

## Challenges of post-war policy reforms in Lebanon's water sector – lessons learned

Georges Gharios, Nadim Farajalla and Rana El Hajj

### ABSTRACT

Lebanon has not been able to properly develop and benefit from its water sources. A confessional system of governance has hindered development of the sector. Laws and regulations have been developed erratically with many superseding others without the superseded laws being erased from the registry. This created a chaotic regulatory and legal environment with overlapping jurisdictions and no clear accountability mechanisms. The period before the onset of the civil war in 1975 witnessed significant progress of both infrastructure and laws and regulations related to the management of the water sector. The civil war destroyed the water sector infrastructure and emptied all regulatory control of the resources. The period of reconstruction between 1990 and 1999 witnessed the promulgation of ambitious reconstruction plans for the water sector with funding reliant on borrowing from local and external debtors. Post 1999, government reforms started creeping into the system but were often donor driven and still suffered from the same mistakes of laws overlain on top of existing laws without erasing the older material. Critically, the management of the sector is not inclusive and the beneficiaries of water services are often not heard and ignored.

**Key words** | policy frameworks, post-war Lebanon, regional water establishments (RWEs), water law, water reform

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### HIGHLIGHTS

- What can we learn from the Lebanese example?.
- What is the situation 30 years after the end of war in Lebanon?.
- Many countries of the region are either in a state of war or have just ended a war. What can we expect for these countries?.
- Introducing new Water laws is always the case when policy reforms are engaged. What are their impact on the ground?.
- Lebanon is also a case of legal pluralism. What can we learn

### INTRODUCTION

Lebanon has built its water sector on foundations laid down by successive civilizations such as Mesopotamia, the Roman Empire, and the Ottoman Empire (Gharios 2020). These

empires have contributed much to the 'art' of water use and management in the region. Despite abundant rainfall, Lebanon's resources are only partly developed and its national demand for water is currently not being met from a water balance perspective. Only 17% of the country's water resources are used, while more than half its rainwater flows directly to the sea, barely tapped or used. On a national level, water

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that is unaccounted for due to system losses is about 40%; mostly due to the lack of maintenance of the water supply networks and illegal connections (MEW 2014; Gharios & Farajalla 2020). Throughout the country, water resources are limited in terms of both quantity and quality as a result of mismanagement and an ageing infrastructure resulting from inadequate investment. (Oxfam 2017). The country endured fifteen years of civil war and its water sector in terms of institutions, administration and infrastructure was left barely operational. It was not until the war ended in 1990 that fresh investment began in the sector as part of the post-war reconstruction efforts. Since then, Lebanon has invested more than \$4 billion in the water sector. Its water and sanitation infrastructure, badly damaged by the civil war, was partially rehabilitated with substantial external financial assistance, most of which came as loans (Gharios & Farajalla 2020). Lebanon is currently ranked among the world's most indebted countries due to inefficient and unproductive spending on post-war reconstruction coupled with an inability to rein in waste and prevent corruption (Oxfam 2017).

Currently, several countries in the Middle East are experiencing armed conflict and will eventually undergo reconstruction that would target their water sectors. What are the challenges that can be learned from reconstruction and particularly the post-war policy reforms in Lebanon's water sector? This paper will highlight the potential for lessons-learned to enable the translation from the case of Lebanon to other countries in the region.

This paper presents a policy reform review that is focused on post-conflict governmental actions in Lebanon. The paper offers an analysis of the pluralistic legal framework governing water resources in Lebanon and explores the country's potential in the management of water through the regional water establishments (RWEs).

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## CONTEXT

The population of Lebanon was estimated in July 2014 to be 5,882,562 (CIA 2016) with a population density of 444.45 persons per square kilometer (WB, 2014). Urban population makes up nearly 87.7% of the total (WB, 2014) of which around 1.5 million are refugees (mainly Syrians present since 2011). The political regime is structured around the

denominational principle which hinders the evolution of the economic system; prevents any serious attempt to reform the state by voting again to the same political class; and hampers competition by allowing and legalizing the existence of monopolies (which are often shielded by sectarian politics). Even water related projects must follow a pre-established confessional agreement where projects are allocated in such a manner that every confessional or religious group (eighteen in total) would get the same as its cohort, no matter the need or priority. The construction of dams in the Christian mountainous regions was counterbalanced with the revival of a massive irrigation network (Canal 800) in the Muslim agricultural areas. This sectarian approach to policy making and resource development has hindered the development of the water sector.

During the civil war, and then later during the reconstruction period, Lebanon experienced internal migration towards urban centers that were induced, in part by warfare and in another part by the lack of economic opportunities in various regions. This was reflected by the doubling of built-up areas in most regions of Lebanon between 1987 and 2017 leading to increased demand for water in urban areas especially Beirut and its suburbs and forcing the government to scale down, if not abandon, its rural water supply projects in favor of the urban ones (Rose *et al.* 2018). The consequences of the civil war were highly devastating to the country's economic infrastructure. After a brief period of political reconstruction, Lebanon engaged in an ambitious plan consisting of investment expenditures program and corresponding macroeconomic targets from 1993 onwards (IMF 1999). This reconstruction boom lasted only until 1998 (IMF 1999) after which the country experienced a continuous series of financial crises until 2019. The reasons for such a failure are many and multifaceted and reside in the increased postwar levels of corruption; bad fiscal policies; unsustainable monetary structures; a rentier economy and low-production systems.

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## ORGANIZATION OF THE WATER ADMINISTRATION

The current water management framework in Lebanon is the result of administrative reforms that were set in place in 2000. The chief government authority responsible for

water and sanitation in Lebanon is the Ministry of Energy and Water (MEW) through the four RWEs along with the Litani River Authority. Their responsibilities are interrelated and it is difficult to discern a clear authoritative system linking promulgated decrees to the corresponding and appropriate agencies (Comair 2006).

### The ministry of energy and water

The Ministry of Energy and Water (MEW) is the main and highest authority for water management in Lebanon. It prepares and sets in place general water policies and is responsible for executing projects. MEW also has an oversight role of the regional water establishments (RWEs). When it was first established in 1966 via Law 20, its mandate covered matters related to water, energy, mines and domestic wastewater (CAMP 2003). Currently, the MEW is made up of three General Directorates (Article 2 of Law 20/66 and Law 247/2000): the General Directorate of Hydraulic and Electric Resources (GDHER), which is responsible for research, studies and the implementation of large-scale projects; the General Directorate for Exploitations (GDEXP), which has oversight responsibility with respect to RWEs, for overseeing public provision, for administration and financial affairs and for mines and quarries; and the General Directorate of Petroleum Resources (GDPR) (Comair 2006).

### Regional water establishments

As shown in Figure 1, four Regional Water Establishments (RWEs), (Beirut and Mount Lebanon, North Lebanon, South Lebanon, and Beqaa), were established in 2000 by a series of laws which merged the twenty-two existing Autonomous Water Offices (AWOs) and 209 Local Committees (LCs). Anecdotal evidence indicates that there are still several LCs withholding the management of their catchments from the RWEs for different political and administrative reasons (Jaber 2016). The idea of merging all the old AWOs into new RWEs was to create managerial independence, financial stability and technical empowerment. It was envisioned that the RWEs would be able to recruit qualified staff and their corporatization would allow a soft transition to private participation in their

management through Public-Private Partnerships (PPPs) (Catafago & Jaber 2001). Law 221/2000 gave the new RWEs a high degree of autonomy, enabling them to work and manage water resources more efficiently. They now have the added responsibility of managing irrigation, drinking water and wastewater within their respective jurisdictions. They are also tasked with conducting studies as well as implementing, monitoring and rehabilitating water projects. The only exception is the South Lebanon Water Establishment (SLWE) because the LRA has been tasked with managing the irrigation sector, exemplifying the duplication of responsibilities within the government. From 2016, the Beqaa Water Establishment (BME) stopped the management of water allocation for irrigation and the management of existing irrigation systems in the central and north Beqaa (Nassif 2016). In 2010 (Ministerial Order 118/2010), the RWEs were assigned a new role in well licensing. They were empowered with approving well licenses for those wells that provide water in areas unserved by RWEs. Another major condition for well license approval was that the planned well would not impact negatively any public water source (Nassif 2016).

### Litani river authority

A law published on the 14th of August 1954 created the Litani River Authority (LRA) to execute the Litani dam and reservoir project including irrigation, potable water supply, and hydroelectricity (Mallat 2003). In 1955, the law of 30 December gave the LRA the technical and financial power to operate and develop all Litani River Basin related projects. In 1962 this prerogative was extended to include a water development plan for all the Litani/Awali basins and the area between the international Beirut-Damascus road and the southern Lebanese boundary (Comair 2006). In 1996, a presidential decree expanded the LRA's mandate to include responsibility for planning and managing new irrigation schemes in the Litani River Basin and South Lebanon (Nassif 2016). Laws 221 and 241 disposed that the LRA would remain bound to the law of 14/8/1954 concerning the development, management and exploitation of irrigation schemes and associated works in South Beqaa (Canal 900) and South Lebanon (Canal 800). That is why today the SLWE is

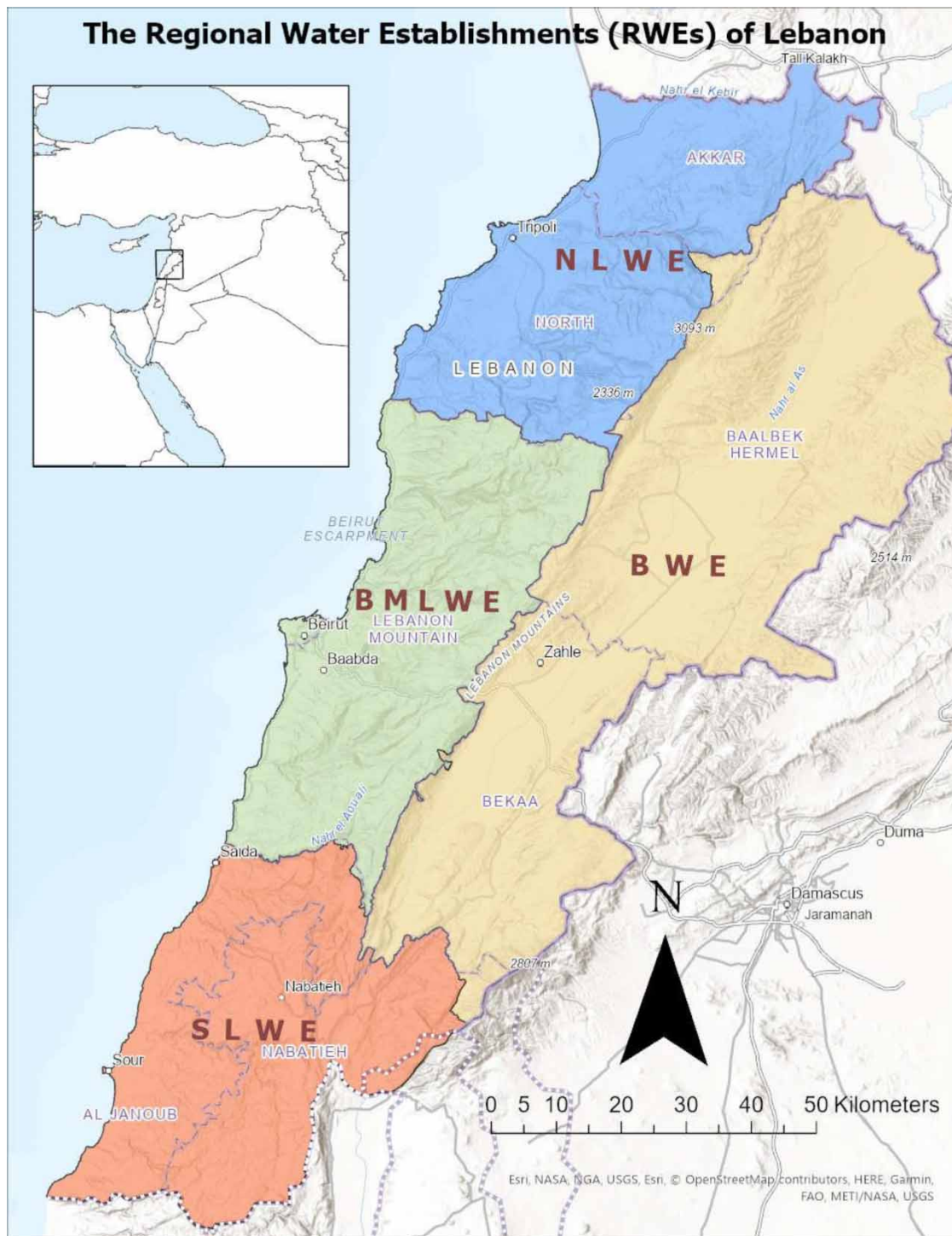


Figure 1 | Map of Lebanon with the Regional Water Establishments.

only managing potable and wastewater. Other responsibilities have been assigned to the LRA over the years, typically by delegation from the MEW rather than by

formal legislation, which include surface flow monitoring across the country and water quality monitoring in the Litani Basin (Allisson 2005; Nassif 2016).



## Other entities

Other authorities are indirectly involved in the water sector and their roles and jurisdictions often are not clear or overlap with each other or with those of MEW. For example, both the Ministry of Environment and the Ministry of Public Health monitor pollution. Another example is that of the Ministry of Agriculture which sets out irrigation policies often without integral coordination with MEW. Also, municipalities, historically competent authorities in the field of sanitation, still intervene in the sector, particularly in terms of the construction of networks and the management of wastewater treatment plants (Gharios & Farajalla 2020). Table 1 lists all official actors involved in the water sector in Lebanon.

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## ANALYSIS OF WATER LAWS IN LEBANON

Over time, Mesopotamian, Roman, Ottoman, and French water laws came to cohabit with Muslim customs and practices and traditional Arab social water arrangements in Lebanon. The current water laws in Lebanon appear as a superposition of texts, the coexistence of regulations of different inspirations (Metral, 1982). French and Ottoman civil laws, as well as codified and customary *sharia*-based laws, constitute the foundation of the current Lebanese water laws. Codified laws and their associated legal infrastructures have now taken over from the customs and habits that used to govern water in the past. The water legal framework of Lebanon emerges as a paralleled system that exists concurrently: the formal system that represents the governmental institutions, regional water establishments, and the governing laws and regulations; and the informal system that represents the traditional management and individualistic arrangements. Figure 2 illustrates the chronology of key water laws.

### The situation before 1999

Customs and practices were constituted by various rules relating more to common sense than anything else and were recognized over time and given approval by legislators (Catafago & Jaber 2001). It was not until the

Ottoman reforms of 1839 and the publication of the *Mecelle* (Mecelle, or Majallat al-Ahkam al-Adliya, published by the Ottoman Empire in 1877) code in 1877 that a large part of the prevailing customs and habits was transformed into juridical texts. The *Mecelle* code is based on customs and habits, *Sharia* law and French civil code, and some of its chapters are cited as references and are still valid today in the Lebanese legal library. Agricultural water management was regulated by the adoption of the Ottoman Irrigation Code in 1913 and its addendum in 1918.

The period of the French Mandate over Lebanon (1920–1943) witnessed the adoption of two fundamental texts related to the protection and utilization of public water (Orders 144-S/1925 and 320/1926, published by the French Mandate). The basic principles established by the publication of these orders remain unchanged today. This period of the Mandate witnessed the involvement of French engineers via the inauguration of large-scale hydraulic projects and concession contracts that were put in place as part of their '*mission hydraulique*'. After Lebanon gained independence in 1943, a General Directorate of Hydraulic and Electric Affairs was placed in the hands of the Ministry of Public Works (MPW). This situation remained unchanged until 1959, when its services were separated from the MPW, and in 1966, the Ministry of Hydraulic and Electrical Resources (MHER) was established (Law 20, published by the Lebanese Parliament on 29 March 1966).

Following the creation of the Beirut Water Office on 17 January 1951, 22 Autonomous Water Offices (AWOs) were created to accelerate and improve potable and irrigation water services to consumers. Decree 4517/1972 governed the organization of the AWOs and their relations with the MHER. This period also saw the creation of the Litani River Authority (LRA) on August 14th, 1954. More than two hundred Local Committees (LCs) were created between 1984 and 1990 to cover the absence of government management of water resources and these LCs were nominally under the tutelage of the AWOs. The exploitation of potable water was regulated in 1983 (Decree 108/1983).

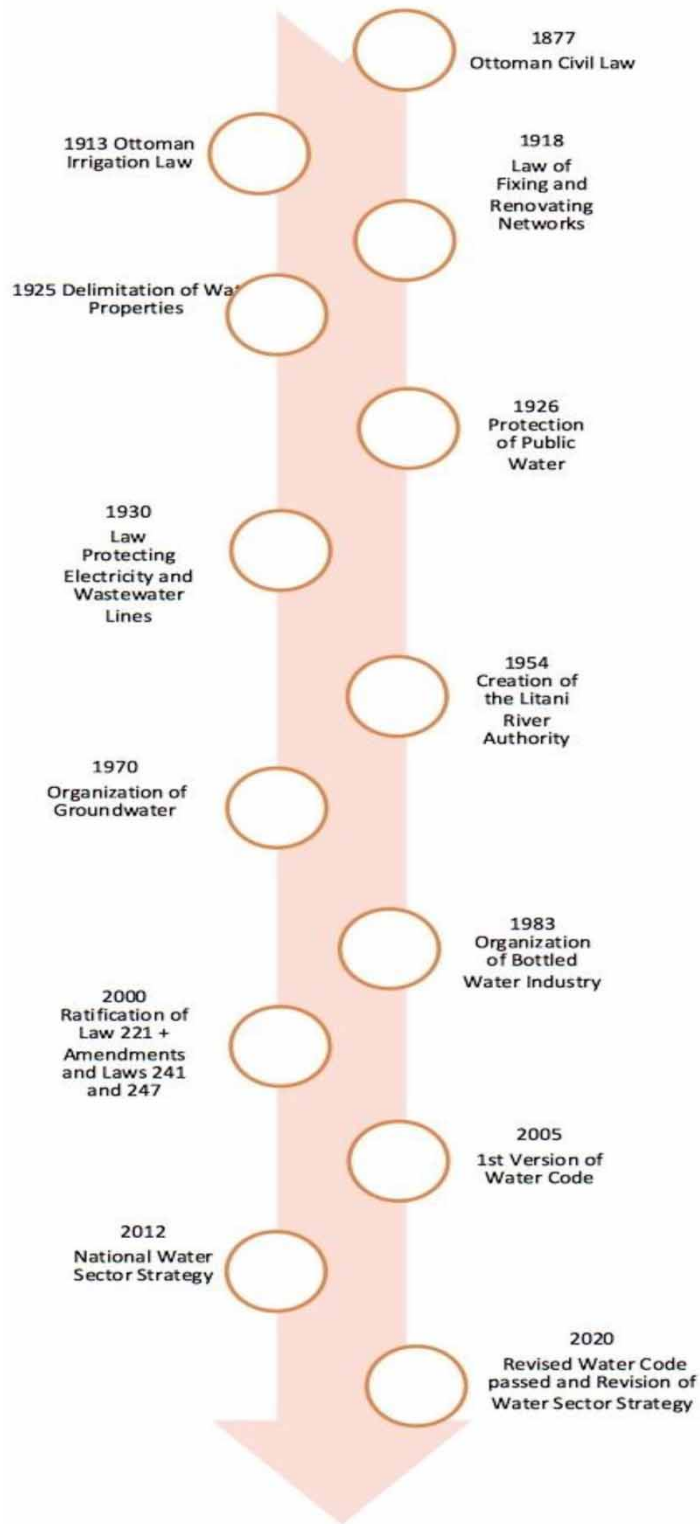
In 1990, after fifteen years of civil war, the management of water resources was challenged with wrecked infrastructure; a completely disorganized administration

**Table 1** | Institutions involved in water management in Lebanon

<b>Institution</b>	<b>Role in the management of water</b>
Litani River Authority	Manage the Litani dam and reservoir project including irrigation, potable water supply, and hydroelectricity; surface flow monitoring across the country and water quality monitoring in the Litani Basin
Ministry of Public Health	Supervising the protection of the consumer by controlling potable water and monitoring pollution
Ministry of Environment	Responsible for monitoring pollution, climate change, overuse and environmental impact assessment
Ministry of Agriculture	Responsible for irrigation water quality, research, extension and training for use of irrigation water
Ministry of Public Works	Manages meteorological stations in Lebanon and storm drainage networks
Ministry of Industry	Regulates industrial water use
Ministry of Interior and Municipalities	Responsible for municipal affairs in terms of wastewater management
Ministry of Information	Plays an important role in raising awareness
Ministry of State for Administrative Reforms	Participates in elaborating new drafts and legislation, and water sector reform
Ministry of Foreign Affairs	Plays a role in negotiations over international transboundary waters
Council for Development and Reconstruction	In charge of planning infrastructure development, mobilizing funds for major development projects and supervising project execution
National Council for Scientific Research	Scientific research, Remote Sensing
Lebanese Agricultural Research Institute	Meteorological forecasting
Council for the South	Reconstruction projects for South Lebanon
Central Fund for the Displaced	Reconstruction of networks and pipes in displaced areas of Mount Lebanon
Interior Security Forces	Responsible for enforcing arrest warrants and for controlling offenses linked to the environment according to the decrees of public authorities.
Governors	Represent all centralized authorities in their respective governorates
Lebanese Government	Responsible for legislative processes through the Cabinet and the Prime Minister's office
Lebanese Parliament	Responsible of the legislative processes including the government through parliamentary subcommittees
UN agencies	Project implementation: FAO, UNDP, UNICEF, ESCWA, etc.
Non-Governmental Organizations	Project implementation
Water Users	Farmers, irrigators, cooperatives, local committees, Water Users' Associations (WUAs), etc.
High Council for Privatization	Responsible for PPP contracts
Public Recruitment council	Responsible for recruiting staff for different agencies
Public Accounting Board	Accounting and monitoring
Municipalities	Sewage network within the municipal domains

and a fragmented territory. Lebanon embarked upon an ambitious program of social and economic reconstruction to rebuild much of its physical, social and economic infrastructure. The reconstruction program was financed mostly through borrowing from domestic banks, which resulted in a heavy government debt

burden. By 1998, the growing debt, created by the post-war reconstruction program, became a major problem, which was exacerbated by the collapse of the country's real-estate sector. This brought the ambitious social and economic reconstruction program, initiated in the 1990s, to a halt.



**Figure 2** | Chronological history of water laws in Lebanon.

### Assessment of water policy reform in Lebanon since 1999

Since 1999, four main events shaped water policy reform in Lebanon: (i) the adoption of a 10-Year Water Plan in 1999; (ii) the promulgation of a series of water administrative laws in 2000 (Laws 221, 241 and 247); (iii) the elaboration of a National Water Sector Strategy in 2012 (Resolution no 2.); and (iv) the approval of the Water Code in 2018 (Laws 77 and 192). The first two reforms represent more of a continuation of previous policies than any meaningful change in water resource planning. The discourse and planning policies continued to promote large-scale typical projects as being the only national direction for water development (Riachi 2016).

The proposed Ten-Year Water Management Plan (2000–2009) was an amalgamation of older plans that were developed during the French mandate and the post-independence period. Indeed, reports established by the US Bureau of Reclamation and the French International Institute for Research and Training for Harmonized Development in the 1960s, and plans developed by private companies in the 1980s constituted the core of the Ten-Year Water Management Plan (Riachi 2013).

In May 2000, the Lebanese Parliament approved Law 221 concerning the organization of the Water Sector, reducing 22 AWOs to five RWEs. Law 241 corrected the latter in August 2000 to further reduce the five RWEs to four RWEs, in addition to the Litani River Authority. Law 247/2000, which was also passed in August, renamed the Ministry of Hydraulic and Electrical Resources to the Ministry of Energy and Water. Finally, Law 377 brought amendments to Law 221/2000 in March 2002, empowering the RWEs with the overall management of wastewater (collection and treatment). The latter created an ambiguous situation in the wastewater sector where municipalities that had constructed and managed the collection of sewage throughout decades were denied this role. Several decrees were also issued to indicate juridical issues or the application procedures of those laws (such as Decree 8122 published on 3 July 2002). These laws established a new institutional policy for water management in Lebanon, closing a long chapter of Ottoman-influenced laws, although the

application decrees for these reforms that reinforced the new RWEs were not issued until 2005.

On September 13, 2010, Ministerial Order 118 concerning the reorganization of groundwater drilling and extracting licenses was passed (Molle *et al.* 2017). The licensing process for well drilling and development involved the RWEs, the Ministry of Energy and Water and the municipalities, whereas the applications for permits was centralized at the ministry level (Riachi 2016). Order 118 brought institutional changes, externalizing some of the roles and tasks that were previously performed by the Ministry, such as technical studies and monitoring, to four pre-qualified private engineering firms (Riachi 2016).

On March 9, 2012, the Lebanese Government officially adopted the National Water Sector Strategy (NWSS), through Resolution 2. The strategy had been finalized in December 2010, and an operational strategy for surface water and dams was published in June 2011. The NWSS was developed by the MEW in collaboration with more than thirty national and international stakeholders and was based in part on the framework of the previous ten-year WMP. Its goal was to ensure a reliable water supply as well as irrigation and sanitation services throughout Lebanon on a continuous basis and at optimal service levels, with a commitment to environmental, economic and social sustainability (MEW, 2012). The project focused on the construction of twelve dams across Lebanon to create an additional water-storage capacity in excess of 316 Mm<sup>3</sup> annually (Armstrong 2015). Plans were also made to drastically update Lebanon's wastewater treatment infrastructure and create a national water council to ensure greater cooperation between local municipalities, which were often seen to be working according to their own best interests (Armstrong 2015). Moreover, the MEW launched its National Strategy for the Wastewater Sector (NSWS) as a follow-up to the launching of the National Water Sector Strategy (NWSS). The Lebanese government adopted the NSWS, six months after the adoption of the NWSS, through resolution 35, on 17 October 2012 (NSWS 2012).

On April 13, 2018, the Water Code was promulgated under Law 77, amended in October 2020 by Law 192. The Water Code set out to establish a Water Cadastral Registry compiling all water rights and well data and mentioned the establishment of surface and groundwater protection zones



(Riachi 2016). The new law promoted a more comprehensive approach, advocating integrated water resources management, a ‘polluter-pays’ principle, river basin plans and ‘*contrats de milieu*’ inspired by the French model based on basin management and partnerships between national and private organizations (Riachi 2016). The text does not clearly address the issue of well permit exemptions, and while it mentions the possible establishment of surface and groundwater protection zones, it does not define them clearly (Molle et al. 2017). Moreover, the code proposes the revival of old solutions such as the creation of a National Water Council.

In addition to laws that are directly related to the water sector and the related institutions, there are some laws that are relevant to the management of water resources in Lebanon but are targeted towards non-water institutions. Since water quality monitoring of water bodies falls under the jurisdiction of the Ministry of Environment (MoE), a brief description of pertinent environmental laws and their development is warranted. Lebanon published its Environmental Protection Act on 20 July 2002 by promulgating Law 444 on the protection of the environment. Within this law, Article 35 set up the mechanisms for cooperation on water protection between the MEW and the MoE. Articles 47 and 48 called for the protection and sustainable use of biodiversity, the establishment of nature reserves and the regulation of access to genetic resources. Law 444/2002 set out a legal framework for the all aspects of Lebanon’s environmental policy. Application decree 8633/2012 was published ten years after the Environmental Protection Law especially focusing on environmental impact assessment, targeting the construction of several dams across the country. This coincided with a major public outcry regarding the construction of the Jannah Dam on the Ibrahim River. Finally, the Master Plan for the Development of the Lebanese Territory (SDATL), adopted under Decree 2366 on 20 June 2009, set out rules pertaining to natural risks and the vulnerability of water resources.

## DISCUSSION

### Water policy framework and the role of RWEs

Lebanon’s only water policy strategy is the National Water Sector Strategy (NWSS). While the NWSS represented a

necessary and important step in the development of the Lebanese water sector, it remained a non-binding executive order that did not impose any legal requirement on public or private entities to take actions to implement it (Oxfam 2017). The NWSS’s envisioned enabling environment and the investment plan were centered on five pillars: institutional and organizational initiatives; financial and commercial initiatives; legal and regulatory initiatives; environmental concerns; and an investment plan for the period between 2011 and 2015. The strategy contained a simulation of the capital and operating budgets for 2011–2015 that would result from its implementation. The total for the period was \$5 billion with an annual average spending about \$1 billion, while expenditures would be spread across the four RWEs: Beirut Mount Lebanon 40%, North 23%, South 21%, and Bekaa 16%.

While the NWSS remains an important framework for reform, its implementation has been constrained by weak accountability and continuous delays in the implementation of Law 221 that guarantees the institutional and legal autonomy of the RWEs (Oxfam 2017). The RWEs need to improve service levels and move towards financial autonomy and accountability within the context of the local political economy. New tariff schemes should be developed and their collection should be increased; unaccounted for water should be reduced and eventually minimized; and illegal connections should be cut. This is necessary so that they can build on their capacity to manage water service provision. RWEs remain financially and administratively dependent on the MEW and other actors such as the Council for Development and Reconstruction (CDR), with municipalities filling gaps in any service provision (Oxfam 2017). Tariffs need to be set in the context of progressive service improvement and in light of local circumstances with a view to long-term financial balance and sustainability. Institutional reforms that envision a nationwide metering program and consumption-based tariffs have not materialized at the time of writing (Oxfam 2017). Meanwhile, transitioning to volumetric pricing policies instead of the current flat rate charges would incentivize users to conserve water and assist RWEs with their cost recovery schemes and financial autonomy. Despite its ambitious aspirations, progress towards implementation of the strategy is very slow (El-Jisr & Chabarekh 2012). The priority should be to

improve the quality and efficiency of investment rather than the volume of supply, and focus efforts on demand management. The NWSS is a relevant but perhaps over-ambitious program. Specifics for priorities and phasing are important, and implementation challenges will need to be met. Implementation will require breaking the NWSS down into 'bite-sized pieces' and phasing in its implementation according to priority and available funds.

### **Institutional duplication and fragmentation of responsibilities**

At the heart of the water management problems in Lebanon are the large number of institutions involved in the sector; the fragmentation of decision-making; the lack of clear lines of responsibility and consequently accountability; and political bickering (Riachi 2013). Despite the number of actors involved in the management of the country's water resources, not one entity is effectively managing the resource in any real sense. The existing legal framework for the Lebanese water sector is not well organized and structured leading to mismanagement and the overlap of responsibilities (CAMP 2003). Although the MEW and the RWEs are the main governmental authorities responsible for water management, they are in fact barely even service providers, let alone water resource managers. The jurisdiction of RWEs in Lebanon are based on administrative boundaries rather than watersheds; hence, they cannot function like River Basin Agencies (RBA) and do not control their own water resources or financial budget. Their mandate does not allow them to directly control or prevent pollution within their catchments, they cannot set out laws or regulations specific to their basins and they cannot control land use, environmental practices or socio-economic factors. The RWEs are merely businesses that are compelled by the government to provide services to the consumer in terms of irrigation, potable water or wastewater. The problem of the assignment of responsibilities of water management in Lebanon is closely related to the country's political framework. When the government is heavily centralized, it is difficult for the ministries to delegate and transfer power to regional authorities. The coordination between public administrations is questionable, especially when tutorship differs among them: the CDR reports

directly to the Council of Ministers, while the Council of the South reports only to the head of parliament and both these organizations, especially the former, have significant projects in the water sector (Riachi 2013). Responsibilities often overlap between central and local authorities, leading to the fragmentation of accountability.

Despite the large number of stakeholders involved, no mechanism for sharing information between different administrations has been set up for Lebanon's water resources. As a result, information is obtained in a rudimentary and bureaucratic manner due to the lack of cooperation between the different administrations. Moreover, there is no database of national water statistics shared among administrations. This is mostly due to political protectiveness; lack of information sharing enforcement, especially from the private sector, and corruption in that data is often viewed as a source of money for its holder.

### **CONCLUSIONS**

Twenty years after launching its water sector reform, Lebanon has still not been able to completely meet the needs of the water users or the priorities of the managing authorities. Significant delays and weaknesses have impeded the full implementation of a key reform law – Law 221 (CDR 2014). The institutional and legal frameworks envisaged have not been effectively implemented; poor coordination within government entities has led to the continuing fragmentation of responsibilities for investment planning and execution; and partial implementation of a delegated model of service provision is not complemented by a parallel effort to strengthen central government management of the water sector. The NWSS, although incomplete, constituted an important starting base through the induction of the Canal 800 and Greater Beirut Water Supply Project (GBWSP) projects, as well as the rehabilitation of water distribution networks. These along with other projects have improved or will improve water supply in the targeted areas.

Although the Water Code was amended in October 2020, it still carried on with the same old problem of adding another layer on top of older water texts without entirely replacing older ones. Therefore, the Government

of Lebanon would need to conduct an extensive review of all the water laws to weed out all that are obsolete and irrelevant. In addition, texts that are conflicting or contradictory would need to be reformulated to achieve the required alignment. A review process for the NWSS began in June 2019 and aims to integrate the wastewater strategy into the new NWSS and mainstream climate change into it.

On a more regionally focused scale, the development of RWEs has been hampered by the following key drawbacks:

- The autonomy of the RWEs is nominal at best. They are still linked to the central government in key areas:
  - Ability to hire independently of government's consent though they should follow the Council for Civil Service
  - Financial independence non-existent
  - Cost recovery especially through collection of fees is poor
  - Wastewater fees conflict with fees levied by municipalities – there is double tapping where both entities levy the same tariff separately and independently
  - Cooperation with security and legal authorities to enforce laws is patchy
- Relationship with consumers is poor
  - Poor coordination with municipalities
  - Lack of trust
  - Poor communication with beneficiaries
  - Lack of transparency

The power relations within a country economically ruled by a *laissez-faire* regime and politically governed by a confessional power-sharing system, are behind maintaining this legal pluralism in water management. The deep political (sectarian) chasms translate into an institutional blockage, which complicates a political situation structurally marked by communitarianism, the weight of the notables and the collusion between business circles and political class. This dysfunctional sectarian system is hindering rational policy-making and permitted the culture of corruption and waste. With the different modes of water appropriation, commodification and privatization, water in Lebanon is being mismanaged at all levels. Meanwhile political arrangements, nepotism, clientelism, and lengthy legal processes has led some to raise the question that the systematic impoverishment of the water sector may be part of a pre-privatization scenario. Many post-war politicians were warlords or

militiamen who, resorted to favoritism, bribery, corruption and conflict of interest. They transformed a ruined country into a heavily burdened debt-servicing country. The result is a dysfunctional sectarian system that is incapable of providing the basic water services to the population despite the country living beyond its means for three decades. The 20 years of water reform have included the development of a plan, a strategy, promulgation of new administrative laws and legal texts; however, many of these have been developed in parallel often ignoring one another and many have not upgraded or updated existing laws, texts or plans. In their majority, they have either been donor driven or followed market-oriented policy framework while not addressing priorities for action in water demand for in the various sectors such as domestic, agricultural, industrial, and touristic and more recently water needs for refugees. The issue of groundwater versus surface water was also glossed over in many of the texts, laws and plans. Finally, none of these texts has secured a space in which the people who are the actual beneficiaries of the resource can raise their voice and express their opinion on the issue. Lebanon has witnessed during the last five years an increase in the people's demand for involvement in or oversight of public expenditure, policies, plans, reforms, and projects, especially in the water sector. Collective movements have been initiated to express concerns over the building of dams: chiefly the #nodam campaign against the Qaysamani project, and the Lebanon Eco Movement against many other dams and especially the Bisri project to name a few. Others addressed the issue of privatization of the water service (e.g. the #waternotforsale campaign against the Blue Gold private initiative).

With the end of the hostilities in 1990, the challenges of post-war policy reforms in Lebanon's water sector became evident. The water and sanitation infrastructure, badly scarred by the civil war, was rebuilt with substantial external financial assistance, most of which came as loans. The successive governments became hostages of a development ideology that disregarded the root causes of the failure of water management in Lebanon. As a result, promoted solutions in post-war policy reforms are inherently incapable of delivering promised progress. In this regard, international donor agencies should embrace and update/upgrade existing legislations rather than pushing additional new texts that often increase the burden on struggling post-conflict

governments. Finally, even though people's opinions on water issues may become more polarized with the growth of awareness and environmental concerns, post-conflict governments must be listen to the ultimate beneficiaries of water services and at a minimum keep them informed of, if not involved in, the decision making process for projects, policies, and strategies.

## KEY TAKEAWAYS

A lot can be learned from what happened in the Lebanon water sector. The country endured fifteen years of civil war and its water sector was left barely operational. Its water and sanitation infrastructure, was rebuilt with substantial external financial assistance, however, throughout the country, water resources are limited in terms of both quantity and quality as a result of mismanagement and an ageing infrastructure, and this 30 years after the end of the war. Currently, several countries in the Middle East are experiencing armed conflict and will eventually undergo reconstruction that would target their water sectors. Below is brief listing of key lessons or takeaways that can be ascertained from reconstruction and the post-war policy reforms in Lebanon's water sector to enable the translation from this case to other countries in the region:

- Political interference in the management and governance of the water sector should be curtailed (and if possible totally prohibited)
- Accountability and transparency are the basic elements for any successful development and implementation of water sector plans and strategies. Mechanisms that ensure accountability must be coded into law and free, unobstructed access to information must be instituted to ensure transparency. This is especially true in the procurement and operations phases of any project.
- Develop laws, regulations etc. and their various upgrades in a holistic manner taking all existing laws into account to ensure that there are no ambiguities and/or confusing overlaps in jurisdictions.
- Inclusive management and policy development that gives consumers a voice would ensure that laws and regulations as well as proposed plans have local support and buy-in, thus their chances of success will be greatly increased.

- Development planning and infrastructure construction and implementation have to accommodate and be cognizant of one another, and cost recovery has to be built into all plans
- International donor agencies should embrace existing legislations rather than pushing for specifically tailored additional texts that increase burdens on struggling post-conflict governments.
- International donor agencies should not force agendas on beneficiaries that could create dysfunctional development projects. Concomitantly, beneficiaries must have their own sector development plans ready to properly align donor support and coordinate activities in order to avoid duplication and redundancies.

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## COMPETING INTERESTS

Not Applicable.

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Not Applicable.

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## DATA AVAILABILITY STATEMENT

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