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Water Scarcity and Social Tensions in Lebanon

Lessons from the Bcharreh–Denniyeh Case

Policy Note, December 2025

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Table of Contents

Executive Summary

Lebanon has long framed its natural water resources as a point of national pride, from rivers and snow-capped peaks to its Mediterranean coast. Yet, years of systemic mismanagement, conflict, climate crises, political interference, and institutional neglect[1] have pushed the country into one of the most severe water crises in its modern history. Today, one-third of residents live in drought-vulnerable areas, and nearly half of households depend on costly and often unsafe trucked water, turning access to a basic resource into a daily financial and health burden. As with many national challenges, water scarcity is not only an environmental and development issue; it is increasingly a catalyst for political tension and communal mistrust.

This crisis is rooted in fragmented governance, informal, monopolized, and unregulated water markets, and deteriorating infrastructure. Thousands of unauthorized wells, unchecked groundwater extraction, and inefficient distribution networks have depleted aquifers and eroded public confidence. Meanwhile, the burden falls heaviest on low-income households and refugees, deepening social inequities, and weakening the legitimacy of state institutions. Water, once seen as a public good, has become a contested commodity shaped by power imbalances and institutional decay.

The Bcharreh–Dinniyeh dispute illustrates how resource scarcity, when left unmanaged, can transform into a conflict. What began more than a decade ago as a dispute over the ownership of Qurnat al-Sawda — a critical source for northern Lebanon's groundwater recharge and pastoral livelihoods — has escalated into cycles of violence and sectarian tension[2]. Instead of mediating claims, formally demarcating land and water rights, or investing in sustainable watershed management, state authorities relied on episodic security deployments and unenforced decrees. This reactive approach has neither resolved the dispute nor prevented environmental degradation, underscoring structural weaknesses in Lebanon's water governance model.

The Bcharreh–Dinniyeh case is not an isolated anomaly, but a preview of a growing national trend as water shortages intensify across multiple regions. With climate pressures mounting and institutional capacity eroding, Lebanon risks entering an era where water insecurity fuels local conflict, rural economic decline, and further social fragmentation. Preventing escalation requires a strategic shift from crisis containment to proactive governance: clarifying resource rights, enforcing groundwater regulation, strengthening public supply systems, and building inclusive, basin-level and community-based mechanisms for dispute resolution.

Hence, Lebanon's water crisis is not solely about scarcity, it is about governance. Without credible state intervention and participatory management frameworks, resource competition will continue to erode social cohesion and threaten long-term stability. The choice is clear: invest in equitable and transparent water governance today or face escalating conflict and humanitarian vulnerability tomorrow.

1 Washington Institute. (2024, January 8). The Devastating Impact of Lebanon's Environmental Failures. Retrieved from: https://www.washingtoninstitute.org/policy-analysis/devastating-impact-lebanons-environmental-failureshttps

2 L'Orient Today. (2023, August 1). No man's land: Lebanon's major property disputes. Retrieved from: https://today.lorientlejour.com/article/1345130/no-mans-land-lebanons-major-property-disputes

Recommendations

To Civil Society Organizations:

- **Integrate climate and resource-related conflict into peacebuilding work,** shifting focus from traditional conflict related work (sectarian, refugee vs. host…) to competition over water, land, and energy resources.

- **Establish community-level dialogue platforms** that bring together municipalities, farmers, pastoralists, water establishments, refugee representatives and other relevant stakeholders to mediate disputes around spring access, irrigation schedules, and water trucking.

- **Develop early-warning and grievance systems** to track and de-escalate local water-related incidents before they turn violent.

- **Strengthen women's and youth participation** in natural-resource governance by training them as community mediators and facilitators in water and climate-related dialogues.

To the Government of Lebanon:

- **Finalize and publish watershed and administrative boundaries** to clarify jurisdiction over key mountain springs and prevent overlapping claims among municipalities.

- **Enforce licensing of wells and regulate groundwater extraction,** introducing metering for high-volume users and closing illegal wells that threaten shared aquifers.

- **Regularize and monitor the water-trucking sector,** setting hygiene standards, price ceilings, and approved filling points to prevent exploitation and contamination.

- **Rehabilitate and maintain public water infrastructure,** prioritizing leak repair, chlorination, and energy supply for critical pumping stations to reduce reliance on private trucking.

- **Establish inclusive basin-level water councils,** composed of municipal, CSO, and agricultural representatives, to manage allocation, define dry-season rules, and resolve disputes locally.

- **Replace security-led responses with mediation and governance approaches,** empowering line ministries and local authorities to lead dialogue and environmental enforcement rather than deferring to security agencies.

- **Scale up decentralized, renewable-energy water systems** such as solar-powered pumps paired with sustainable operations and maintenance plans and public performance reporting.

- **Adopt a National Drought and Water Equity Plan,** integrating agriculture, health, and social-protection measures to prioritize vulnerable and refugee-hosting areas and ensure fair distribution during shortages.

To EU, Donors, and the International Community:

- **Ensure that all water and WASH interventions are conflict-sensitive,** requiring local-level conflict analysis prior to project approval and establishing risk-monitoring systems throughout implementation.

- **Link financial support to transparent regulation of groundwater and trucking,** advocating that aid be conditioned on government progress toward licensing and quality control.

- **Invest in data systems for hydrological and social-tension monitoring,** supporting the creation of open-access dashboards that combine flow measurements, satellite data, and community reporting.

- **Promote multi-stakeholder dialogue with the Government,** using donor coordination platforms to advocate for coherent water-sector policies, the enforcement of environmental regulations, and the depoliticization of water management.

Water Scarcity and Social Tension in Lebanon

Lebanon has historically considered itself a water-abundant country relative to its neighbors. However, it is currently experiencing one of the most severe water crises in decades, with projections indicating that scarcity will worsen in the coming years.[3] Declining rainfall, measured at less than half of the national average in 2025,[4] combined with years of mismanagement and the growing effects of climate change, has sharply reduced water availability across the country.[5] More than 1.85 million people, roughly one-third of the population, now live in areas highly vulnerable to drought.[6] In addition, 44 percent of the population rely on unsafe and costly water trucking to meet their daily needs.[7]

Water scarcity in Lebanon arises from intertwined issues of quantity and quality. Not only is water insufficient to meet national demand, but much of the available supply is contaminated.[8] These conditions are grounded in systemic governance weaknesses and long-term neglect of water infrastructure,[9,10] which have transformed occasional shortages into chronic scarcity.

3 The Badil. (2025, October 2). Lebanon's Water Strategy: Drowning in Promises, Thirsting for Action. Retrieved from: https://thebadil.com/analysis/lebanons-water-strategy-drowning-in-promises-thirsting-for-action/

4 Ibid.

5 Ibid.

6 UNHCR. (2025, September 12). Lebanon Response Plan: Water Scarcity & Drought Preparedness & Response 2025 - At a Glance. Retrieved from: https://reliefweb.int/report/lebanon/lebanon-response-plan-water-scarcity-drought-preparedness-response-2025-glance

7 Ibid.

8 The Badil. (2025, October 2). Lebanon's Water Strategy: Drowning in Promises, Thirsting for Action. Retrieved from: https://thebadil.com/analysis/lebanons-water-strategy-drowning-in-promises-thirsting-for-action/

9 Ibid.

10 The Tahrir Institute for Middle East Policy. (2022, December 15). Invisible and Unjust Impacts of Water Informality in Lebanon. Retrieved from: https://timep.org/2022/12/15/invisible-and-unjust-impacts-of-water-informality-in-lebanon/

Fragmented institutional responsibilities,[11] limited regulatory oversight,[12] and insufficient public investment[13] have constrained the effective management of water resources. In response to unreliable public supply, many households and agricultural users increasingly depend on groundwater, leading to the proliferation of approximately 20,000 mostly unlicensed wells.[14] Over-extraction has lowered aquifer levels, induced seawater intrusion in coastal areas, and further compromised water quality and sustainability.[15] Aging and poorly maintained distribution networks also contribute to substantial losses and contamination,[16] with nearly half of piped water lost due to leaks, further exacerbating shortages.[17]

These infrastructural and governance weaknesses also intensify environmental and energy pressures. Every liter of water requires energy for treatment, pumping, and distribution, whether sourced from formal networks, wells, or informal tankers.[18] Informal water sources consume the most energy and generate the highest carbon emissions,[19] increasing energy demand by 83 percent and accounting for 72 percent of per capita water-related carbon emissions.[20] Tanker operations in urban areas also release nitrogen oxides, black carbon, and particulate matter, heightening the risk of respiratory illnesses.[21] Without government oversight,[22] private suppliers now control much of the water supply, setting prices arbitrarily and delivering water of uncertain quality.[23] The 2022 cholera outbreak in North Lebanon, which affected thousands and caused at least 23 deaths, underscored the public health risks of this unregulated system.[24]

Since the outbreak of the conflict in October 2023, recurrent Israeli airstrikes have severely damaged water infrastructure across southern and eastern Lebanon,[25] further deepening the existing scarcity crisis. Overall, 40 out of 118 water facilities sustained damage, and 12 were completely destroyed, affecting access for at least half a million people.[26] In some localities,

11 Water Reform. (2022, March 31). Lebanese Water Sector Legislation Summary Analytical Report. Retrieved from: https://water-reform.com/wp-content/uploads/2024/02/Lebanese-water-sector-legislation-summary-analytical-report.pdf

12 The Tahrir Institute for Middle East Policy. (2022, December 15). Invisible and Unjust Impacts of Water Informality in Lebanon. Retrieved from: https://timep.org/2022/12/15/invisible-and-unjust-impacts-of-water-informality-in-lebanon/

13 World Bank. (2012, April 19). Lebanon Country Water Sector Assistance Strategy 2012-2016. Retrieved from : https://documents1.worldbank.org/curated/en/401211468088175955/pdf/683130ESW0P1220C0disclosed070300120.pdf

14 Al-Akhbar. (2025, August 18). Neglect and Failure: Lebanon's One-Billion-Cubic-Meter Water Deficit. Retrieved from: https://en.al-akhbar.com/news/neglect-and-failure--lebanon-s-one-billion-cubic-meter-water

15 Ibid.

16 Now Lebanon. (2025, March 26). Lebanon's dry winter and its impact on the country's water supply and agriculture. Retrieved from: https://nowlebanon.com/lebanons-dry-winter-and-its-impact-on-the-countrys-water-supply-and-agriculture/

17 Ibid.

18 The Tahrir Institute for Middle East Policy. (2022, December 15). Invisible and Unjust Impacts of Water Informality in Lebanon. Retrieved from: https://timep.org/2022/12/15/invisible-and-unjust-impacts-of-water-informality-in-lebanon/

19 Ibid.

20 Ibid.

21 Ibid.

22 Ibid.

23 The Public Source. (2024, May 22). Riding with the Black Hose Brigade: The Truckers Who Bring You Water When the Government Fails. Retrieved from: https://thepublicsource.org/unregulated-privatized-water-lebanon

24 Ibid.

25 Action Against Hungry, Insecurity Insight, Oxfam. (2025, August 26). When Bombs Turn the Taps Off: The Impact of Conflict on Water Infrastructure in Lebanon (October 2023 - April 2025). Retrieved from: https://reliefweb.int/report/lebanon/when-bombs-turn-taps-impact-conflict-water-infrastructure-lebanon-october-2023-april-2025

26 ACAPS. (2025, March 5). ACAPS Briefing Note: Lebanon - After the ceasefire: current situation, humanitarian needs, and outlook (05 March 2025). Retrieved from: https://reliefweb.int/report/lebanon/acaps-briefing-note-lebanon-after-ceasefire-current-situation-humanitarian-needs-and-outlook-05-march-2025

the main water source for entire cities was taken offline; for example, a single strike on a filtration pumping station in Tyre disrupted water access for approximately 72,000 residents.[27] This destruction has intensified socio-economic vulnerability,[28] disrupting livelihoods,[29] straining households with costly water alternatives,[30] and weakening the capacity of communities and industries to maintain productivity[31] and social cohesion[32].

Water scarcity directly undermines Lebanon's primary sectors.[33] Agricultural livelihoods are especially vulnerable, with inadequate irrigation jeopardizing crop yields and rural incomes.[34] Industries such as food processing and small-scale manufacturing struggle to sustain operations amid unreliable water access,[35] weakening economic stability and employment. At the household level, reliance on private water vendors deepens inequalities, forcing poorer communities to pay more for lower-quality water[36] and further eroding social trust.

Beyond economic repercussions, scarcity also fuels social tensions. Water-related conflicts occur both horizontally, between residents competing for scarce resources, and vertically, between communities and authorities, particularly in the North, Baalbek El-Hermel, and El Nabatieh.[37] Seasonal pressures, electricity cuts, and unequal access can heighten these disputes,[38] which sometimes escalate into demonstrations, roadblocks, or even armed clashes.[39] For instance, in 2025, a dispute over filling water tanks from an artesian well in Kfar Dabash, Baalbek, escalated into gunfire, resulting in three fatalities and multiple injuries.[40] Similarly, in the Harf Beit Hasna area a clash over watertankers being filled and sold to farmers escalated into a -knifefight- injuring five people.[41]

27 Human Rights Watch. (2025, February 17). Lebanon: Destruction of Infrastructure Preventing Returns. Retrieved from: https://www.hrw.org/news/2025/02/17/lebanon-destruction-of-infrastructure-preventing-returns

28 UNDP. (2025, July 24). The socioeconomic impacts of the 2024 war on Lebanon. Retrieved from: https://www.undp.org/lebanon/publications/socioeconomic-impacts-2024-war-lebanon

29 Ibid.

30 Action Against Hunger. (2025, August 26). Nine Months After Ceasefire, Hundreds of Thousands in Lebanon Still Deprived of Running Water. Retrieved from: https://accioncontraelhambre.org/en/news/nine-months-after-ceasefire-hundreds-thousands-lebanon-still-deprived-running-water

31 UNDP. (2025, July 24). The socioeconomic impacts of the 2024 war on Lebanon. Retrieved from: https://www.undp.org/lebanon/publications/socioeconomic-impacts-2024-war-lebanon

32 Ibid.

33 Middle East Institute. (2022, October 17). Amid Lebanon's perfect storm of crises, water demands attention. Retrieved from: https://www.mei.edu/index.php/publications/amid-lebanons-perfect-storm-crises-water-demands-attention

34 Mercy Corps. (2025, July 8). No Rain, No Gain: Situational Analysis on Drought in Lebanon. Retrieved from: https://mercycorps.org.lb/wp-content/uploads/2025/07/Thematic_Drought_and_Impact_up.pdf

35 Berytech. (2025, July 30). Securing Water and Energy Access: Powering Sustainable Farming and Food Production in Lebanon. Retrieved from: https://berytech.org/securing-water-and-energy-access-powering-sustainable-farming-and-food-production-in-lebanon/

36 Achore, M.; Bisung, E.; Kuusaana, E. (2020). Coping with water insecurity at the household level: A synthesis of qualitative evidence. 230(5). Retrieved from: https://www.researchgate.net/publication/343932730_Coping_with_water_insecurity_at_the_household_level_A_synthesis_of_qualitative_evidence

37 Tensions Monitoring System, WaSH Sector Lebanon. (2024, September 6). Water-related Tensions in Lebanon. Retrieved from: https://www.tms-lebanon.com/product/report/167

38 UNICEF. (2022, May). Water as a Tool for Defusing Socio-Political Tension. Retrieved from: https://www.unicef.org/lebanon/media/8866/file/Water%20as%20a%20Tool%20for%20Defusing%20Socio%20Political%20Tension%20-%20Executive%20Summary%20EN.pdf

39 Ibid.

40 L'Orient Today. (2025, July 4). Deadly clashes renew in Kfar Dabash over water dispute. Retrieved from: https://today.lorientlejour.com/article/1467881/deadly-clashes-renew-in-kfar-dabash-over-water-dispute-raising-death-toll-to-three

41 MTV Lebanon. (2025, June 29). Knife Fight Erupts Over Water Tankers. Retrieved from: https://www.mtv.com.lb/en/news/Local/1589296/knife-fight-erupts-over-water-tankers

Lebanon's water crisis constitutes a complex interplay of environmental, institutional, economic, and social factors. Its consequences extend far beyond resource shortages, threatening livelihoods, public health, and the stability of communities across the country.

Case Study: the Bcharreh-Denniyeh Conflict

As Lebanon's highest peak,[42] Qurnat al-Sawda receives significant annual precipitation averaging between 1100 and 1400 millimeters.[43,44] This rainfall plays a vital role in supporting local agriculture and serves as an important water reservoir for the local population.[45,46] The mountain's snowmelt feeds multiple ponds and underground aquifers that provide irrigation and drinking water across the northern highlands. Yet, this natural abundance has also become a source of recurrent disputes,[47] particularly during summer months, between the predominantly Christian community of Bsharri and the Sunni population of Bqaa Safrin.[48] Both communities lie adjacent to the summit[49] and rely extensively on the same water sources,[50] with the ponds formed by melting snow at the center of the long-standing conflict.

For decades, both sides have claimed rights over the mountain's ponds formed by melting snow. Residents of Bsharri argue that these ponds contribute to groundwater recharge in their region and supply additional water through canals during dry autumn months,[51] while inhabitants of Dinniyeh argue that they are essential for irrigating summer crops and sustaining livestock in Bqaa Safrin and Jird al-Najass.[52] Each community asserts territorial jurisdiction over the ponds, relying on its own maps and historical records.[53] The absence of officially demarcated boundaries has allowed these overlapping claims to persist, transforming local resource competition into a recurring source of tension.[54]

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42 L'Orient Today. (2024, September 6). 'Any attack on civil peace is forbidden': Joseph Aoun reaffirms army importance in Qornet al-Sawda. Retrieved from: https://today.lorientlejour.com/article/1426287/any-attack-on-civil-peace-is-forbidden-joseph-aoun-reaffirms-army-importance-in-qornet-al-sawda.html

43 Faour, G. (2004). Forest Fire Fighting in Lebanon Using Remote Sensing and Gis. Retrieved from: https://www.researchgate.net/publication/310796768_FOREST_FIRE_FIGHTING_IN_LEBANON_USING_REMOTE_SENSING_AND_GIS

44 Ministry of Agriculture. (2015). Lebanon National Forest Program 2015-2025. Retrieved from: https://faolex.fao.org/docs/pdf/leb163865.pdf

45 Al-Akhbar. (2023). What is the reason for the dispute between Bishri and Al-Diniya over Al-Qurna Al-Sawda?. Retrieved from: https://alahdath24.com/ar/ما-هو-سبب-الخلاف-بين-بشري-والضنية-على-القرنة-السود

46 Victor, R. (2012). Sustainable Mountain Development in the Middle East and North Africa. Retrieved from: https://weadapt.org/wp-content/uploads/2023/05/smd_mena_final_pdf.pdf

47 L'Orient Today. (2024, September 6). 'Any attack on civil peace is forbidden': Joseph Aoun reaffirms army importance in Qornet al-Sawda. Retrieved from: https://today.lorientlejour.com/article/1426287/any-attack-on-civil-peace-is-forbidden-joseph-aoun-reaffirms-army-importance-in-qornet-al-sawda.html

48 Ibid.

49 Ibid.

50 Al-Akhbar. (2023). What is the reason for the dispute between Bishri and Al-Diniya over Al-Qurna Al-Sawda?. Retrieved from: https://alahdath24.com/ar/ما-هو-سبب-الخلاف-بين-بشري-والضنية-على-القرنة-السود

51 Ibid.

52 Ibid.

53 Ibid.

54 Pime Asia News. (2023, July 6). North Lebanon, a land dispute inflames tensions between Maronites and Sunnis. Retrieved from: https://www.asianews.it/news-en/North-Lebanon,-a-land-dispute-inflames-tensions-between-Maronites-and-Sunnis-58741.html

The conflict dates back to the late 1990s but intensified after 2006,[55] evolving through phases of negotiation attempts, legal disputes, and at times, violent confrontations.[56][57] Firearms have occasionally been used, with both sides accusing each other of violating environmental laws, including the 1998 Ministry of Environment decree restricting activity in protected highland zones.[58] Projects intended to improve water access, such as a water-collection pond planned by the Green Project and the Ministry of Agriculture in Tallet Samara, were halted due to local opposition.[59] In 2023, the killing of two members of the Tawk family reignited fears of a wider outbreak of violence, demonstrating the fragility of the situation.[60]

Over time, the dispute has acquired a sectarian and political dimension.[61] Following incidents in Dinniyeh and Nahr al-Bared and reports of militant activity near the mountain,[62] some officials from the Lebanese Forces accused Hezbollah of arming Sunni residents of Bqaa Safrin to manipulate Shiite–Christian tensions amid the presidential deadlock.[63] These narratives deepened mistrust between the communities, as water access became entangled with national power struggles.

Perceptions of worsening scarcity and declining water quality, linked to maintenance failures and unregulated extraction, have further aggravated tensions.[64] Dinniyeh residents report being subject to a “de facto authority” restricting access to grazing and water points, while Bcharreh locals have blocked hose extensions, branding violators as a “fifth column.”[65] Such confrontations have led to attacks on shepherds and the loss of over 300 livestock, underlining the human and economic costs of unresolved resource disputes.[66]

The state’s approach to managing the Bcharreh–Dinniyeh conflict illustrates Lebanon’s broader governance challenges. Although Qurnat al-Sawda was declared a nature reserve in 1998 and follow-up resolutions in 2010 sought to regulate access,[67] the summit remains disputed.[68]

55 Al-Akhbar. (2023). What is the reason for the dispute between Bishri and Al-Diniya over Al-Qurna Al-Sawda?. Retrieved from: https://alahdath24.com/ar/ما-هو-سبب-الخلاف-بين-بشري-والضنية-على-القرنة-السود

56 Ibid.

57 Ibid.

58 Ibid.

59 Ibid.

60 Asas Media. (2023, July 2). The full story of the Qurnat al-Sawda events?. Retrieved from: https://asasmedia.com/27960/

61 Al-Akhbar. (2023). What is the reason for the dispute between Bishri and Al-Diniya over Al-Qurna Al-Sawda?. Retrieved from: https://alahdath24.com/ar/ما-هو-سبب-الخلاف-بين-بشري-والضنية-على-القرنة-السود

62 Ibid.

63 L’Orient Today. (2024, September 6). ‘Any attack on civil peace is forbidden’: Joseph Aoun reaffirms army importance in Qornet al-Sawda. Retrieved from: https://today.lorientlejour.com/article/1426287/any-attack-on-civil-peace-is-forbidden-joseph-aoun-reaffirms-army-importance-in-qornet-al-sawda.html

64 UNDP. (2024, February). Environmental Factors and Social Tensions in Lebanon. Retrieved from: https://admin.tms-lebanon.com/StaticFiles/Files/ark_undp_w17_environmental_relations.pdf

65 Al-Akhbar. (2023). What is the reason for the dispute between Bishri and Al-Diniya over Al-Qurna Al-Sawda?. Retrieved from: https://alahdath24.com/ar/ما-هو-سبب-الخلاف-بين-بشري-والضنية-على-القرنة-السود

66 Ibid.

67 Aci Media. (2025, June 28). Will the court ruling end the dispute over Qurnat as-Sawda in Lebanon... or postpone it? Retrieved from: https://www.acimena.com/news/5927/hl-ytoy-alhkm-alkdayyw-nzaaa-alkrn-alsodaaa-allbnanyw-am-yogwlh

68 L’Orient Today. (2023, August 1). No man’s land: Lebanon’s major property disputes. Retrieved from: https://today.lorientlejour.com/article/1345130/no-mans-land-lebanons-major-property-disputes

In 2019, the Bqaa Safrin municipality excavated an artificial pond at over 2,400 meters altitude, beyond the legal limit set by the Ministries of Environment and Energy, provoking protests from Bcharreh residents and environmental activists.[69]

Furthermore, In response to repeated clashes, the government has favored a security-oriented strategy. The area was converted into a military training ground to prevent direct confrontations, prioritizing containment over resolution.[70] In 2023, Caretaker Prime Minister Najib Mikati issued Decision No. 86/2023, establishing a committee to mediate land and water disputes, including the conflict between Bsharri and Dinniyeh.[71] However, the subsequent suspension of the committee's work,[72] coupled with documented allegations of interference in judicial proceedings,[73] highlights the limitations of the state's approach. Rather than producing a durable resolution, these measures have yielded only intermittent calm, leaving the underlying drivers of conflict unaddressed.[74]

The Bsharri-Dinniyeh case exemplifies how Lebanon's fragmented institutions and ad hoc security responses fail to address the root causes of communal resource conflicts. Legal frameworks exist, but they operate in isolation from local governance structures and community trust.[75] Without inclusive water governance mechanisms and transparent land demarcation, short-term containment strategies risk perpetuating both environmental degradation and sectarian polarization in one of Lebanon's most water-sensitive regions.

Broader Implications: Sectors and Communities Affected

Lebanon is facing a nationwide water emergency with far-reaching implications across multiple sectors and communities.[76] Since the 2014 drought, it has become increasingly clear that environmental stress is a key driver of agricultural decline and broader socio-economic instability.[77]

69 Aci Media. (2025, June 28). Will the court ruling end the dispute over Qurnat as-Sawda in Lebanon... or postpone it? Retrieved from: https://www.acimena.com/news/5927/hl-ytoy-alhkm-alkdayyw-nzaaa-alkrn-alsodaaa-allbnanyw-am-yogwlh

70 L'Orient Today. (2024, September 6). 'Any attack on civil peace is forbidden': Joseph Aoun reaffirms army importance in Qornet al-Sawda. Retrieved from: https://today.lorientlejour.com/article/1426287/any-attack-on-civil-peace-is-forbidden-joseph-aoun-reaffirms-army-importance-in-qornet-al-sawda.html

71 The Legal Agenda. (2023, July 4). Mikati forms a committee to study 5 regional disputes, including Qurnat as-Sawda. Retrieved from: https://legal-agenda.com/ميقاتي-يشكّل-لجنة-لدرس5--نزاعات-مناطقية/

72 L'Orient Today. (2023, July 5). Mikati suspends committee charged with Qornet al-Sawda dispute. Retrieved from: https://today.lorientlejour.com/article/1342523/mikati-suspends-committee-charged-with-qornet-al-sawda-dispute

73 LBCI Lebanon. (2023, July 15). Qornet El Sawda tensions take a judicial turn: Municipality alleges pressure on real estate judge. Retrieved from: https://www.lbcgroup.tv/news/news-bulletin-reports/713517/qornet-el-sawda-tensions-take-a-judicial-turn-municipality-alleges-pre

74 L'Orient Today. (2023, August 1). No man's land: Lebanon's major property disputes. Retrieved from: https://today.lorientlejour.com/article/1345130/no-mans-land-lebanons-major-property-disputes

75 Al Modon. (2025, June 26). A decision regarding the "humanitarian" status of Qurnat as-Sawda sparks controversy with al-Danniyeh. Retrieved from: https://www.almodon.com/society/2025/06/26/قرار-ببشرّانية-القرنة-السوداء-يشعل-السجال-مع-الضنية

76 UNICEF. (2025, July 3). Water on the Edge: Lebanon's Drought Crisis Demands Immediate International Support (2025). Retrieved from: https://www.pseau.org/outils/ouvrages/unicef_water_on_the_edge_lebanon_s_drought_crisis_demands_immediate_international_support_2025.pdf

77 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

Persistent water scarcity, fueled by declining rainfall,[78] increased groundwater pumping,[79] and growing climate variability[80] threatens livelihoods, industrial operations, and household access to water. This scarcity also exacerbates social tensions, particularly between host communities and refugee populations, as competition over limited water resources intensifies.[81]

Agriculture remains the most vulnerable sector to Lebanon's ongoing water crisis.[82] Rainfed and irrigation-dependent crops,[83] such as cereals, vegetables, fruit trees, olives, and industrial crops, have experienced sharp yield reductions due to insufficient rainfall and unusually high winter temperatures.[84] Farmers have been compelled to irrigate as early as January, a period that traditionally relies on natural precipitation.[85] Cereal crops in the Bekaa Valley have been particularly affected, while fruit trees face early blooming and potential frost damage.[86] Although early irrigation helps avert immediate losses, it accelerates groundwater depletion and increases operational costs, placing additional strain on already fragile farm incomes.[87] In regions such as Bekaa/Baalbeck-Hermel, North/Akkar, and Nabatieh, declining agricultural output has translated into lower earnings, job losses, and mounting pressure on rural livelihoods and livestock.[88,89] These impacts have contributed to measurable reductions in regional GDP, reshaping Lebanon's economic geography.[90] Reduced agricultural productivity, combined with limited government support and unequal land ownership, intensifies rural socioeconomic pressures, increasing the risk of migration, lifestyle changes, and declining quality of life.[91]

78 Ibid.

79 World Bank. (2018, October 1). Droughts and Agriculture in Lebanon : Causes, Consequences, and Risk Management (English). Retrieved from: https://documents1.worldbank.org/curated/en/892381538415122088/pdf/130405-WP-P160212-Lebanon-WEB.pdf

80 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

81 NNA News. (2025, October 22). LRA Urges UNHCR to Act on Litani River Pollution from Informal Syrian Camps, Calls for Accountability and Gradual Return of Displaced Persons. Retrieved from: https://nna-leb.gov.lb/en/%D9%85%D8%AA%D9%81%D8%B1%D9%82%D8%A7%D8%AA/817877/lra-urges-unhcr-to-act-on-litani-river-pollution-f

82 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

83 Ibid.

84 World Bank. (2018, October 1). Droughts and Agriculture in Lebanon : Causes, Consequences, and Risk Management (English). Retrieved from: https://documents1.worldbank.org/curated/en/892381538415122088/pdf/130405-WP-P160212-Lebanon-WEB.pdf

85 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

86 World Bank. (2018, October 1). Droughts and Agriculture in Lebanon : Causes, Consequences, and Risk Management (English). Retrieved from: https://documents1.worldbank.org/curated/en/892381538415122088/pdf/130405-WP-P160212-Lebanon-WEB.pdf

87 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

88 Ibid.

89 MoE/UNDP. (2025). A Pathway towards a Climate Resilient Economy: Lebanon's Long-Term Low Emission Development Strategy (LT-LEDS). Retrieved from: https://unfccc.int/sites/default/files/resource/LEBANON_LT-LEDS_Report_June_2025.pdf

90 Ibid.

91 World Bank. (2018, October 1). Droughts and Agriculture in Lebanon : Causes, Consequences, and Risk Management (English). Retrieved from: https://documents1.worldbank.org/curated/en/892381538415122088/pdf/130405-WP-P160212-Lebanon-WEB.pdf

Beyond agriculture, water scarcity is increasingly constraining industrial activity and weakening local economies.[92] "Droughts and water scarcity disrupt industrial operations by limiting access to reliable water supplies, reducing efficiency and increasing production costs.[93] Chronic groundwater shortages, intermittent supply, and reliance on untreated or alternative sources have further constrained output.[94] Notably, in 2025, water levels at Lebanon's largest reservoir on the Litani River have fallen to historic lows, curbing hydropower output and industrial water use while exacerbating domestic shortages.[95] This situation has sharply reduced generation capacity, with electricity supply in some areas dropping from 20 hours to 10 hours per day.[96] Around the village of Qaraoun in the Bekaa plain, both farmers and small manufacturers have already felt the impact, reporting falling production levels and rising costs.[97]

Furthermore, in rural areas where agriculture forms the backbone of local economies,[98] these cascading effects are particularly severe. Shrinking agricultural output limits raw material supply for food processing and related industries, reduces employment opportunities, and undermines broader development prospects.[99] As a result, the combined impact of agricultural and industrial disruption threatens to entrench Lebanon's economic stagnation.[100]

Given these energy and water constraints, exploring legally viable renewable options could help supplement electricity for local industry. One potential source is Lebanon's share of the Al-Assi River, which amounts to approximately 80 million cubic meters per year under the 1994 Lebanon-Syria treaty,[101] as a renewable energy option. Under international law and the treaty, Lebanon as the upstream riparian cannot unilaterally store or dam the river and any hydropower project requires agreement with downstream Syria.[102,103] Nevertheless, the Al-Assi River has historically been considered for hydropower development,[104] a carefully planned, treaty-compliant project warrants further investigation as a potential source of supplementary electricity to support local industry and diversify Lebanon's energy mix.

92 Beirut Today. (2025, August 6). Climate Issues Are No Longer Ignorable in Crisis-Ridden Lebanon. Retrieved from: https://beirut-today.com/2025/08/06/climate-issues-are-no-longer-ignorable-in-crisis-ridden-lebanon/

93 OECD. (2025, June 17). Global Drought Outlook. Retrieved from: https://www.oecd.org/en/publications/global-drought-outlook_d492583a-en/full-report/impacts-and-costs-of-droughts_b407ba90.html

94 The International Water Management Institute (IWMI). (2022). MENAdrought findings on the underlying causes of vulnerability. Retrieved from: https://menadrought.iwmi.org/wp-content/uploads/sites/44/2022/03/menadrought_synthesis_of_drought_vulnerability_in_lebanon.pdf

95 Reuters. (2025, July 15). Lebanon's worst drought on record drains largest reservoir. Retrieved from: https://www.reuters.com/sustainability/boards-policy-regulation/lebanons-worst-drought-record-drains-largest-reservoir-2025-07-15/

96 L'Orient Today. (2025, July 16). Qaraoun Lake reaches its lowest level ever recorded. Retrieved from: https://today.lorientlejour.com/article/1469609/qaraoun-lake-reaches-its-lowest-level-ever-recorded.html

97 Ibid.

98 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

99 Ibid.

100 Middle East Institute. (2022, October 17). Amid Lebanon's perfect storm of crises, water demands attention. Retrieved from: https://www.mei.edu/index.php/publications/amid-lebanons-perfect-storm-crises-water-demands-attention

101 UNESCO. (2015). Science diplomacy and transboundary water management: the Orontes River case. https://unesdoc.unesco.org/ark:/48223/pf0000233031

102 Conker, A., Hussein, H. (2020). Hydropolitics and issue-linkage along the Orontes River Basin: an analysis of the Lebanon–Syria and Syria–Turkey hydropolitical relations. In: Int Environ Agreements 20: 103-121. DOI: https://doi.org/10.1007/s10784-019-09462-7

103 Katta, P. (2021). International Water Law: An Overview. In: IJLMH 4 (3): 3692-3707. DOI: https://doij.org/10.10000/IJLMH.11933

104 Conker, A., Hussein, H. (2020). Hydropolitics and issue-linkage along the Orontes River Basin: an analysis of the Lebanon–Syria and Syria–Turkey hydropolitical relations. In: Int Environ Agreements 20: 103-121. DOI: https://doi.org/10.1007/s10784-019-09462-7

At the household level, water scarcity disproportionately affects the most vulnerable groups, including low-income residents and refugees living in informal settlements.[105] Chronic deficiencies in public water distribution, severe rationing, and dependence on unregulated private suppliers have forced families to adopt a range of coping strategies.[106] These include water storage, pooling and borrowing resources, purchasing bottled water, building alternative wells, and relying on trucked deliveries provided by humanitarian organizations.[107] By 2025, the price of trucked water had risen by about 60 percent compared with early 2020,[108] making it increasingly unaffordable for many households. Syrian refugees, particularly those in informal tent settlements, depend heavily on trucked water, while Lebanese, Palestinian, and migrant families often cut consumption for non-essential uses or rely on costly private vendors.[109] Regional variations in trucking costs further strain vulnerable households, reinforcing systemic inequalities in water access and forcing some to cut consumption below safe levels.[110]

These unequal access patterns have deepened existing social divides. Perceptions that refugees receive preferential treatment, combined with disputes over irrigation channels, spring systems, and illegal connections, fuel mistrust within and between communities.[111] Many Lebanese residents also associate refugees with water pollution and environmental degradation, reinforcing prejudice and reducing cooperation over shared resources.[112] The diversion of treated wastewater from Zahle to meet irrigation needs, leaving Bar Elias farmers with insufficient supply, illustrates how inequitable resource allocation can inflame inter-community grievances.[113] By September 2025, early signs of water-related tensions had already begun to surface in northern regions such as Akkar, where rainfall was down by nearly 37 percent.[114]

Over time, this dynamic of unequal access, rising costs, and perceived injustice erodes trust in institutions and weakens collective resilience. Lebanon's water crisis thus illustrates the deep interlinkages between environmental degradation, economic vulnerability, and social stability. The social fabric, especially in rural regions hosting large refugee populations, is becoming increasingly fragile. Declining agricultural productivity, industrial strain, and household inequality are not isolated problems but intertwined outcomes of the same systemic scarcity.

105 Anera. (2025, January 31). A climate Change Wake-up Call. Retrieved from: https://www.anera.org/blog/a-climate-change-wake-up-call/

106 The Civil Society Knowledge Centre. (2023, February 13). Water (in)Justice in Lebanon. Retrieved from: https://civilsociety-centre.org/sites/default/files/resources/cessra-waterin_justice-report-may2025-online-en.pdf

107 Ibid.

108 Arab News. (2025, September 23). How war and drought have resulted in Lebanon's worst water crisis in decades. Retrieved from: https://www.arabnews.com/node/2616453/middle-east

109 https://civilsociety-centre.org/sites/default/files/resources/cessra-waterin_justice-report-may2025-online-en.pdf

110 L'Orient Today. (2025, July 4). Private water trucks return early to ease Beirut water shortage. Retrieved from: https://today.lorientlejour.com/article/1467893/private-water-trucks-return-early-to-ease-beirut-water-shortage.html

111 The Civil Society Knowledge Centre. (2023, February 13). Water (in)Justice in Lebanon. Retrieved from: https://civilsociety-centre.org/sites/default/files/resources/cessra-waterin_justice-report-may2025-online-en.pdf

112 Ibid.

113 Ibid.

114 UNHCR. (2025, September 12). Lebanon Response Plan: Water Scarcity & Drought Preparedness & Response 2025 - At a Glance. Retrieved from: https://reliefweb.int/report/lebanon/lebanon-response-plan-water-scarcity-drought-preparedness-response-2025-glance

Lessons Learned and Policy Implications

Today, Lebanon's chronic political and sectarian tensions are increasingly intersecting with conflicts over water scarcity. The country's sectarian system does not only shape politics; it shapes access to water, to land and even the very meaning of protection from scarcity. This becomes painfully clear when a natural resource like water becomes a trigger for identity-based mobilisation and local confrontation. The Bcharreh–Denniyeh dispute is one example, but it is far from the only one. Numerous water-service incidents and local conflicts over water access have already been reported across multiple regions,[115] reflecting growing water stress and instability. s While gaps in planning and the absence of a coherent national water strategy have worsened the crisis,[116] its roots are far deeper. Decades of underinvestment in infrastructure, fragmented governance, and competing stakeholder interests have created systemic inefficiencies.[117] Climate stress,[118] population pressures,[119] and unregulated water use[120] further compound the problem.

The Bcharreh-Denniyeh conflict is at its core due to the state's incompetence in managing resources like water. When the state fails to govern these resources effectively, communities inevitably resort to conflict when the need arises. Qurnat al-Sawda should have been a shared national natural reserve; instead, it became a contested space. For decades, the absence of formal watershed boundaries and clear land demarcation[121] allowed each community to create its own map, its own narrative, and its own claim to the mountain and its meltwater ponds.[122] The state declared the area a protected reserve in 1998[123] and created dispute-resolution committees in 2010[124] and again in 2023,[125] yet none were effectively enforced, highlighting a persistent gap between legal frameworks and implementation. Just as in other sectors, Lebanon responded not with governance but with security measures. Rather than investing in watershed management, hydrological monitoring, and community-based management structures, the state militarised the mountain. This mirrors Lebanon's broader approach to water:

115 UNHCR. (2025, September 12). Lebanon Response Plan: Water Scarcity & Drought Preparedness & Response 2025 - At a Glance. Retrieved from: https://data.unhcr.org/en/documents/details/118561

116 Ibid.

117 The Lebanese Center for Policy Studies. (2025, March 6). Review of National Water Sector Governance in Lebanon. Retrieved from: https://www.lcps-lebanon.org/en/articles/details/4909/review-of-national-water-sector-governance-in-lebanon

118 Mercy Corps. (2025, July 8). No Rain, No Gain: Situational Analysis on Drought in Lebanon. Retrieved from: https://mercycorps.org.lb/wp-content/uploads/2025/07/Thematic_Drought_and_Impact_up.pdf

119 Ibid.

120 UNHCR. (2025, July 3). Water on the Edge: Lebanon's Drought Crisis Demands Immediate International Support (2025). Retrieved from: https://data.unhcr.org/en/documents/details/117942

121 IMLebanon. (2023, July 8). Beyond "Qurnat al-Sawda" Judicial paralysis hinders conflict resolution. Retrieved from: https://www.imlebanon.org/2023/07/08/qurnat-elsawda-murder

122 IMLebanon. (2023, July 11). Bsharri-Danniyeh: A struggle over history, geography, and identity. Retrieved from: https://www.imlebanon.org/newspaper/bcharre-danniyeh

123 Ministry of Agriculture. (2003, June). National Action Programme to Combat Desertification. Retrieved from: https://www.unccd.int/sites/default/files/naps/lebanon-eng2003.pdf

124 Ministry of Information. (2023, July 6). An-Nahar: Objections force Mikati to back down on the Qurnat as-Sawda file. Retrieved from: https://www.ministryinfo.gov.lb/84748

125 L'Orient Today. (2023, July 4). Mikati forms committee to resolve Qornet al-Sawda dispute. Retrieved from: https://today.lorientlejour.com/article/1342402/mikati-forms-committee-to-resolve-qornet-al-sawda-dispute

reactive containment over proactive strategy.[126] Even after deadly clashes in 2023, none of the structural causes, institutional vacuum, infrastructure neglect, and a zero-sum perception of water ownership were meaningfully addressed.

And so, people do what they must to survive. In Bcharreh and Denniyeh, the ponds at Qurnat al-Sawda are lifelines, a guarantee of irrigation, pasture, and drinking water when the taps run dry. Nationally, rainfall has fallen to less than half its historic average,[127] aquifers are dropping, and 44% of households rely on unsafe water trucking.[128] With no reliable state provision, communities turn to unregulated wells, more than 55,000–60,000 private extractions nationwide, draining groundwater, salinising coastal aquifers, and accelerating environmental collapse.[129] Bcharreh–Denniyeh is not an anomaly; it is the rule. When governance collapses, nature becomes negotiable, and conflict becomes a way to secure survival.

These weaknesses are rooted in politics. Water management in Lebanon is not guided by equity or sustainability, but by sectarian bargaining and patronage. Infrastructure choices frequently follow political balancing rather than environmental need; a dam in the North requires a dam in the South, not because hydrology demands it, but because political equilibrium does.[130] In such a system, national resource planning is impossible; water becomes a tool of power, not public welfare.

The outcome is predictable: protests, mistrust, declining public confidence, and rising inter-communal tensions. The Bcharreh-Denniyeh conflict is not an isolated episode. In the Bekaa, shortages and irrigation disputes have sparked clashes and deep resentment between farmers and local authorities. In the South, damaged water infrastructure, prolonged outages, and unequal distribution have pushed municipalities and communities into emergency fundraising, alternative sourcing, and public protest, again with minimal state intervention or long-term strategy.

The Bcharreh-Denniyeh conflict is a warning, a preview of what water competition means in a country where institutions are weak, resources are declining, and communities are left to fend for themselves. Lebanon is facing a crisis of water governance and solving it requires more than technical fixes.[131] It requires a state capable and willing to govern.[132] First, the state must draw clear hydrological and land boundaries and formally assign water rights,[133] so disputes

126 The Badil. (2025, October 2). Lebanon's Water Strategy: Drowning in Promises, Thirsting for Action. Retrieved from: https://thebadil.com/analysis/lebanons-water-strategy-drowning-in-promises-thirsting-for-action

127 L'Orient Today. (2025, August 26). Saddi: Lebanon faces unprecedented water shortage. Retrieved from: https://today.lorientlejour.com/article/1475016/saddi-lebanon-faces-unprecedented-water-shortage

128 Arab News. (2025, September 23). How war and drought have resulted in Lebanon's worst water crisis in decades. Retrieved from: https://www.arabnews.com/node/2616453/middle-east

129 Global Compact Network Lebanon. SDG 6: Clean Water and Sanitation. Retrieved from: https://ungcnlebanon.org/wp-content/uploads/2024/03/2024-SDG-6-Progress-Report.pdf

130 Fanack Water. (2022, July 27). Water Challenges in Lebanon. Retrieved from: https://water.fanack.com/lebanon/water-challenges-in-lebanon

131 The Badil. (2025, October 2). Lebanon's Water Strategy: Drowning in Promises, Thirsting for Action. Retrieved from: https://thebadil.com/analysis/lebanons-water-strategy-drowning-in-promises-thirsting-for-action

132 LCPS. (2025, March 6). Review of National Water Sector Governance in Lebanon. Retrieved from: https://www.lcps-lebanon.org/en/articles/details/4909/review-of-national-water-sector-governance-in-lebanon

133 ASJP. (2018, June 30). Water governance and integrated water resources management - a study of the French experience. Retrieved from: https://asjp.cerist.dz/en/article/57373

are resolved institutionally, not violently. Second, it must restore control over groundwater by enforcing well licensing, regulating water trucking, and shutting down illegal extractions. Unregulated pumping is accelerating scarcity and turning water into a commodity controlled by the strongest actors, not the most vulnerable communities. Third, Lebanon must stabilize basic water services immediately. That means repairing priority wells and canals, deploying real-time monitoring, securing power for pumping, and expanding safe water supply, so households do not rely on unsafe and exploitative trucking systems. Fourth, the state should scale decentralized and solar-powered pumping, but with guaranteed budgets for maintenance, spare parts, and trained technicians. Installing infrastructure without maintaining it simply delays collapse, and tensions. Finally, Lebanon should partner with UNICEF to use the WASH project as a tool for peace building. In other words, establish basin-level councils, community water committees, and accessible grievance-resolution channels to defuse tensions before they escalate.

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