Project Title: **Optimal Water Exploitation in Chouf**	**Country: Lebanon** **Municipality: Semqanieh**	**Funds requested:** 2,000,000 Dollars
Direct/Indirect Beneficiaries Local communities Municipality Job seekers Syrian Refugees	**Target Area:** Semqanieh municipality	

GOALS:

The golden goal is to optimize the water exploitation in order to cover the water and power supply gaps between the need and what the state and the locals provide. It will directly affect the population's well-being and target economic challenges in the region especially for the agriculture personnel.

SITUATION AND PROBLEM IDENTIFICATION

1. Absence of water resources management.
2. Insufficient water waste treatment.
3. Overuse of water mainly during agricultural activities.
4. Lack of electricity supply.
5. Water and power supply shortage.
6. Inefficiency of solar electricity generation during winter.
7. Local solutions covering the gap between the need and the what the state offers.
8. Agriculture needs.
9. Protecting ground water and land pollution.
10. Difficult access to sanity water.

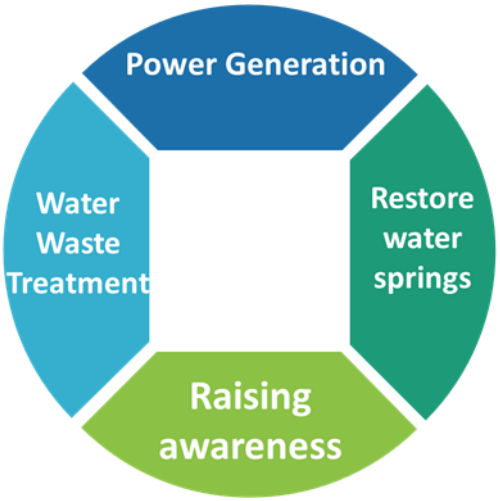
TARGETED AREA AND BENEFECIARIES

Semqanieh, Lebanon
Local communities, Syrian refugees and municipality.

METHODOLOGY

The first action to be taken is generating electricity from 3 turbines mounted in the rivers. 3 units are capable of producing 13MW of electricity which can feed 5800 houses with 10 amperes each, which is more than enough to cover the gap between the need and the supplied quantity by the state, the private solar panels and the generators. The cost on the citizens will be way cheaper than what the state or the generators charge and the electricity production mainly during winter will be more effective than the solar panels.
The second step in optimal benefit water resources is treating water sewage. Some actions are already taken in this concern, but should be followed up and globalized, as the half solutions are not always good solutions. This step has two direct impacts on the resources optimal benefit.

Project Sections



Integrating solutions between local villages

Water treated will be reused in watering and most importantly polluted water won't infiltrate into the groundwaters anymore, which will be a necessity for the step three.

The third action is to restore water springs and test them on a regular basis to safeguard them and prevent diarrheal diseases, such as typhoid fever and cholera, spread through unsafe water and sanitation.

It is a case-by-case option to mount tanks and filters to store clean water for locals or pumps to supply the main village tank, for a fair distribution among all the houses.

The final but not any less important action to be taken is to promote the responsible use of water and access to safe water for everyone. This action can be held in schools as the young generations are the easiest to target and in municipalities among older generations. It will be encouraging optimal water usage and no polluting activities to reduce water waste.

The mentioned steps won't only solve water and electricity lack but will also present socio-economic results, as they will create job opportunities to the locals, strengthen the sense of belonging and the community resilience.

EXPECTED RESULTS

1. Solving water and electricity lack.
2. Creating job opportunities to the locals.
3. Generate Electricity in a hydropower plant built next to the river.
4. Complete Sewage Treatment in Chouf.
5. Restore water springs and test them regularly.
6. Promote responsible water usage.

Feasibility study

Estimated cost for the Project

A small/medium hydropower plant costs average 2,500$/Kw. Building a plant that produces 13 MW costs 40 million dollars.

Springs maintenance and groundwaters exploitation cost average 15,000$/spring. 25 springs cost 375,000$ Water testing is covered for free.

Raising awareness cost 150 $/session (50 pers.). Educating 10,000 student costs 30,000$

The suggested solutions are complementary and it is crucial to implement them together for the best results. Mentioned numbers are directly proportional to the number of beneficiaries. Small funds are still capable of doing good results but over a smaller range.

Estimated Revenue

A hydropower plant similar to the suggested one exists in Rechmaya.

Studies show that in that plant, a Kilowatt produced costs 3.66 cents while it costs more than 45 cents in thermal/fuel plants.

With a capacity of 13.4 MW that plant production costs 2 million dollars annually while it costs 25.2 million dollars in thermal/ fuel plants. 23.2 Million dollars can be saved annually.

Covering the suggested solutions cost (On the biggest scale) takes up to three years. Add to it the positive ecological impact.