

---

# Sustainable Water Management Project (SWMP) in Salamieh District

---

Ali Al-Zein

## Short summary

---

The Sustainable Water Management Project (SWMP) in Salamieh District aimed to alleviate negative impacts of water shortage such as poor yields, low incomes, high unemployment rate, which collectively lead to poverty and migration. It included multiple interventions in order to help farmers and create incentives for them to work collectively on scientific irrigation scheduling, water harvesting, supplemental irrigation, deficit irrigation and modernizing irrigation systems. The project interventions during the period 2005–2010 have resulted in several achievements, including minimized water consumption, yield improvements, increased water use efficiency and higher incomes, along with groundwater table stabilization in most of the villages.

All the dimensions of sustainability were addressed throughout the project phases:

From the social point of view, farmers producing vegetables and fruits – who apply traditional irrigation techniques using water from private owned wells – from 120 villages were targeted. Some farmers were trained to be facilitators of the introduction, promotion and maintenance of drip irrigation networks among the farmer communities. Meanwhile, several workshops and campaigns aimed at behaviour changing, awareness raising and promotion of collective work and community participation and mobilization on water management and conservation were conducted.

Regarding economics, an economic assessment showed that the first season's income could cover the cost of the network, which had a lifespan of at least 5 years. Encouraging formation of groups in villages in order to maximize cost saving and widen participation was also a vital part of the project.

From the environmental point of view, minimum intervention on water resources and maximum reservation for the environment were achieved. Materials used for the network were collected and recycled by farmers and biodiversity was considered during the whole project.

## Key words:

---

*Increase water use efficiency across sectors ; Ensure sustainable withdrawals ; Ensure supply of freshwater to address water scarcity ; Implement IWRM ; Water cooperation*

## Issues addressed:

---

### **Water resources management (water-use efficiency, integrated water resources management, transboundary cooperation, sustainable extraction and supply of freshwater)**

The main causes for water shortage in Salamieh District are: dry climate - increased demand and the poor management, the issues needed to be addressed from SWMP is to improved water management at farm level, changing traditional farmers mentality dealing with water and irrigations,

It is characterized by low and erratic rainfall, which is typically distributed unevenly over the growing season. The majority of the arable cultivable land is rain fed (100,174 hectares) and the remainder approximately 9,225 hectares is irrigated (2007). There is a heavy reliance on full irrigation during the summer for the production of summer vegetables and supplemental irrigation is widely used on trees (mainly olive) and on winter crops (mainly wheat and barley) as a method to improve and stabilize yields during the winter growing period.

Recognizing the link between poverty and natural resource endowments, the project is striving to encourage beneficiaries to utilize existing resources more efficiently without placing undue pressure on the natural environment.

Since 2005 to 2010, SWMP has concentrated its efforts on improving the productivity and efficiency of used water, for agricultural purposes, through increasing the adoption of modernized irrigation systems (mainly drip irrigation systems). There is wide consensus that the use of drip irrigation and sprinkler systems has a high level of irrigation efficiency.

The level of irrigation efficiency for a sprinkler, drip system or pressurized irrigation technique, is estimated to be between 80-94% where as it is much lower (35-40%) for traditional gravity (surface) irrigation largely due to evaporation and seepage

SWMP had many interventions in order to help farmers and create incentives for them to work collectively on scientific way on irrigation scheduling, water harvesting, supplemental irrigation, deficit irrigation and modernizing irrigation systems as the most important intervention.

All mentioned interventions were designed to achieve one ultimate goal, which is saving irrigation water and mitigating the current depletion of ground water through:

1. Adopting highly efficient techniques for most irrigated areas.
2. Transfer technology and spreading new techniques in water sector.
3. Increasing agricultural productivity and improving its quality
4. Maximizing income per unit of water.
5. Stopped overpumping and stabilising the ground water table

The project strategy utilized the principle of gradual expansion in villages. Every year we had to add some new villages in order to, gradually, cover 90% of the total irrigated area in Salamieh district by 2010 with an active community participation (challenge within our context) that will determine

priorities, start with demonstration fields and give technical and financial support with Collaboration with GOs, NGOs and INGOs.

Results:

- 1,621 farmers had adopted the drip irrigation systems as individuals or through group as about 114 groups had been formed then provided with loans and about 98% of them could repay during same season.
- More than 90% of the land used for summer vegetables and fruit trees, covered with modernized irrigation in all Salamieh district.
- Maximum income from 1 cubic metre of water (example: in Barri village, the income of some farmers has been increased from 100 to 300% with 50% water consumption)
- Drip irrigated areas had been increased several times during the period of the project (village from 33,8 hectares to 120,8 hectares)
- Stabilizing the ground water table in the villages (Fritan village from 2005 to 2010 the depth of water in wells almost fixed)

#### *Capacity Building:*

Since the project focuses on creating a sense of cooperative work and establishment of incentives to encourage collective and group work to access the majority of the beneficiaries during shortest time possible, the Activities and Intervention Mechanisms were:

☒ Establishing demonstration fields in the villages that are new to the techniques or in those are not totally convinced.

☒ Providing some good and low cost samples of filters, fertilizers, or drippers to poor farmers in order to motivate them to adopt the change.

☒ Providing individual designs and consultations to all farmers willing to apply modern irrigation techniques in all villages of Salamieh District.

☒ Forming harmonized groups at village level to apply appropriate irrigation techniques on most irrigated areas in collaboration with the Microfinance Programme, which provided the required fund, the project lead the process and took charge of implementation and needed technical oversight and follow up.

☒ Providing training to one technician from every irrigation group to assist in installing and operating networks appropriately.

Groups are being followed up on through regular visits to the fields of beneficiary as well as giving them advice to increase efficiency of operations and deal with difficulties immediately, taking advantage of technician who have got training.

At the end of the season, an activity evaluation survey is filled by the farmer who expresses his/her opinion about the activity and the extent to which s/he has benefited from joining the group and group work. Based on this evaluation, the next interventions and their mechanisms will be determined.

## Tools for implementation:

---

**Technology:** Transfer technology mechanisms:

- ☒ Establishing demonstration fields in the villages are not totally convinced.
- ☒ Providing individual designs and consultations to all farmers willing to apply modern irrigation techniques in all villages of Salamieh District.
- ☒ Forming harmonized groups at village level to apply appropriate irrigation techniques on most irrigated areas in collaboration with the Microfinance Programme, which provided the required fund. The Project lead the process and took charge of implementation and needed technical oversight and follow up.
- ☒ Providing training to one technician from every irrigation group to assist in installing and operating networks appropriately.

## Lessons Learned:

---

**Triggers:** NGO implementing projects as it has been designed and customized according to the characteristics of the local community.

- ☒ NGOs can effectively contribute adoption of modernized irrigation techniques
- ☒ Villages organization and social mobilizations can reach high percentage of beneficiaries.

**Drivers:** Groups offer good opportunity for change

- ☒ Working closely and in partnership with the targeted community following up.

**Barriers:** Ineffective management and control of underground water

- ☒ Farmers' tendency to buy cheap irrigation materials regardless the quality.
- ☒ Stabilizing irrigated areas once new systems installed
- ☒ Unregulated drilling of wells and not specifying the amounts of water allowed to be pumped out of wells.

**What has worked well?** NGO and institutional approach is more flexible and adaptable in terms of designing and implementing projects and more welcomed by community.

- ☒ Bulk purchasing material can get good quality with 30-40 % discount
- ☒ Group / participatory approach enhances 'buy in' and reach maximum segments of communities within minimum times and dedicated resources.

**What can be improved?** Enhanced community awareness and response towards the optimal use of water

- ☒ Trained farmers and local suppliers could be the replicators by themselves

**The way forward:** Depend of our criteria related to place, ready, areas, and replicate the same procedures to get more number of beneficiaries, then we can do the same actions and transfer technology to many other districts in parallel. Moreover, trained farmers and local suppliers could be the replicators by themselves, which enhanced the sustainability.

**Links:** [www.akdn.org](http://www.akdn.org)