loss for the local people.
- Displaced increase the pressure on infrastructure, mostly, water supply networking.
- Some displaced cut branches from olive trees for heating their houses.
- There is an economic competition between local and the displaced population. Displaced people carry out the same activities as the locals (hairstylist, shop, mechanic workshop).
- There is a difference in culture and customs between locals and displaced persons.

Sheep watering from a reservoir



Several actors are present in the project area.

- **Syrian and International NGOs**
There are more than 30 Syrian and International NGOs which work in the Afrin area in different sectors. Their relation with local councils is variable. NGOs concentrate on humanitarian aid emergency and protection.
- **Administration actors**
 - Local councils which members are elected or named.
 - The Water department, is a “State agency” it disappeared as a result of the conflict

- **Local committee**

Local committees are composed of the socio-economic actors (leaders, tribe sheikhs, personalities). It is not a fixed institution. Rather, members meet in order to contribute to solving a problem or to encourage collective action. Local committees could play an important reconciliation role in, reducing tensions between IDPs and the local populations.

The local committee is composed of local and IDP's actors and thus have an influence on the local population and IDP's from their village. The influence of some local committee members goes beyond their village to another village.

- **The National Army**

The National Army (formerly the Syrian Free Army) controls the area of Afrin. We were not subjected to harassment from the National Army during our work. We did not include this actor in the process of social cohesion because we believed that the army is authoritarian.

One of the Syrian conflict disastrous consequences is that the social contract between Syrians tends to be a social contract of violence. For that matter, it is necessary to strengthening the social cohesion.

Strengthening social cohesion in the post-conflict period in Syria requires a detailed understanding of the new social structure at the local level. The necessity of working at the local level is due to the diversity of cultures and traditions in Syria. Then, we identified the elements around which to launch discussion and negotiation between the different actors with the aim of strengthening social cohesion. The fact that water is a basic need and a neutral substance for everyone. Our analysis shows that water is a unifying factor because it is a basic need and is used by everyone. Access to water can be a way to start negotiations and enhance social cohesion between the various parties.

Promoting social cohesion between residents and IDPs requires identifying the origins of the displaced and understanding their culture and traditions in order to design appropriate strategies to enhance social cohesion among them. The team conducted several interviews with the local and displaced populations in order to identify elements to strengthen the rapprochement between them. It focused in particular on:

- The geographic origin of displaced (al-Ghouta, Homs, Northern Hama, Idlib, Deir Az Zour, ...)
- The type of activities (Bedouin, farmers, city dwellers),

The interviews allowed identifying socio-economic personality and the origin of IDPs.

2. Water User Associations

Sustainable access to safe water from the pumping stations requires the availability of operating and maintenance costs. To achieve that, we have elaborated water user associations (WUA) to develop two complementary options:

- Water fees collected during our intervention constitute a savings fund to ensure the sustainability of the water supply. The savings fund is managed by WUA.
- Communicating with humanitarian organizations in order to obtain when possible financial support to operate drinking stations.

WUA, taking into account the alternation between the saving fund and financial support of NGO, will be able to ensure the sustainability of the project. The savings fund guarantees the payment of the operation cost of pumping stations to provide drinking water in the case NGO subsidies are absent.

The transparency of the water supply fee collection policy increased beneficiaries' confidence in the WUA. We believe that the responsibility of the beneficiaries in terms of infrastructure will be better than it has been in the past. The participation of beneficiaries to set the policy to recover the cost of supplying safe water (fee by month and the exemption from payment) has strengthened the solidarity principal.

The collective water supply networks, if managed adequately, can reduce by at least half the cost of water. Seven WUAs were established on the model developed by Geo Expertise for the management of the Ar Ruj irrigation network. Local councils were associated to the establishment of WUAs.

Prior to the conflict, water distribution networks were entirely managed by the state. During the war, the government abandoned the management of drinking water pumping stations in areas that were out of its control. In areas under his control, the government's role has become weak in water management. Local councils have replaced the state agency in managing water in areas out control of the Damascus government. In some cases, humanitarian organizations collaborate with local councils to manage and operate the pumping station. Then the organization passes the management to the local council. The operation of pumping stations generally stops at the end of the organization intervention. In general, local councils were unable to manage the supply of water due to a lack of experience, competencies and financial capacities. It is essential, that the concerned population is closely associated to the project. WUAs were established on the model developed by Geo Expertise for the management of the Ar Ruj irrigation network (Idlib -Syria) taking into consideration the special circumstances of Afrin region. Local councils were associated to the establishment of the association, which work with the local council to ensure the project continuity.

The Geo Expertise team, in collaboration with the associations, prepared the statutes of the association. The proposed statutes are based on chapter 10 of the Syrian water law of 16/11/2005.

The water user associations were founded in the three pumping stations: Jawban, Jalamah and Mirkan.

The WUA addresses two levels:

- At the village level, the pumping station association is composed of influential personalities in the village. Each village elects his or her representative to the project level association.
- At the project level, the association by station is composed of representatives elected by the WUAs at the village level.

WUA meeting and planning



Water user association in Jawban:

The WUA composed at the village level by influential personalities. Each village elects representatives to the association at the project level.

At the project level the association of water users is composed of personalities elected by associations of water users at the village level.

Beneficiaries of the Jawban station elected their representatives (Jawban 4; Kurdan 4; Kuran 6). Those persons formed the general assembly of the association. The general assembly elected three persons for the executive committee.

Water user association in Mirkan:

The General Assembly of Mirkan WUA met in April. They are seven members: Mirkan 2 Shirkan 2; Yakhur 3. Those persons presented the general assembly of associations. The general assembly elected three persons for the executive committee.

Water user association in Jalamah:

The WUA is composed by influential personalities in the village. The General Assembly of Jalamah met in June. It elected three persons for the executive committee.

The WUA facilitates communication between the beneficiaries, Geo Expertise and the competent institutions, ensures a fair and optimal distribution of water in order to meet the population's drinking water needs, collects the financial contribution, reduces tensions and enhances social cohesion between locals and IDPs.

WUA contributed to the establishment of an appropriate and realistic policy for the distribution of drinking water between beneficiaries at the level of villages, neighbourhood and dwellings. The water fee policy was defined by the WUA. Water fees are adjusted to the economic situation of the families (locals and IDPs) benefiting from the water supply network.

- The time needed to build trust between beneficiaries and WUA varies according to socio-economic conditions among beneficiaries. The population has confidence in the WUA due to his good work in water supply.
- Equity of water distribution between beneficiary villages, the quarter of the village, households in the quarter.
- The WUA plays an important role in increasing the cost recovery ratio.
- Regularity of distribution is ensured by WUAs
- The WUA promotes individual responsibility towards collective infrastructure. The centralized and authoritarian policy of the management of public infrastructure eliminated the responsibility of individuals towards these infrastructures.
- WUAs encourage the population to reduce the waste of water, such as its use for gardens or car cleaning cars.
- WUAs strengthen networks between wise persons and socially recognized personalities.

3. Rehabilitation and Training

The team checked the state of the water supply networks, water reservoirs and inspection rooms in the three locations. In Mirkan the water supply network was in good condition. However, a considerable quantity of clay was present inside the reservoir. The clay is formed by dust arriving at the reservoir. Soil and domestic solid waste fell into the inspection room constituting a layer hiding the water pipeline and the valve. The team examined the condition of the valves. Some were rehabilitated and all the valves were protected with cement. The inspection room and reservoir were clean-up.

In Jawban the state of the water supply network, reservoir and inspection room were good. During the project, a problem occurred in the water supply network, which was resolved. A problem also occurred in valve, which was resolved

In Jalamah it was necessary to elaborate a construction plan to protect the spring basin. The plan was designed by the Geo Expertise team in collaboration with WUA and beneficiaries. Due to the conditions surrounding the Jalamah spring and to social tensions, it was necessary to protect the spring basin not only for environmental reasons but also to ease tensions between IDPs and the local population to avoid the outbreak of a bloody conflict. A wall preventing people from reaching the spring basin to wash their belongings is a temporary solution. People are likely to destroy the structure. Therefore, the basin protection plan included an infrastructure that would allow passers-by and residents to enjoy the natural view of the source, facilitate access to fresh water and wash belongings without entering in spring basin.

The design includes the construction of a metal fence to allow residents and passers-by to enjoy the landscape. The metal wall was reinforced with concrete. In addition to supporting the metal wall, it prevents rainwater mixed with sewage from entering the spring basin. At the same time as cleaning the water pool in the spring basin, we simulated the flow of water (rainwater and sewage) to verify the ability of the concrete wall to protect the spring basin. The plan included the construction of a pond with a terrace outside the protection wall to ensure a better alternative place for IDPs to wash their belongings (carpets, wool and clothes) away from the spring basin to prevent the contamination of drinking water and reduce tensions among the population. During the rehabilitation, we intended not to completely erase the effects of the war on the station. Indeed, the effects of war on buildings are easy to hide but difficult to remove from people's souls. We aim to rehabilitate and show that we can live in a better condition despite the presence of effects of war between us. We have also encouraged and involved women in restoring the effects of war, in order to encourage them to participate in the reconstruction process. We would like to point out that the participation of women in managing water resources is very little. We believe that water management represents an important channel through which women can participate in significant decision-making and peacebuilding processes. We developed a project to strengthen the capacities of women by providing skilled women in the field of engineering and economics with training on writing project proposals, designing and managing water rehabilitation projects. This solution provides permanent protection of water, eliminate the tensions and prevent a bloody conflict between locals and IDPs because the solution takes into account the needs of the concerned populations and the environment.

The Jalamah reservoir around the spring was built in 1960. At the beginning of the project, it was filled with plastic, wool, metal... The reservoir was cleaned by the Geo Expertise team in collaboration with the WUA. This is important since the WUA raised its credibility among locals and IDPs. The WUA is not limited to provide water (as the local council and other organizations do) but thinks about protecting the spring and water from pollution. Restoring the natural life of the spring contributes to the sustainability of the WUA. The planting of ornamental and shade trees adapted to the area showed the importance of the participation of the populations in the management of the project.

The training program organized as part of the project is justified by the deficit in competences and qualification in water resources and management in relation to the needs. The course was designed to address trainees working in the stations. Training is based on requests received from trainees. The training aimed at strengthening the capacities of trainees. It covered the following topics

Water resources

- Water infrastructure rehabilitation;
- Local water management;
- Data needed for monitoring and processing

Water quality

- Water quality and pollution
- Water quality standards
- Disinfection methods

Pumping stations

- Operation and maintenance for water pumping stations :
 - Installation and disassemble of major equipment for the water pumping stations.
 - Installation and operation of water disinfection equipment.
 - Maintenance of electrical and mechanical equipment (well's equipment and pumping stations).
 - General periodic maintenance.
 - Mechanism for maintenance of water distribution network and transfer system: pumping stations - reservoirs – pipes... etc.
- The concept of water hammer; valves; distribution networks; security and public professional safety.

The trainers relied on direct training during their visit to the stations. The station workers will contact the trainers if needed

Training in water management



Conclusion

The project shows that WUAs can be vital to provide safe water at an affordable cost to the population, locals and IDPs, when state agencies have collapsed. Access to safe water remains a problem in many parts of Syria. The 10 years conflict has damaged to various degrees water networks. In some cases, humanitarian organizations have restored water networks but most did not take into account the management of networks. Local councils (formal or informal) often lack competencies to restore and manage water networks. Thus, the management of water networks remains a constraint and the population often relies for basic needs on tanks delivering water of unknown quality at a high cost.

The seven WUAs established by Geo Expertise in the villages supplied by the Jalamah, Mirkan and Jawban waters networks are key in managing the functioning of the networks. This was done in close collaboration with local councils and committees, which did not have necessary competencies to restore and manage water networks. In addition to establishing WUAs training was offered in water resources and the management of water supply networks.

Furthermore, WUAs play an important role in fostering communication between locals and IDPs. Indeed, access to safe water at an affordable cost is a basic need to the entire population; locals and IDPs. As such, restoring and managing water networks does not only respond to a basic need but favors the dialogue between locals and IDPs.

The WUAs established as part of the project show the capacity of the populations to take charge of the supply of water. Most actors involved in the conflict (the Damascus regime, armed groups, humanitarian organizations ...) for various reasons do not allow the population to take charge of the provision of basic needs. After ten years of conflict, it is vital that the population takes charge of the situation. In this respect, social cohesion, the capacity of the population to dialogue, is as important as access to basic needs. Unfortunately, social cohesion in Syria is largely ignored by most actors involved in the conflict. We strongly believe that access to safe water can favor dialogue among the population.

