

**Proposal: Water Scarcity in Lebanon**

**Scarcity to Abundance**

GNE301 – Professional Communication

Presented to: Professor Rachelle Askar

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**Introduction:**

Despite its Mediterranean climate, Lebanon has been suffering from significant variations in water availability since the end of 2019. Compared to other countries, Lebanon is considered wealthy in terms of water resources, since it contains 16 perennial and 23 seasonal rivers. However, reduction of river flows, heavy reliance on ground water, and losses from aging water infrastructure has caused the country some serious challenges. Moreover, population growth coupled with the decrease in precipitation levels and rising of temperatures due to climate change has intensified the problem.

**Problem Statement:**

Insufficient rainfall, overuse of groundwater resources, and unmaintained water infrastructure are major factors that lead to water scarcity in Lebanon. The water distribution process lacks efficiency, resulting in significant losses in water before reaching consumers. Moreover, contaminated water resources due to pollution from industrial waste and agricultural runoff has intensified the problem. Not to mention the inadequate enforcement of laws regarding water and insufficient investment in infrastructure. This conflict results in several sub-problems including:

1. Severe impacts on the agricultural sector, leading to negative consequences on crop yield, therefore threatening food security.
2. Serious effects on public health due to seeking other resources, which might be contaminated.
3. Critical water distribution problems and expensive infrastructure repairs, which increase the water cost for consumers.
4. Adverse effect on aquatic life and biodiversity due to overexploitation of groundwater, which lowers water levels in rivers and lakes, therefore causing ecological imbalances.

**Scope:**

After once enjoying abundant water resources, Lebanon now faces severe and unmanaged water scarcity. The team conducting the study is composed of five engineering students: Maroun Eid, Mohamad Marshud, Elie Charbel (Computer Engineering), Jana Rima (Civil Engineering), and Lynn Audi (Mechanical Engineering) in an aim to tackle the problem from an interdisciplinary perspective. Additionally, the study combines both qualitative and quantitative approaches using surveys of students in conjunction with articles. The expected implementation duration would range from 3 to 5 years assuming proper government involvement. The government will be provided with a board of experts on Integrated Water Resources Management (IWRM) to begin with the necessary reparative measures.

**Procedures:**

To collect data regarding the scarcity of water resources, an anonymous questionnaire will be distributed among Lebanese American University students. The aspects of the issue covered by the survey questions include water management practices at home, availability and affordability of water. Furthermore, this study will emphasize on the disturbed water situation highlighting the important effects it has on the productive sectors, as well as the health of Lebanese families. Along with the data from academic research, the results of the questionnaire will be analyzed to both show the need for solutions regarding water scarcity as well as suggest effective strategies to mediate the ongoing issues.

**Conclusion:**

It is of great importance to have available and sustainable water resources for the safety and continuity of society. Recently, Lebanon has been facing ecological and management issues affecting the water scarcity in the country. The primary goal of this study is to benefit from the collected data to find solutions for the water scarcity issue in Lebanon. Thus, to avoid worsening the situation, multiple approaches can be considered to overcome this problem including adopting efficient irrigation techniques, monitoring water quality, and investing in the improvement of infrastructure quality.