Investment Plans in the Water Management Structure of a Post-War Country:

The Case of Lebanon Challenges

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Summary

This policy brief is based on the research paper "Connecting Various Investment Plans to Address New Challenges in the Current Water Management Structure of Lebanon" prepared by the Climate Change and Environment Program at the Issam Fares Institute for Public Policy and International Affairs (IFI) at the American University of Beirut (AUB) and commissioned by Oxfam (as part of the H2All Consortium) for the second edition of the Lebanon Water Forum (2019), with assistance of the European Union Regional Trust Fund in Response to the Syria Crisis - The Madad Fund, and with the partnership of the Ministry of Energy and Water. The paper is an analysis of the various investment plans in the water sector and their effectiveness in meeting priorities of Regional Water Establishments (RWEs) and water uses needs. This paper will review the various investment plans that were implemented since 1990 and assess by region and by sub sector.

> ***"Investment in Lebanon's water supply infrastructure has averaged around $100 million annually since 1990."***

> ***"Gaps in the public sector have allowed the rapid growth of private water providers: 75% of water expenditures by citizens, or $300 million, goes towards feeding the private sector."***

KEY RECOMMENDATIONS

• Greater investment needs to be made in the water supply and sanitation sectors in Lebanon which will support the country in enhancing economic development.

• Water investment projects in Lebanon need to include accountability mechanisms and be developed in consultation with local communities to ensure ownership.

• The Minister of Water and Energy as well as the regional water establishments need to implement projects that enhance water service provision in a manner that meets international standards.

• The Government of Lebanon, and specifically the Ministry of Energy and Water, must prioritize investment and planning in wastewater as well as irrigation projects to ensure similar progress to potable water distribution.

List of Acronyms

BWE: Beqaa Water Establishment

BMLWE: Beirut and Mount Lebanon Water Establishment

CDR: Council for Development and Reconstruction

CEDRE: Conference Economique pour le Developpement par les Reformes et avec les Entreprises

GDP: Gross Domestic Product

MEW: Ministry of Energy and Water

NLWE: North Lebanon Water Establishment

NWSS: National Water Sector Strategy

PPP: Public-Private Partnerships

RWE: Regional Water Establishment

SLWE: South Lebanon Water Establishment

WWTP: Waste Water Treatment Plant

PROBLEM STATEMENT

Despite having abundant rainfall, Lebanon's resources are only partly developed and its national demand for water is currently not met. Throughout the country, water resources are limited in terms of both quantity and quality in part due to climate change but mainly as a result of mismanagement, ageing infrastructure and inadequate investment crippled by a confessional power-sharing system (Oxfam & Triangle, 2017). The country was plagued by fifteen years of civil war during which its water sector (in terms of institutions, administration and equipment) was barely operational. It was not until the war ended in 1990 that fresh investment began in the sector. Since that year, Lebanon has invested an average of 0.5% of its annual GDP into the water sector. The total amount spent to the present day has exceeded $4 billion. The reconstruction of physical and financial infrastructures that took place after the end of the civil war was made possible by borrowing heavily, mostly from domestic banks and external donors at interest rates that peaked at around 35% (Oxfam & Triangle, 2017). Since 1994, public capital expenditure has been primarily directed to water supply, which absorbed 68% of total investment. Wastewater and irrigation received respectively 23% and 9% of total capital expenditure (WB, 2010). With its liberal economic regime that ensures private initiative and guarantees entrepreneurship, and its location at a strategic geopolitical crossroads on the eastern Mediterranean, Lebanon has accumulated grants and loans and now has a reputation as a heavy borrower, dating back to the early days of the Lebanese state. A series of international donor support conferences has taken place since 2001, several of which[1] were held in Paris, raising more than $24 billion in pledges to finance development projects in exchange for stimulating the economy and modernizing its financial system. Thirty years and several billion dollars later (all of which have been invested in the water sector for potable, irrigation and wastewater), large regional disparities still appear in the performance of the RWEs and among the different components/sub sectors.

DISPARITIES IN REGIONAL INVESTMENT RELATIVE TO PERFORMANCE OF RWES

Beirut and Mount Lebanon Water Establishment

Beirut and Mount Lebanon region benefited between 1992 and 2006 from 36% of the country's total water investments, a figure of over $720 million, which enabled it to become the most successful region in terms of water management. With a tariff collection rate of 80%, a revenue-to-maintenance ratio of 226%, and connection rate of households to public drinking water networks of 93%, BMLWE is the only RWE that can support all its cost. Nevertheless, the region suffers from a very ineffective distribution network with only an average daily amount of 13 hours of water available during the year, and an extremely high number of independently working local committees (BMLWE, 2018). The connection rate of households to sewer systems is highest in the agglomeration of Beirut (98%), and drops to less than 35% in the region of Mount Lebanon, with the Jbeil region showing lowest connection rate (BMLWE, 2018). At the time of writing this brief, the BMLWE has one functioning WWTP in Ghadir, funded by KfW (a German state-owned development bank) and the Lebanese government.

South Lebanon Water Establishment

The south of the country has benefited from 14% of the total investment ($280 million) in water between 1992 and 2006 and has a household connection rate to public drinking water of 86%. The SLWE has an invoice collection rate of 61% which allows it to cover 69% of its operating and maintenance costs (SLWE, 2018). South-Lebanon is experiencing significant water shortages all year round (SLWE, 2018), mainly due to electricity cuts [2]. In terms of sanitation, the South has a connection rate of homes to sewer networks in the order of 42%. One WWTP, funded by the Japanese Bank for International Cooperation, is currently operating in Saida, while the Nabatiyeh WWTP, funded by French and Arab money, is awaiting connection (at the time of writing this brief).

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[1] *Known as Paris I (2001), Paris II (2002), Paris III (2007) and Paris IV/CEDRE (2018)*

[2] *Because of electricity supply shortage, water could not be pumped continuously and shortage could reach 50% in several regions.*

North Lebanon Water Establishment

Between 1992 and 2006, the North Lebanon benefited from 35% of the country's investments in water, more than $ 700 million, and the area has a household connection rate to public drinking water networks of 65%. With an invoice collection rate of 52%, NLWE is able to support more than half of its operating and maintenance costs (NLWE, 2018). With 24 hours of potable water supply per day, the city of Tripoli is exemplary as far as Lebanon is concerned. The municipality is the only one to have tested a PPP experience for the management of drinking water (NLWE, 2018), when in 2003 a contract was signed with ONDEO Liban. In terms of sanitation, 53% of households in the Northern region are connected to sewer systems. The WWTPs in Tripoli ($100 million funded by the European Bank for Investment), Chekka ($12 million funded by the AFD and the Lebanese Government) and Batroun (AFD and LG as well) have been completed.

Beqaa Water Establishment

Between 1992 and 2006, the Beqaa received only 2% ($40 million) of Lebanon's total investments in the water sector, with the lowest in the country and ultimately leading to the worst record in water management. This situation has transformed Northern Beqaa into one of the most underdeveloped regions in the country. With a connection rate of households to public drinking water networks of 68% and an invoice collection rate of only 35.1%, BWE can only support 13% of its operating and maintenance costs. In terms of sanitation, only 41% of households in Beqaa are connected to sewer systems. The Beqaa has several active WWTPs: Baalbeck (funded by the International Bank for Reconstruction and Development), Yammouneh (funded by the Lebanese Government), Jeb Jennine (funded by the Inter-American Development Bank) and Zahle (funded by Italian governmental institutions).

INVESTMENT LANDSCAPE AND DISPARITIES IN PERFORMANCE BY SUB-SECTOR

Potable Water

The public drinking water sector in Lebanon is unanimously described as being poorly managed, since, in the majority of cases, the water is rarely drinkable. This is mainly due to the broken-down water supply networks, leaky wastewater networks, and personal storage of water in rooftop reservoirs, which is intended to compensate for discontinuities in service. Despite more than $2.5 billion invested since 1990 in the potable water supply sector alone by the MEW, other governmental agencies and the donors, their efforts remain largely insufficient.

Irrigation

The agricultural sector accounts for 4% of the national income and 6% of the national labor and may reach 25% in some rural areas, where it contributes up to 80% of the GDP (CDR, 2018). Irrigation water needs are estimated at 810 million m3/year (CDR, 2018) and consumes around 61% of Lebanon's water annually (NWSS, 2012), still only 9% of the investments target this sub sector. In fact, only $200 million has been invested in irrigation projects since 1990, and the irrigation policies are poorly coordinated with the MEW as is the national agricultural policy, despite the fact that this sector is the main source of water consumption and high inefficiency rate in the country.

Wastewater

Lebanon suffers from a very high rate of untreated or insufficiently treated wastewater and leaky septic tanks with high impact on water quality. Even though more than $500 million have been injected into the sector, connectivity, especially in the collection of wastewater is still low. More than half of the sanitation budget has been allocated to the construction of WWTPs, but only 15% of the budget was spent on the construction and overhaul of sewage networks. Since 1990, only 5 million m3/year of wastewater are treated and reused.

ROLE OF TARRIFFS IN SUSTAINING INVESTMENTS IN WATER AND WASTEWATER

Tariffs for water services are set independently by the four RWEs and are standardized within each establishment. Despite the fact that costs may differ significantly between areas within the same establishment due to pumping and networking costs, the price remains the same although the costs of each establishment are based on many different socio-economical and financial factors. Domestic water is sold at a nominal daily flow. Flat rates applied are lower for smaller towns and increase proportionally. The level of consumption is limited according to the size of the house by a gauge installed on all residential connections, although actual consumption is typically lower because of intermittent supply and low water pressure. For irrigation practices, water is generally priced at a flat rate too. The key observation regarding tariffs is that they do not cover the RWEs costs for operating, maintaining and eventually reinvesting in the sector. The lack of cost recovery in most RWEs is not only related to poor collection rate, it is mainly linked to the unrealistic tariff scheme that is being implemented. One of the main reasons why the investments did not realize their main objectives is the poor tariff scheme in place. Hence, any investment that is not associated with a rational tariff scheme is not sustainable.

HOW TO OPTIMIZE INVESTMENT PLANNING GOING FORWARD?

Observing the investment and performance landscape in the water sector since 2012 it becomes clear that the wastewater and irrigation subsectors did not witness similar progress on par to that made in the development of water supply distribution networks and in large scale water supply infrastructure such as dams. Furthermore, the rehabilitation activities implemented to date have not been able to secure holistic water resources management (CIP, 2018). The state of the water supply and sanitation sector in Lebanon is still poorly developed despite all the investments made and is not in line with the level of economic development aspired for by the country.
Lebanon's vague and complex legal and strategic framework could be a main contributor to the ineffective investment landscape in the water sector. Roles and responsibilities often overlap between various actors and between central and local authorities which leads to fragmentation in various aspects. Furthermore, this leads to poor accountability as it would be easy for one entity to disavow responsibility and lay the blame at the door of others. This further raises the question of effective coordination between all stakeholders involved in the development of the water sector in Lebanon to ensure that priorities are synched, and investment matches actual needs and respects existing regional and sub sectoral disparities.

The Ministry of Energy and Water must effectuate investment and planning in wastewater as well as irrigation projects in order to ensure similar progress to that of potable water. These combined investments will support Lebanon in enhancing its economic development; however, these will only succeed if accountability mechanisms are implemented and a participatory approach to project development that involves all stakeholders is adopted.

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