

DIFFERENT TOOLS FOR WATER QUALITY MONITORING : APPLICATION AT YANTA VILLAGE

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Principle Goal :

establishment of a pilot site to monitor the water quality and follow the impact of agricultural practices in order to protect the potable water resources without affecting the sustainable agriculture.



Introduction:

- Water is one of Lebanon's most precious resources.
- Many Lebanese villages in the Mediterranean basin suffer from severe groundwater pollution where human activities exert strong pressure on both
 - quantity (water abstraction)
 - quality (water pollution of water resources).



YANTA:

- Yanta rely totally on the springs as drinking water source
- 5 springs supply the 400 families of the village (army units)

Hight above sea level	1600m
surface area	100Km²
District	Rachaiya ;Bekaa
Distance from Beirut	80km
Population	About 3000



the village is covered by snow during winter.



Plan and Tools:

1. Installation of Ceramic Porous Lysimeter at the selected spring

Lysimeter is an auto-sampling device for collecting water from the pore spaces of soils and for determining the soluble constituents removed in the drainage



2. Water samples could be successfully obtained during both the pre-monsoon and mid-rainy season periods .Concentrations of major nutrients (N, P and K) in leached water could be monitored.



Plan and Tools:

3. Construction of a set of intact soil columns represent the pedological nature of the area surrounding the spring



Plan and Tools:

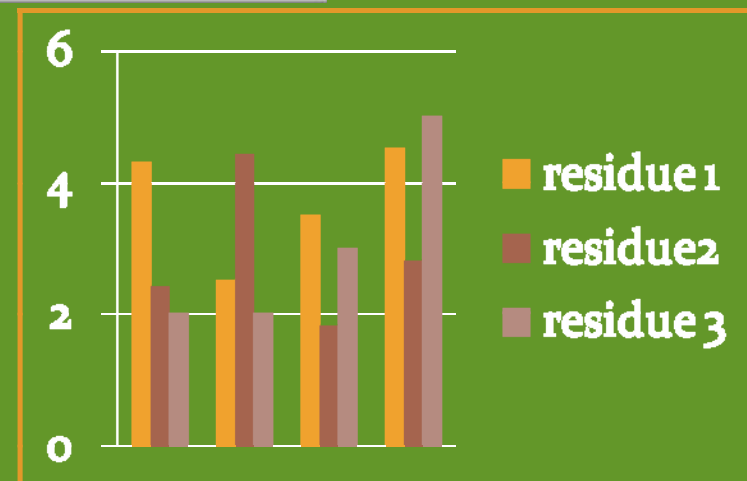
4. Installation of rain gauge to measure the level of precipitation at the selected location and to establish a hydrological data for the area .



5. The impact of the agricultural practices will be followed (qualitatively and quantitatively) by monitoring microflora metabolism



6. A statistical and bibliographical study will be carried out trying to establish a relation between the intrinsic pesticide formulation, and the texture of the soil according to the **obtained results.**



Plan and Tools:

✓ Fluctuation of the nutrients content (N,P,K) in the tested samples

→ correlated to flushing of fertilizers by precipitation .



✓ Presence of foreign chemical molecules

→ point out the intrusion of pesticides into the ground water.



Attending Results:

- a. Check the quality of drinking water
- b. Organize the time of application of fertilizers taking in consideration the on-set of monsoon rains.
- c. Suggestions to forbid and restrict the usage of noxious chemicals in agriculture.
- d. Recommend the usage of the most appropriate pesticides.
- e. Generalize this pilot project over the nearby countries to protect potable water resources



Support and supervision:

- This study performed under the supervision and financial support of the Yanta's Municipality with the technical assistance of the Kfarchima Ministry's laboratory, via the scientific direction and analytical results .
- Also scientific supporting will be provided with French partners in University Paris 12 through collaborative work

