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# Water as a Tool for Defusing Socio-Political Tension

Search for Common Ground
Trust, Collaboration, Breakthroughs

AUB American University of Beirut
الجامعة الأميركية في بيروت

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# EXECUTIVE SUMMARY

## UNICEF Lebanon Country Office

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## OVERVIEW

The interaction of political tension and conflict on one hand, and water scarcity and stress on the other, is well documented. In Lebanon, political, personal, and sectarian tensions can exacerbate water-related conflict, and water stress and mismanagement can feed into further political and sectarian strife.

However, water projects can also build social cohesion and transcend enmity. UNICEF and local partner LebRelief experienced this in North Lebanon where the rehabilitation of a well in a split sectarian community led to increased community dialogue and a reduction in tension. As a result, an army post was removed, making it easier for children to walk to school. Since then, UNICEF has piloted several other projects to build horizontal social cohesion by leveraging the need for improved WASH services and rebuilding trust between sectarian groups and neighborhoods. UNICEF also supports vertical social cohesion between the water establishments and local population by improving the WASH infrastructure, accountability mechanisms and the communications between service providers and communities.

Building on this to further understand how water can be a tool for defusing socio-political tension, AUB's Issam Fares Institute for Public Policy and International Affairs (AUB-IFI) and Search for Common Ground (Search), with support from UNICEF, sought to identify hotspots in Lebanon with high water-related stress (in terms of quality and access). Water-related conflict risk, community-level resilience factors, points of division, key influencers, possible champions, and social connectors were also identified. These sources of information were collected in order to propose and prioritize action through water and/or wastewater projects, and maximize projects' potential for peacebuilding and social impact to mitigate future risks and reduce tensions, all in the context of climate change.

## METHODOLOGY

To achieve this, AUB-IFI first conducted a mapping exercise that identified conflict hotspots and target communities for project implementation. The mapping exercise included the collation of conflict risk factors which include: socio-economic indicators, water and environment

indicators, and socio-political and water-related conflict indicators. Socio-economic variables included: poverty indices, population growth, livelihood diversity, and food security indices. Water and environmental indicators included various measures of water availability, water quality, water supply network coverage, and wastewater. Temperature, precipitation, and seasonality change along with history of natural disasters made up the climate and natural disaster sub-indicators. Finally, tension indicators were derived from findings of UNDP's social tensions perception surveys, disaggregated by district, and water conflict events recorded within the Armed Conflict Location & Event Data (ACLED) database. These spatial indicators were used to extrapolate a composite water-related conflict risk score for each district. The cazas of **Baalbek and West Bekaa** were identified as the target hotspots, scoring high across all three indicators. Once these hotspots were identified, root tensions were analyzed and key stakeholder interactions within the districts were mapped. A survey was designed to explore the typology and drivers of water-related tensions in the two cazas and explore the interactions and roles of key stakeholders in water and conflict management through a social network analysis (SNA). The SNA explored themes of conflict resolution, knowledge exchange, water supply, quality, network maintenance, compliance, and disaster risk reduction, water project funding, and key players in potential peacebuilding projects. A questionnaire was developed and addressed to local authorities including Unions of Municipalities (UoMs), Governors and Qa'im Maqam (district commissioners), as well as regional and national water authorities, and local and international NGOs and IGOs.

Alongside the surveying of institutional actors and stakeholders, 19 focus group discussions (FGDs) with 143 community members were conducted across Baalbek and West Bekaa. These sessions were broken into two rounds, and determined if residents of the cazas were in agreement with key stakeholders' perceptions. Direct consultation with community members who may eventually benefit from water and/or wastewater projects provided critical information for the design of conflict-sensitive and inclusive program recommendations. Questions in the first round of FGDs were modeled on AUB-IFI's SNA survey, and the second round questionnaire was based on both AUB-IFI's preliminary SNA findings and identified needs related to implementing water-related projects. Specific consideration was given to the following topics: available water sources, water-related problems and conflicts, key relevant actors, barriers to water-related conflict resolution, project possibilities, personal engagement and institutional trust, collaboration, past water-related projects, and communication practices.

The first round of FGDs targeted community members from locations identified as the most vulnerable to water-related conflicts by AUB-IFI, and included: Deir El Ahmar, Iaat, Yammouneh, Dar el Ouassa, Jenta, Yahfoufa, Qaa Baalbek, Chlifa, Aarsal, and Bouday in Baalbek, and Haouch el Harime, Khiara, and Ghazze in West Bekaa. In the second round of FGDs, participants were drawn from: Aarsal, Ras Baalbek, Serraaine el Tahta, Seraaine el Fauqa, Nabi Chit, Youmine, Douris, Fakeha, and Zeitouneh in Baalbek, and Haouch el Harime, Ghazze, Mansoura, Loucy, Jebb Jannine, and Kamed el Laouz in West Bekaa.

## KEY FINDINGS

A total of 26 institutional stakeholders across both Baalbek and West Bekaa surveyed by AUB-IFI identified water pollution and scarcity as the most common water issues in the region, along with unfair distribution of resources; fuel and electricity shortages; and poor infrastructure. These issues were echoed by community participants across all locations consulted by Search. Frequent electrical outages and shortages were cited in every community and many individuals across West Bekaa and Baalbek ranked reliable energy as the highest priority water issue facing their communities. At the community level, the second most agreed upon problems identified by FGD participants were low quality water and frequent water contamination.

Around 60% of institutional stakeholders indicated these issues could lead to water-related conflict, with the most common drivers being disputes over access or ownership of water sources; poor planning or targeting of aid and development; the prevailing socio-economic conditions; and political interference.

The latter two were also identified as common barriers to conflict resolution, in addition to inadequate conflict resolution frameworks, lack of participatory approaches, and lack of funding. Again, community members echoed these sentiments, and pointed to specific instances where issues had already caused direct conflict. The most common issues identified related to competing demands for limited resources, particularly between Lebanese nationals and Syrian refugees. As a result of specific conflicts, damage to water infrastructure, physical violence, and restriction of others' access to water supplies occured.

Findings from the SNA and FGDs highlighted the key actors across themes and aspects of conflict resolution and water management. Municipalities were identified as major players that are most frequently contacted for conflict resolution, especially when it comes to water-related conflict. Local mayors, in particular, were engaged by community members across all FGD participant communities. Particularly high levels of trust in local municipalities were found in Ghazze and Ras Baalbek, where residents felt their leaders could implement water-related solutions to conflicts and problems. Participants from Haouch el Harime, Aarsal, and women from across West Bekaa also mentioned the importance of their municipalities as key actors for water-related projects, even if they did not fully trust them.

Important families, local religious authorities and political groups also appear to have a large stake in existing conflict resolution networks, though trust in these actors varied from community to community. In Serraaine el Fauqa, Serraaine el Tahta, and Nabi Chit, participants cited regular reliance on religious authorities for help with peaceful solutions and reconciliation, and in Ghazze, Haouch el Harime, Aarsal, Youmine, and Douris, participants felt religious actors could contribute meaningfully to water-related resolutions. In contrast, a majority of FGD participants stated they had lost all trust in all of Lebanon's public institutions and the government itself. Only in Khiara did FGD participants believe the government had a valuable role to play in conflict resolution.

The influence of international NGOs and IGOs such as UNICEF, EU and UNDP exists prominently in conflict resolution networks as well, however it is overtaken by local NGOs and regional and national authorities when it comes to water conflicts. While community members weren't aware of specific instances where these actors had engaged in conflict resolution in the past, participants trusted the work and leadership of IGOs and local NGOs beyond all other actors. Residents tended to prefer that such organizations take lead roles in implementing conflict resolution projects in their communities, and stated that organizations had both villages' best interests in mind and the financial capacity to achieve results. Specifically, FGD participants held the most trust in the UNDP, UNICEF, and the Red Cross. During the SNA, key players that emerged as potential actors in water-based peacebuilding projects included a diversity of overlapping local and international stakeholders, including: municipalities, the Ministry of Electricity and Water (MoEW), BWE, UNICEF and USAID.

The knowledge exchange network is concentrated within larger regional authorities (Governorate and BWE) and large NGOs such as UNICEF, Oxfam, UNDP and SDC. Municipalities and local NGOs shown to be big players in conflict resolution do not seem to benefit as prominently from the knowledge, information or technical exchange of this network. The prevalence of international NGOs is also seen in the water supply, water quality, network maintenance and natural disaster risk management network, which could be attributed to their work supporting infrastructure development. However, municipalities and BWE display a high betweenness centrality in this network, indicating their high connectedness and influence within this network. Unsurprisingly, large international NGOs and IGOs are the most influential in water project funding networks, and are most connected to regional authorities such as Governorates, and to their local NGO partners.

Conversely, community members have little to no influence or engagement with knowledge exchange networks, meaning the varying degrees of local response initiatives and community development projects are rarely known outside of residents who directly participate in them. Participants in every village, excluding Khiara, stated community-level efforts were not sustainable, and did not address the full scope of their communities' needs, although they did occasionally resolve individual points of tension.

## PROJECT RECOMMENDATIONS

Based on findings from the SNA, FGDs, and initial conflict analysis, AUB-IFI and Search jointly propose the following actions for implementing conflict-sensitive water projects with peacebuilding components. While increased partnership between institutions and communities is broadly recommended, separate water-related projects applicable at institutional and community levels in Baalbek and West Bekaa are provided. These interventions are suitable for upscaling to other vulnerable localities.

- **Introduce or integrate renewable energy sources to meet the energy needs of water infrastructure**. Stable, sustainable sources of energy would decrease recurring costs and reliance on volatile fuel prices when operating pumping stations, wastewater treatment facilities, and more. Energy independent water infrastructure has the potential to address current needs and mitigate future tensions.

- **Rehabilitate, redesign, and invest in wastewater treatment facilities and networks to ensure their optimal operation**. Existing wastewater treatment facilities should be revisited and evaluated, with investment directed towards maintenance and increased capacities. Wastewater networks could also be improved by designing local, municipality-managed septic tanks that do not require pumping.

- **Introduce bulk metering and district metering into existing water supply networks**. Meter-collected data would enable better water accounting at the source and help ensure equitable distribution of water resources to different areas. Additionally, meters would help detect leaks or unauthorized connections in the network. Meter data should be made available through a publicly accessible platform or database to promote transparency and the participation of concerned communities and stakeholders.

- **Introduce and invest in gated, automated hydrant systems for irrigation water supplies.** Automated systems would distribute set quotas of water through the existing water network directly to the point of use. This process would be useful for irrigation, cost reduction of secondary water supplies, equitable access improvements, and reduced competition and conflict between private water providers.

- **Strengthen the agency, efficacy, and expertise of community members and utilize their support in the design, operation and maintenance infrastructure projects.** A civilian structure that consolidates public sentiment and empowers community members could foster social stability and contribute to sustainable water-related solutions. Water Management Committees (WMCs) could fill this role and channel the local knowledge of trusted residents, business owners, tradespeople, and more into technical projects and conflict resolution.

- **Establish formal, public consultation processes for drafting plans, regulations, and laws in the WASH sector and adopt mechanisms that allow for the participation of interested stakeholders**. Before initiating WASH development projects or regulation changes, public fora and town halls would facilitate dialogue between stakeholders and target communities, and build consensus. With the assistance of WMCs, NGOs, IGOs and other implementing partners can mainstream public consultations to make interventions more inclusive, conflict sensitive, and transparent.

- **Support the conflict resolution capacities of local authorities and community members.** While some actors have played a central role in addressing water-related conflicts in the past, comprehensive capacity development is needed at all levels of Lebanese society. Specific sessions and support mechanisms are recommended for the following topics: transparency, non-violent communication, non-adversarial advocacy, participatory governance, gender sensitivity, and project management.

- **Improve water management oversight and transparency mechanisms within local and regional authorities.** Oversight can be supported by strengthening the national Central Inspection's role in municipalities and RWEs, or by establishing a decentralized commission. Inspection units must have the mandate and ability to: supervise, investigate, and audit municipal operations, advise on municipal decisions and processes, and coordinate with regional and national authorities.

- **Strengthen oversight for drilling wells and improve permit authorization processes**. The MoEW should be supported in permit authorization by an intermediary body. RWEs could fill this role and use regional insight to investigate drilling plans, recommend alternative water sources, or confirm the need for well drilling. The permit-seeking and well authorization processes could be decentralized through this change.

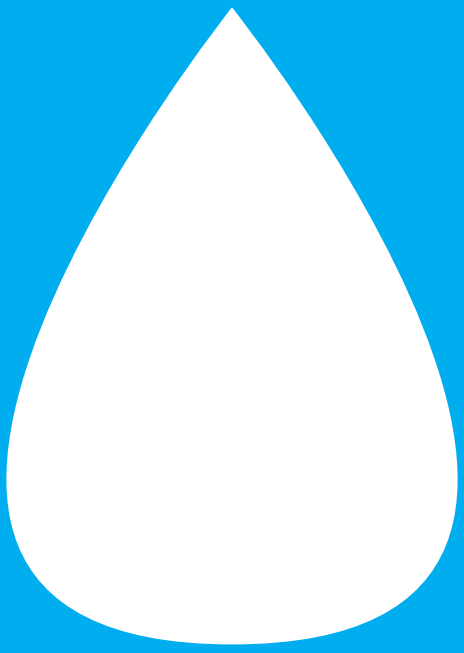
- **Train grassroots-level mediators to address persistent and emergent tensions alongside infrastructure projects.** Supporting localized mediation efforts could further enable communities' engagement in peacebuilding around water-related issues. By identifying individuals within the many representative demographics of targeted locations and training them as grassroots-level mediators, infrastructure projects can more effectively respond to conflict dynamics. Youth are prime candidates for this role.

- **Mainstream and include women in program decision-making and implementation**. Despite regular engagement with water-related issues, women are often excluded from relevant decision-making processes. Education for Lebanon's institutions can mainstream women's inclusion, and WMCs serve as an immediate opportunity for the direct participation of women trusted by their own communities.

- **Foster long-term sustainability by including youth in water-related programs**. Because youth will take on any and all water-related issues in time, it is important to build their confidence and capacities. Including youth can transform traditional intercommunal relations, and seed long-term change through increased knowledge and capacities around conflict dynamics, decision making, and civic engagement.

- **Create mechanisms for municipalities, RWEs, and communities to share their knowledge, experience, successes, and mitigation strategies with one another.** Local-level town hall meetings and institutional experience-sharing exchanges throughout the region and the Global South could help all levels of Lebanese society share water management solutions and strengthen peacebuilding networks.

- **Support small scale investments in water saving fixtures to optimize water consumption and savings.** Ensuring businesses, especially within rural trades and service industries, have access to water in periods of scarcity can safeguard local livelihoods. Water saving faucets, pressure reducing valves, recirculating hot-water systems, and rainwater harvesting systems can all help conserve water and supplement primary supplies. Installation and education efforts for new fixtures could be conducted by WMCs.



# PART I

# FINAL REPORT SUBMITTED BY

## Climate Change and Environment Program

The Issam Fares Institute for Public Policy and International Affairs
American University of Beirut

May 9th, 2022

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# List of Acronyms

| | |
|---|---|
| **ACF** | Action Contre la Faim / Action Against Hunger |
| **ACLED** | Armed Conflict Location & Event Data Project |
| **AUB** | American University of Beirut |
| **BWE** | Bekaa Water Establishment |
| **CAS** | Central Administration of Statistics |
| **CDR** | Council for Development and Reconstruction |
| **COOP** | Cooperatives |
| **EDL** | Electricite du Liban |
| **EU** | European Union |
| **FAO** | Food and Agriculture Organization |
| **GIS** | Geographic Information System |
| **GIZ** | German International Cooperation - Deutsche Gesellschaft für Internationale Zusammenarbeit |
| **GVC** | Gruppo di Volontariato Civile |
| **IGO** | International Governmental Organization |
| **INGO** | International Non-Governmental Orginzation |
| **IO** | International Organization |
| **IPCC** | Intergovernmental Pannel on Climate Change |
| **LAF** | Lebanese Army Forces |
| **LARI** | Lebanese Agricultural Research Institute |
| **LOST** | Lebanese Organization for Studies and Training |
| **LRA** | Litani River Authority |
| **LRC** | Lebanese Red Cross |
| **MoA** | Ministry of Agriculture |
| **MoE** | Ministry of Environment |
| **MoEW** | Ministry of Energy and Water |
| **MoI** | Ministry of Industry |
| **NGO** | Non-Governmental Organization |
| **NRC** | Norwgian Refugee Council |
| **NRWE** | Regional Water Establishment |
| **SCI** | Save the Children International |
| **SDC** | Swiss Agency for Development and Cooperation |
| **SI** | Solidarités International |
| **UN** | United Nations |
| **UNDP** | United Nations Development Program |
| **UNHCR** | United Nations High Commissiner for Refugees |
| **UNICEF** | United Nations International Children's Emergency Fund |
| **UoM** | Union of Municipalities |
| **USAID** | United States Agency for International Development |

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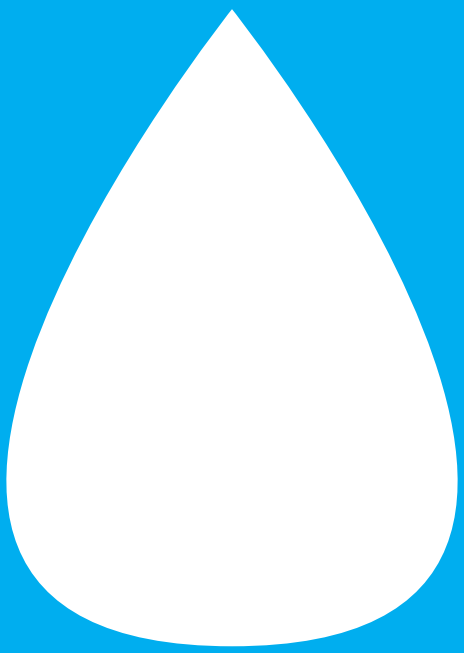


# INTRODUCTION

# Introduction

Lebanon has been plagued with political and sectarian tension for decades and this has led at times to a deterioration in the provision of the government of basic services. Additionally, natural scarcity of resources, especially water have fed into the underlying tensions running through the country. This study explores the intersection of these two challenges and aims to recommend areas where water projects could facilitate peacebuilding.

## Political and Sectarian Tension

The political system in Lebanon is characterized by the confessional power-sharing, initially put in place to ensure the representation of sectarian communities in the public sector. However, power-sharing has failed to ameliorate the fragility of post-war Lebanon and has instead introduced further structural and governance challenges (Shalloukh et al., 2015). While hindering the development of a strong central state, sectarianism has created a social vacuum in which clientelist networks were able to flourish in economic and political life. This has weakened governance and state institutions, allowing for the concentration of power among political and sectarian elites (Christophersen 2018; Mehrej 2021).

Under this system, Lebanese nationals have become identified by their religious or sectarian affiliation, accessing resources through their sectarian or political 'patrons' that aim to maintain their positions of authority (Majed, 2017). Evidence suggests that public expenditure and the geographical or regional allocation of public resources in Lebanon have followed a sectarian and political vector that mirrors the geographical distribution of sectarian or confessional groups (Salti and Chaaban, 2010). Political and sectarian tensions are still present within these regions, particularly in rural and underserviced communities in which resource provision is bartered for political affiliation (Salti and Chaaban, 2010; Murtada, 2018; Baytiyeh, 2019). These tensions are exacerbated today by the economic crisis and consequent scarcity and price inflation of basic resources (El Dahan, 2021).

## Water Scarcity

Globally, demographic growth, rapidly expanding urban areas and economic development are putting unprecedented pressure on water resources, especially in dry regions (UN-Water, 2021). While precipitation in Lebanon remains favorable, water resources are up against the compounding challenges of climate change and mismanagement. Climate change is expected to significantly decrease water volumes and snow coverage by 6-8% and increase the frequency and duration of droughts by almost 40% across the country (MoE, 2014). Decreased snow depth, density, coverage extent and residence time have already been reported, and a projected snow fall decrease of 50% by mid-century means deficits will be significantly aggravated (MoE and UNDP, 2021). Moreover, the country suffers from a chronic water mismanagement and a disparity between water supply and demand. Proper management of water sources in Lebanon is impeded by the haphazardexploitation of water resources, poor and/or misdirected investment under the power-sharing system, low storage capacities and large losses (40-50%) of water due to poor network maintenance and illegal connections (UNHCR, 2014; Ghanem et al, 2018; Gharios et al. 2021). Power outages also limit water supply across the country, more frequently so in the past year (UNICEF, 2021). These mismanagement challenges have been further exacerbated by the influx of Syrian refugees (Jaafar et al. 2020), high levels of contamination (UNICEF, 2017), and climate change (World Bank Group, 2020).

Lebanon's water sector has suffered decades of socio-political instabilities and social conflict. The capacity of local water service providers to maintain adequate levels of services has decreased as conflicts and instabilities across the region have continued (Gharios et al. 2021). In addition, the series of crises Lebanon has experienced since 2019 have triggered various stressors across the country. With these stressors adding up, poverty in Lebanon is likely to continue to worsen. UNESCWA (2021) estimates reveal that more than 55% of the country's population is now trapped in poverty and struggling for bare necessities. Deteriorating service provision

and socio-economic conditions could become conducive to further socio-political instability and conflict as will be outlined in the following sections.

## Factors Contributing to Water-related Tensions

The interaction between political tension and conflict on one hand and water scarcity and stress on the other is well documented. However, cooperation in water projects can often counterbalance conflict over water resources. This is supported by a study by Wolf (1998), which found that cooperation over water resources transcended political enmity. On a local level, a 2017 study by AUB's Issam Fares Institute for Public Policy and International Affairs (AUB-IFI) identified a set of factors contributing to water-related tensions based on the perceptions of stakeholders (El Kareh et al., 2018). These were categorized and compared to factors identified in the literature – a summary of these is presented in Table 1.

**TABLE 1:** Factors contributing to water related tensions in Bekaa region compared to factors identified in literature.

| FACTORS IDENTIFIED IN LITERATURE | FACTORS IDENTIFIED BY INTERVIEWEES |
|---|---|
| **Socioeconomic and Demographic Factors** | |
| Population Growth | Population Growth |
| | Local Population Growth |
| Population Movement | Refugee Influx |
| Agriculture and Food Security | Water Users |
| Infrastructure Development and Modernization | Water Infrastructure |
| | Water Network Coverage |
| | Water Distribution |
| | IOs/IGOs Projects |
| Level of Civil Society Development | |
| | Electricity Availability |
| **Institutional Issues** | |
| Data and Information Management | |
| Weak, Non-inclusive or Corrupt Governance | Management and Governance: |
| | Responsible Authority |
| | Political Interference |
| | Laws and Regulations (Water laws + Law 221) |
| | Corruption |
| Institutional Efficacy | |
| **Physical and Geographical Issues** | |
| Upstream and Downstream Flows | Upstream and Downstream Flows |
| | Surface Water |
| Groundwater | Groundwater and Water Scarcity |
| Pollution | Water Quality |
| | Untreated Wastewater |
| | Other Sources of Pollution |

| | |
|---|---|
| Climate Change | Precipitation |
| | Seasonal Variation |
| Natural Disasters | |

In its report "Water and Conflict: Incorporating Peacebuilding into Water Development" the Catholic Relief Service (2009) divides the means in which water contributes to conflict into three major categories: (i) socio-economic; (ii) institutional/political; and (iii) environmental (Table 2).

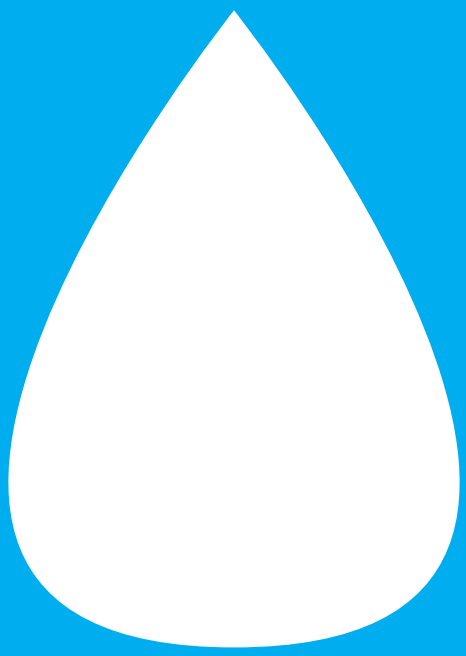
This division coincides closely with the AUB-IFI study albeit, the factors are further elaborated by sub-factors.

**TABLE 2:** Factors that contribute to water conflict (CRS 2009).

| CATEGORY | FACTORY |
|---|---|
| Socio-economic Factors | Increasing Affluence and Demand |
| | Poverty and Impoverishment |
| | Commodification Initiatives |
| | Social Inequity / Marginalization / Economic Disparities |
| | Competing Interests at the Community Level |
| Institutional/Political Factors | Governance Failures / Lack of Transparency |
| | Transboundary Tensions |
| | Aggressive Foreign Policies Cloaked in "National Security" Claims |
| | Culture of Militarism with Impunity / History of Violence |
| | Dam Projects |
| Environmental Factors | Water Scarcity |
| | Population Growth and Basic Human Needs |
| | Natural Disasters |
| | Climate Change |
| | Watershed Degradation |
| | Water Pollution |
| | Extractive Industries and Water |

Building on the above and the experiences working on water and sanitation (WASH) projects in North Lebanon, UNICEF aims to understand how WASH projects can be used as a tool for social cohesion and peacebuilding, and thereby contribute to reducing tensions among Lebanese communities through the implementation of water and/or wastewater projects. These projects are envisioned to reduce stresses on communities and allow them to collaborate in their execution and/or benefit from their implementation.

Thus, AUB's Issam Fares Institute for Public Policy and International Affairs (AUB-IFI) will seek to identify hotspots in Lebanon with high water-related stress (in terms of quality and/or quantity) as well as water-related risk to conflict, in areas with a high potential for conflict, to propose and prioritize action through water and/or wastewater projects with a social impact to mitigate risk and reduce tensions all in the context of climate change.



# METHODOLOGY

# Methodology

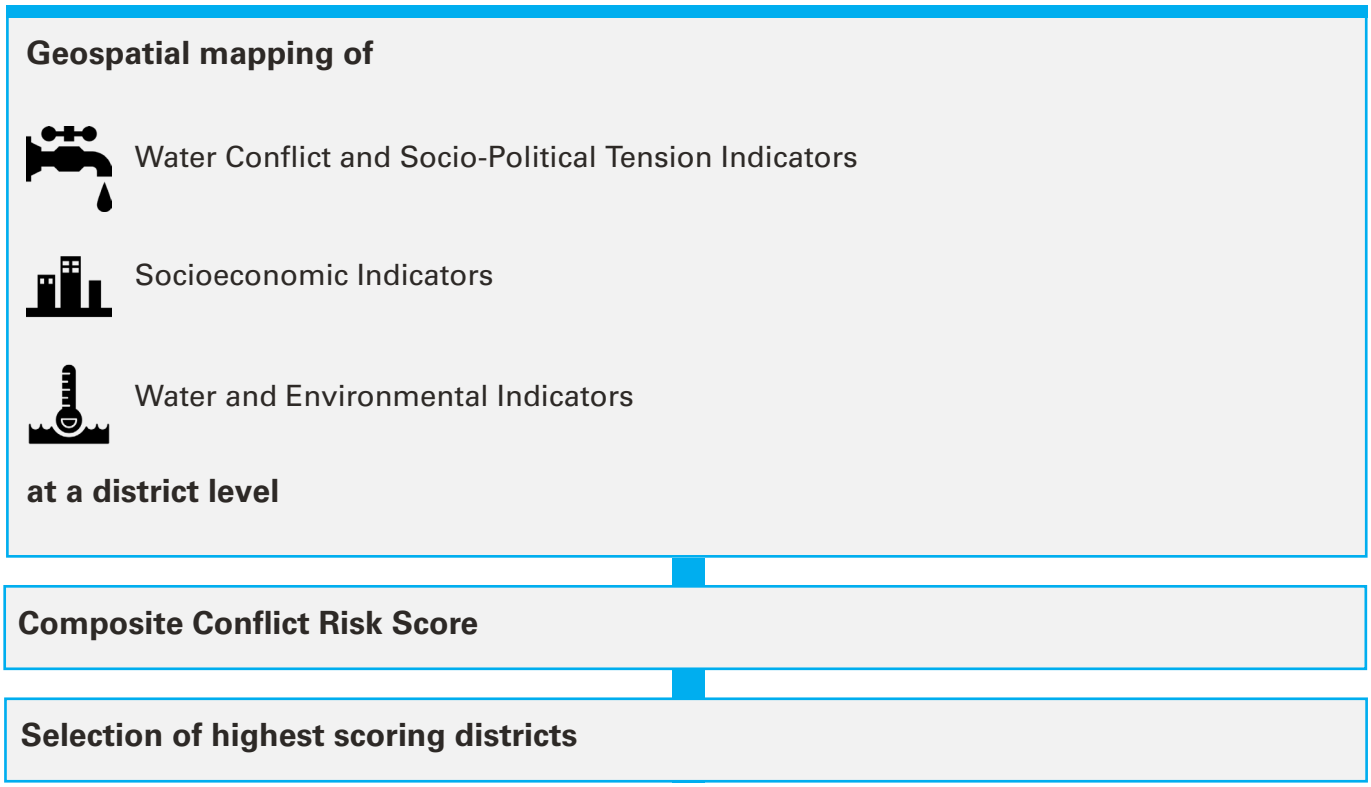
The studies mentioned above formed the basis of the approach followed by this study, whereby factors contributing to water conflict were used as a basis to identify conflict-prone regions in Lebanon using a dual lens of water conflict and political/sectarian conflict. Components from other studies conducted by IFI, such as the Climate Sensitivity Analysis developed for the World Food Program (unpublished) were used as well.

Geospatial data for the entire country was collected from various sources, including the ACLED database and UNDP, were collated with existing IFI data. The data, by nature, was not normally distributed and hence were reclassified using the "Jenks Natural Breaks Classification" (Jenks, 1967). The sections below describe the activities that will be undertaken in the first and second phases of the project.

## Phase I: Identifying vulnerable districts by mapping of sectarian and/or political parties' distribution and socio-economic status in Lebanon

Considering regional disparities in public services provision (Salti and Chaaban, 2010), infrastructure development (Sanchez, 2018), and socioeconomic conditions (UNESCWA, 2021), in addition to the regionally clustered nature of confessional or political groups, this study took a hotspot mapping approach. Geographically disaggregating these conditions would help identify regions where the overlap in unfavorable conditions is the strongest. For Phase I, the aim is to identify this overlap at a district level, using the factors identified by CRS and AUB-IFI as indicators for water stress induced conflict. Identifying the areas of increased tension would allow for the recommendation of contextualized interventions that limit water-related conflict. The mapping process used to identify vulnerable districts is illustrated in

**FIGURE 1:** Phase I mapping process to identify vulnerable hotspots



## Activity One: Water Conflict Events and Socio-Political Tensions

Assessing the landscape of socio-political tensions and conflict in Lebanon was taken as a first step towards identifying areas at risk of compounded water conflict. This was explored using data from UNDP's Tensions Monitoring System (UNDP, 2021.), with a focus on perception survey data for intra-Lebanese communal relations. This included perceptions of the role of political and religious differences in intra-Lebanese tensions. The role of unfair resource distribution in conflict was also considered. Water conflict events were identified using data from the ACLED database, including incidences of protests and clashes over water between 2016 and 2021 (*Table 3*).

**TABLE 3:** Water conflict and socio-political tension sub-indicators.

| SUB-INDICATOR | DEFINITION | SOURCE |
|---|---|---|
| Religious tension | Average proportion of the surveyed population perceiving tension between Lebanese confessional groups per district between 2017-2021 | UNDP (2017-2021) |
| Political tension | Average of proportion of the surveyed population perceiving intra-Lebanese tension caused by political and sectarian differences per district between 2017-2021 | UNDP (2017-2021) |
| Socio-economic tensions | Average of the percentage of surveyed population perceiving intra-Lebanese tension caused by unfair distribution of resources per district between 2017-2021 | UNDP (2017-2021) |
| Water conflict events | Point occurrences of water conflict events (clashes, protests, riots) caused by or related to water | ACLED database (2016-2021) |

## Activity Two: Socio-economic and Water Indicators

In the two years that have elapsed between October 2019 and October 2021, the local currency's black-market value went from 1507.5 LBP per US dollar to more than 20,000 LBP per dollar (at the time of writing this report), as capital inflows came to a near stop and banks started implementing informal capital controls which prevented small account holders from withdrawing their savings (USAID, 2020). These events were followed by the spread of COVID-19, further impacting the economy, as the country went into a total lockdown on March 18, 2020. Lastly, the August 4th explosion destroyed much of the Beirut port, including the nearby grain silos, and severely damaged commercial and residential areas within a 1 to 6 km radius (WFP, 2020).

**TABLE 4:** Socio-economic sub-indicators

| SUB-INDICATOR | DEFINITION | SOURCE |
|---|---|---|
| Poverty | Percentage of people living below poverty line in each district | CAS (2019) |
| Food Security | Food Consumption Score (FCS): Frequency and diversity of food groups consumed over the past seven days by the unit under study, weighted according to the relative nutritional value of the consumed food groups | WFP data (2020) |
| Population Growth | Reduced Coping Strategies Index (rCSI): Indicator of how households manage or cope with shortfalls in food consumption Growth of resident population over past 10 years | MoPH (2009, 2019) |
| Livelihood Diversity | Measure of the availability of alternative activities which households can rely on when their main source of food or income is diminished or destroyed | Income diversity from RICCAR (2019) based on Verdeil et al. (1999) |

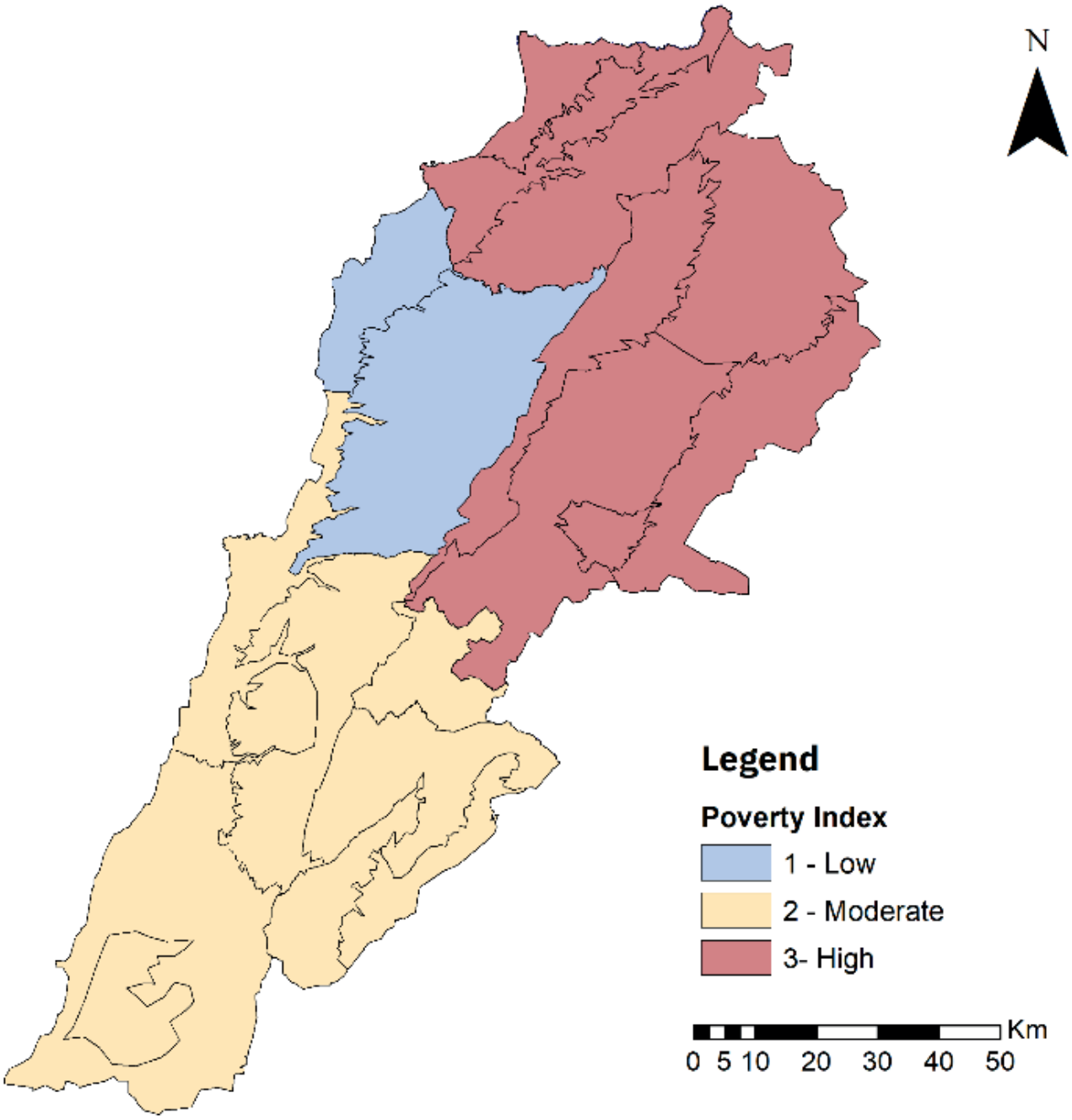
According to the Lebanon Economic Update released by the World Bank on October 7th, 2021, real GDP growth is projected to shrink to -10.5% by 2021, following a sharp contraction of -21.4% in 2020. The 12-month inflation rate rose from 2.9% in 2019, 84.3% in 2021, to 130% in September 2021 (World Bank Group, 2021). The poor and vulnerable were disproportionately affected by the multiple crises, and existing social safety nets have yet to be scaled to support all persons impacted by the crises.

IFI, in collaboration with the WFP, produced a resilience index focused on the socio-economic conditions in Lebanon. Factors that were used included poverty, food security, and livelihood diversity. These conditions, if worsened, could trigger tension across the entire country,

especially in rural areas. The data and findings of the resilience assessment were used for the socio-economic indicator of this study as seen in *Table 4*.

According to data from the CAS - LFHLCS report for 2018-2019 (CAS, 2020), Northern parts of Lebanon (Akkar, Tripoli, and the majority of the Bekaa area) have the highest poverty index (*Figure 2*). The same spatial data were integrated into the socio-economic assessment for identifying areas of tension. Spatial data for food security, population growth, employment or livelihood diversity, and all-in-all resilience were also used as indicators to identify tension as seen in *Table 4*.

**FIGURE 2:** Poverty Index developped by IFI based on the LFHLCS report ( CAS,2020 )



## Water Availability and Contamination

Mapping water and environmental indicators included consideration for availability, connectivity, quality and wastewater treatment capacity and climate factors such as extreme events, temperature and precipitation change and seasonality. Geospatial data on water sources, supply networks, quality assessments, and wastewater treatment capacities were collated by IFI, incorporating previously collected data with supplementary regional water establishment (RWE) and UNICEF datasets. Climate data was collected from local weather stations and projections based on the CNRM-ESM2-1 climate model for the middle-of-the-road emissions scenario RCP 4.5 (IPCC, 2019; Roehrig et al., 2020). Data used in calculating the indicator's score are shown in *Table 5*.

**TABLE 5:** Water and environment sub-indicators

| SUB-INDICATOR | VARIABLE | DEFINITION | SOURCE |
|---|---|---|---|
| Perceptions of water service | Quality of water services as rated by surveyed population | The average proportion of the surveyed population rating water service quality as Poor or Very Poor per district between 2017-2021 | UNDP (2017-2021) |
| | Population with no access to water services | The average proportion of the surveyed population claiming no access to water services per district between 2017-2021 | UNDP (2017-2021) |
| Water Availability | Groundwater availability | Number of existing wells within a 100km2 area in each district | UNDP (2014); Data collected by IFI |
| | Surface water availability | Number of point surface water (rivers, lakes, streams, dams, etc..) within a100km2 area in each district | Data collected by IFI |
| | Water shortage vulnerability | Presence of areas with critical and highly critical water shortage vulnerability according to UNICEF Drying up report (2021) | UNICEF (2021) |
| | Groundwater stress | Number of stressed groundwater wells within a 100km2 in each district | Data collected by IFI |
| Water Quality | Groundwater quality index | Score of groundwater quality across RWEs based on Nitrate and Chloride concentrations | Data collected by IFI |
| | Water table vulnerability | Indicator of the ease with which an aquifer may be contaminated by human activities | Data collected by IFI |
| | Waterborne diseases | Number of cases of waterborne diseases including cholera, dysentery, typhoid fever, and hepatitis A per district | MOPH (2021) |

| | | | |
|---|---|---|---|
| Water Supply Network Coverage | Water network coverage | Coverage of existing water supply network pipes per unit area in each district | Data collected by IFI |
| | Household water supply connection | Percentage of households subscribed to RWE supply network per district | Data collected by IFI |
| Wastewater Treatment | Household sewer connection | Percentage of households subscribed to sewer network per RWE areas | Data collected by IFI |
| | Operational wastewater treatment plants | Number of existing operational wastewater treatment facilities per unit area in each district | Data collected by IFI |
| | Non-operational wastewater treatment plants | Number of existing non-operational wastewater treatment facilities per unit area in each district | Data collected by IFI |
| | Wastewater treatment | Ratio of treated to untreated wastewater per RWE area | Data collected by IFI |
| Climate and Natural Disasters | Temperature change | Change in monthly average temperature over 2009-2019 and projections for 2040-050 | Weather station data collected by IFI for 2009-2019 and future projections based on CNRM-ESM2-1 for RCP 4.5 |
| | Precipitation change | Change in monthly average precipitation over 2009-2019 and projections for 2040-050 | |
| | Temperature seasonality | Change in the coefficient of variance for monthly average temperature for 2009-2019 and 2040-2050 as a measure of seasonal variation | |
| | Precipitation seasonality | Change in the coefficient of variance for monthly average precipitation for 2009-2019 and 2040-2050 as a measure of seasonal variation | |
| | History of natural disasters | Occurrence of natural disasters and extreme weather events in each district during 2009-2019 | Data collected by IFI |

## Activity Three: Final hotspot identification map

Criteria identified in Activities 1 and 2 were collated and overlayed resulting in a map highlighting the district(s) most vulnerable to conflict resulting from socio-political tension, socio-economic conditions, and water stress.

## Results

**Mapping results:**

A scoring system of combined indices was produced for the identification of conflict hotspots. Quantitative and qualitative data collected on components of each sub-indicator were mapped onto Lebanese administrative district boundaries. Data differing in scale were resampled and averaged at the district level. All sub-indicator data were normalized and reclassified into three scores using Jenks natural breaks classification. A score of three always indicates a higher vulnerability to conflict. Sub-indicators representing factors that potentially reduce conflict vulnerability were scored inversely; whereby those contributing to favorable conditions (e.g., high number of available groundwater sources) were given a score of 1 and those increasing the vulnerability to tension (e.g., low number of available groundwater sources given a score of 3. Hence, an overall score of 1 represents districts with relatively good conditions, whereas a score of 3 represents districts with the relatively poorest conditions conducive to socio-political or water tension. Within each district polygon, the sub-indicator values were equally weighted and added up to create a corresponding indicator score. In turn, these indicator scores contributed equally to a composite risk score used to identify final hotspots. In the absence of better empirical data on the relative importance of factors contributing to conflict, equally weighted indicators are more appropriate (Stapleton and Garrod, 2007) and produce a relative score more suitable for integration of different datasets (Busby, Smith, White, and Strange, 2013).

Figures 3-6 show the results of the indicator scoring at this stage. At the socio-economic level, Akkar, Minnieh-Danniyeh, Hermel, Baalbak, and West Bekaa were the highest scored (score = 3, *Figure 3*), representing the districts with the highest vulnerability to conflict for this indicator. Poverty scores were highest in the North of Lebanon, as seen in *Figure 2*. Similar trends were seen in food security, livelihood diversity and population growth which extended further into the districts in the Bekaa including West Bekaa most prominently.

Akkar, West Bekaa, and Baalbak also scored highest within the water and environment indicator (score = 3, *Figure 4*), in addition to Minnieh-Danniyeh, Zgharta, Beirut, Aley, Baabda, El Metn, Kesrouane, and Jbeil. This indicates relatively poor overall water service and access, water availability, quality, network coverage, wastewater treatment capacity and climate stability in these districts. In general, water was least available in the districts of Mount Lebanon and the Bekaa Governerate. Water quality was poorest in the Bekaa as well, while wastewater treatment was poorest along the coastal districts from the North and southwards towards Aley. Sour and Bint Jbeil in the South had relatively poorest water network coverage, in addition to Baalbak and the Northern districts of Akkar, Minnieh-Danniyeh, Bcharre and Zgharta.

For the water conflict and socio-political tension indicator, the districts of Baalbak, Hermel, Tripoli, West Bekaa, Saida and Marjaayoun are the highest scoring districts (score =3, *Figure 5*). This indicates that they are hotspots of water conflict and tensions arising from political and religious differences and unfair distribution of resources. Water conflict events were most frequent in Saida and Baalbak. The latter was also the highest scoring within the religious and political tensions sub-indicators.

The final composite scoring of the three main indicators produced the districts most vulnerable to water-related socio-political conflict. The composite score is the average of scores for the three indicators, For this score, a classification with three classes did not properly represent the districts with the highest scores, therefore a classification of four classes was used instead (*Figure 6*). The score of four represents the highest composite score, which in this case has a value=3. The districts of West Bekaa and Baalbek received the highest composite

score=3, after scoring a value=3 for all three of the main indicators (*Figure 3,Figure 4, Figure 5*). The districts of Beirut, El Maten, Baabda, Saida, Tripoli, Akkar, Zgharta, Minnieh-Danniyeh, and Hermel came within the second bracket, with the latter two districts faring worse than the rest. The scores of all districts are presented in *Table 30* of Annex B.

**FIGURE 3:** Aggregated socioeconomic indicator score including poverty, food security, population growth, and livelihood diversity.

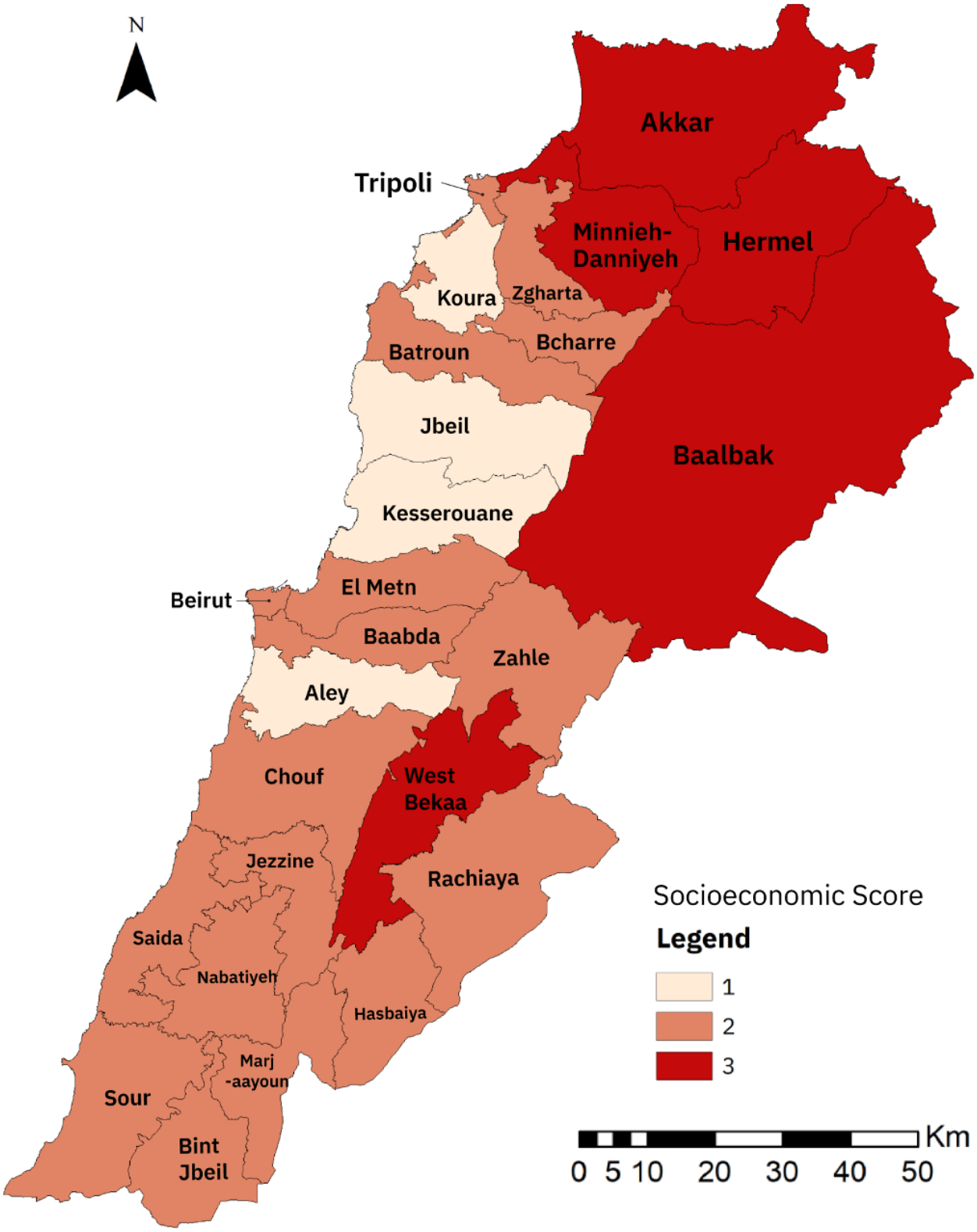


**FIGURE 4:** Aggregated water and environment indicator scores including water availability, water quality, water network coverage, wastewater treatment capacity in addition to climate change factors and natural disaster history.

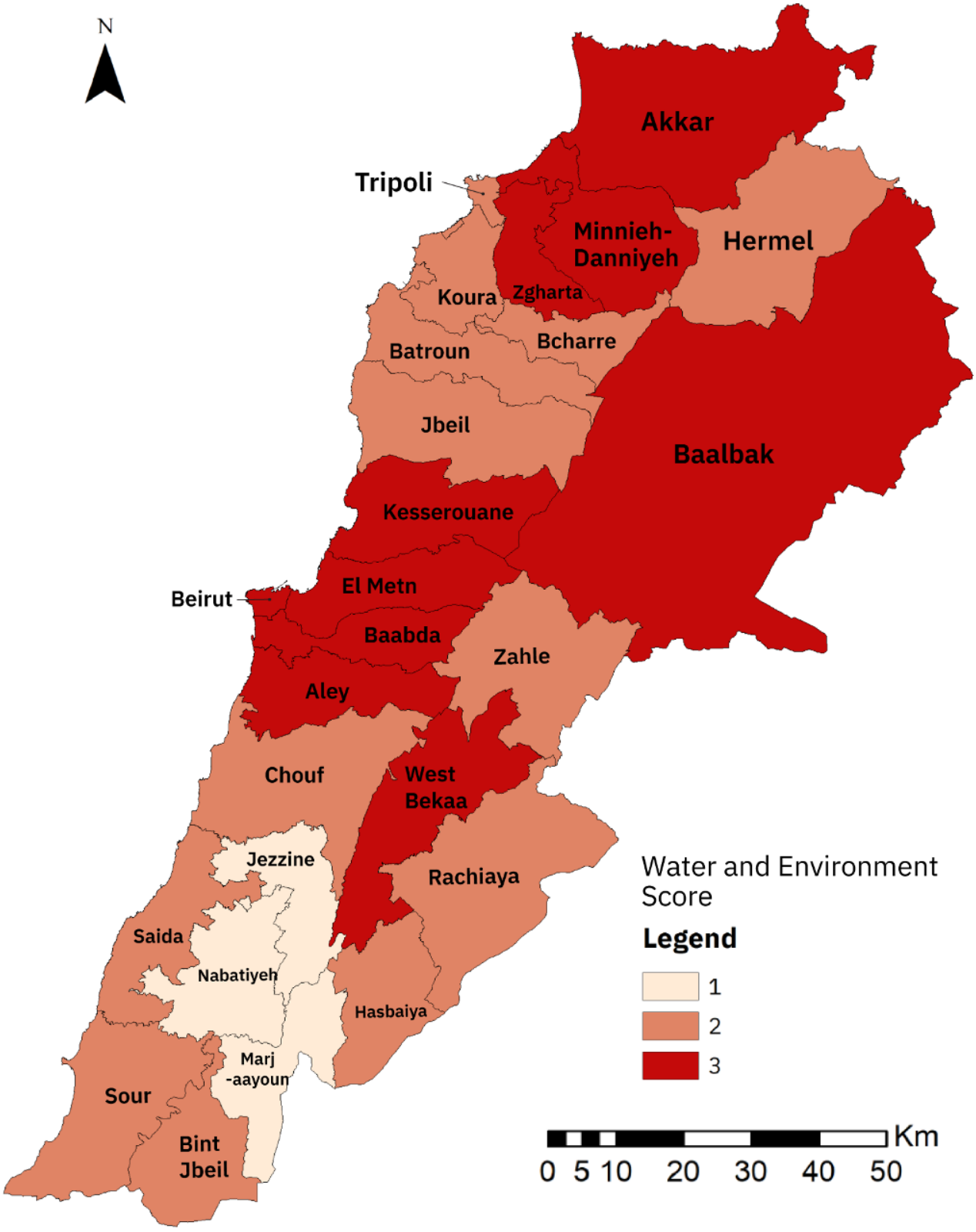


**FIGURE 5:** Aggregated score of water conflict event occurrence, political tension, religious tension, and tension caused by unfair distribution of resources.

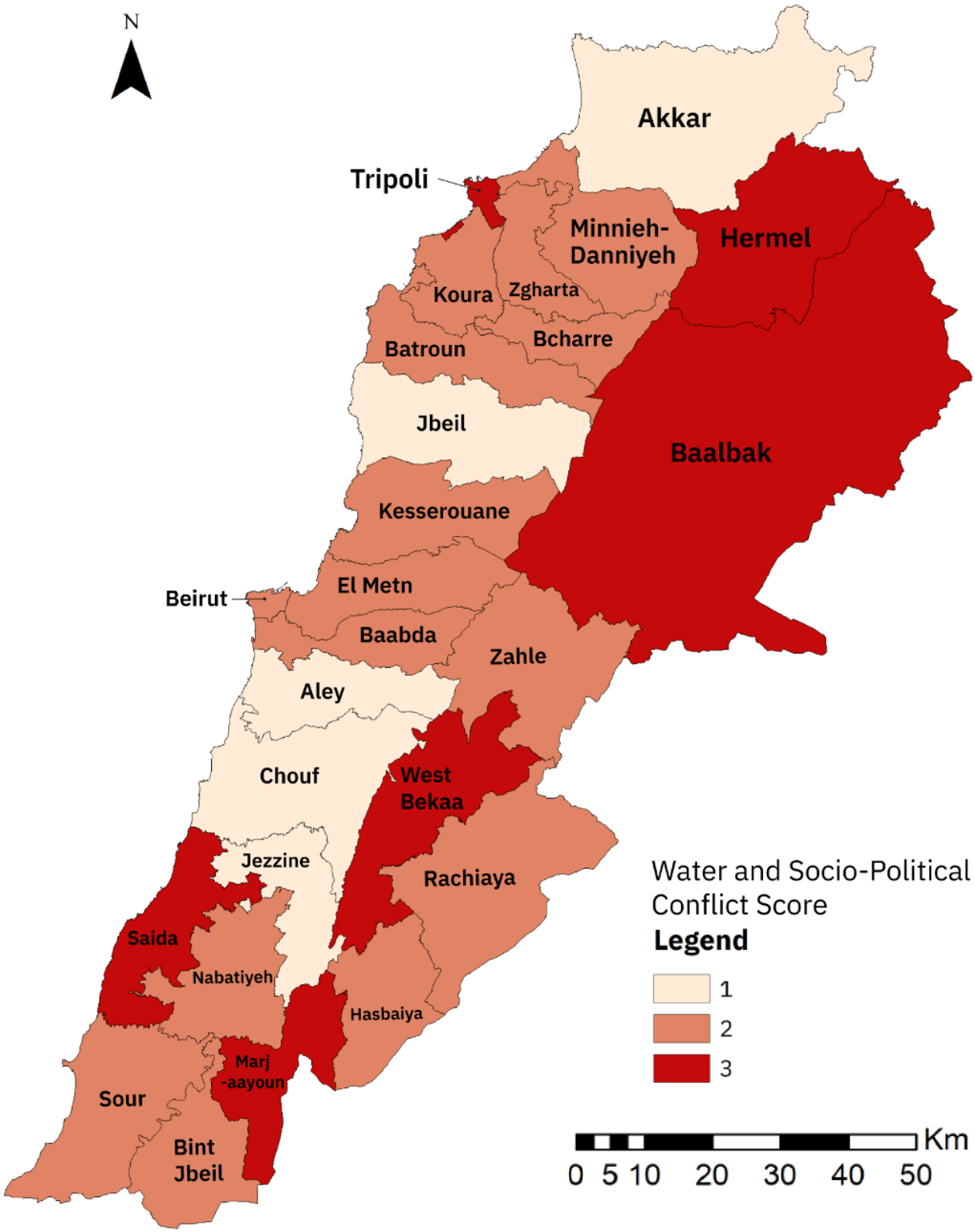
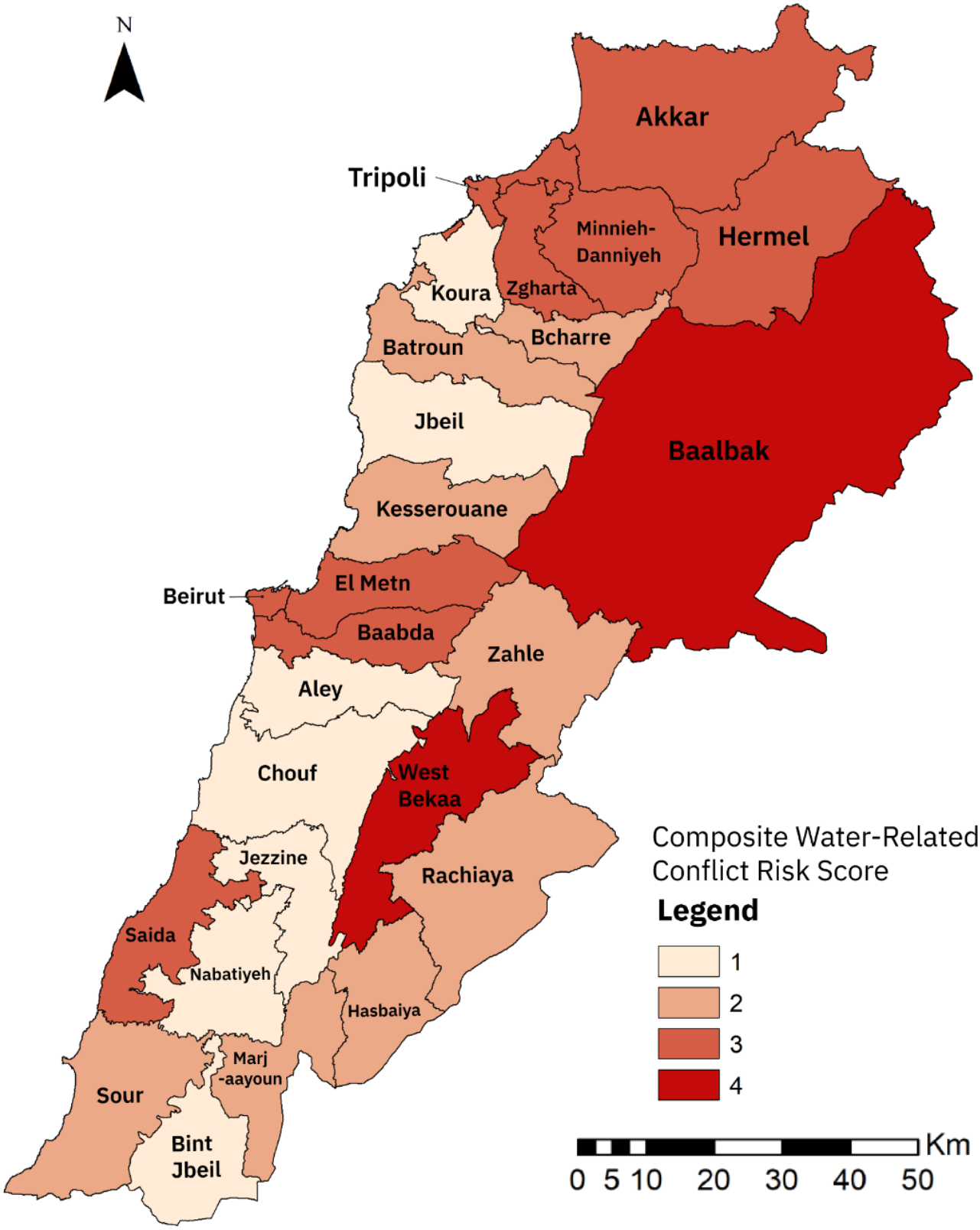


**FIGURE 6:** Final hotspot map indicating district-level water-related conflict risk. Districts with a score of 3 are considered hotspots of water stress, poor socio-economic conditions, and high socio-political tension and water conflict



## Phase II: Water Conflict and Social Network Analysis in Baalbek and West Bekaa

### Study Area

The results of Phase I indicated that the districts of Baalbek and West Bekaa are at the highest risk of socio-politically and socio-economically driven water-related conflict. The two districts fall within the Bekaa Valley region which includes the Baalbek-Hermel Governorate and the Bekaa Governorate. Baalbek and West Bekaa share much of the characteristics often attributed to the Bekaa Valley. The Bekaa has long been a farming region. The local economy's major industries are farming and agri-food manufacturing including dairy products, canned and frozen vegetables, potato chips and wine. Agriculture in the region has suffered substantial and long-term issues, the most significant of which being water resource management, which has had downstream impacts not just on farming but also on the health of the local population (Al-Masri, 2015; UNDP, 2017). Other sources of livelihood include employment in the public sector, the Lebanese Armed Forces (LAF) and the Internal Security Forces (ISF), in addition to the tourism sector and the small local industries such as ceramics and building products (Al-Masri, 2015). The Bekaa is a generally heterogenous area in terms of political affiliation and religious and confessional groups, with West Bekaa hosting Christians, Sunnis, Shiites and Druze with no clear majority, and Baalbek hosting a predominantly Shiite majority with pockets of Christians and Sunni communities (Al-Masri, 2015; UNDP, 2017). Municipalities in the region can differ in terms of capacity, sectarian composition, and political affiliation, however family, kinship and tribal culture still often prevail in power relations in the two districts. Both districts were impacted by the repercussions of the Syrian War that impacted trade and export routes and resulted in a refugee influx beyond the hosting capacities of most municipalities (Al-Masri, 2015; UNDP, 2017).

## Methodology

### Social Network Analysis

A social network analysis (SNA) questionnaire was developed to investigate stakeholders in the districts of Baalbek and West Bekaa interact or work together to resolve conflicts and manage water resources. The questionnaire included 10 close-ended questions dedicated to identifying the connections between stakeholders and the frequency of their interaction. Four open ended questions were included in the questionnaire to drive discussion of conflict typologies, causes, barriers and challenges, as well as suggestions of respondents for potential water projects. The design of the questionnaire followed a roster format, whereby predetermined stakeholders, based on the identified vulnerable districts, were approached to fill the questionnaire through phone interviews and email communication. Particularly, the information from the questionnaire aimed to identify and assess the frequency of contact among stakeholders regarding (a) conflict resolution, (b) knowledge, information, and technical exchange, (c) water supply, quality, network maintenance, and natural disaster risk management, (d) funding, (e) water-related conflict resolution and (f) key players in peacebuilding projects.

The SNA questionnaire is detailed in Annex A.

The purpose of the SNA is to identify stakeholders who could be influential in resolving tensions and water problems, or bridging the two, at the district level, and thus be included within the framework of a water peacebuilding project. The SNA also allows us to identify gaps or unfavorable patterns in the network, which can be addressed in future project frameworks. The study of natural resource management and conflict resolution has benefitted from using social network analysis techniques to examine how social network structure affects network performance and activity (Sandström and Carlsson 2008, Newig et al. 2010).

SNA is comprised of a set of methods used to visualize and examine the structure of social relationships in any given group (Tucker, 2017; Ehrlich & Carboni, 2005). It provides a matrix that shows the existence, type and/or quality of interactions between pairs of people or nodes (Ehrlich & Carboni, 2005). An analysis of social networks looks beyond the attributes of individuals to examine more the

relations amongst actors in general; how actors/organizations are positioned within a network; and how they fit in a greater scheme. Unlike other forms of analysis in the social sciences, SNA assumes that actors in a network are all-interdependent and, as such, provides unique insights to the interactions between actors in a system and how that would affect their relationships. SNA is used to investigate each stakeholder's degree of impact in a network, their influence on each other's behavioral patterns, and the network's level of interconnectivity, group cohesiveness, and caching. The network framework is analyzed using graph hypotheses, and social network concepts such as those described in *Table 6*. Centralization measures such as: degree, closeness, betweenness, and eigenvector, are effective metrics highlighting different themes and interactions. For example, stakeholders with a high centrality degree are connected to a high number of stakeholders within their network.

**TABLE 6:** SNA metrics

| SNA CONCEPT | DESCRIPTION |
|---|---|
| Density | Calculated as the number of observed network connections a point has out of the maximum number of connections that could exist within the network. It is an indication of how closely connected actors within a network are to each other. Each stakeholder that maximizing its connection-potential elevates the density scores for the entire network. Normally the density of a network is a maximum of 1 in a reciprocated network, and a minimum of 0 in a disconnected network. |
| Degree Centrality | Centrality is measure of the degree to which an actor is embedded in the network. Degree centrality represents the number of edges relating to a particular node. Stakeholders with high degree centrality (more connections with others) are more likely to have access to information, funding, and data sharing. |
| Closeness Centrality | The path with the least number of intermediary nodes between a node and every other node in the network. Closeness represents the ease of passing/accessing information between stakeholders. Stakeholders with high closeness can have faster and easier access to/spread of information, and communication with other stakeholders. |
| Betweenness Centrality | The number of other vertices that must pass through a specific node to reach their final path. Stakeholders with high betweenness centrality act as ‘pivot points of knowledge flow in the network’. They connect different stakeholders together, and usually have multidisciplinary knowledge. |
| Eigenvector Centrality | The degree of connection to other important vertices. Stakeholders linked to other influential stakeholders in the network (such as stakeholders with high authority or power, and are more likely to influence project outcomes, policy reforms, or implementation). The Eigenvector centrality shows the degree of connection to other important vertices or nodes; stakeholders linked to other influential stakeholders in the network for example stakeholders with high authority or power, are more likely to influence project outcomes, policy reforms, or implementation. |

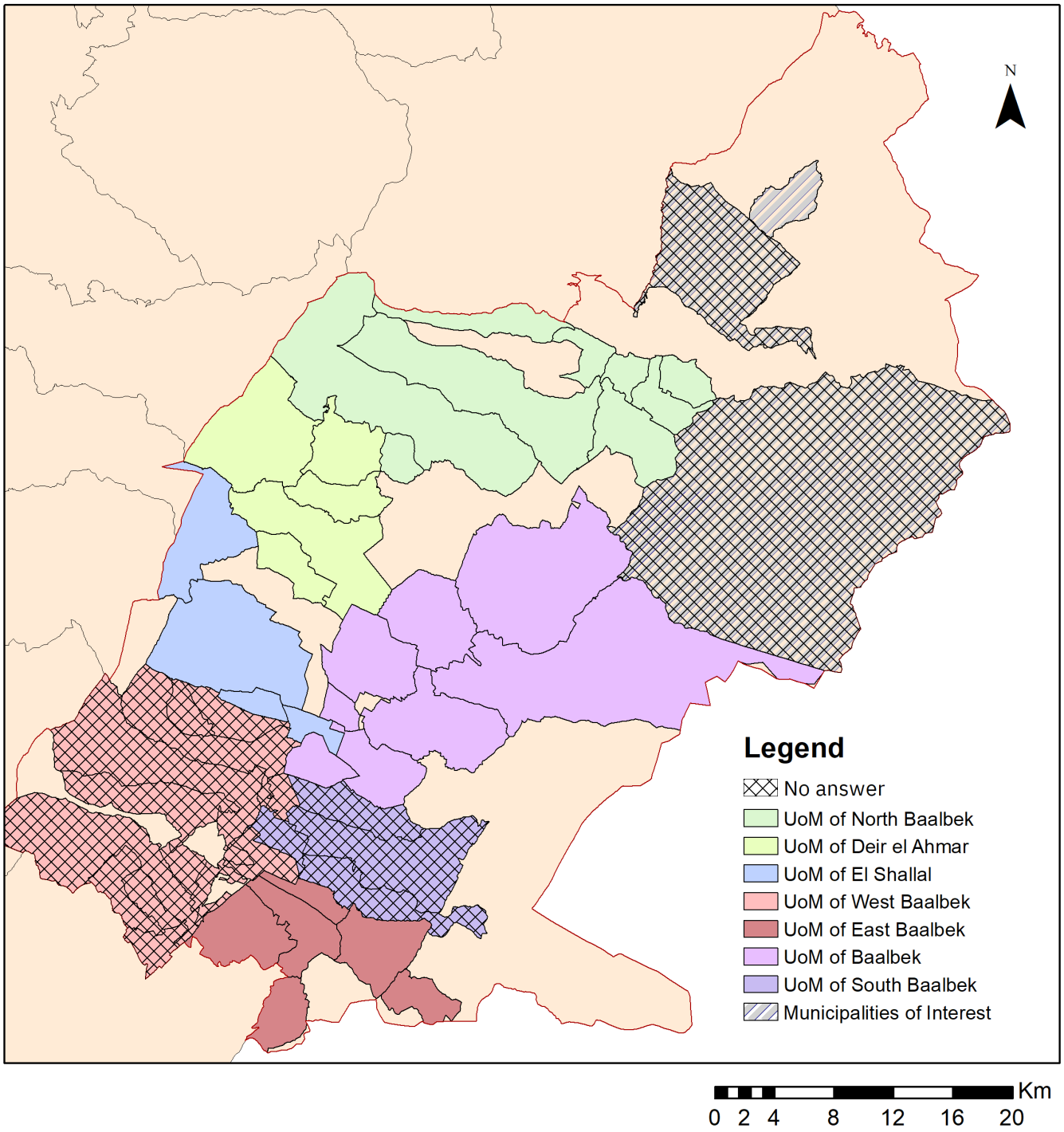

## Water conflict analysis

The questionnaire also included open-ended questions that presented an opportunity to explore conflict typologies, drivers of escalation and barriers to conflict resolution. Responses were categorized thematically, and in turn, analyzed narratively and, where possible, descriptively to highlight frequency of responses.

### Sample

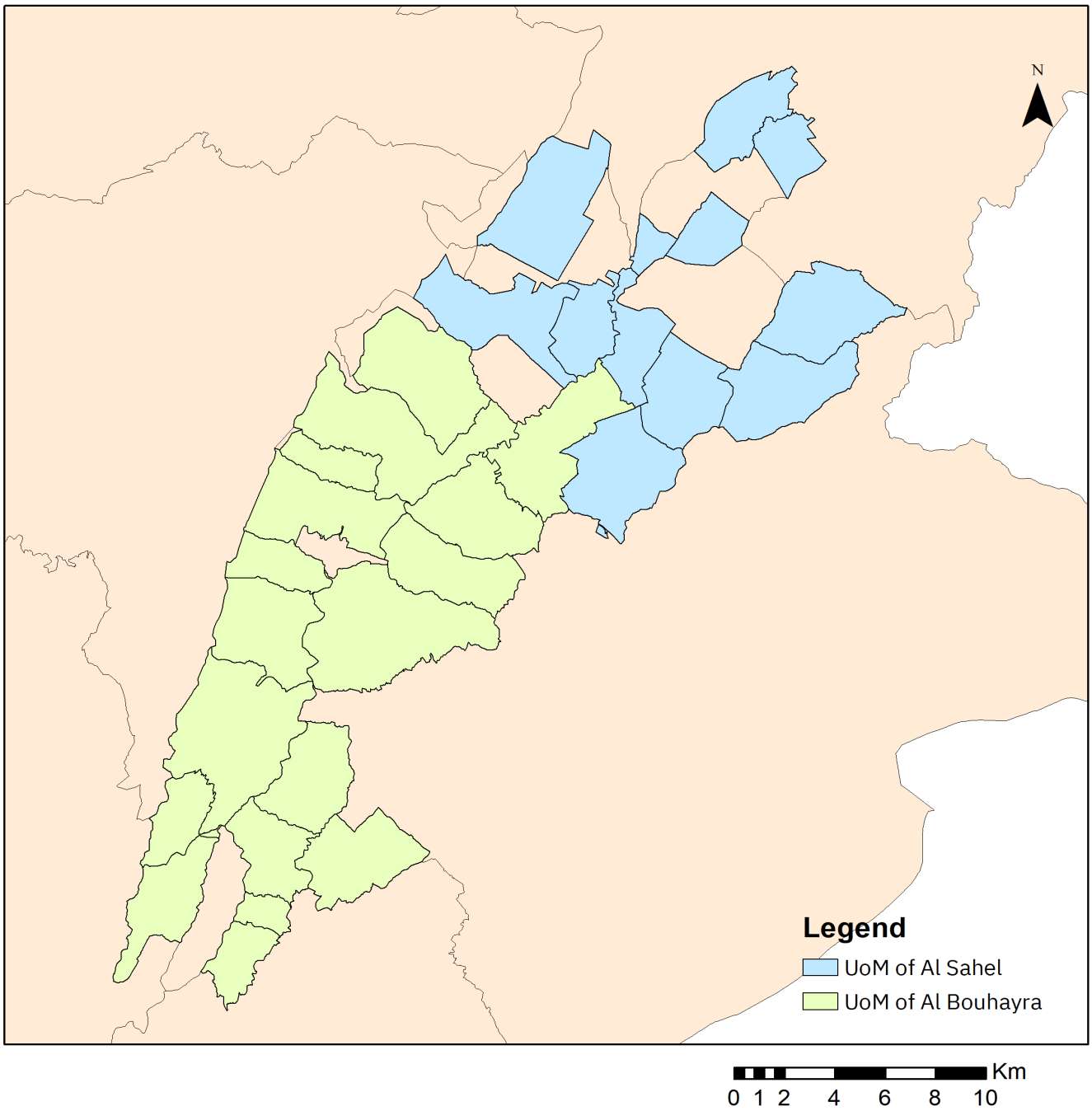
Our SNA sample focuses on local authorities in each of the two districts, in addition to public institutions and non-state actors such as local and international organizations that contribute to water resource management and/or conflict resolution activities in the districts. For the purposes of this study and limitations of time and travel, Unions of Municipalities (UoM) were considered the unit of study for local authorities. UoMs were established based on articles 118 and 119 of Decree-Law 118/1977 in order to consolidate the capacities of small municipal councils and direct collective projects, programs and investments that address the development and planning needs of their territories. In Lebanon, some 70% of a total of 1,100 municipalities are considered small and possess insufficient administrative and financial capacities to provide necessary services, and there are 53 UoMs in the country (Farah, Gemayel and Baydan, 2019). In West Bekaa, two UoMs oversee 80% of the district's municipalities. In Baalbek, seven UoM's account for more than half of the 99 municipalities in the district. *Figure 7* and *Figure 8* show the UoMs studied in Baalbek and West Bekaa respectively. *Table 7* lists the jurisdiction of UoMs.

**FIGURE 7:** Unions of Municipalities and large municipalities in the Baalbek district




Since 1990, there has been an increase in the number of UoMs as well as development organizations' interest in them. The desire for more efficient territorial activity based on economies of scale and a considerable increase in resources are the main drivers driving this expansion. Another factor is the interest and support for these mechanisms among donors and actors involved in decentralized collaboration (Farah, Gemayel and Baydan, 2019). The establishment of specific departments within major political parties to deal with municipal issues has also contributed to this. The latter provides training, technical help, and networks dedicated to the exchange of best practices to towns associated with the parties. Municipal unions often fit the shapes of micro-territories controlled by distinct sectarian populations, therefore becoming new political and administrative areas for these parties to conquer. As the construction of urban observatories and the rising use of regional strategic planning testifies, they also give a place for experimenting with novel planning and management techniques (Farah, Gemayel and Baydan, 2019).

**FIGURE 8:** Union of Municipalities in the West Bekaa district




UoMs, as well as municipalities, can often play a role in the WASH sector. Despite water service, in general, being outside their mandate, municipalities can implement local water projects restricted to their boundaries and in accordance with their needs, under Article 34 of Decree-Law 118 dated 30 June 1977. Article 74 of the same Decree-Law extends to the president of the municipality the right to authorize connection to the water used network even if the project was implemented by a UoM or any other institution and even if it encompasses several municipalities (MoEW, 2020). However, due to shortages in staff at BWE, UoMs and municipalities sometimes act outside their mandates to the provider of services in place (AUB-IFI, 2020). This can range from tariff collection, to overseeing the operation and maintenance of potable water networks and sewer systems. Municipalities also run local public programs for works, aesthetics, cleaning, health affairs, and lighting, and authorize the excavation of public streets, in order to lay water, electricity, telephone and wastewater pipes, and others. UoMs can coordinate these roles on a larger scale.

Local authorities on a deconcentrated level are the Governor or Mohafez, and the District Commissioner or Qa'emmaqam. The former is appointed by the Council of Ministers and coordinates the management of municipal affairs within their governorate with the national government, namely the Ministry of Interior and Municipalities (MoIM), to which they are subordinate (Nahnoo, 2018). The Qa'emmaqam does the same but within the smaller jurisdiction of their district within the governorate.

UoMs, governors and Qa'emmaqams represented our core sample for the SNA study, as they were considered focal points in their regions. We included three additional municipalities in Baalbek that were not part of any union. These include the Municipality of Aarsal, Municipality of Qaa Baalbek, and the Municipality of Ras Baalbek that have been previously identified as vulnerable to water stress and conflict. We employed a snowball sample approach to identify other key stakeholders to assess within our social network. These fall within two categories- public institutions and non-state actors such as local or international organizations *Table 7*, *Table 8, Table 9* show the identified stakeholders and their roles and jurisdictions.

**TABLE 7:** Roles and responsibilities of local authority stakeholders

| TARGET DISTRICT | TYPE | INSTITUTION | ROLES AND RESPONSIBILITIES |
|---|---|---|---|
| Baalbek | District Authorities | Baalbek-Hermel Governorate | Oversees administrative affairs of Baalbek-Hermel and the Baalbek district. Report to national authorities. |
| | | Qa'emmaqam of Baalbek | |
| | Unions of Municipalities | Union of Municipalities of Baalbek | Manage affairs of the municipalities of Nahle, Majdaloun, Youmine, Maqne, Iaat, Baalbak, Haouch Tall Safiyeh, Douris |
| | | Union of Municipalities of North Baalbek | Manage affairs of the municipalities of Nabha, Halbata, Harbata, Zabboud, Bajjaje, Ain Baalbak, Nabi Ousmane, Laboue, Ram Baalbak |
| | | Union of Municipalities of East Baalbek | Manage affairs of the municipalities of Maarboun, Khodr, Nabi Chit, Serraaine el Tahta, Serraaine el Fauqa, Khreibet Baalbak, Jenta |
| | | Union of Municipalities of Dier el Ahmar | Manage affairs of the municipalities of Aainata, Barqa, Bechouat, Deir El-Ahmar, Bteday |
| | | Union of Municipalities of El Shallal | Manage affairs of the municipalities of Yammouneh, Al Saaidat, Haouche Barada, Bouday, Falawah |
| | Municipalities | Qaa Municipality | Chosen among three large vulnerable municipalities in Baalbek that are not part of a union. Performs municipal duties as outlined in-text |

| | | | |
|---|---|---|---|
| West Bekaa | District Authorities | Qa'emmaqam of West Bekaa | Oversees administrative affairs of the West Bekaa district. Report to national authorities. |
| | Unions of Municipalities | Union of Municipalities of Al Bouhayra | Manage affairs of the municipalities of Kefraya, Khirbet Kanafar, Jebb Jannine, Ain Zebdeh, Saghbine, Lala, Baaloul, Bab Mareaa, Qaraaoun, Aaytanit, Machghara, Sohmor, Ain el Tine, Yohmor, Libbaya, Maydoun, Zilaya, Qleyaa |
| | | Union of Municipalities of Al Sahel | Manage affairs of the municipalities of Marj, Raouda (Istabel), Aammiq, Haouch el Harime, Khiara, Aana, Souairi, Ghazze, Mansoura, Sultan Yaacoub, Manara, Kamed el Laouz |

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**TABLE 8:** Roles and responsibility of public institution stakeholders

| TYPE | INSTITUTION | ROLES AND RESPONSIBILITIES |
|---|---|---|
| Regional Water Authorities | Bekaa Water Establishment (BWE) | Established under Law 221/2000 on the organization of the water sector in Lebanon, the BWE service area included the districts of the Bekaa and Baalbek-Hermel Governorates, namely: Baalbeck, Hermel, Zahle, West Bekaa, and Rachaiya. Article 4.1 of this law defines the mission of water establishments as follows:<br>- Study, build, operate, maintain and renew water projects for the distribution of potable water and irrigation water.<br>- Collect, treat and dispose of all wastewater according to the master plan for water and wastewater or the approval of the MoEW pertaining to the use of public water resources, the location of water and wastewater treatment plants, and the location of wastewater discharge points.<br>- Suggest tariffs for the service provision of potable water, irrigation water, and the disposal of wastewater considering the prevailing socio-economic conditions.<br>- Monitor the quality of distributed potable and irrigation water and the discharged effluent from wastewater treatment |
| | Litani River Authority (LRA) | Established under the Law dated August 14, 1954 amended on December 30, 1955, LRA is considered to be the public institution serving the Bekaa area and whose functions are identified as follows:<br>- Implement the Litani irrigation, drying, drinking water and electricity projects.<br>- Examine, manage, and exploit the irrigation water in Central and Northern Bekaa.<br>- Ensure water monitoring in all Lebanese rivers.<br>- Establish networks linking up power stations, substations, and distribution lines in all the Lebanese regions.<br>- Invest in the different parts of the project at both the technical and the administrative levels. |
| National Authorities | Ministry of Energy and Water (MoEW) | The Ministry of Energy and Water is responsible for water, electricity, oil, minerals, mining and quarrying, in accordance nationally with the following powers and duties within the water sector:<br>- Set the necessary policies, regulations, strategies, and decrees for the water sector.<br>- Oversee and monitor the RWEs and LRA.<br>- License wells and all water extractions.<br>- Oversee, on a national basis, the allocation and distribution of surface and ground water for drinking and irrigation.<br>- Draft general directive for water and sanitation, updating it continuously.<br>- Control the quality of surface water and groundwater |

**TABLE 9:** Roles and responsibilities of international governmental and non-governmental organizations.

| TYPE | ORGANIZATION | ROLES AND RESPONSIBILITIES |
|---|---|---|
| International NGOs | UNICEF | UNICEF works closely with the Government of Lebanon, other UN agencies, international and local NGOs, universities, and more than 100 partners to meet the needs of disadvantaged children in Lebanon. Its programs include Child Protection, Education, Health and Nutrition, Social Policy and Child Poverty, Youth Development, Communication for Development, a Palestinian Program, and a WASH Program.<br>UNICEF leads the WASH sector in Lebanon, with its WASH responses including:<br>- Support for national and regional government to implement inclusive and sustainable interventions for improved water and wastewater management<br>- Support for Bekaa, South and North Water Establishments in implementing a communication strategy.<br>- Stabilization support aimed at implementing the National Water/Wastewater Sector Strategies developed by the Ministry of Energy and Water to provide services to both host and refugee populations served by regional water authorities.<br>- Humanitarian interventions to mitigate public health hazards in Informal Settlements through the temporary provision of WASH services<br>- Improved access to the most in need of safe drinking water supply and wastewater services, and improved environmental conditions.<br>- Improved fair use of WASH services through appropriate community-based mobilization. |
| | WorldVision | UNICEF WASH partner in the Bekaa region.<br>- Assists Lebanese families and refugee communities through development projects, emergency relief, and advocacy in four areas.<br>- Designs programs to strengthen a child-sensitive social protection, education, WASH, basic assistance, and livelihoods. |
| | ACF | UNICEF WASH partner in the Bekaa region.<br>- Carries out interventions and programming in food security, WASH, advocacy, and nutrition and health targeting vulnerable communities in the Bekaa region. |
| | Solidarités International | UNICEF WASH partner in the Bekaa region.<br>- Key player in the emergency response, with programs for disaster risk reduction, including floods.<br>- Developed a long-term approach to increase access to water, hygiene and sanitation services and to address the shelter needs of the most vulnerable populations.<br>- Identifies, tests and makes available innovative technologies and sustainable infrastructure, to reduce dependence on private operators whose services are costly and of low quality. |

| TYPE | ORGANIZATION | ROLES AND RESPONSIBILITIES |
|---|---|---|
| International NGOs | Save the Children | UNICEF WASH partner in the Bekaa region.<br>- Reaches more than 158,000 people directly, including over 86,000 children through Shelter, Education, Child Protection, Food Security and Livelihood, and Child Rights Governance programs.<br>- Implements multiple social cohesion and community support initiatives to strengthen intercommunity relations.<br>- Works with partners and local authorities to rehabilitate schools, factories, and old buildings in central and western Bekaa to become health facilities hosting COVID-19 cases. |
| | UNHCR | - Works closely with the government and national and international partners in providing protection and assistance to refugees and stateless persons, as well as to Lebanese communities affected by the crisis.<br>- In the WASH sector, offers assistance ranging from rehabilitation of storm water channels to the construction of reservoirs, and even the drilling and equipping of boreholes. |
| | UNDP | - Enhance national decision-making capacity for human development by developing modern institutions that can effectively support private sector development and national growth. This includes partnerships with the vibrant Lebanese civil society to implement national development initiatives in a broad-based and participatory manner.<br>- Promote the implementation of the rights-based-approach to development through the promotion of equity, with a focus on poverty, productive employment, and the reduction of disparities between regions and groups.<br>- Promote accountability, demonstrate transparency and fairness, following international standards of excellence in our advisory services, program design and implementation, including recruitment and procurement.<br>Supports the WASH sector in:<br>- Sustainable development and the achievement of SDG goals.<br>- Adaptation to climate change and water management, which includes the promotion of water management and conservation, protection of vulnerable water resources, and raising awareness. |
| | Oxfam | - Provide humanitarian assistance to vulnerable people affected by conflict<br>- Promote economic development and good governance at a local and national level.<br>- Empower marginalized women and men, especially youth, to cope with the effects of economic poverty, and to have greater access to and control over livelihood assets for sustainable poverty reduction and reduced aid dependency.<br>- Ensuring dignified and sustainable access to WASH to local and refugee communities. |

| TYPE | ORGANIZATION | ROLES AND RESPONSIBILITIES |
|---|---|---|
| International Governmental Agencies | USAID | Through its water and sanitation programs in Lebanon, aim to:<br>- Improve water services by building the capacity of the four regional water authorities so that they can adequately manage this resource and ensure that Lebanese citizens have access to safe, reliable and affordable water.<br>- Address the problem of pollution and raise user awareness and reverse the depletion of limited water resources. |
| | SDC | Through the Water Domain of its Cooperation Strategy, particularly in the Bekaa, has contributed to:<br>- Capacity development of the BWE for integrated and sustainable management of water resources.<br>- Equitable access to drinking water for host and Syrian refugee communities.<br>- Efficient and environmentally sound management of Wastewater Treatment Plants.<br>- Improved water quality and safe drinking water in the Bekaa Valley.<br>Currently working on a Conflict Sensitivity in Water Sector project. |
| | EU | - Promote cooperation with and among EU Member States in Lebanon.<br>- Support the reform agenda of the Lebanese government.<br>- Represent EU interests, and ennsure that the EU cooperation benefits those mostly in need. |
| Local NGOs | LOST | UNICEF WASH partner in the Bekaa region, based in Baalbek.<br>Develops capacities of local communities, youth, women, and children, through programming focusing on:<br>- Empowering marginalized groups of individuals and groups to enhance participation and accountability.<br>- Empowering public administrations and institutions to improve public services and optimize the use of resources to respond to people's needs.<br>- Creating a social conflict resolution framework, developing capacities, and creating a network between them and municipalities.<br>- Expand and develop services provided to Lebanese and displaced Syrians. |
| | Sawa Group | UNICEF WASH partner in the Bekaa region, based in Baalbek.<br>Focuses programming on rural development, health care, psychosocial support, vocational training, child protection and promotion of human rights culture that targets individuals, institutions and communities in areas that would improve governance, encourage dialogue, and foster participation. |

A common problem with gathering network data directly from the stakeholders is low response rates, as with any other interview and survey data gathering. In this study, the interview and survey response rate was around 55% (with 80% for local authorities, 100% for regional and national authorities, and 46% for organizations). Common reasons for non-response are that individuals do not feel competent to answer the questions, are not interested in filling surveys, do not have time, do not want information about their organization to appear in studies, etc.

## Results

### Social network analysis

The SNA questionnaire shared with the stakeholders comprised of 15 questions that can be aggregated into different themes to better analyze the results. The themes are as follows:

- **Theme One**: Identification of organizations or religious entities that work or are involved in conflict resolution in their areas
- **Theme Two**: Identification of stakeholders with whom there is exchange of knowledge, information, and technical expertise
- **Theme Three**: Identification of stakeholders with whom there has been communications regarding water supply/network maintenance; disaster risk reduction (DRR); and enforcing laws about DRR and network maintenance
- **Theme Four**: Identification of actors funding water projects in the area
- **Theme Five**: Identification of stakeholders normally contacted in the event of water conflict
- **Theme Six**: Identification of organizations perceived as effective in implementing any water related projects in the area

Out of the stakeholders contacted for the SNA, 26 responded and were categorized for analysis as seen in Tables 7-9. It is important to note that all SNA metrics and results are dependent solely on the responses acquired from the stakeholders and their responses to the questionnaire. The analysis was aggregated into one network due to the fact that all stakeholders other than local authorities did not deem the relationships in the two districts different enough to need separate interviews, and that the work of regional authorities and the NGOs in the Bekaa region generally reaches both districts.

District authorities comprise of governorate representatives and Qa'emmaqam; UoMs comprise of a number of union of municipalities in the Bekaa and Baalbek areas; Municipalities comprise of smaller municipalities contacted for the study; Regional water establishments (RWEs) comprise of the four water establishments and the Litani River Authority (LRA); Religious Groups classifies all responses where Heads of Religious groups are mentioned such as Dar El Fatwa, or Maronite Catholic Patriarchates are mentioned. Political Groups consist of familial/tribal mediators that take it upon themselves to resolve conflict in certain areas, as well as political groups such as political parties, or societies affiliated with political parties.

INGOs represent all international non-governmental organizations working in the area, while international governmental agencies represent all major funding agencies affiliated with International Governments. And finally, local NGOs, represent in some cases district-local organizations that are working with regional governments in the area.

### Identification of Stakeholders Prominent in Conflict Resolution

At first, it was important to identify all stakeholders perceived by respondents to have been active in conflict resolution in the area. Respondents identified organizations, both civil and religious, working on conflict resolution in Baalbek and West Bekaa.

*Figure 9* represents all stakeholders identified by respondents as having a role in conflict resolution. At first glance, it's important to note that most stakeholders mentioned are part of the international community (INGOs), as well as municipalities and UoMs. The blue lines represent responses when stakeholders were asked which religious entities they would contact for conflict resolution, whereas the orange lines represent institutions and organizations in general. When a network is directed, such as in this case, there are in-degrees and out-degrees, which count the number of edges (or arrows) going into and coming out of a node. Stakeholders with the highest In-degree (Number of connections directed towards them, or frequency of mentions) were political groups, heads of religious sects, and municipalities. Stakeholders with the highest in-degree score are the stakeholders mentioned by other as being prominent in conflict resolution. Further analysis was conducted by mapping the stakeholders using their metric values to emphasize their functionality within the network.

**FIGURE 9:** Conflict resolution network map

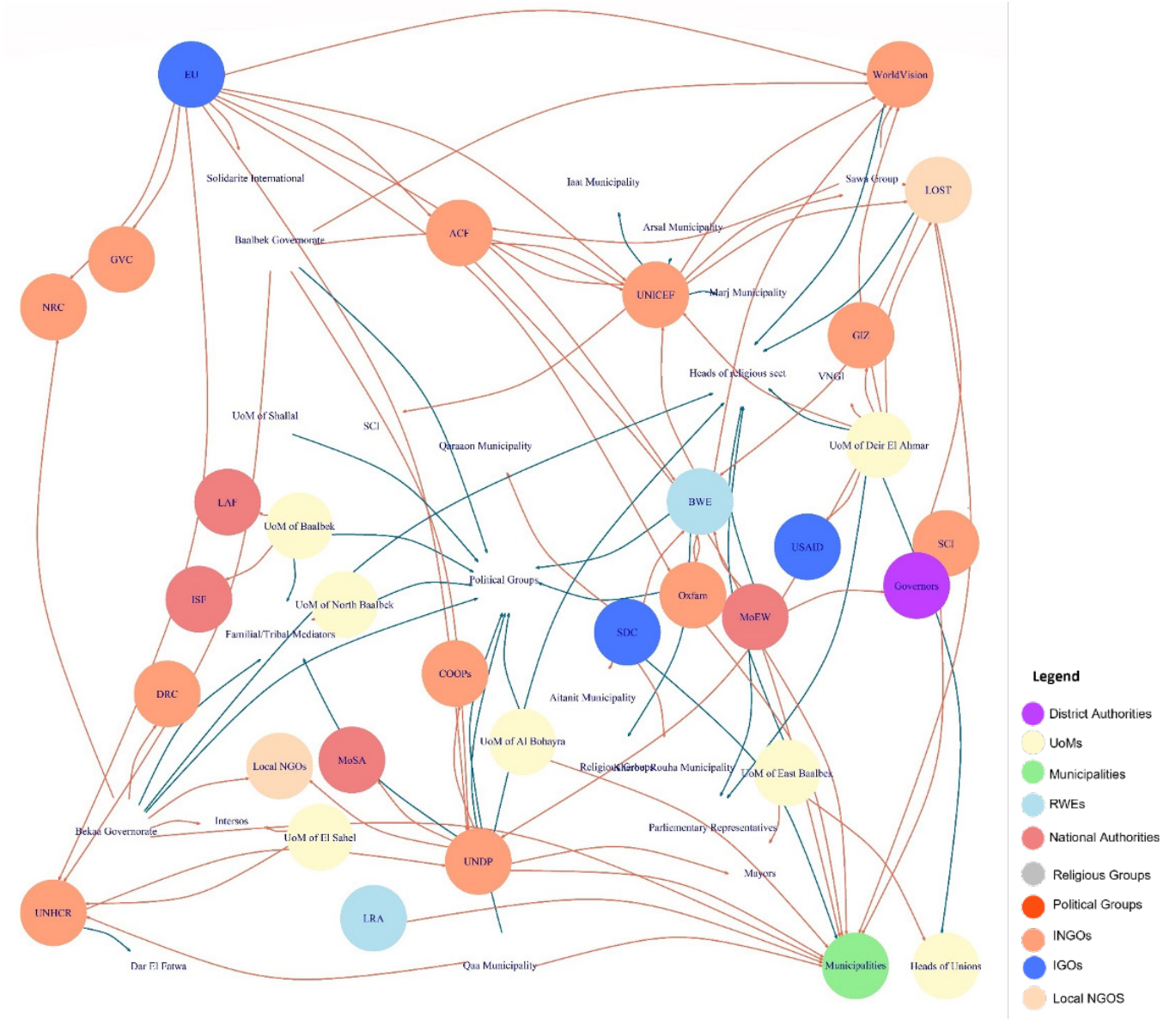


*Figure 17* (Annex C) shows the actors with the highest betweenness centrality regarding conflict resolution. It can be seen that international organizations such as UNDP, UNHCR, and UNICEF have the highest betweenness values recognized by respondents as actors who play a major intermediary role as facilitators between organizations focused on conflict resolution in the area. That puts them in a perfect position to influence decisions since they are subsequently connected to major actors in the area. The BWE is also an intermediary with a high betweenness score indicating that most conflicts in the area have a water component to them if BWE is mentioned by most stakeholders hence giving it an intermediary influential role in the network.

*Figure 18* (Annex C) visualizes stakeholders in the network based on the degree scores. Stakeholders with the highest degree scores are the actors who are identified most as relevant in conflict resolution by the respondents. Actors with the highest in-degree scores are Municipalities, Political and Religious groups, in addition to WorldVision, BWE, UNICEF, UNDP, UNHCR ACF and Familial or Tribal Mediators, as seen in *Table 10*. This indicates they are most often communicated with regarding conflicts in Baalbek and West Bekaa. *Table 11* shows the actors with the highest out-degree centrality, or those that identified the most stakeholders or connections in this theme. Here we see large organizations or governmental stakeholders are more prominent, including EU, UNICEF, SDC, several UoMs, the Bekaa Qa'emmaqam, the Baalbek-Hermel Governorate, BWE and MoEW. All metric values and scores can be seen in Annex B.

Eigenvector scores reflect the "popularity" of a stakeholder, represented in Figure 19 (Annex C). The Eigenvector centrality shows the degree of connection to other important vertices or nodes; stakeholders linked to other influential stakeholders in the network for example stakeholders with high authority or power, are more likely to influence project outcomes, policy reforms, or implementation. UNICEF has the highest eigenvector score as seen in *Table 13,* meaning it has been identified by the remaining actors in the network as the stakeholder with the largest influence on conflict resolution in the area. The BWE has the second highest eigenvector score, perceived by the respondents as a stakeholder with influence on conflict which could indicate either the presence of a water component or a consequence of the areas of focus of the stakeholder pool.

**TABLE 10:** Stakeholders with the highest in-degree centrality values for conflict resolution

| STAKEHOLDER | INDEGREE CENTRALITY |
|---|---|
| Municipalities | 11 |
| Political Groups | 11 |
| Heads of religious sect | 7 |
| WorldVision | 6 |
| BWE | 5 |
| UNICEF | 5 |
| UNHCR | 4 |
| UNDP | 4 |
| Familial/Tribal Mediators | 4 |
| ACF | 3 |

**TABLE 11:** Stakeholders with the highest out-degree centrality values forconflict resolution

| STAKEHOLDER | OUTDEGREE CENTRALITY |
|---|---|
| EU | 10 |
| UoM of Deir El Ahmar | 10 |
| UNICEF | 8 |
| Bekaa Qa'emmaqam | 8 |
| UNDP | 8 |
| BWE | 5 |
| Baalbek-Hermel Governorate | 5 |
| MoEW | 5 |
| SDC | 5 |
| UoM of Baalbek | 4 |

**TABLE 12:** Stakeholders with the highest betweenness centrality for conflict resolution

| STAKEHOLDER | BETWEENNESS |
|---|---|
| UNICEF | 79.5 |
| BWE | 74.333 |
| UNDP | 41.167 |
| LOST | 36.5 |
| Oxfam | 20.167 |
| UNHCR | 20 |
| MoEW | 12.5 |
| ACF | 6.333 |
| WorldVision | 4.5 |

**TABLE 13:** Stakeholders with the highest Eigenvector centrality for conflict resolution

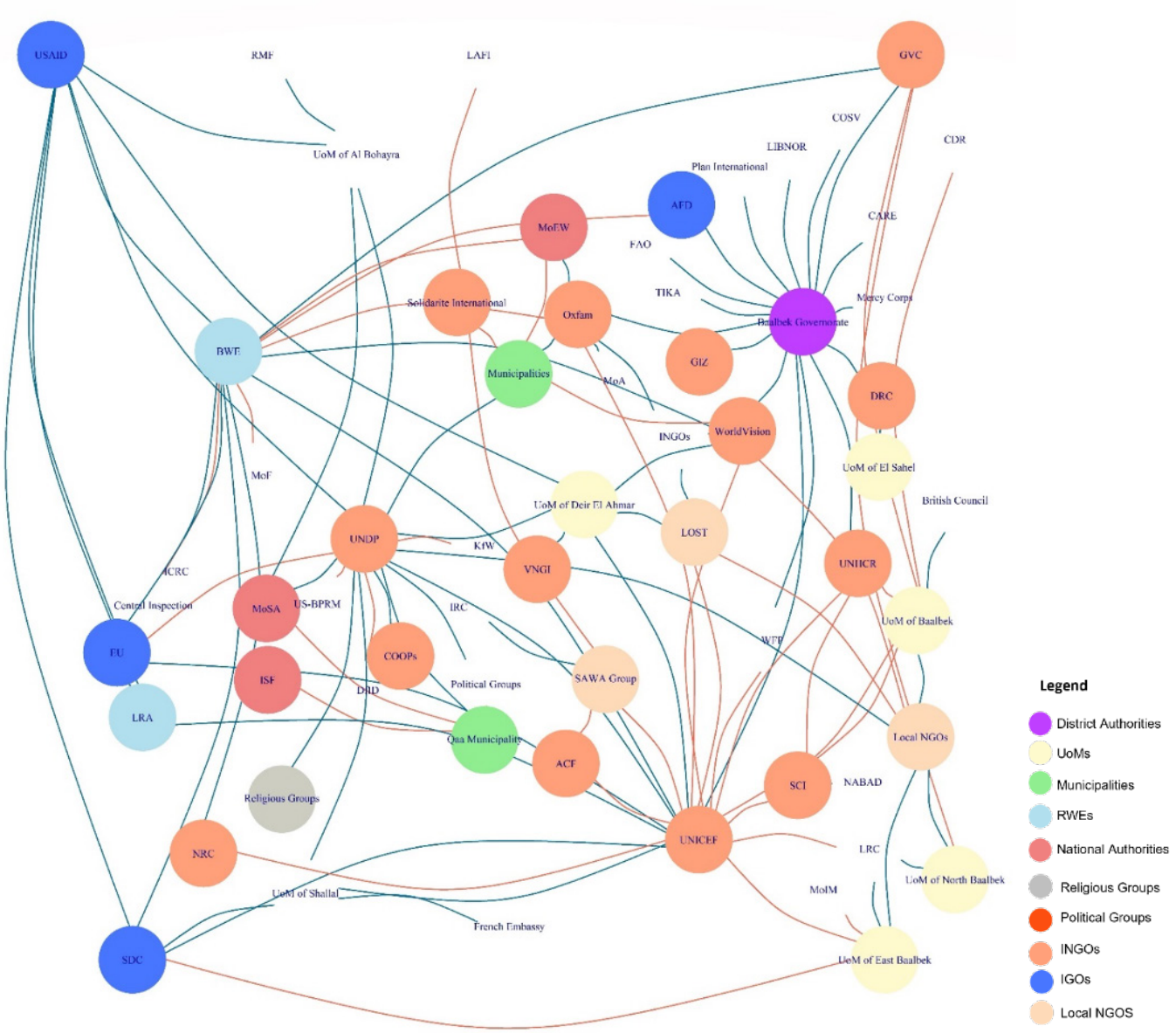
| STAKEHOLDER | EIGENVECTOR |
|---|---|
| UNICEF | 1 |
| BWE | 0.934 |
| EU | 0.837 |
| UNDP | 0.774 |
| WorldVision | 0.753 |
| Municipalities | 0.692 |
| Oxfam | 0.687 |
| Political Groups | 0.682 |
| LOST | 0.679 |
| UoM of Deir El Ahmar | 0.658 |

### Knowledge, information, and technical exchange

The knowledge, information, and technical exchange relationship among identified stakeholders were defined by the "frequency of exchange" of data and information, expertise, and technical assistance (*Figure 10*). The map was generated as an undirected graph highlighting the exchanges/sharing between the stakeholders. Stakeholders with the highest degree centrality are ranked in *Table 14* and can be identified as those with the largest nodes in Figure 21 (Annex C).

According to responses from stakeholders, Baalbek-Hermel Governorate, UNICEF, BWE, UNDP, UoM of Deir El Ahmar, Oxfam, USAID, and WorldVision have the highest connection numbers, showing an initiative for data and expertise sharing. Baalbek-Hermel Governorate has the highest connection number (n=32, *Table 14*). The numerous connections and accessibility of these organizations mentioned above allow for better information collection, and a more informative database. It is important to note that most stakeholders with the highest degree centrality and most connections are INGOs and local NGOs, and that smaller scale local authorities are less represented.

**FIGURE 10:** Knowledge, information, and technical exchange network map



Stakeholders with the highest betweenness centrality values can be seen in *Table 15*. UNICEF, UNDP, BWE and Baalbek-Hermel Governorate are the prominent institutions that act as hubs for funneling shared information between all the remaining stakeholders. The different betweenness centrality values are visualized in Figure 20 (Annex C), where the network was plotted based on the betweenness values of the stakeholders highlighting the actors with the highest betweenness centrality values. Again, it is important to note the impactful role played by international organizations, which can be seen in both the degree and betweenness centrality maps.

**TABLE 14:** Stakeholders with the highest degree centrality values in the knowledge, information, and technical exchange network

| STAKEHOLDER | DEGREE |
|---|---|
| Baalbek-Hermel Governorate | 32 |
| UNICEF | 28 |
| BWE | 21 |
| UNDP | 21 |
| UoM of Deir El Ahmar | 12 |
| Oxfam | 12 |
| USAID | 11 |
| WorldVision | 10 |
| SDC | 9 |
| Local NGOs | 9 |

**TABLE 15:** Stakeholders with the highest betweenness centrality values in the knowledge, information, and technical exchange network

| STAKEHOLDER | BETWEENNESS |
|---|---|
| UNICEF | 888.455 |
| Baalbek-Hermel Governorate | 615.991 |
| UNDP | 607.625 |
| BWE | 266.005 |
| Oxfam | 147.242 |
| UoM of Baalbek | 134.298 |
| SAWA Group | 111.984 |
| Local NGOs | 96.229 |
| Municipalities | 90.958 |
| UoM of Deir El Ahmar | 87.457 |

In the case of sharing data, information, and expertise, UNICEF has the highest Eigenvector centrality value (*Table 16, Figure 22* (Annex C)). This indicates UNICEF is well connected to organizations other highly connected stakeholders in the network, hence providing a steady flow of information to numerous downstream stakeholders, granting it influence in the network, or at least in its own sub-network cluster.

**TABLE 16:** Stakeholders with the highest eigenvector centrality values in the knowledge, information, and technical exchange network

| STAKEHOLDER | EIGENVECTOR |
|---|---|
| UNICEF | 1 |
| Baalbek-Hermel Governorate | 0.812 |
| BWE | 0.746 |
| Oxfam | 0.587 |
| UoM of Deir El Ahmar | 0.553 |
| WorldVision | 0.497 |
| SDC | 0.496 |
| UNDP | 0.491 |
| USAID | 0.479 |
| LOST | 0.442 |

**Water supply, quality, network maintenance, natural disaster risk management, and law enforcement**

The third theme focused on the identification of stakeholders with whom there has been communications regarding water supply/network maintenance; disaster risk reduction (DRR); and enforcing laws about DRR and network maintenance (*figure 11*). The map summarizes respondents' communication with stakeholders across all the above. The map was generated as an undirected graph highlighting the exchanges/ sharing between the stakeholders. Stakeholders with the highest degree centrality, or highest number of connections in the network are ranked in *Table 17*. In this theme, UNICEF, BWE, EU, UNDP, and WorldVision have the highest connection numbers, indicating a big role of INGOs and IGOs in water infrastructure of governance projects. UNICEF has the highest connection number (n=35, *Table 17*).

It is important to note that most stakeholders with the highest degree centrality and most connections are international NGOs and local NGOs, there is low public institution representation, besides that of BWE (the main water authority in the region) with whom respondents associated all water supply and network maintenance issues.

**FIGURE 11:** Water supply, quality, network maintenance, and natural disaster risk management network map

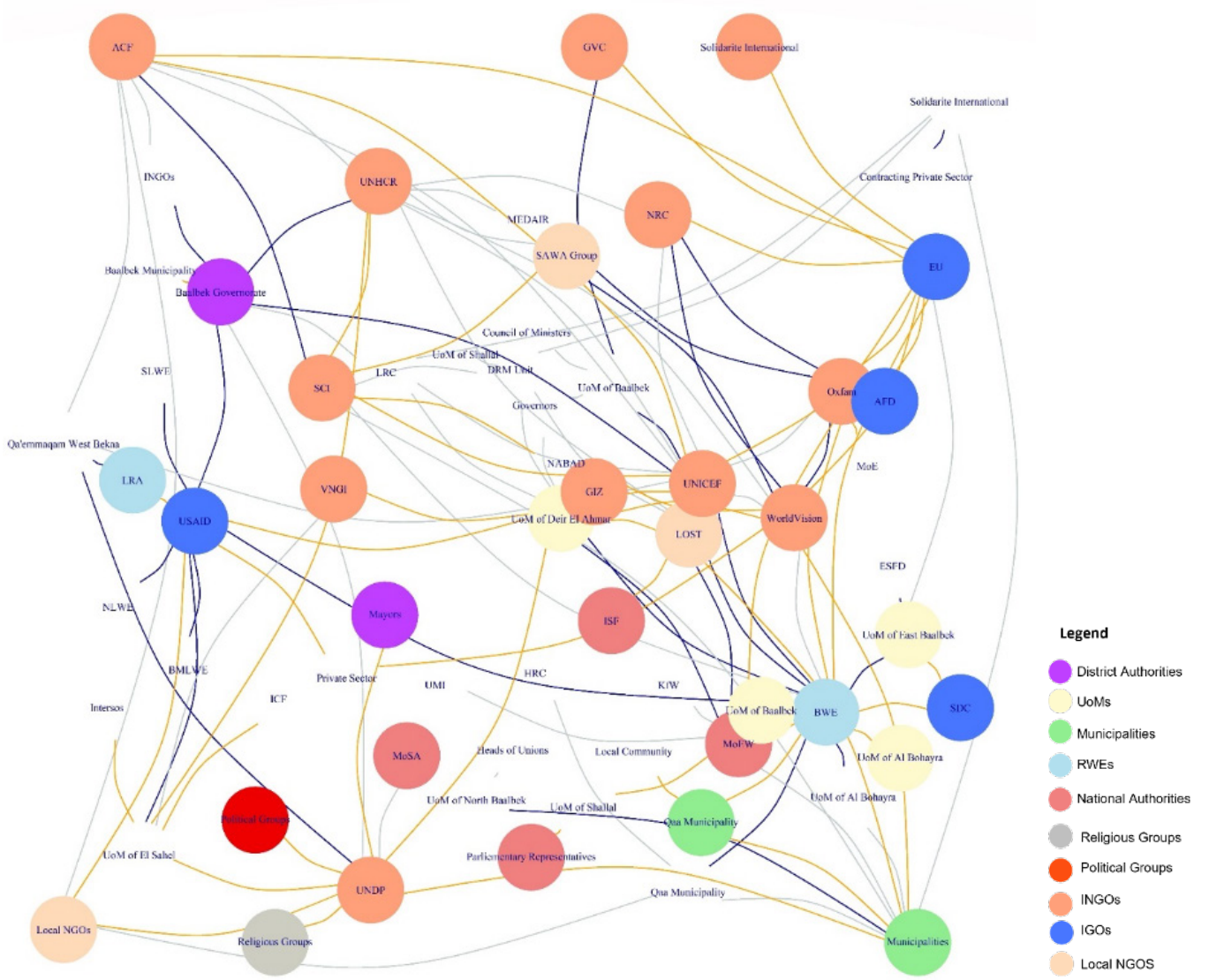



**TABLE 17:** Stakeholders with the highest degree centrality values in the water supply, quality, network maintenance, and natural disaster risk management

| STAKEHOLDER | DEGREE |
|---|---|
| UNICEF | 35 |
| BWE | 28 |
| EU | 20 |
| UNDP | 19 |
| WorldVision | 18 |
| UNHCR | 17 |
| SCI | 17 |
| Municipalities | 17 |
| Oxfam | 15 |
| UoM of Deir El Ahmar | 14 |

Stakeholders with the highest betweenness centrality values can be seen in *Table 18*. BWE, Municipalities UNICEF, UNDP, and USAID, are the prominent institutions that act as intermediaries between all the remaining stakeholders in matters of water supply and quality, DRR, and enforcing laws. It is mainly due to the high number of projects piloted by the INGOs in the area over the year and the established connections they have to numerous UoMs and Municipalities that identified them. Betweenness centrality is visualized in *Figure 23* (Annex C), where the network was plotted based on the betweenness values of the stakeholders highlighting the actors with the highest betweenness centrality values. Again, it is important to note the impactful role played by international organizations, which can be seen in both the degree and betweenness centrality maps.

**TABLE 18:** Stakeholders with the highest betweenness centrality values in the water supply, quality, network maintenance, and natural disaster risk management

| STAKEHOLDER | BETWEENNESS |
|---|---|
| BWE | 568.438 |
| Municipalities | 359.706 |
| UNDP | 351.163 |
| UNICEF | 348.473 |
| UoM of Deir El Ahmar | 347.982 |
| USAID | 304.516 |
| MoEW | 260.412 |
| EU | 217.696 |
| WorldVision | 160.585 |
| UoM of El Sahel | 151.29 |

*Table 19* shows the stakeholders with the highest Eigenvector centrality values, and those are illustrated in Figure 25 (Annex C). UNICEF has a high Eigenvector score, again representing its interest in this network and its connection to the most number of well connected stakeholders such as BWE, SCI, UNHCR, Oxfam and WorldVision. The Eigenvector network highlights the clustering within the water network, most likely attributed to partnerships UNICEF shares BWE and many international and local NGOs.

**TABLE 19:** Stakeholders with the highest eigenvector centrality values in the water supply, quality, network maintenance, and natural disaster risk management

| STAKEHOLDER | EIGENVECTOR |
|---|---|
| UNICEF | 1 |
| BWE | 0.731 |
| SCI | 0.607 |
| WorldVision | 0.599 |
| Oxfam | 0.572 |
| UNHCR | 0.518 |
| EU | 0.501 |
| SAWA Group | 0.469 |
| LOST | 0.393 |
| ACF | 0.35 |

**Identification of actors in externally funded water projects**

This theme looks at stakeholders' knowledge of non-state funded water projects and those involved in funding water projects in Baalbek and West Bekaa.

*Figure 12* shows a map generated as an undirected graph highlighting the communication between the stakeholders. This means that it does not explicitly show donor-recipient interactions, but rather the reference points of each stakeholder when it comes to funding or financing water projects. Connections, therefore, show an initiative or ability to either seek or provide funding for water projects. Stakeholders with the highest degree centrality are ranked in *Table 20* and can be identified as those with the largest nodes in *Figure 27* (Annex C). These stakeholders are those who have either identified the most donors or have been identified most as donors. The distinction can be made with reference to the role or mandate of the stakeholder within the WASH sector. For example, the Baalbek-Hermel Governorate has the highest degree centrality or number of connections in the network (*Table 20*). However, being a regional Lebanese authority, it is then classified as an institution most often seeking external funding or financing. Its high centrality is then attributed to its relationship with a large number of donors. On the other hand, UNICEF, having the second highest degree centrality value (*Table 20*), is well known as a donor organization, and hence its centrality is attributed to its role in providing funds.

The numerous connections and accessibility of these organizations mentioned above allow for better financing flows for water projects. Unsurprisingly, most stakeholders with the highest degree centrality and most connections are INGOs and local NGOs.

**TABLE 20:** Stakeholders with the highest degree centrality in the funding of water projects network

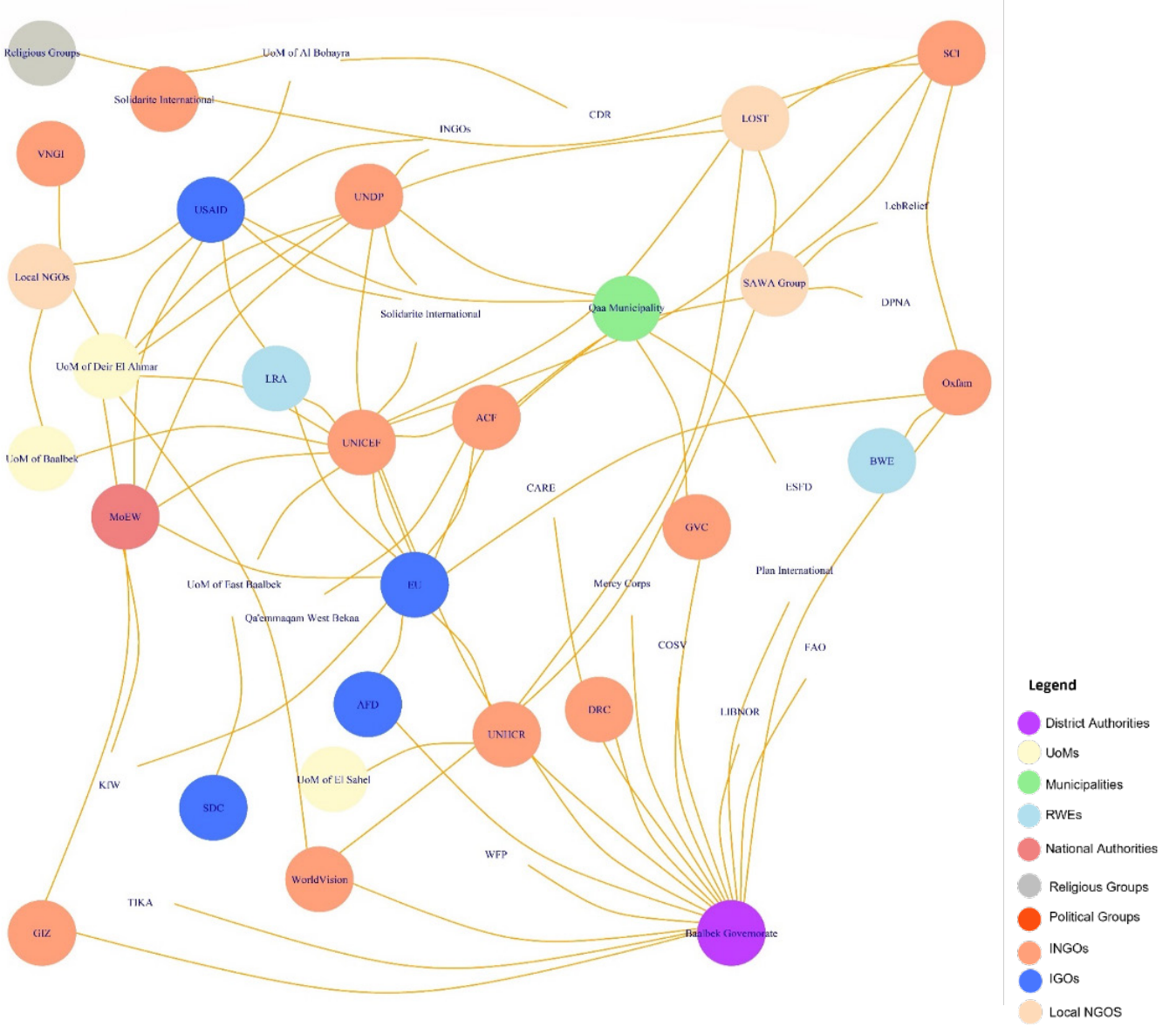
| STAKEHOLDER | DEGREE |
|---|---|
| Baalbek Governorate | 16 |
| UNICEF | 11 |
| EU | 10 |
| SAWA Group | 8 |
| USAID | 8 |
| UoM of Deir El Ahmar | 7 |
| LOST | 6 |
| SCI | 6 |
| UNDP | 6 |
| Qaa Municipality | 5 |

Stakeholders with the highest betweenness centrality values can be seen in *Table 21*. UNICEF, EU, and USAID are shown to be the most prominent funding organizations in the WASH sector. As with centrality, UNICEF has the highest betweenness centrality value among international NGOs and aid agencies, which is not surprising given their role as a WASH leader in Lebanon. Among local authorities, the Baalbek-Hermel Governorate has the highest betweenness centrality, followed by UoM of Deir el Ahmar and Qaa Municipality, showing initiative among these UoMs and municipalities in seeking or communicating with funding bodies. Betweenness centrality is represented within the network map in *Figure 26* (Annex C).

**TABLE 21:** Stakeholders with the highest betweenness centrality in the funding of water projects network

| STAKEHOLDER | BETWEENNESS |
|---|---|
| Baalbek-Hermel Governorate | 421.959 |
| UNICEF | 323.785 |
| USAID | 174.038 |
| EU | 156.437 |
| UoM of Deir El Ahmar | 139.548 |
| SAWA Group | 95.9 |
| UoM of Al Bohayra | 87 |
| Qaa Municipality | 75.319 |
| Oxfam | 67.27 |
| SCI | 65.393 |

**FIGURE 12:** Funding of water projects network map




UNICEF was shown to have the highest influence or Eigenvector centrality value (x= 1, *Table 22*). The EU follows behind with x=0.821, followed by the Baalbek-Hermel Governorate. Annex B shows the Eigenvector centrality values for all stakeholders, represented within the network map. Local NGOs, such as LOST and SAWA Group, and other UNICEF partners such as SCI are influential in this network due to their connection with UNICEF.

The Baalbek-Hermel Governorate has a high Eigenvector score, meaning it is well connected to funding organizations that are highly connected themselves in the network, which provides an opportunity to for steady finance flows for projects in the area.

**TABLE 22:** Stakeholders with the highest eigenvector centrality in the funding of water projects network

| STAKEHOLDER | EIGENVECTOR |
|---|---|
| UNICEF | 1 |
| EU | 0.821 |
| Baalbek-Hermel Governorate | 0.713 |
| LOST | 0.707 |
| SAWA Group | 0.662 |
| SCI | 0.63 |
| UoM of Deir El Ahmar | 0.602 |
| MoEW | 0.542 |
| UNDP | 0.509 |
| USAID | 0.473 |

**Identification of stakeholders normally contacted in the event of water conflict**

*Figure 13* displays all stakeholders identified by respondents as having a role particularly in water-related conflict resolution. Municipalities, BWE and Qa'emmaqam West Bekaa are among the most connected within this network. Notably, local and national authorities seem to be more prominent in this theme. Municipalities have the highest degree (x=11, *Table 23*), betweenness (x=239.2, *Table 24*) and eigenvector centrality values (x=1, *Table 25*) indicating the prominent and highly influential standing within water-related conflict. Annex B shows the metrics of all stakeholders in this network and their importance to water-related conflict and are represented according to their betweenness centrality (*Figure 29* (Annex C)), degree centrality (*Figure 30* (Annex C)) and eigenvector centrality (*Figure 31* (Annex C)). There is a diminished representation of INGOs and IGOs that have been influential across other themes in this network.

**TABLE 23:** Stakeholders with the highest degree centrality values in the water-related conflict resolution network

| STAKEHOLDER | DEGREE |
|---|---|
| Municipalities | 11 |
| BWE | 6 |
| Qa'emmaqam West Bekaa | 4 |
| MoEW | 4 |
| SCI | 3 |
| WorldVision | 3 |
| Governors | 3 |
| ISF | 3 |
| UoM of Deir El Ahmar | 2 |
| Baablek Governorate | 2 |

**FIGURE 13:** Water-related conflict resolution network map

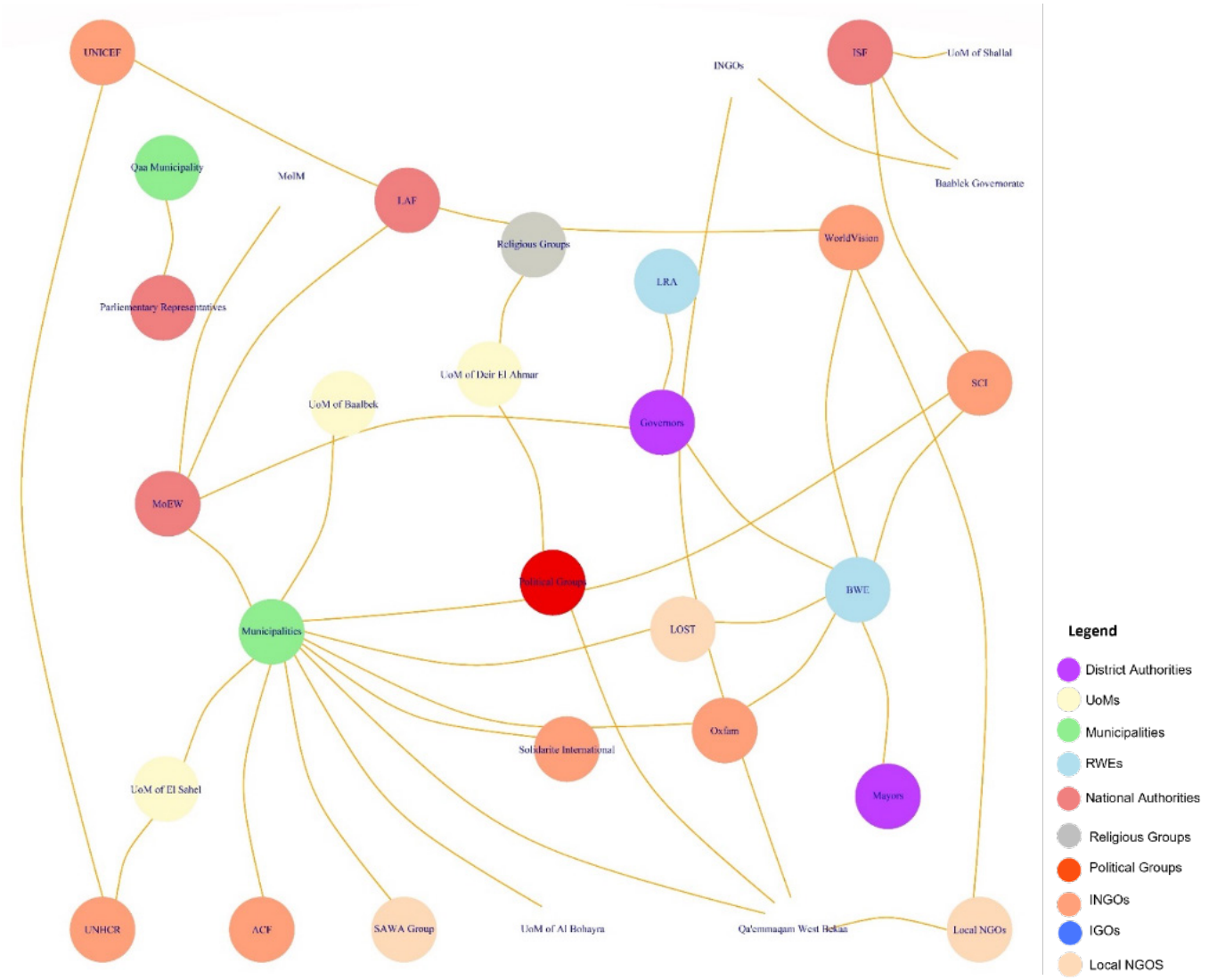



**TABLE 24:** Stakeholders with the highest betweenness centrality values in the water-related conflict resolution network

| STAKEHOLDER | BETWEENNESS |
|---|---|
| Municipalities | 239.2 |
| Qa'emmaqam West Bekaa | 117.6 |
| MoEW | 78 |
| BWE | 72.333 |
| SCI | 64.133 |
| Political Groups | 52 |
| ISF | 40.733 |
| Governors | 37.5 |
| WorldVision | 30.067 |
| UoM of El Sahel | 28.5 |

**TABLE 25:** Stakeholders with the highest eigenvector centrality values in the water-related conflict resolution network

| STAKEHOLDER | EIGENVECTOR |
|---|---|
| Municipalities | 1 |
| BWE | 0.506 |
| SCI | 0.449 |
| LOST | 0.408 |
| Oxfam | 0.408 |
| MoEW | 0.401 |
| Qa'emmaqam West Bekaa | 0.376 |
| UoM of El Sahel | 0.299 |
| ACF | 0.271 |
| UoM of Al Bohayra | 0.271 |

**Identification of organizations perceived as effective in implementing any water related projects in the area**

This theme highlights the interviewed stakeholders' identification of organizations and institutions that they believe would be most effective or critical in implementing water-related projects with potential for peacebuilding. These do not only indicate what organizations would be immediately beneficial for project funding, planning and implementation, but also organizations and institutions that should be empowered in potential peacebuilding projects. The interactions of this network are represented in *Figure 14*.

In this network, USAID, UNICEF, MoEW, UoMs of Deir el Ahmar and Shallal were among the most connected, having the highest degree centrality values ( The high degree, betweenness, and Eigenvector centrality of UoM of East Baalbek could be due to naming a large number of stakeholders in this network and could be indicative of trust or established relationships within water or peacebuilding projects with those stakeholders. *Table 26, Figure 33* (Annex C) ).

UNICEF and USAID had the highest betweenness centrality values in the network, highlighting their intermediary connectedness within the network (*Table 27, Figure 32* (Annex C)). MoEW, USAID, and Municipalities were among the stakeholders with the highest Eigenvector centrality values, or influence (*Table 28, Figure 34* (Annex C)). The high degree, betweenness, and Eigenvector centrality of UoM of East Baalbek could be due to naming a large number of stakeholders in this network and could be indicative of trust or established relationships within water or peacebuilding projects with those stakeholders.

**FIGURE 14:** Key players in peacebuilding projects network map

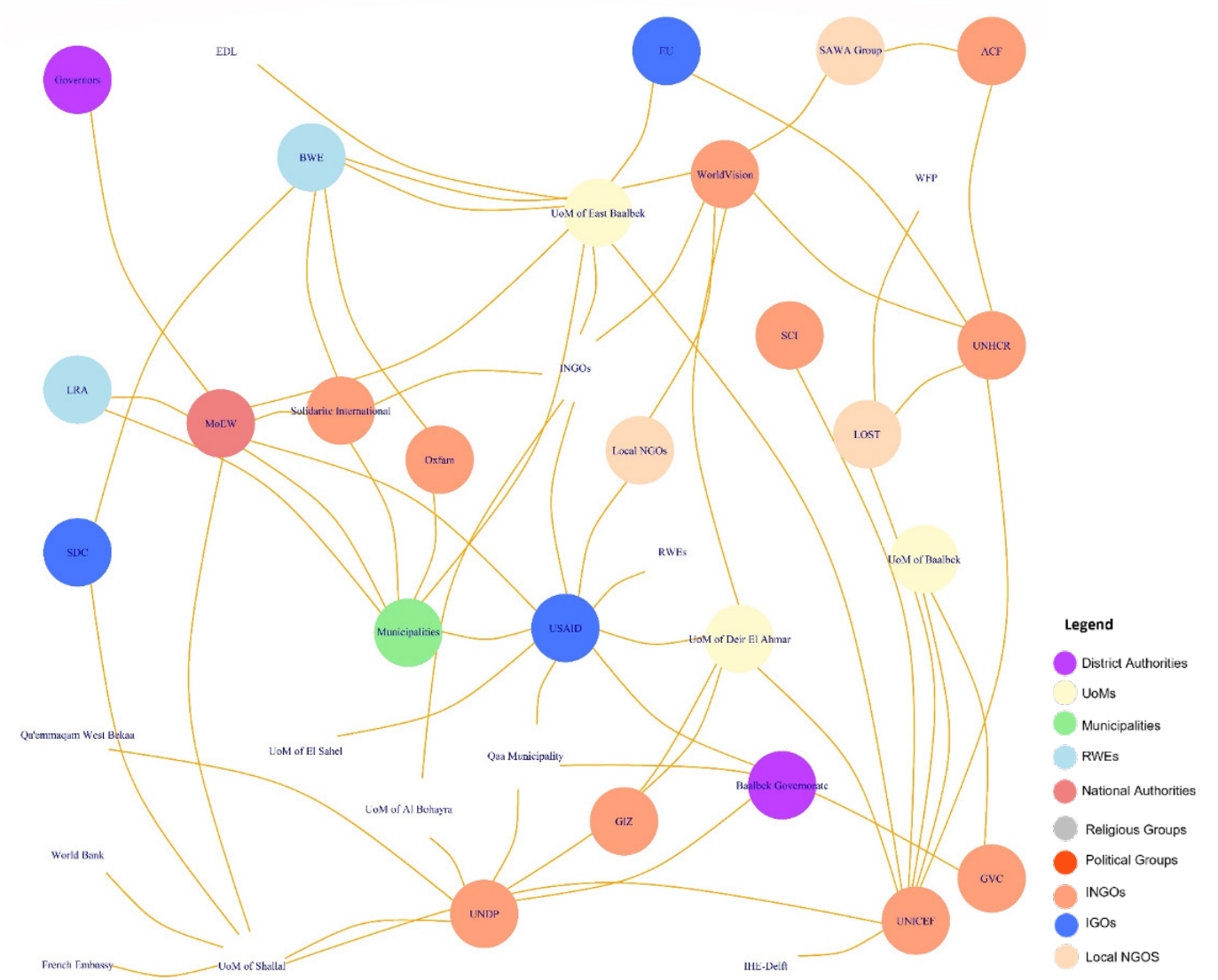



**TABLE 26:** Stakeholders with the highest degree centrality values in the key players in peacebuilding projects network

| STAKEHOLDER | DEGREE |
|---|---|
| USAID | 9 |
| UNICEF | 8 |
| UoM of East Baalbek | 7 |
| MoEW | 7 |
| UoM of Shallal | 6 |
| WorldVision | 6 |
| UNDP | 6 |
| Municipalities | 6 |
| UoM of Deir El Ahmar | 5 |
| UNHCR | 5 |

**TABLE 27:** Stakeholders with the highest betweenness centrality values in the key players in peacebuilding projects network

| STAKEHOLDER | BETWEENNESS |
|---|---|
| UNICEF | 194.08 |
| USAID | 148.52 |
| UoM of Shallal | 125.211 |
| UoM of East Baalbek | 111.881 |
| UoM of Deir El Ahmar | 99.093 |
| MoEW | 98.629 |
| WorldVision | 80.468 |
| UNDP | 77.253 |
| UNHCR | 55.765 |
| INGOs | 47.212 |

**TABLE 28:** Stakeholders with the highest eigenvector centrality values in the key players in peacebuilding projects network

| STAKEHOLDER | EIGENVECTOR |
|---|---|
| MoEW | 1 |
| USAID | 0.988 |
| UoM of East Baalbek | 0.937 |
| Municipalities | 0.922 |
| INGOs | 0.736 |
| Solidarite International | 0.69 |
| UNICEF | 0.68 |
| UoM of Deir El Ahmar | 0.605 |
| WorldVision | 0.602 |
| BWE | 0.593 |

### Water-related issues and conflict typologies

All stakeholders identified water issues in their areas of work. Outlines the responses of 26 stakeholders to the question of water issues. The most common responses include water contamination, pollution, or poor water quality (n=11) and water scarcity (n=10). Unfair distribution or unequal access to water services was mentioned by nine stakeholders, the majority of which were UoMs or public institutions, including LRA and BWE. Seven public and private sector stakeholders mentioned the lack of fuel for water pumping, or the lack of financing to accommodate the dollarization of fuel as a prominent issue. Electrical shortages and poor infrastructure, including poor water networks, inadequate storage, and capture facilities such as dams and hill lakes, and inadequate wastewater treatment facilities were also mentioned at the same frequency (n=7). The mismanagement of water resources was mentioned as a general issue (n=4) predominantly by international and local NGOs. Issues related to water revenue, such as lack of fee payment or collection (n=4), high non-revenue water (n=3), and low subscription rates

(n=2) where highlighted by NGOs, aid agencies, the Baalbek-Hermel Governorate, and MoEW, but not by local water providers. Issues related to lack of data, communication, and awareness of water management were mentioned at the same frequency by international aid organizations. The least common or one-off responses can be seen in.

**Water-related conflict and drivers of escalation**

Out of 26 stakeholders, 16 suggested that water-related issues lead to conflict, seven of which indicated that it only happens occasionally, during dry season or when resources are scarce. Three of these stakeholders (two UoMs in Baalbek and the Baalbek-Hermel Governorate) mentioned hostilities, describing the conflicts as fights, feuds, or threats. The remaining stakeholders indicated that conflicts manifest in complaints, protest, or deadlock and disagreements.

Several drivers for escalation of water problems into water-related conflict were identified. A common theme among responses to this question was access and control over water sources. While uneven distribution or control over water access is considered the water problem, conflict related to this problem is considered to be arise from 'traditional or cultural beliefs' that a source of water belongs to a single community in its vicinity. This is reinforced when the communities that 'own' a water source are reluctant to share access, especially with communities of differing sectarian or political alignments. International NGO stakeholders have cited instances in which water infrastructure projects were disrupted due to such conflicts, in which communities and municipalities were politically motivated to block access to sources. Moreover, politically backed monopolization of water resources, and its redirection of water towards the benefit of monopolizing groups (usually illegal agriculture) has also been identified as a driver of conflict in between citizens and communities.

Poor planning or unequal targeting of aid and development projects was identified as a driver of conflict between villages or municipalities. This can happen when projects overlap within the same village or locality, while surrounding villages receive no intervention. This is also a common driver of conflict between Lebanese host communities and refugees.

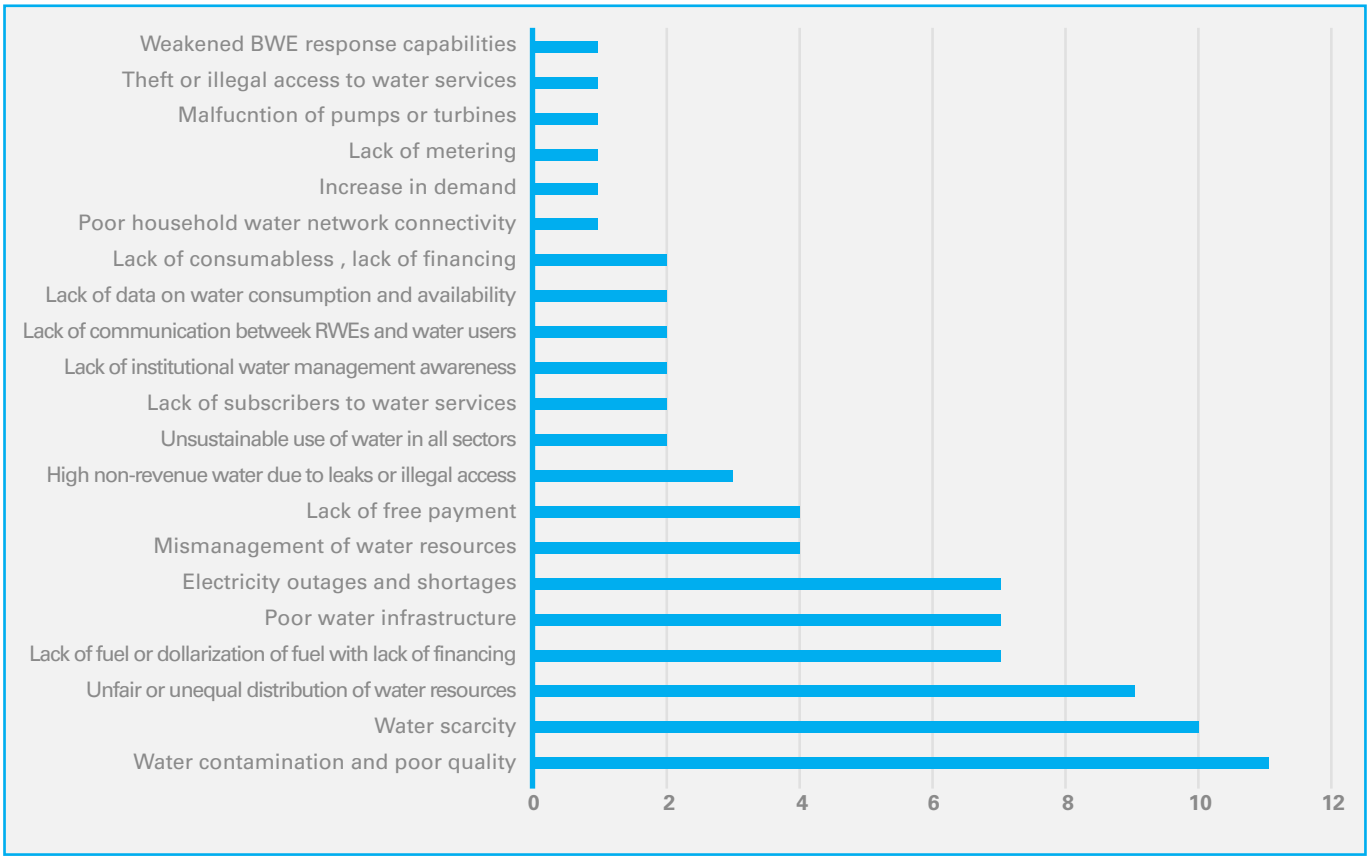
Conflicts between citizens and municipalities or project partners were considered to arise when infrastructure or development planning does not take a participatory approach. Examples given included wastewater treatment projects that, in addition to being poorly planned and executed, were placed too close to homes, affecting the locals' health and resulting in hostile protest and threats.

The majority of UoMs identified socio-economic conditions themselves as drivers of conflict, especially as fuel shortages and inflation are limiting the ability to supply households with their water needs, whether from public or private suppliers. These often lead to demonstrations or protests within the UoM area but do not escalate further.

Notably, international NGOs have identified conflicts which occur between private water suppliers or tankers and private water source owners. The escalation is often driven by conflicts of interest or miscommunication between old and new suppliers, and landlords. Conflict between suppliers is often over whom to cover which area, and between source owners over whom can provide which supplier. This type of conflict is more common in the dry season.

Finally, it is indicated that in areas where political influence is strong and relatively homogenous (i.e., parties not currently in conflict), tensions between locals does not often escalate, particularly with regards to water. Disputes in these areas are often dealt with on a local or familial scale before escalation. In less homogenous areas or areas where political influence is not strong, conflict is more common.

**FIGURE 15:** Water-related issues in Baalbek and West Bekaa districts as described by stakeholders




### Barriers and challenges

There are four major barriers and challenges for conflict resolution identified by stakeholders. Shows all barriers mentioned by stakeholders and their frequency. The most common barriers are the current socio-economic and material living conditions in the sense that the needs that drive tensions and conflict in some cases (n=6). These were more commonly mentioned by local authority stakeholders. Of a similar frequency, inadequate conflict resolution approaches and a lack of an established framework for conflict resolution were cited as barriers, more commonly by international NGOs. The availability of funding for conflict resolution was mentioned by both categories at a frequency (n=4), along with other less frequent conflict resolution challenges such as long processing times mentioned once.

The second most mentioned barrier or challenge is political interference and the control of governance frameworks and, sometimes resources, by political interests (n=5). This was mentioned by international NGOs as well as the Baalbek-Hermel Governor. It ties into a theme of governance challenges that could include lack of participatory approaches (n=3), inadequate communication or dialogue (n=2), unkept promises and negative memories associated with planned interventions (n=2), lack of political will to address pressing issues (n=2), and lack of law enforcement (n=2). Unfair distribution of resources, which was mentioned as a problem and a driver of conflict, was mentioned by one international NGO stakeholder as a barrier to conflict resolution.

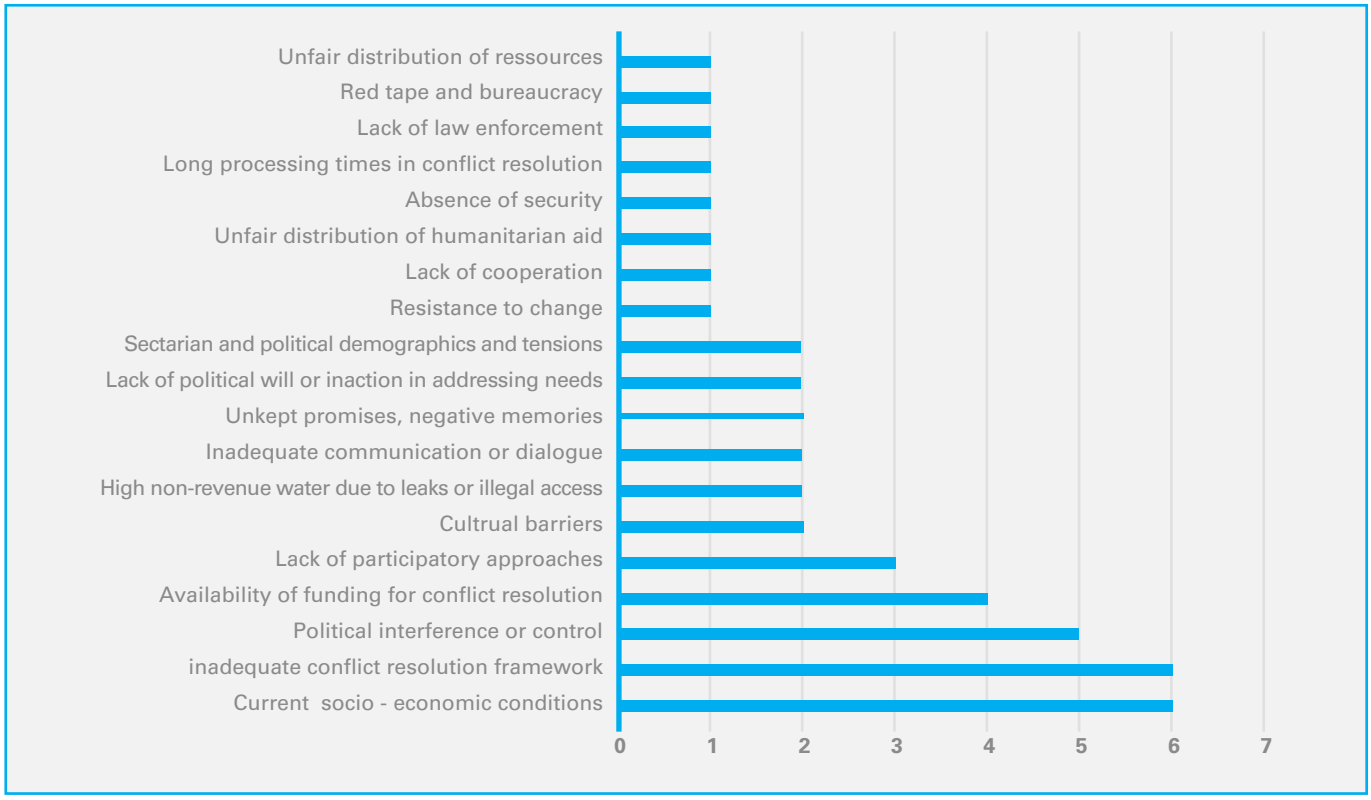
Finally, a theme of cultural and demographic challenges also emerged, where what was called a ‘traditional mentality’ or ‘way of thinking’ was mentioned by a local and international NGO. Resistance to change was cited as a barrier once by an international NGO. Moreover, the demographic make-up of the target districts, with regards to sectarian and political allegiances, was considered a barrier by one international NGO.

### Discussion and Analysis

One of the main challenges facing conflict resolution management in Lebanon is identifying the stakeholders who are prominent and constantly at the core of conflict resolution and establishing strong and effective communication and collaboration channels among these key stakeholders.

Social network is the metaphoric "glue" that holds organizations and government institutions together. It is characterized by trust, reciprocity, common values, and a structural connection (network) that could foster resilience and facilitate coordinated community action needed for social change. As seen from the network maps and analysis thus far, the social network comprises two dimensions: (a) bonding within group ties or "strong ties", or more simply stakeholders who always have the same connections and have developed over the years a closed "bubble" of networking; and (b) bridging, which is comprised of ties connecting distinct groups together or "weak ties". The following discussion and analysis will analyze these identified ties and identify challenges that would face any upcoming water project in the area. Furthermore, the analysis would allow for the identification of the actors who are perceived as most effective at conducting a water project in the area with minimal conflict.

**FIGURE 16:** Barriers and challenges to conflict resolution in water issues as described by stakeholders




### Conflict resolution

The first theme focused on identifying, as per the interview responses, the stakeholders most active in conflict resolution in the identified hotspots. Stakeholders identified with the highest Indegree scores (mentioned most by other stakeholders) were municipalities, political groups, and heads of religious groups. Theme five however, focuses on water-related conflicts. Within both themes, municipalities appear to play the biggest role in the network, having the highest degree centrality values (*Table 10, Table 11*). Communication appears to flow from higher order stakeholders, whether it be Governors and UoMs or international actors such as UNICEF or EU, down to municipalities that act at a local level. This is not surprising given that the surveys have shown conflict, particularly water-related conflict, to occur most often between citizens, or between citizens, municipalities, and project partners.

Political groups and religious authorities occupy a role like municipalities within these networks, more so in general conflicts. This can also be attributed to the local nature of conflicts, and often the sectarian or political motivations behind them. The role of political groups in resolution of conflict is one that can be contested. On one hand, political interference has been cited in the literature as a driver of water-related conflict and it was among the most frequently mentioned barriers and challenges to conflict resolution (*Figure 16*). Political interests and their protection may also give way to problems such as illegal access to and unfair distribution of resources. As one international NGO explained in an interview, political groups can leverage their support among residents and municipalities to protect their interests and access to resources, and thereby creating or prolonging conflicts, particularly over water.

However, political groups remain a major, active part of communities and governance structures. Several stakeholders have pointed out that often municipalities and the political or the sectarian groups represented within them are one in the same, and that municipalities can sometimes act within the interests of the dominating political forces. Therefore, in the absence of a well-established framework for conflict resolution, the role of both municipalities and political groups can be undermined.

Conflict resolution at the municipal level can be supported from larger, better-connected actors in the network. In the networks of Themes 1 and 5, regional and national stakeholders such as UoMs, Governors or Qa'emmaqams, and the MoEW have higher out-degree centrality values (*Table 11*), suggesting that they seek out other stakeholders more than they are sought out themselves. This puts them in a position to mediate and manage conflict resolution from an external perspective, and on a larger scale as determined within their mandates. Their role can curtail political influence and becomes more important when conflict is cross-municipal, as cited by some stakeholders.

International NGOS and international government agencies assume a similar position within the network. UNICEF, UNDP, UNHCR and EU have high degree and betweenness centrality values in the network of Theme 1 (*Table 10, Table 11, and Table 12*). This is expected given their mandates and role in supporting the government's development decision-making capacities and equitable reform. UNICEF also plays a role in supporting its WASH partners, such as WorldVision, SCI and ACF who themselves are highly connected in the network. The partnerships are highlighted well in the results, and WASH partners are important points of contact in the areas they work in. This is assumed to be what lends UNICEF its high eigenvector centrality, its 'popularity' within the network of Theme 1. Similarly, UNICEF has the highest betweenness centrality value in Theme 1, identified as having a high intermediary role in conflict resolution in the selected areas. Moreover, that would provide UNICEF with some influence on stakeholders in the area as a mediator for conflict resolution.

Notably, within the water-related conflict theme, Theme 6, UNICEF's centrality is diminished, and the role of local and national authorities is more prominent (*Table 25*). As above, water-related conflicts seem to involve particularly local intervention. Besides local and national authorities, even local NGOs are more prominent here, such as LOST which shows a high eigenvector centrality for this theme than others. Furthermore, BWE has a high degree and betweenness centrality in both conflict resolution networks, despite it not being within its general mandate, especially in conflicts not related to water. This can be explained by the fact that our stakeholder sample included actors mainly active within WASH. However, even within the WASH sector, conflict resolution does not fall entirely within BWE's mandate. Furthermore, the identification of BWE in multiple conflict identification themes further highlights the importance of water as a conflict component in the identified areas. Hence, a direct link and further proof that tackling water projects in the area with directly reduce conflict to a certain extent.

In areas where political influence is strong and relatively homogenous (i.e., parties not currently in conflict), tensions between locals does not often escalate, particularly with regards to water. In less homogenous areas or areas where political influence is not strong, conflict is more common.

**Knowledge, information, and technical exchange**

The knowledge, information and technical exchange network included overall big players, with the Baalbek-Hermel Governor, UNICEF, BWE and UNDP having the highest number of connections. These stakeholders are acting within their role, being administrative centers for demographic and water data, as well as influential NGOs collecting and generating large amounts of data in the Bekaa region. These stakeholders are also centers of expertise and technical know-how. How these organizations decimate their data and expertise becomes important in the framework of water peacebuilding projects. Stakeholders with strong ties are self-limiting, they can lead to what can be referred to as a filter bubble, where information and new ideas that result from interacting with new or diverse sets of stakeholders are blocked by the maintenance of the same connections within familiar homogenous circles.

Municipalities, for example, playing an active role in conflict resolution and facilitating water infrastructure projects within their jurisdiction, do not appear to be a big part of the knowledge exchange network (*Figure 10*). An opportunity is presented here to support municipalities and local actors with the knowledge and expertise they would need to effectively resolve conflicts and participate in decision-making processes of water projects they oversee.

**Water supply, quality, network maintenance, compliance and DRR**

As in Theme 2, the network of actors involved in projects for water supply, water quality, network maintenance, infrastructure compliance and DRR is dominated by strong international actors such as UNICEF, EU, UNDP, UNHCR, Oxfam, and UNICEF WASH partners. International NGOs and government agencies also have the highest influence in this network indicated by high eigenvector centrality values

(*Table 19, Figure 25 (Annex C)).* UNICEF has a high Eigenvector score, again representing its interest in this network and its connection to the most number of well connected stakeholders such as BWE, SCI, UNHCR, Oxfam and WorldVision. The Eigenvector network highlights the clustering within the water network, most likely attributed to partnerships UNICEF shares BWE and many international and local NGOs *(Table 19)*.

These organizations play an important role in addressing the needs of vulnerable communities, their access to good quality water and protection from natural disasters. They also fill in a gap in financing water projects, often being donors themselves. The influence of MoEW in this network is weaker than expected (eigenvector centrality< 0.35, Annex B), especially regarding its role in setting necessary regulations in the water sector, monitoring compliance, and licensing water extraction.

Moreover, BWE and municipalities have the highest betweenness centrality in this network which also indicates that they remain an active stakeholder, but mostly as a mediator facilitating the projects conducted by INGOs in the area.

It is important to note that the high betweenness centrality of organizations such as the UNICEF, UNDP, USAID, EU, and WorldVision may have negative impacts on the entire network. Should these organizations halt operations in the Bekaa or the country, their high betweenness centrality makes the network vulnerable to fragmentation. When betweenness is centralized within these actors, strong links to them become required to plan, implement or fund water projects, especially for the communities which they serve. This could result in perceiving these actors as mandatory bottlenecks. This could be counteracted by the betweenness of BWE, municipalities, MoEW and UoMs such as Deir el Ahmar in Baalbek and El Sahel in West Bekaa, and the presence of a large network of local public and private sector actors (*Figure 23* (Annex C)).

**Funding water projects**

There is a clear reliance on international aid and support from international NGOs for funding water projects, as indicated by the high centrality of large organizations such as UNICEF, USAID, and EU across the three metrics (*Table 20, Table 21*). The Baalbek-Hermel Governorate has a high Eigenvector score, meaning it is well connected to funding organizations that are highly connected themselves in the network, which provides an opportunity to for steady finance flows for projects in the area. *(Table 22).*

This not surprising given the established history of international development aid in the country, especially after the onset of the Syrian War and influx of refugees into the country and the Bekaa particularly. The need for international, hard currency financing is now even more relevant because of the current economic crisis which introduced additional challenges including the "dollarization" of materials, machinery, and fuel essential to water development projects, and the weakening of capacities of local public and private sectors.

Local actors in this network include most prominently, the Baalbek-Hermel Governorate, UoMs of Deir el Ahmar and Al Bohayra, the Qaa Municipality in Baalbek, MoEW, and local WASH sector NGOs, SAWA Group and LOST (*Figure 12*). Their connection in the network varies, with the Baalbek-Hermel Governorate being the most connected, followed variably by local NGOs and UoM of Deir el Ahmar. This raises the same concern regarding bottlenecks as mentioned above, whereby the betweenness centrality of highly connected stakeholders may create bias in the distribution of or access to international aid and funds. It also raises a question over the role of donors in ensuring funds are targeted according to viability of water projects and not purely influenced by existing relationships with stakeholders.

**Key players in water peacebuilding projects**

As mentioned above, "dollarization" of fuel and materials, and the lack of funds for the procurement of resources and conflict resolution have been major drivers of water-related conflict. Hence the popularity of stakeholders such as USAID and UNICEF especially among UoMs suggests securing funds would be critical first step in future projects. Of course, funding may not be the only reason actors such as USAID and UNICEF would be sought out for water peacebuilding projects, but rather their experience, leadership, and connections in WASH and development projects make them desirable partners. Stakeholders such as UoMs frequently mentioned old or existing partnerships and organizations they have had experience planning or implementing projects with. This indicates their willingness to maintain relationships with existing stakeholders and explains the high betweenness centrality of UoMs in this network.

Stakeholders also emphasized role of municipalities and the need to support them in creating frameworks for collaboration and participatory water governance that can also feed into conflict resolution. The role of local authorities was emphasized given their ability to communicate with their residents and local powerful families or clans involved in conflict. The role of MoEW was highlighted by its high eigenvector centrality within this network. As stakeholders mentioned, MoEW should play a vital role in ensuring equitable distribution of water resources and cracking down on illegal wells or other access points for illegal water extraction. Its role is both necessary for the success of projects and should be further supported and enhanced by them.

### Challenges facing water projects in the area

The analysis shows that there are a plethora of challenges facing the implementation of a water project in the area, chief amongst them is the "too many cooks in the kitchen" matter of it all. Based on the analysis of the responses, stakeholders linked to conflict resolution include municipalities, heads of religious sects, political groups which include tribal families that mediates conflicts in some of these areas. However, when discussing the flow of information, knowledge, and expertise, (whether in conflict resolution management or in water-related projects) or data exchange, these stakeholders are not even implicated or mentioned. More so, the responses highlight a heavy reliance on the international community to finance conflict resolution projects and water projects. All of which proves that there is a paralyzing dependence on the international community for funding and implementation of conflict resolution projects in the area.

Another challenge is the structural gap when dealing with information dissemination within the networks. For instance, municipalities and local authorities are prominent actors in conflict resolution, however, they are not involved in data, knowledge, and expertise sharing, nor identified as actors that would have to be involved in water project implementation in their areas. Which showcases a huge gap in communications amongst all the stakeholders in the network which can be attributed to the "boys club" culture, where major actors who are in the habit of always working together leave little-to-no room for additional stakeholders to be integrated within the network, known otherwise in social network analysis as developing "strong ties".

## PROJECT RECOMMENDATIONS

### Priority actions

- Support conflict resolution capacities of local authorities and community members that have demonstrated a central role in addressing local water-related conflicts. This could include the exchange of knowledge of local and international NGOs on best practices in conflict resolution and mediation. This would also be an opportunity for sharing knowledge and experience in peacebuilding among countries in the Global South.
- Support the use of local know-how in maintenance and the provision of equipment used in WASH sector or other infrastructure projects. This would include the empowerment of local business and tradesmanship especially in the production and installation of components. This could safeguard local livelihoods, reducing the strain of socio-economic hardships that increase tensions. It also reduces cost of maintenance resulting from dollarization and expensive materials. Local and international NGOs would be able to support local businesses by build capacities and expertise, and empowering small-scale producers.
- Support small scale investments in water saving fixtures for local business to optimize their water use and savings, especially those within the service industry. These could include water saving faucets, pressure reducing valves, recirculating hot-water systems, or rainwater harvesting systems that could supplement primary water supply.
- Establish a formal public consultation process on draft plans, regulations, and laws in the WASH sector and adopt mechanisms that would allow the participation of interested stakeholders. Public fora or town hall meetings would be held to allow dialogue between stakeholders and target communities prior to the implementation of development projects or regulation changes. NGOs and IGOs supporting such projects should facilitate and encourage the mainstreaming of these consultations.

## PROJECT RECOMMENDATIONS

### Water Resource Management

- Support the establishment or reinforcement of oversight mechanisms for water management within local and regional authorities including municipalities, UoMs, and RWEs. Oversight should be exercised on coordination, operations, and procurement processes within these institutions to ensure accountability and transparency in the management and supply of water resources, and in the implementation of development and infrastructure projects. When municipal administrative capacities or governance are weak, projects are either intentionally or unintentionally poorly coordinated and implemented, leaving room for corruption through the contracting of public services' provisioning. Intermediaries can seize opportunities for rent-seeking or personal favors (UNDP, 2017). Oversight can be supported by strengthening the role of the national Central Inspection in municipalities and RWEs or through the establishment of a decentralized administration or commission similar to it. This inspection unit must have the mandate to supervise, investigate, and audit municipal operations, to advise on municipal decisions and processes, and coordinate with regional and national authorities. Decentralized inspection units can also be supported by local commissions or by public consultations allowing the participation of community members and interested stakeholders, from local NGOS and COOPs, to INGOs, IGOs or funding agencies, in the oversight process. Similar oversight and inspection units could be established for RWEs, with additional responsibilities to oversee water accounting processes.
- Introduce bulk metering or district metering into existing water supply networks at checkpoints between water sources and municipal distribution points. This allows for the accounting of water supplied at the source and water used or distributed to a town or municipality. Data collected by these meters would help ensure equitable distribution of water resources to different areas based on identified water needs of each area (for example, number of households or irrigation needs). Data collected by the meters can also be used to detect leaks or unauthorized connections in the networks and reduce the quantity of lost or non-revenue water. RWEs should be responsible for installing and managing these meters, however the data should be openly and freely accessible. The meters should be smart meters, able to connect to a publicly available platforms or database to promote transparency and participation of concerned communities and stakeholders. An ICT-based initiative such as this one also promotes anti-corruption and can be facilitated through the implementation of the Right to Access Information Law. The public availability of the data would also be in the interest organizations working in the WASH sector in Lebanon such as UNICEF, USAID, EU, Oxfam, SCI and WorldVision, which would incentivize their support in installation of bulk meters.
- Strengthen control over the drilling of wells and improve the authorization process of permit-granting. This currently falls within the mandate of the MoEW. MoEW can be supported in the authorization process by the introduction of an intermediary body between the permit applicant and MoEW. RWEs are the institution most poised for this intermediary role, given their mandates and access to regional and local data and information that can be used in assessment of applications. The RWE would be able to investigate drilling plans and assess whether a proposed well could be substituted with existing sources that exist within proximity or that meet the needs of the applicant. If the RWE deems the need cannot be met by existing sources or alternatives, the application is raised to MoEW for further study. This two-step process is an opportunity to decentralize the permit-seeking and well authorization process. Its success would reduce haphazard or illegal well drilling that impacts water availability and equitability, limits corruption, and strengthens the role of RWEs in safeguarding water resources in their jurisdiction. However, as mentioned by stakeholders, including MoEW and BWE, both institutions must be supported in expertise, capacities, and financing to optimally assume their roles and responsibilities.

## PROJECT RECOMMENDATIONS

### Infrastructure Projects

- Support the integration of renewable energy in the operation of water infrastructure including but not limited to pumping stations and wastewater treatment facilities. The majority of interviewed stakeholders highlighted the priority of installation of solar powered pumps. The investment in solar powered pumps reduces the reliance on expensive fuel and national electric supply and ensures a more steady and reliable extraction and distribution of water, that would be also cheaper on the long run. Renewable energy projects could go beyond pumping stations to introduce solar farms that could be shared between municipalities on common or adjacent municipal land. These solar farms can meet the needs of not only the WASH sector and pumping, but also supply supplementary municipal or household energy needs. Planning these farms between multiple municipalities, or at a UoM level, would promote collaboration between towns and communities. The potential of conflict would be limited when needs of all areas are met collaboratively.
- Introduce and support the investment in gated automated hydrant systems for supplementary water supply. The systems can be accessed through 3-4 stations across a region and supplied through a common source or communal tank. Users would be able to purchase additional water supply at these stations using prepaid cards containing unique identifiers. The automated system would distribute a specified quota of water through the existing water network directly to point of use. Such a system could be useful for irrigation applications, reducing the cost of secondary water supply (e.g., transportation costs for water tankers), providing a more equitable water supply, and reducing competition and conflicts between private water providers as some stakeholders have indicated.
- Ensure the optimal operation of wastewater treatment facilities and wastewater networks. Existing wastewater treatment facilities should be revisited and evaluated, with investment directed towards maintenance and increasing capacities. Mapping exercises should be used to identify areas lacking wastewater treatment facilities, and to direct investment to establishing plants or networks and connections to the nearest facility. Wastewater networks could also be improved by improving the design of local septic tanks which would not require pumping but would discharge into a leach field. Sludge from septic tanks could also be managed within the municipal collection system, where drying beds could be created with solid waste facilities and used for daily cover applications. Properly managed wastewater and solid waste facilities reduce the health impacts on communities, whether from water contamination or air pollution.

# ANNEXES

# Annex A

**TABLE 29:** Questions included in the questionnaire used in Phase II

| QUESTION |
| --- |
| Please identify and list organizations, institutions or groups that have worked on conflict resolution and peacebuilding in your area. How frequently do you have contact with them per year? |
| Please identify any religious and/or political group that have worked on conflict resolution in your area and how frequently do you have contact with them per year |
| List the organizations or institutions with whom you have shared data and information (information includes raw, and/or analyzed and contextualized data, shared databases, reports, findings) in relation to conflict resolution. Check the box that describes how often you have shared official information through formal and informal channels, whether through consultation meetings, one-on-one meetings, or email, for the past year |
| List the organizations with whom you have shared expertise (expertise includes exchange of knowledge and know-how through capacity building, trainings, the sharing of skills, consultancies, etc.) Check the box that describes how often you have shared knowledge with each organization<br>List the organizations that you have communicated with regarding water quality and network maintenance Check the box that describes how often you have communicated with each organization. |
| List the organizations that you have communicated with regarding natural disaster prevention or mitigation (Floods, droughts, etc.) Check the box that describes how often you have communicated with each organization |
| List the organizations known in this field that fund any water projects. Check the box that describes how often you have communicated with each organization. |
| Who do you normally contact for water-related conflict in your area? How frequently do you have contact with them per year? |
| List the organizations that you think are key players who would be effective to implement the suggested project. Why? |
| Check the box that describes the type of relationship you have with all the organizations you have previously mentioned. The relationship can be informal, where engagements or interactions occur among people outside the established structure of any organization, or formal, due to a mandate or memorandum of understanding between organizations, meaning that an agreement exists between two organizations outlining their working relationship, and signaling the will of both parties on working together. |
| **CONFLICT ANALYSIS QUESTIONS** |
| Are you aware of water problems in your area of work? If yes, then what are they?<br>Do water problems escalate into water-related conflict?<br>What form does the conflict take? What drives this escalation?<br>What actors and groups are usually involved in the conflict? Why?<br>How have these problems been addressed and by whom?<br>If addressed, do you believe it is a sustainable solution that tackles the structural basis of the conflict?<br>What do you see are the barriers and challenges for conflict resolution? |

# Annex B

**TABLE 30:** Indicator scores of all districts mapped in Phase I

| DISTRICT | WATER INDICATOR SCORE | TENSION INDICATOR SCORE | SOCIO-ECONOMIC INDICATOR SCORE | COMPOSITE SCORE |
|---|---|---|---|---|
| Akkar | 3 | 1 | 3 | 2.333333 |
| Aley | 3 | 1 | 1 | 1.666667 |
| Baabda | 3 | 2 | 2 | 2.333333 |
| Baalbek | 3 | 3 | 3 | 3 |
| Batroun | 2 | 2 | 2 | 2 |
| Bcharre | 2 | 2 | 2 | 2 |
| Beirut | 3 | 2 | 2 | 2.333333 |
| Bint Jubail | 1 | 2 | 2 | 1.666667 |
| Chouf | 1 | 1 | 2 | 1.333333 |
| El Metn | 3 | 2 | 2 | 2.333333 |
| Hasbaiya | 2 | 2 | 2 | 2 |
| Hermel | 2 | 3 | 3 | 2.666667 |
| Jezzine | 1 | 1 | 2 | 1.333333 |
| Jubail | 2 | 1 | 1 | 1.333333 |
| Kasrouane | 3 | 2 | 1 | 2 |
| Koura | 2 | 2 | 1 | 1.666667 |
| Marjaayoun | 1 | 3 | 2 | 2 |
| Minieh-Danieh | 3 | 2 | 3 | 2.666667 |
| Nabatiye | 1 | 2 | 2 | 1.666667 |
| Rachiaya | 2 | 2 | 2 | 2 |
| Saida | 2 | 3 | 2 | 2.333333 |
| Sour | 2 | 2 | 2 | 2 |
| Tripoli | 2 | 3 | 2 | 2.333333 |
| West Bekaa | 3 | 3 | 3 | 3 |
| Zahle | 2 | 2 | 2 | 2 |
| Zgharta | 3 | 2 | 2 | 2.333333 |

**TABLE 31:** SNA metrics of the conflict resolution network

| STAKEHOLDER | METRIC | | | |
|---|---|---|---|---|
| | INDEGREE | OUTDEGREE | BETWEENNESS | EIGENVECTOR |
| Municipalities | 11 | 0 | 0 | 0.692 |
| Political Groups | 11 | 0 | 0 | 0.682 |
| Heads of religious sect | 7 | 0 | 0 | 0.584 |
| WorldVision | 6 | 1 | 4.5 | 0.753 |
| BWE | 5 | 5 | 74.333 | 0.934 |
| UNICEF | 5 | 8 | 79.5 | 1 |
| UNHCR | 4 | 2 | 20 | 0.382 |
| UNDP | 4 | 8 | 41.167 | 0.774 |
| Familial/Tribal Mediators | 4 | 0 | 0 | 0.235 |
| ACF | 3 | 2 | 6.333 | 0.599 |
| LOST | 3 | 4 | 36.5 | 0.679 |
| Governors | 3 | 0 | 0 | 0.196 |
| Oxfam | 2 | 4 | 20.167 | 0.687 |
| NRC | 2 | 0 | 0 | 0.186 |
| Parliementary Representatives | 2 | 0 | 0 | 0.173 |
| Heads of Unions | 2 | 0 | 0 | 0.118 |
| Mayors | 2 | 0 | 0 | 0.135 |
| Intersos | 2 | 0 | 0 | 0.071 |
| Local NGOs | 2 | 0 | 0 | 0.177 |
| MoEW | 1 | 5 | 12.5 | 0.491 |
| Sawa Group | 1 | 3 | 0 | 0.455 |
| Religious Groups | 1 | 0 | 0 | 0.14 |
| GVC | 1 | 0 | 0 | 0.126 |
| Solidarite International | 1 | 0 | 0 | 0.126 |
| USAID | 1 | 0 | 0 | 0.099 |
| GIZ | 1 | 0 | 0 | 0.099 |
| VNGI | 1 | 0 | 0 | 0.099 |
| ISF | 1 | 0 | 0 | 0.022 |
| LAF | 1 | 0 | 0 | 0.022 |
| Kherbet Rouha Municipality | 1 | 0 | 0 | 0.039 |
| Qaraaon Municipality | 1 | 0 | 0 | 0.039 |
| Aitanit Municipality | 1 | 0 | 0 | 0.039 |
| Dar El Fatwa | 1 | 0 | 0 | 0.057 |

| STAKEHOLDER | METRIC | | | |
|---|---|---|---|---|
| | INDEGREE | OUTDEGREE | BETWEENNESS | EIGENVECTOR |
| SCI | 1 | 0 | 0 | 0.15 |
| Arsal Municipality | 1 | 0 | 0 | 0.15 |
| Iaat Municipality | 1 | 0 | 0 | 0.15 |
| Marj Municipality | 1 | 0 | 0 | 0.15 |
| DRC | 1 | 0 | 0 | 0.061 |
| COOPs | 1 | 0 | 0 | 0.116 |
| MoSA | 1 | 0 | 0 | 0.116 |
| EU | 0 | 10 | 0 | 0.837 |
| Qaa Municipality | 0 | 3 | 0 | 0.264 |
| UoM of Al Bohayra | 0 | 2 | 0 | 0.206 |
| UoM of Deir El Ahmar | 0 | 10 | 0 | 0.658 |
| UoM of East Baalbek | 0 | 3 | 0 | 0.126 |
| UoM of North Baalbek | 0 | 3 | 0 | 0.24 |
| UoM of Baalbek | 0 | 4 | 0 | 0.144 |
| Baalbek-Hermel Governorate | 0 | 5 | 0 | 0.54 |
| LRA | 0 | 1 | 0 | 0.104 |
| SDC | 0 | 5 | 0 | 0.262 |
| UoM of El Sahel | 0 | 2 | 0 | 0.068 |
| Bekaa Governorate | 0 | 8 | 0 | 0.404 |
| UoM of Shallal | 0 | 1 | 0 | 0.102 |
| SCI | 0 | 2 | 0 | 0.133 |

**TABLE 32:** Knowledge, information, and technical exchange SNA metrics

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| Baalbek-Hermel Governorate | 32 | 615.991 | 0.812 |
| UNICEF | 28 | 888.455 | 1 |
| BWE | 21 | 266.005 | 0.746 |
| UNDP | 21 | 607.625 | 0.491 |
| UoM of Deir El Ahmar | 12 | 87.457 | 0.553 |
| Oxfam | 12 | 147.242 | 0.587 |
| USAID | 11 | 72.489 | 0.479 |
| WorldVision | 10 | 86.602 | 0.497 |
| SDC | 9 | 25.515 | 0.496 |
| Local NGOs | 9 | 96.229 | 0.248 |
| UoM of Baalbek | 8 | 134.298 | 0.211 |
| LOST | 8 | 21.624 | 0.442 |
| UoM of Shallal | 8 | 67.603 | 0.378 |
| UoM of Al Bohayra | 7 | 64.932 | 0.191 |
| EU | 6 | 22.407 | 0.334 |
| Municipalities | 6 | 90.958 | 0.227 |
| Qaa Municipality | 5 | 61.5 | 0.103 |
| UoM of East Baalbek | 5 | 63.999 | 0.173 |
| UoM of North Baalbek | 5 | 4.946 | 0.091 |
| MoEW | 5 | 3.757 | 0.266 |
| SAWA Group | 5 | 111.984 | 0.199 |
| SCI | 5 | 61 | 0.231 |
| GVC | 5 | 49.31 | 0.246 |
| UNHCR | 5 | 19.762 | 0.282 |
| INGOs | 5 | 1.8 | 0.226 |
| LRC | 4 | 11.637 | 0.125 |
| DRC | 4 | 61 | 0.155 |
| LRA | 3 | 1.344 | 0.167 |
| Solidarite International | 3 | 63.297 | 0.039 |
| AFD | 3 | 8.433 | 0.218 |
| MoSA | 3 | 0.8 | 0.072 |
| WFP | 3 | 0 | 0.241 |
| UoM of El Sahel | 2 | 0 | 0.028 |

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| NRC | 2 | 0 | 0.161 |
| Political Groups | 2 | 0 | 0.055 |
| RMF | 2 | 0 | 0.035 |
| VNGI | 2 | 0 | 0.102 |
| GIZ | 2 | 0 | 0.149 |
| FAO | 2 | 0 | 0.149 |
| LIBNOR | 2 | 0 | 0.149 |
| Mercy Corps | 2 | 0 | 0.149 |
| CARE | 2 | 0 | 0.149 |
| COSV | 2 | 0 | 0.149 |
| TIKA | 2 | 0 | 0.149 |
| Plan International | 2 | 0 | 0.149 |
| ACF | 2 | 0 | 0.11 |
| French Embassy | 2 | 0 | 0.069 |
| Central Inspection | 1 | 0 | 0.069 |
| MoF | 1 | 0 | 0.069 |
| ICRC | 1 | 0 | 0.069 |
| ISF | 1 | 0 | 0.009 |
| MoIM | 1 | 0 | 0.016 |
| CDR | 1 | 0 | 0.019 |
| British Council | 1 | 0 | 0.019 |
| MoA | 1 | 0 | 0.054 |
| IRC | 1 | 0 | 0.018 |
| LAFI | 1 | 0 | 0.004 |
| KfW | 1 | 0 | 0.045 |
| DfID | 1 | 0 | 0.045 |
| US-BPRM | 1 | 0 | 0.045 |
| COOPs | 1 | 0 | 0.045 |
| Religious Groups | 1 | 0 | 0.045 |
| NABAD | 1 | 0 | 0.021 |

**TABLE 33:** Water supply, quality, network maintenance, and natural disaster risk management SNA metrics

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| UNICEF | 35 | 348.473 | 1 |
| BWE | 28 | 568.438 | 0.731 |
| EU | 20 | 217.696 | 0.501 |
| UNDP | 19 | 351.163 | 0.109 |
| WorldVision | 18 | 160.585 | 0.599 |
| UNHCR | 17 | 116.226 | 0.518 |
| SCI | 17 | 106.667 | 0.607 |
| Municipalities | 17 | 359.706 | 0.248 |
| Oxfam | 15 | 95.146 | 0.572 |
| UoM of Deir El Ahmar | 14 | 347.982 | 0.294 |
| ACF | 13 | 80.18 | 0.35 |
| USAID | 12 | 304.516 | 0.107 |
| LOST | 11 | 109.824 | 0.393 |
| SAWA Group | 11 | 23.671 | 0.469 |
| MoEW | 10 | 260.412 | 0.24 |
| NRC | 8 | 5.591 | 0.334 |
| Baalbek-Hermel Governorate | 7 | 115.228 | 0.125 |
| Local NGOs | 7 | 44.78 | 0.078 |
| UoM of El Sahel | 6 | 151.29 | 0.049 |
| Qaa Municipality | 5 | 73.595 | 0.084 |
| UoM of East Baalbek | 5 | 65.706 | 0.093 |
| Solidarite International | 5 | 74.739 | 0.048 |
| DRM Unit | 5 | 75.956 | 0.086 |
| LRC | 5 | 33.668 | 0.158 |
| UoM of Baalbek | 4 | 72.197 | 0.07 |
| SDC | 4 | 0 | 0.106 |
| Qa'emmaqam West Bekaa | 4 | 28.982 | 0.095 |
| UoM of Al Bohayra | 3 | 3.455 | 0.079 |
| LRA | 3 | 4.4 | 0.02 |
| Qaa Municipality | 3 | 65.728 | 0.063 |
| INGOs | 3 | 0.667 | 0.053 |
| GVC | 3 | 4.643 | 0.069 |
| AFD | 3 | 0 | 0.096 |

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| Political Groups | 3 | 0 | 0.021 |
| Religious Groups | 3 | 0 | 0.021 |
| UoM of North Baalbek | 2 | 64 | 0.016 |
| UoM of Shallal | 2 | 64 | 0.015 |
| Solidarite International | 2 | 0 | 0.064 |
| Governors | 2 | 6.765 | 0.023 |
| MEDAIR | 2 | 0 | 0.063 |
| MoSA | 2 | 0 | 0.014 |
| VNGI | 2 | 4.553 | 0.022 |
| Private Sector | 2 | 2.31 | 0.045 |
| NABAD | 2 | 0.063 | 0.077 |
| UoM of Shallal | 1 | 0 | 0.006 |
| UoM of Al Bohayra | 1 | 0 | 0.047 |
| UoM of Baalbek | 1 | 0 | 0.047 |
| HRC | 1 | 0 | 0.005 |
| ESFD | 1 | 0 | 0.006 |
| Heads of Unions | 1 | 0 | 0.001 |
| Council of Ministers | 1 | 0 | 0.004 |
| KfW | 1 | 0 | 0.015 |
| UMI | 1 | 0 | 0.015 |
| Contracting Private Sector | 1 | 0 | 0.003 |
| NLWE | 1 | 0 | 0.007 |
| SLWE | 1 | 0 | 0.007 |
| BMLWE | 1 | 0 | 0.007 |
| Local Community | 1 | 0 | 0.004 |
| GIZ | 1 | 0 | 0.019 |
| Baalbek Municipality | 1 | 0 | 0.008 |
| ISF | 1 | 0 | 0.025 |
| MoE | 1 | 0 | 0.037 |
| Mayors | 1 | 0 | 0.007 |
| Parliementary Representatives | 1 | 0 | 0.001 |
| Intersos | 1 | 0 | 0.003 |
| ICF | 1 | 0 | 0.003 |

**TABLE 34:** Funding of water projects SNA metrics

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| Baalbek-Hermel Governorate | 16 | 421.959 | 0.713 |
| UNICEF | 11 | 323.785 | 1 |
| EU | 10 | 156.437 | 0.821 |
| SAWA Group | 8 | 95.9 | 0.662 |
| USAID | 8 | 174.038 | 0.473 |
| UoM of Deir El Ahmar | 7 | 139.548 | 0.602 |
| LOST | 6 | 51.321 | 0.707 |
| SCI | 6 | 65.393 | 0.63 |
| UNDP | 6 | 38.7 | 0.509 |
| Qaa Municipality | 5 | 75.319 | 0.367 |
| MoEW | 5 | 40.356 | 0.542 |
| ACF | 4 | 64.287 | 0.457 |
| Oxfam | 4 | 67.27 | 0.398 |
| UNHCR | 4 | 57.922 | 0.412 |
| UoM of Al Bohayra | 3 | 87 | 0.09 |
| LRA | 3 | 22.147 | 0.408 |
| Solidarite International | 3 | 17.081 | 0.353 |
| WorldVision | 3 | 59.911 | 0.352 |
| UoM of East Baalbek | 2 | 44 | 0.184 |
| UoM of Baalbek | 2 | 21.882 | 0.199 |
| AFD | 2 | 6.589 | 0.273 |
| KfW | 2 | 0 | 0.243 |
| GVC | 2 | 29.224 | 0.192 |
| GIZ | 2 | 15.929 | 0.234 |
| Local NGOs | 2 | 6 | 0.12 |
| INGOs | 2 | 1 | 0.175 |
| BWE | 1 | 0 | 0.071 |
| UoM of El Sahel | 1 | 0 | 0.073 |
| Qa'emmaqam West Bekaa | 1 | 0 | 0.081 |
| ESFD | 1 | 0 | 0.065 |
| Religious Groups | 1 | 0 | 0.016 |
| CDR | 1 | 0 | 0.016 |
| VNGI | 1 | 0 | 0.107 |

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| SDC | 1 | 0 | 0.033 |
| DRC | 1 | 0 | 0.127 |
| FAO | 1 | 0 | 0.127 |
| LIBNOR | 1 | 0 | 0.127 |
| Mercy Corps | 1 | 0 | 0.127 |
| CARE | 1 | 0 | 0.127 |
| COSV | 1 | 0 | 0.127 |
| TIKA | 1 | 0 | 0.127 |
| WFP | 1 | 0 | 0.127 |
| Plan International | 1 | 0 | 0.127 |
| Solidarite International | 1 | 0 | 0.112 |
| LebRelief | 1 | 0 | 0.118 |
| DPNA | 1 | 0 | 0.118 |

**TABLE 35:** Water-related conflict resolution SNA metrics

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| Municipalities | 11 | 239.2 | 1 |
| BWE | 6 | 72.333 | 0.506 |
| Qa'emmaqam West Bekaa | 4 | 117.6 | 0.376 |
| MoEW | 4 | 78 | 0.401 |
| SCI | 3 | 64.133 | 0.449 |
| WorldVision | 3 | 30.067 | 0.202 |
| Governors | 3 | 37.5 | 0.265 |
| ISF | 3 | 40.733 | 0.153 |
| UoM of Deir El Ahmar | 2 | 27 | 0.032 |
| Baablek Governorate | 2 | 7.567 | 0.074 |
| LOST | 2 | 8.567 | 0.408 |
| Oxfam | 2 | 8.567 | 0.408 |
| UNHCR | 2 | 9.5 | 0.103 |
| UoM of El Sahel | 2 | 28.5 | 0.299 |
| Political Groups | 2 | 52 | 0.111 |
| INGOs | 2 | 16.833 | 0.122 |
| Local NGOs | 2 | 14.9 | 0.156 |
| UNICEF | 2 | 6 | 0.082 |
| ACF | 1 | 0 | 0.271 |
| Qaa Municipality | 1 | 0 | 0 |
| UoM of Al Bohayra | 1 | 0 | 0.271 |
| UoM of Shallal | 1 | 0 | 0.041 |
| UoM of Baalbek | 1 | 0 | 0.271 |
| LRA | 1 | 0 | 0.072 |
| SAWA Group | 1 | 0 | 0.271 |
| Solidarite International | 1 | 0 | 0.271 |
| Mayors | 1 | 0 | 0.137 |
| Parliementary Representatives | 1 | 0 | 0 |
| Religious Groups | 1 | 0 | 0.009 |
| MoIM | 1 | 0 | 0.109 |
| LAF | 1 | 0 | 0.109 |

**TABLE 36:** Key players in peacebuilding projects SNA metrics

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| USAID | 9 | 148.52 | 0.988 |
| UNICEF | 8 | 194.08 | 0.68 |
| UoM of East Baalbek | 7 | 111.881 | 0.937 |
| MoEW | 7 | 98.629 | 1 |
| UoM of Shallal | 6 | 125.211 | 0.555 |
| WorldVision | 6 | 80.468 | 0.602 |
| UNDP | 6 | 77.253 | 0.455 |
| Municipalities | 6 | 42.131 | 0.922 |
| UoM of Deir El Ahmar | 5 | 99.093 | 0.605 |
| UNHCR | 5 | 55.765 | 0.409 |
| INGOs | 5 | 47.212 | 0.736 |
| BWE | 5 | 36.614 | 0.593 |
| Solidarite International | 4 | 10.279 | 0.69 |
| Qaa Municipality | 3 | 25.971 | 0.329 |
| LOST | 3 | 35 | 0.242 |
| EU | 2 | 5.133 | 0.286 |
| UoM of Al Bohayra | 2 | 4.886 | 0.253 |
| UoM of Baalbek | 2 | 15.887 | 0.167 |
| Baalbek-Hermel Governorate | 2 | 3.333 | 0.306 |
| LRA | 2 | 0 | 0.408 |
| Oxfam | 2 | 1.633 | 0.321 |
| SAWA Group | 2 | 6.983 | 0.153 |
| SDC | 2 | 7.35 | 0.244 |
| GVC | 2 | 5.525 | 0.105 |
| ACF | 2 | 4.076 | 0.119 |
| Local NGOs | 2 | 7.088 | 0.337 |
| SCI | 1 | 0 | 0.144 |
| UoM of El Sahel | 1 | 0 | 0.21 |
| Qa'emmaqam West Bekaa | 1 | 0 | 0.097 |
| GIZ | 1 | 0 | 0.128 |
| EDL | 1 | 0 | 0.199 |

| STAKEHOLDER | METRIC | | |
|---|---|---|---|
| | DEGREE | BETWEENNESS | EIGENVECTOR |
| French Embassy | 1 | 0 | 0.118 |
| World Bank | 1 | 0 | 0.118 |
| WFP | 1 | 0 | 0.051 |
| Governors | 1 | 0 | 0.212 |
| IHE-Delft | 1 | 0 | 0.144 |
| RWEs | 1 | 0 | 0.21 |

# Annex C

**FIGURE 17:** Conflict resolution network map showing betweenness centrality as a function of the color of nodes. The colors graduate from purple representing the lowest values and blue representing the highest values. Maroon arrows represent interactions between organizations focused on conflict resolution, and the red arrows represent the interactions with political and religious groups in relation to conflict resolution

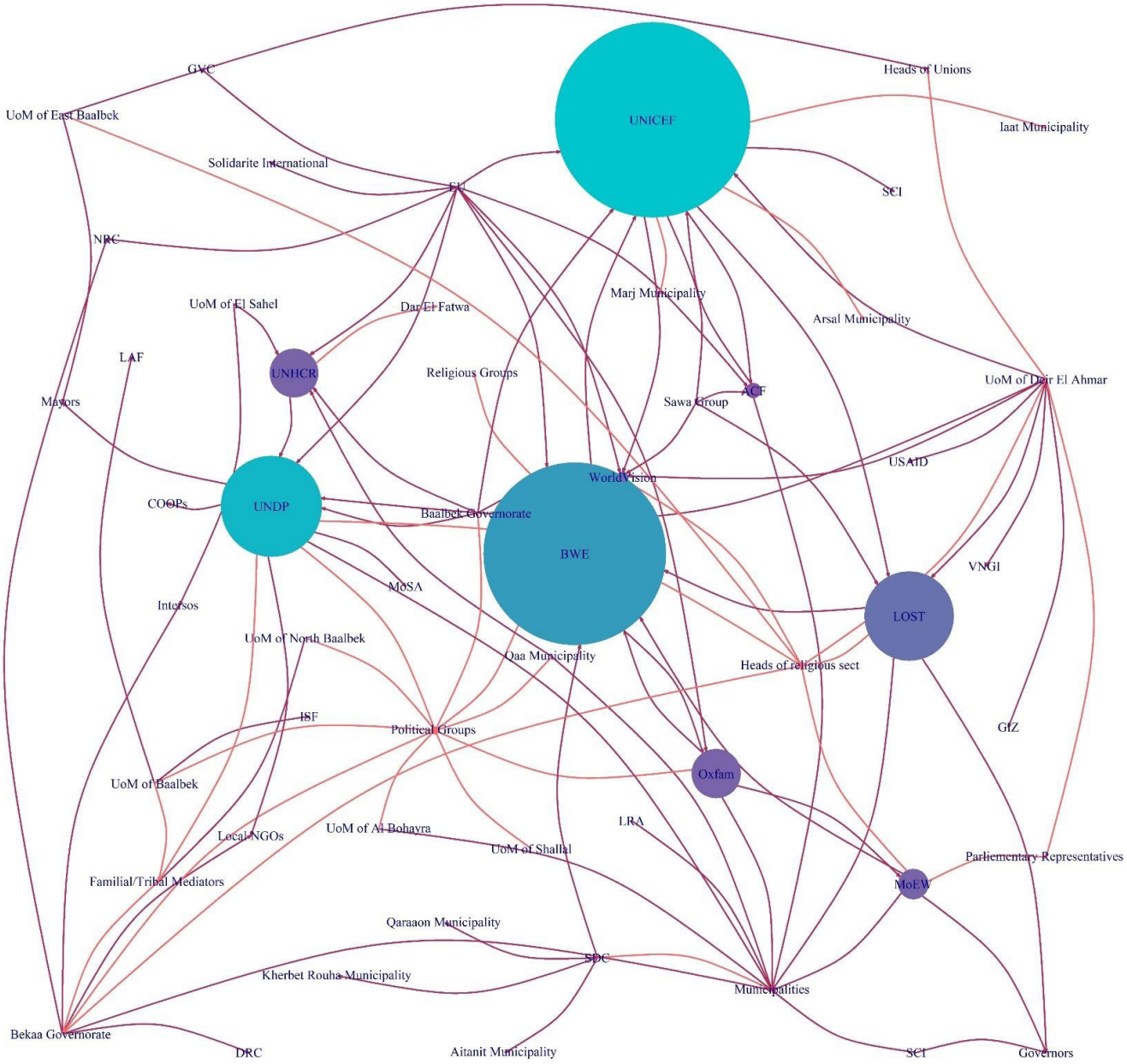


**FIGURE 18:** Conflict resolution network map showing degree centrality as a function of the color of nodes. The colors graduate from purple representing the lowest values and blue representing the highest values. Maroon arrows represent interactions between organizations focused on conflict resolution, and the red arrows represent the interactions with political and religious groups in relation to conflict resolution

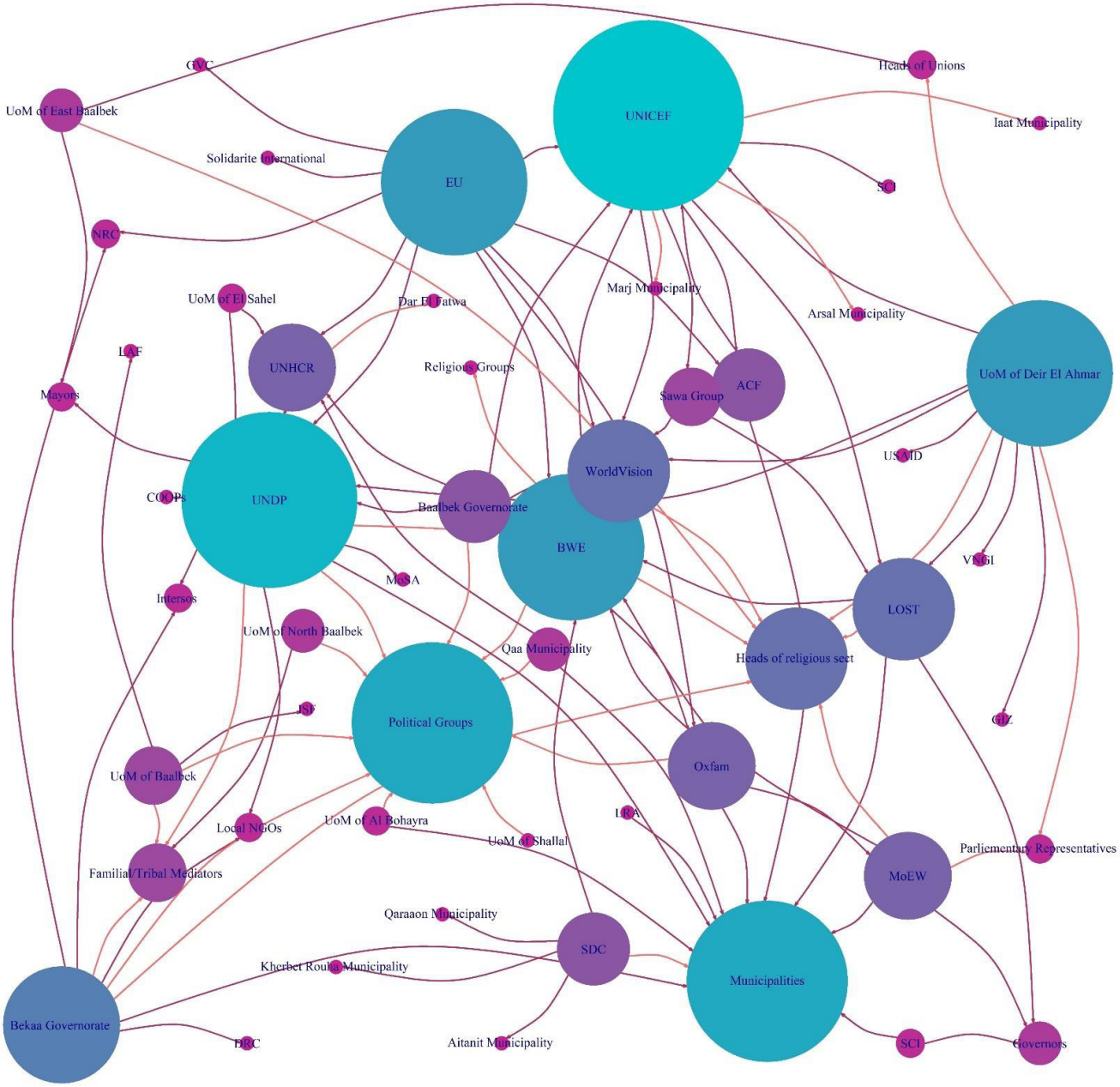


**FIGURE 19:** Conflict resolution network map showing eigenvector centrality as a function of the color of nodes. The colors graduate from purple representing the lowest values and blue representing the highest values. Maroon arrows represent interactions between organizations focused on conflict resolution, and the red arrows represent the interactions with political and religious groups in relation to conflict resolution

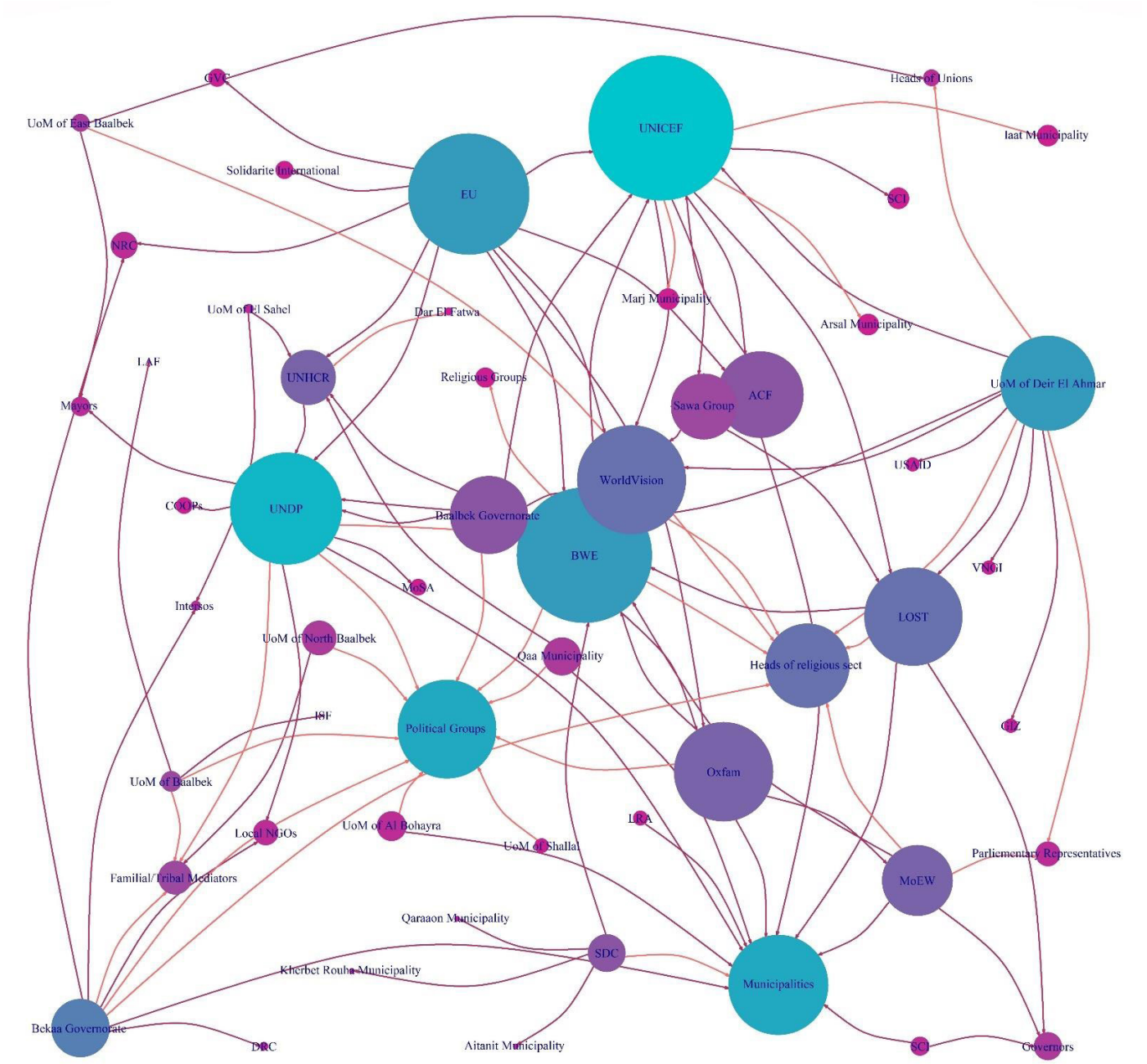


**FIGURE 20:** Knowledge, information, and technical exchange network map showing betweenness centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values. Pink arrows represent data and information sharing, and the green arrows represent sharing of expertise

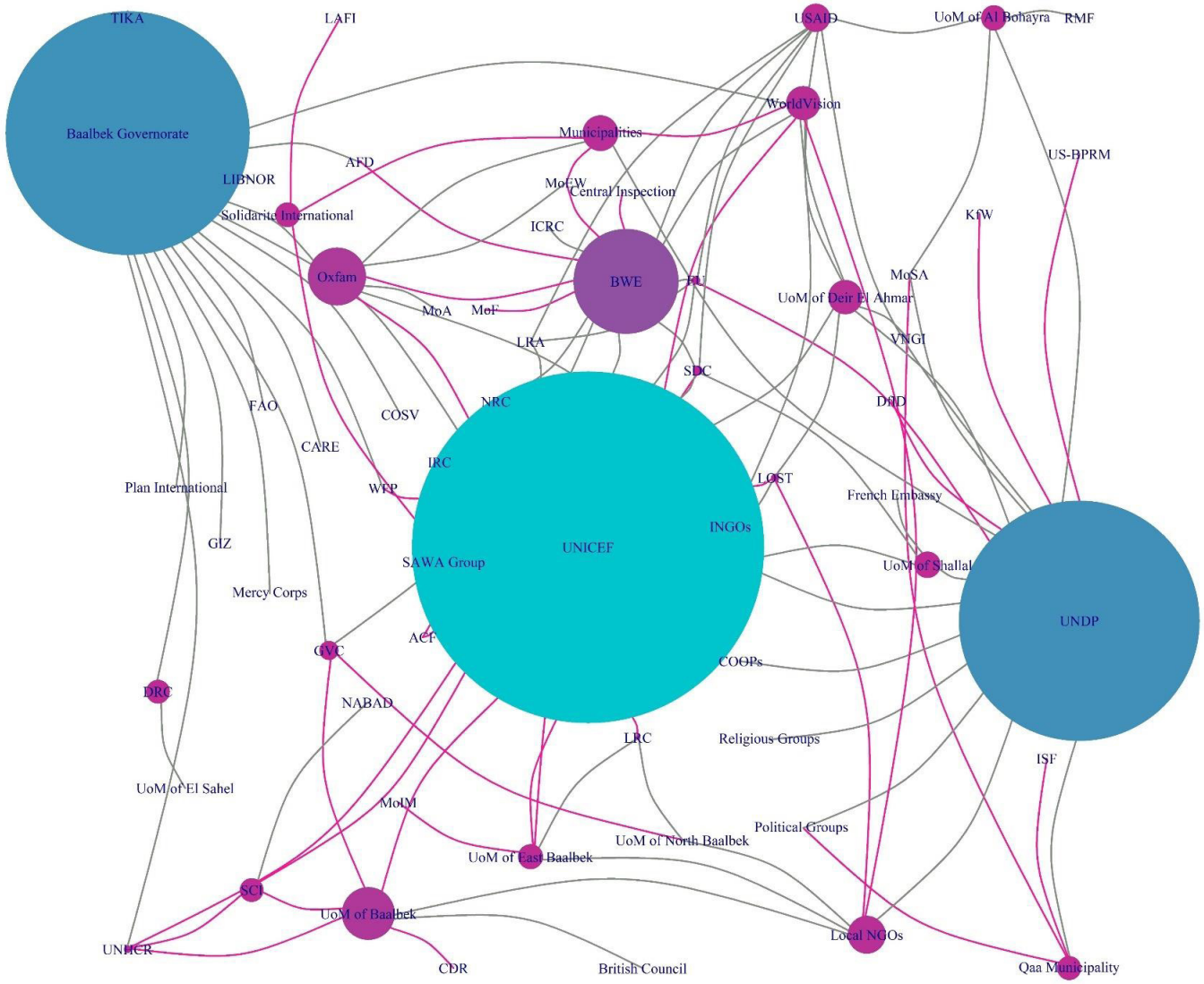


**FIGURE 21:** Knowledge, information, and technical exchange network map showing degree centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values. Pink arrows represent data and information sharing, and the green arrows represent sharing of expertise

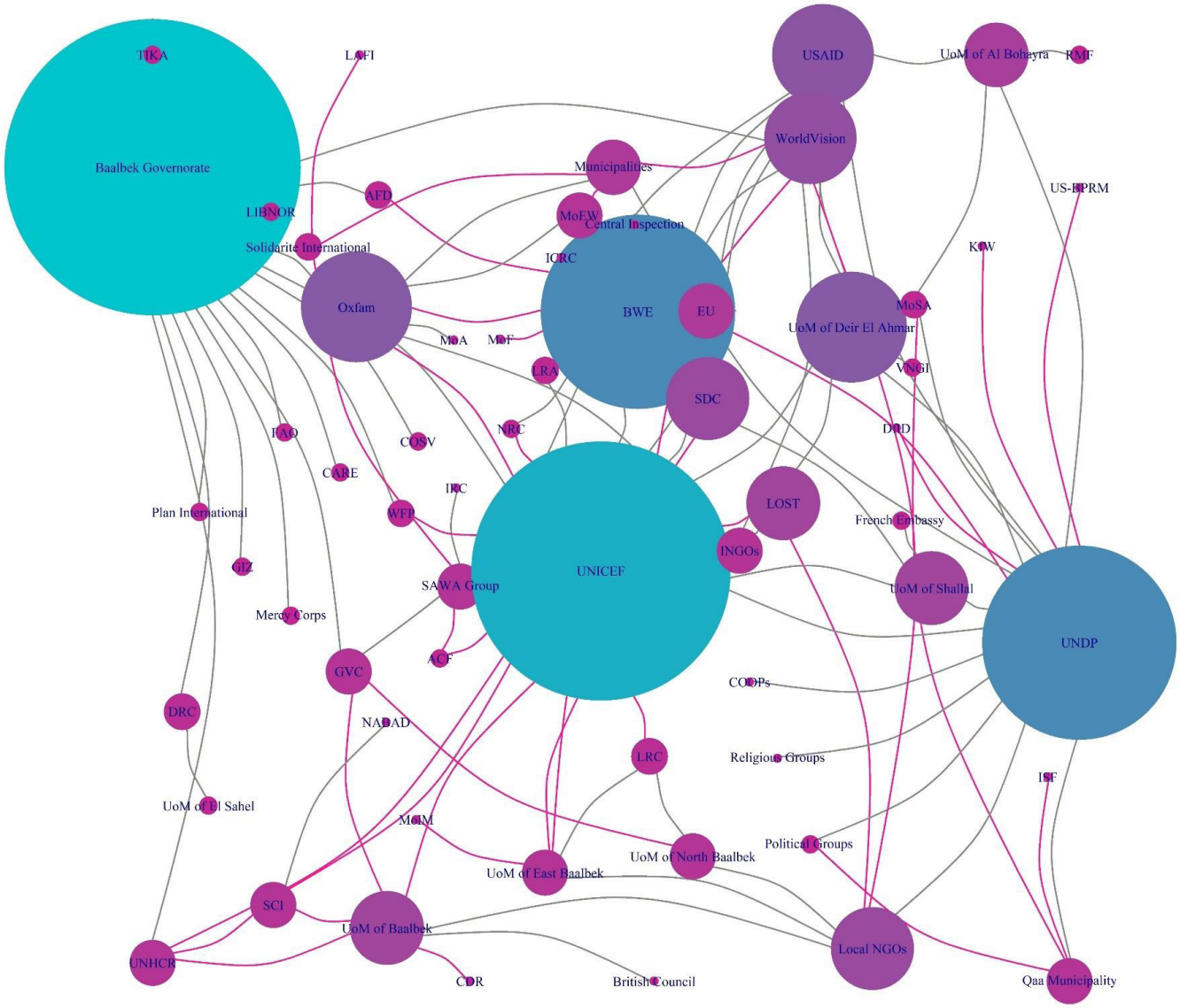


**FIGURE 22:** Knowledge, information, and technical exchange network map showing eigenvector centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values. Pink arrows represent data and information sharing, and the green arrows represent sharing of expertise

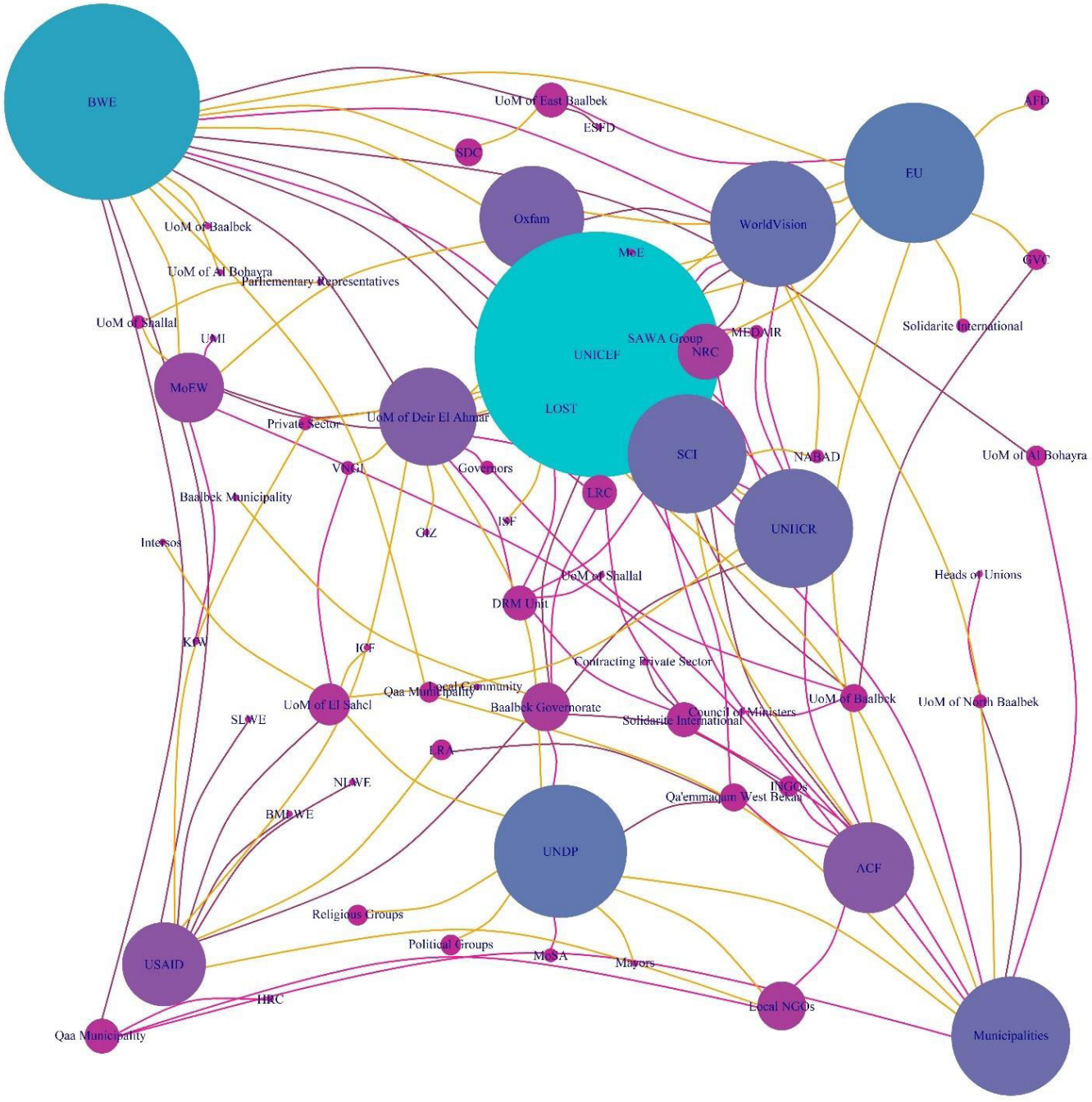


**FIGURE 23:** Water supply, quality, network maintenance, and natural disaster risk management network map showing betweenness centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values. Pink arrows represent data and information sharing, and the green arrows represent sharing of expertise. Maroon represents interactions related to water supply and quality, pink arrows represent interactions related to DRR, and yellow arrows represent interactions related to enforcement of regulation and compliance

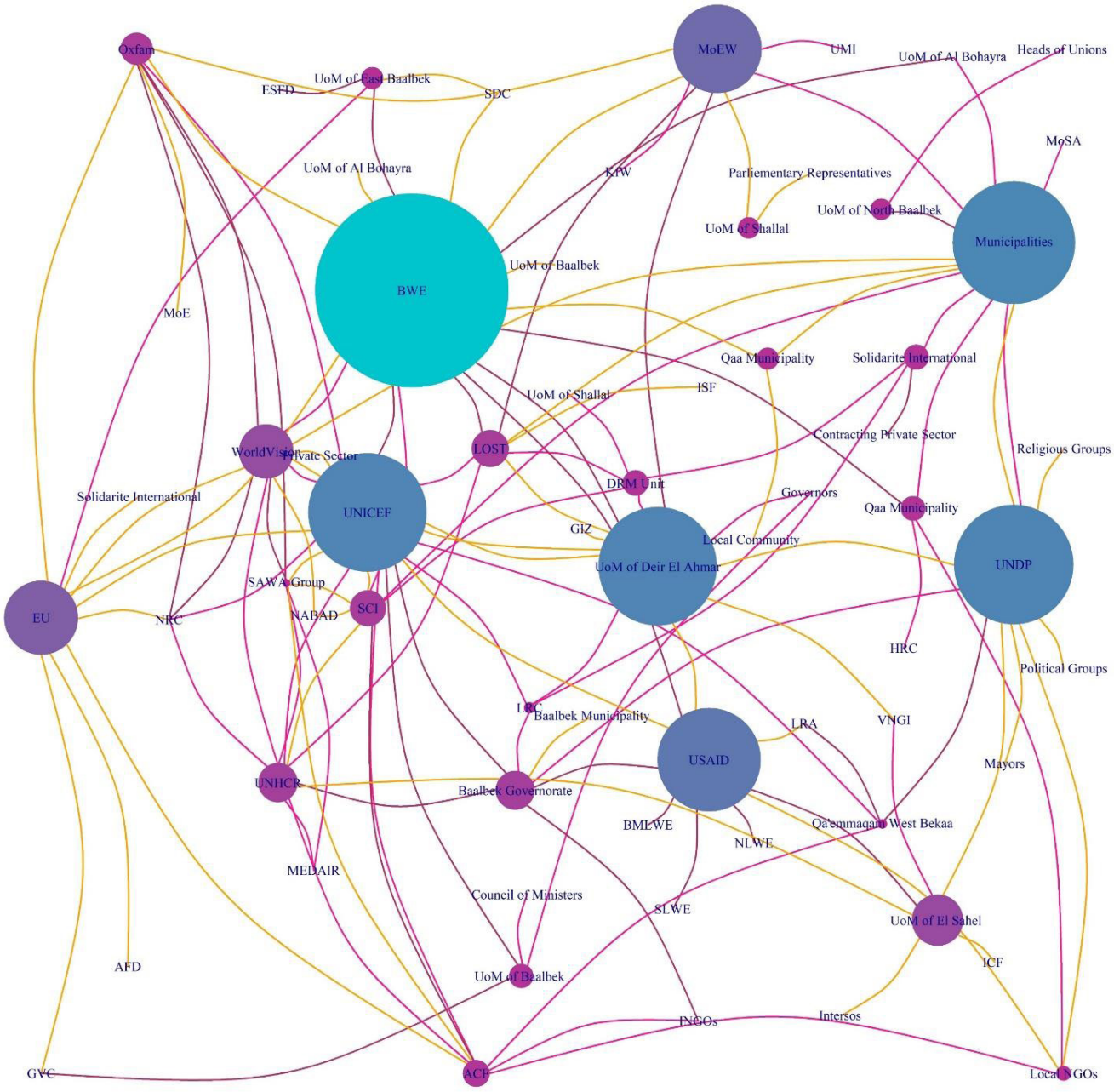


**FIGURE 24:** Water supply, quality, network maintenance, and natural disaster risk management network map showing degree centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values. Pink arrows represent data and information sharing, and the green arrows represent sharing of expertise. Maroon represents interactions related to water supply and quality, pink arrows represent interactions related to DRR, and yellow arrows represent interactions related to enforcement of regulation and compliance

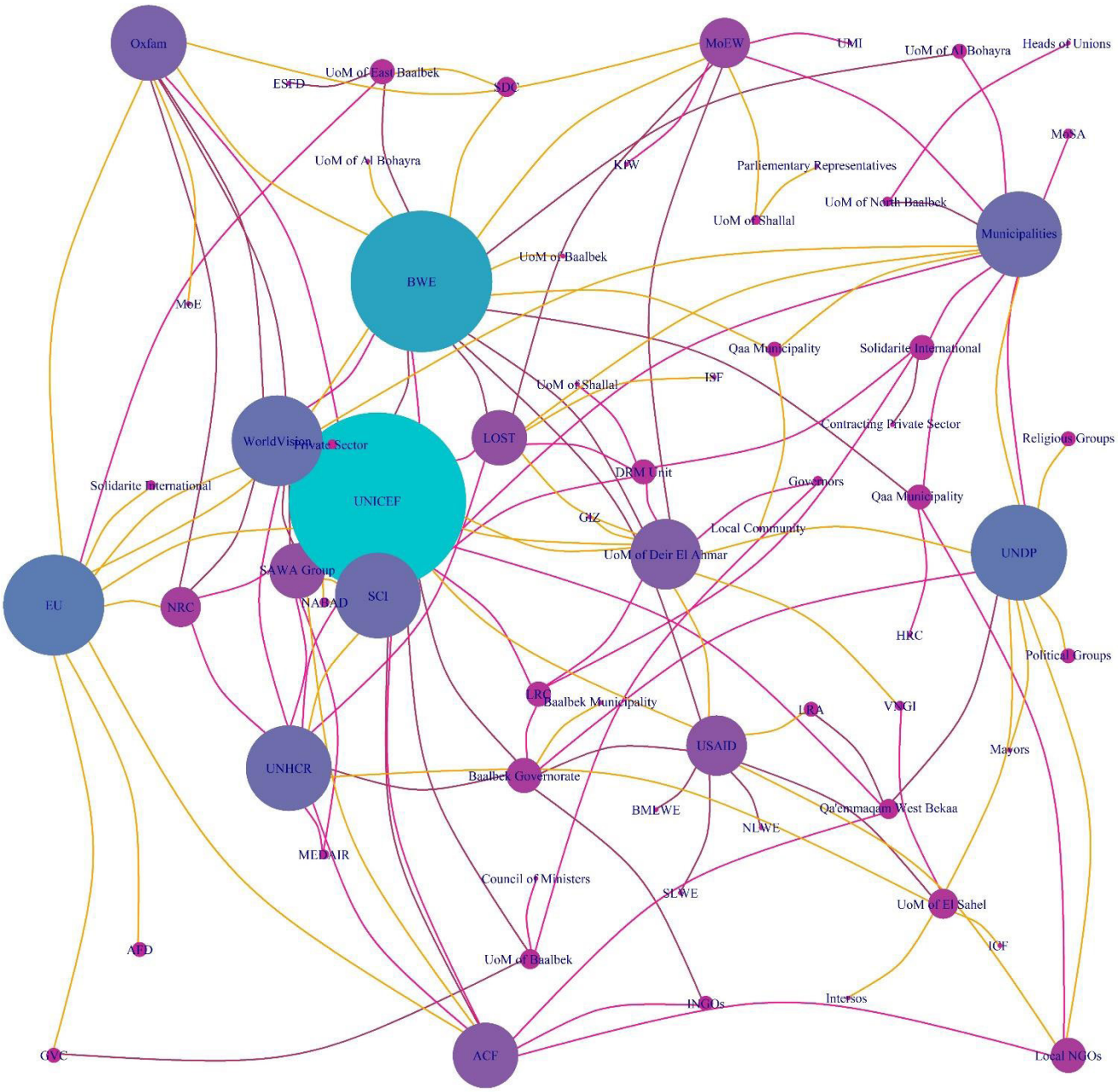


**FIGURE 25:** Water supply, quality, network maintenance, and natural disaster risk management network map showing eigenvector centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values. Pink arrows represent data and information sharing, and the green arrows represent sharing of expertise. Maroon represents interactions related to water supply and quality, pink arrows represent interactions related to DRR, and yellow arrows represent interactions related to enforcement of regulation and compliance

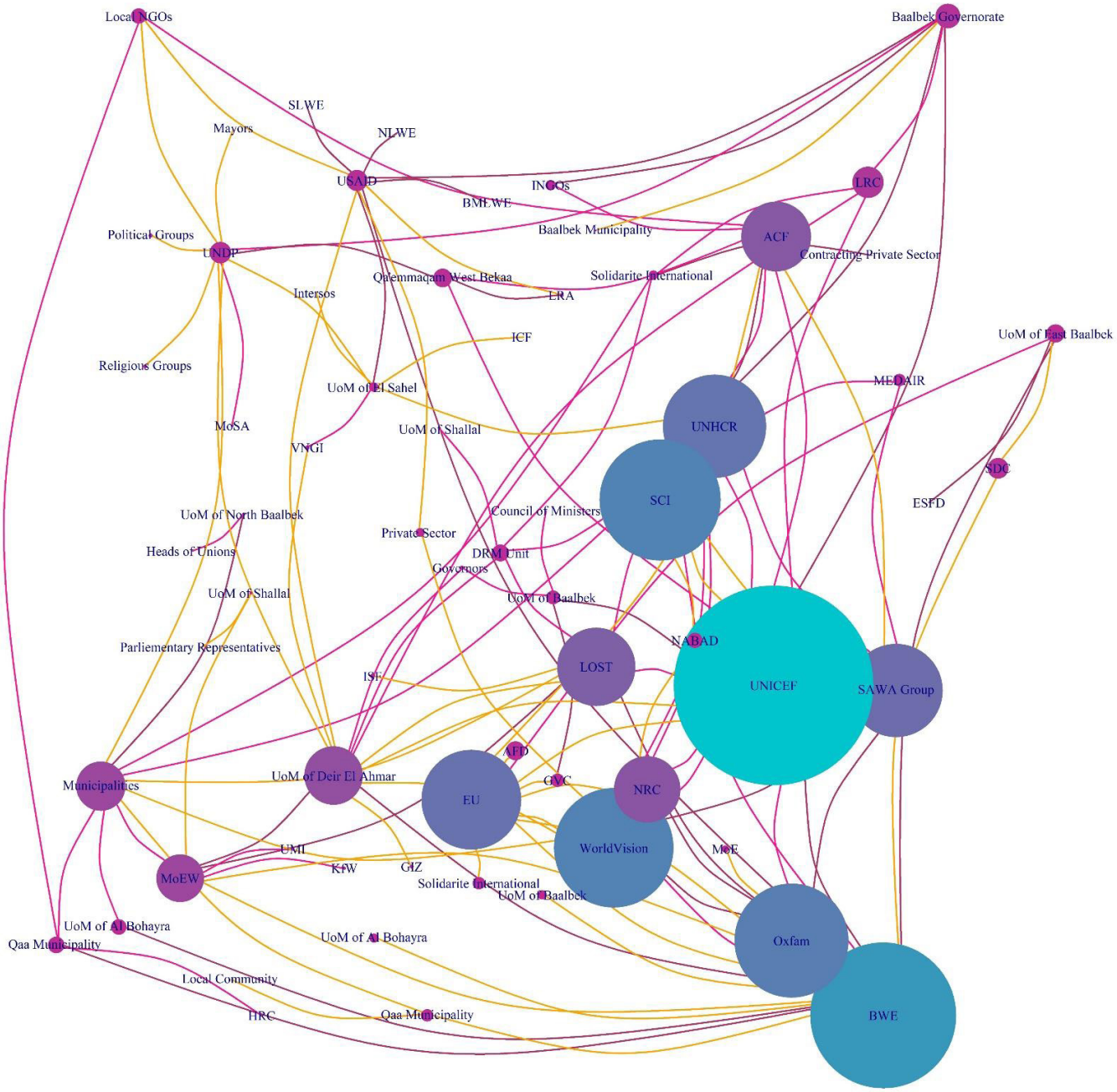


**FIGURE 26:** Funding of water projects network map showing betweenness centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

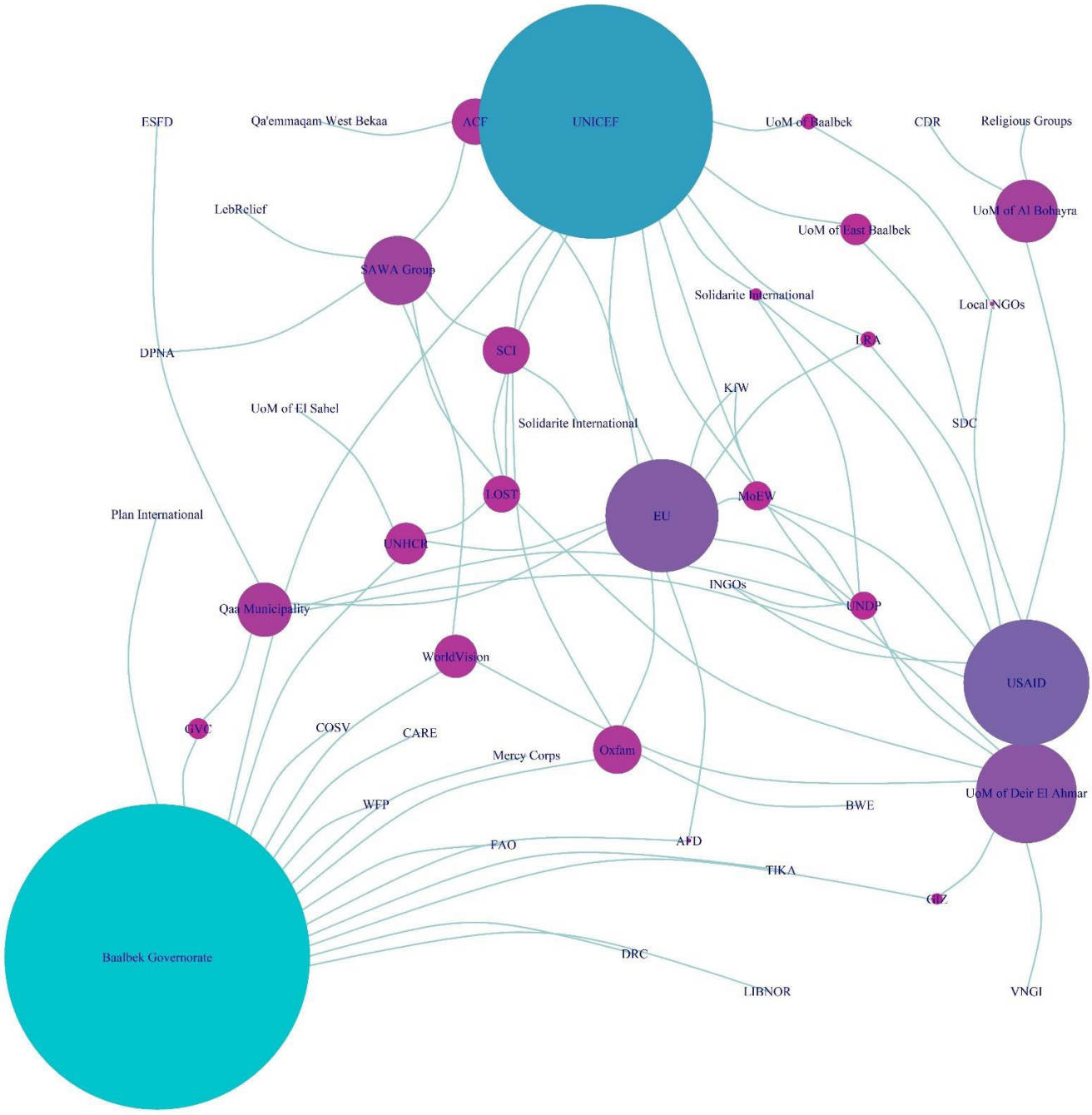


**FIGURE 27:** Funding of water projects network map showing degree centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

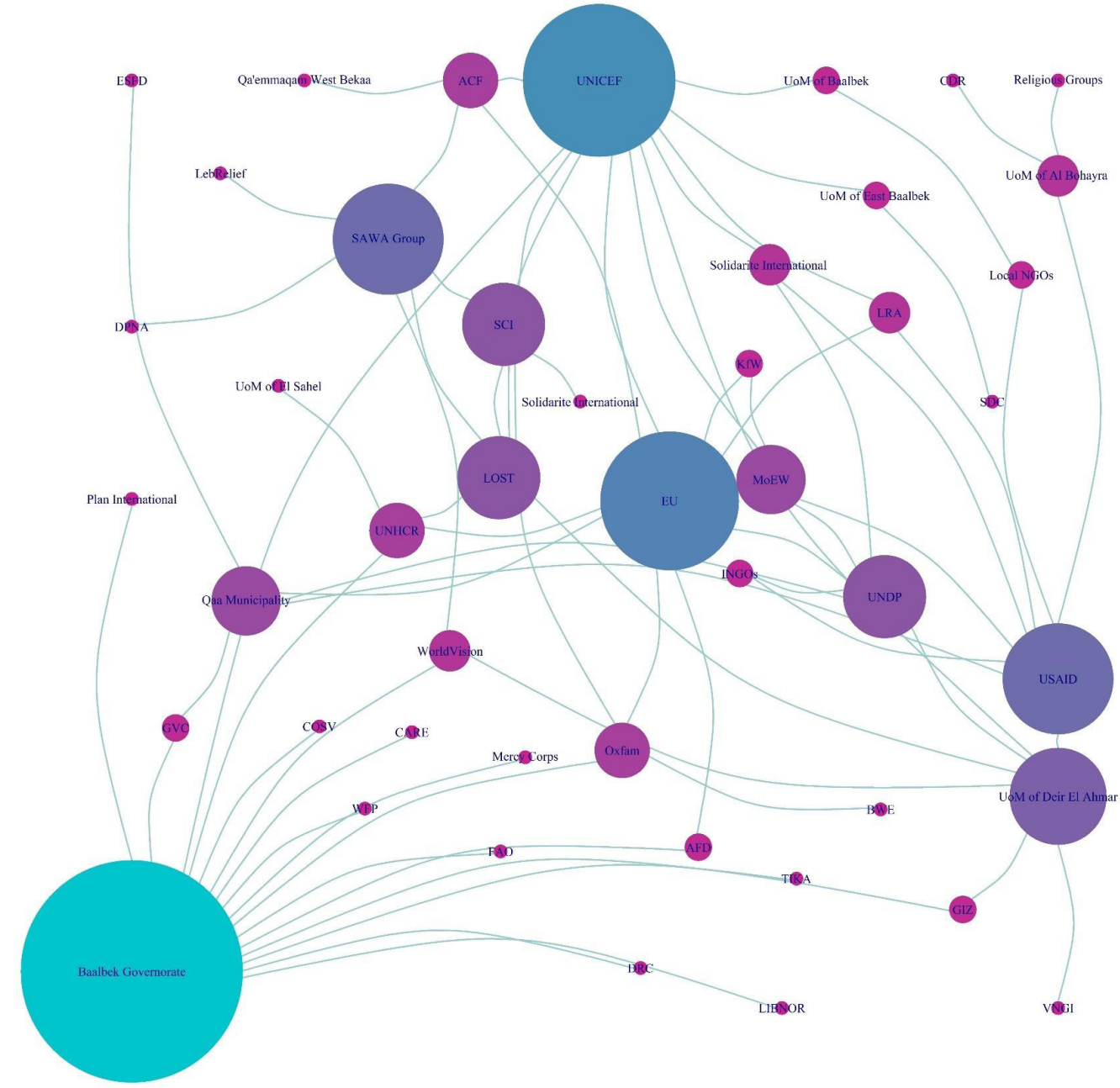


**FIGURE 28:** Funding of water projects network map showing eigenvector centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

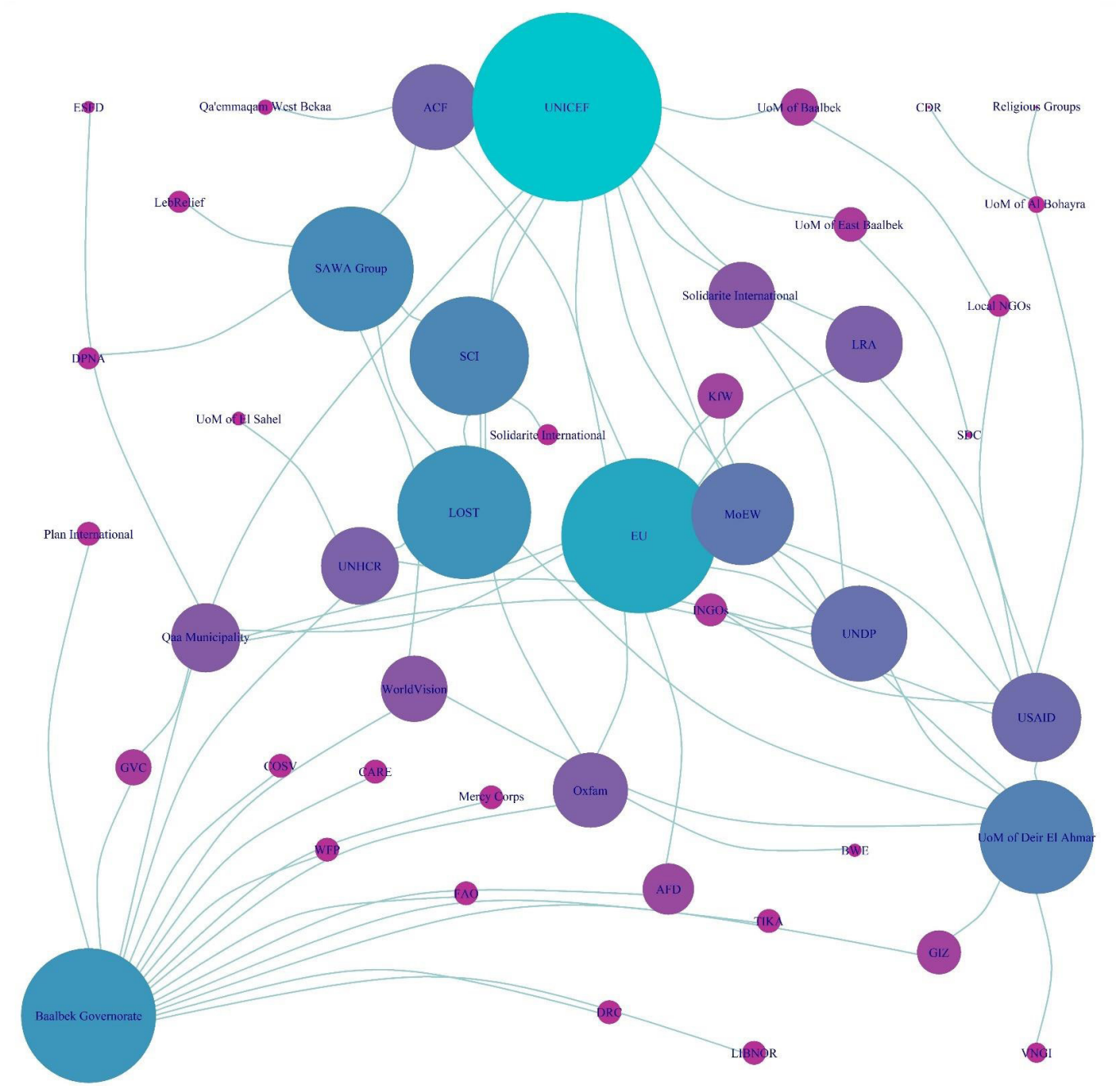


**FIGURE 29:** Water-related conflict resolution network map showing betweenness centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

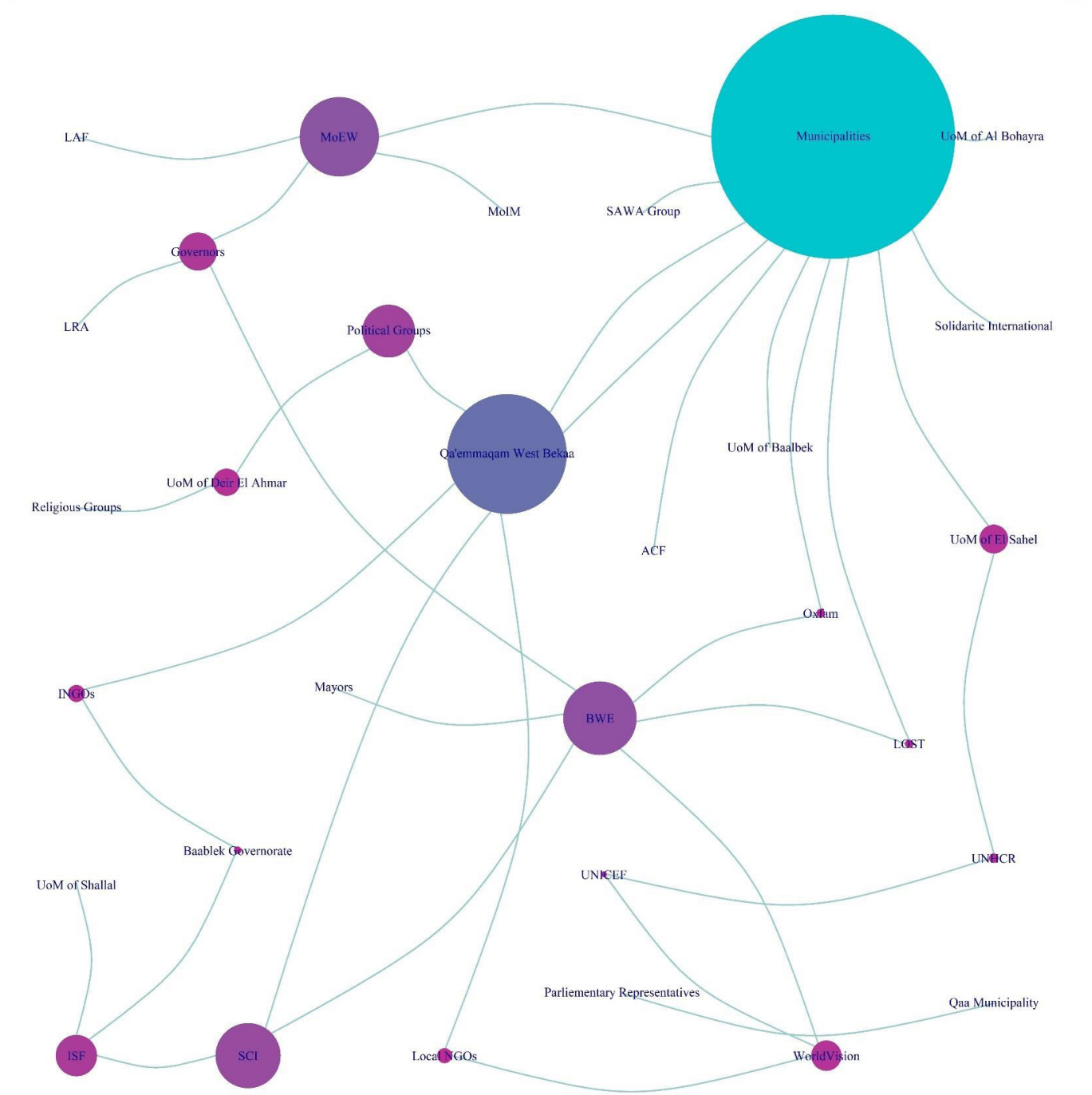


**FIGURE 30:** Water-related conflict resolution network map showing degree centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

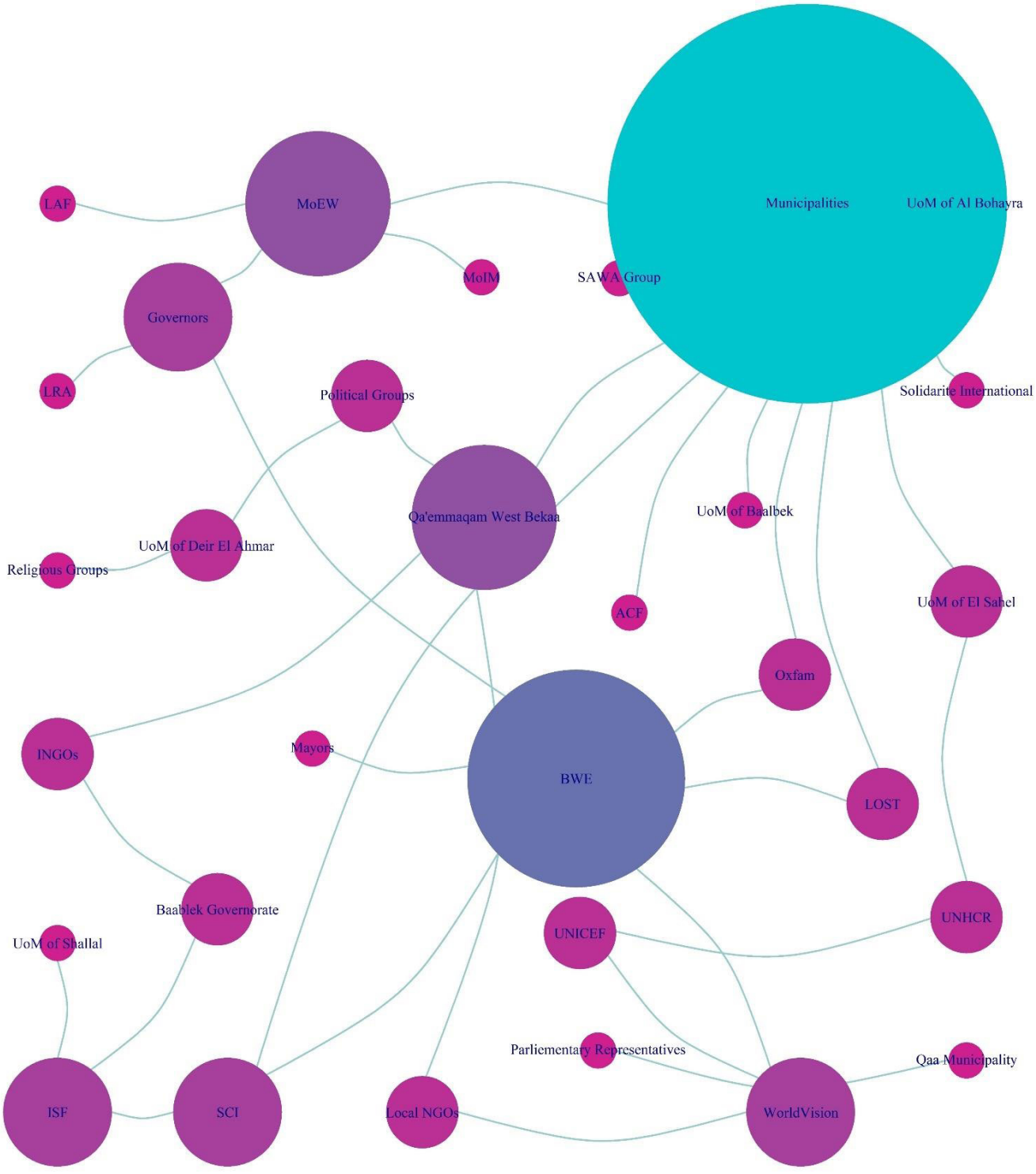


**FIGURE 31:** Water-related conflict resolution network map showing eigenvector centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

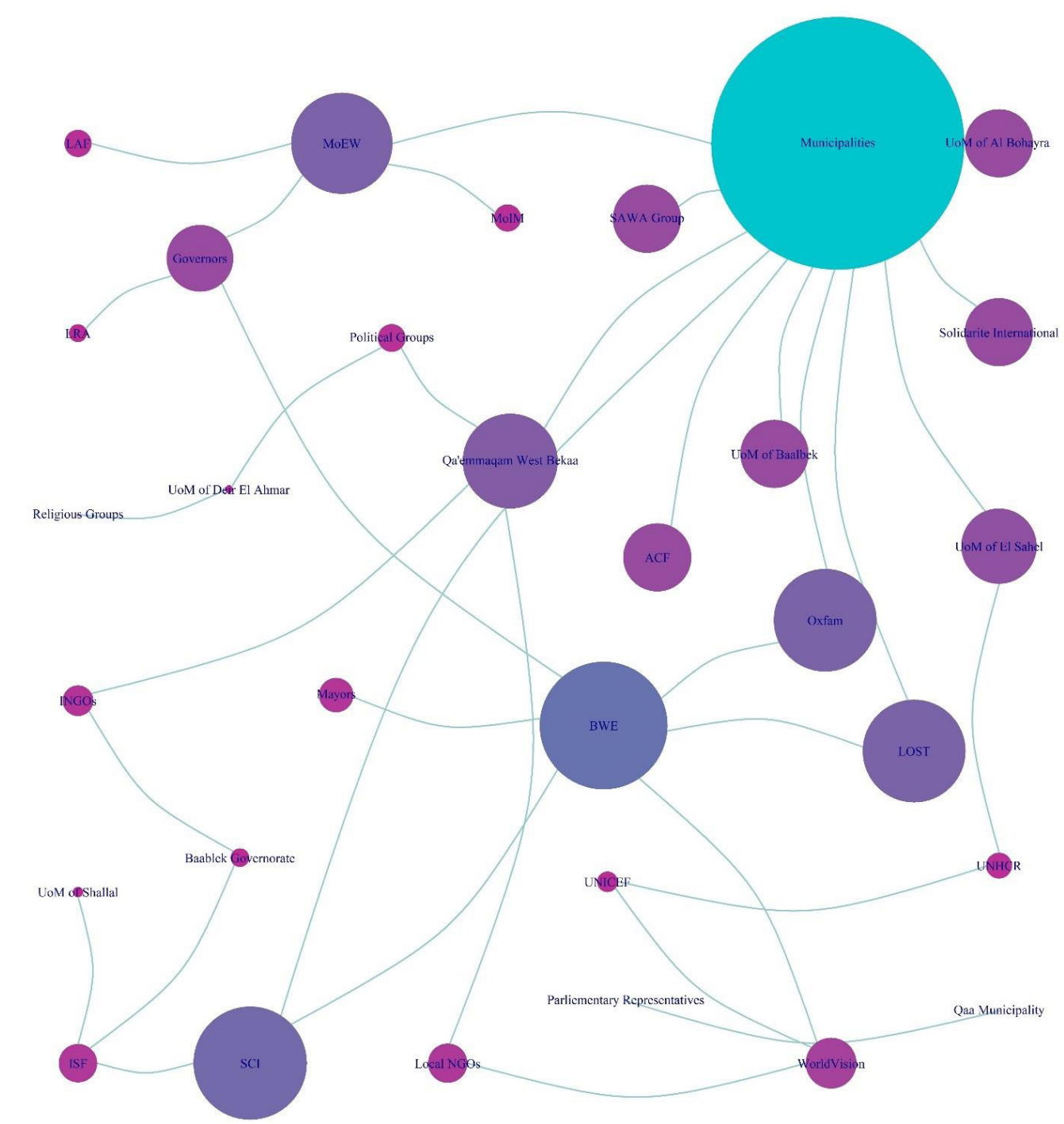


**FIGURE 32:** Key players in peacebuilding projects network map showing betweenness centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

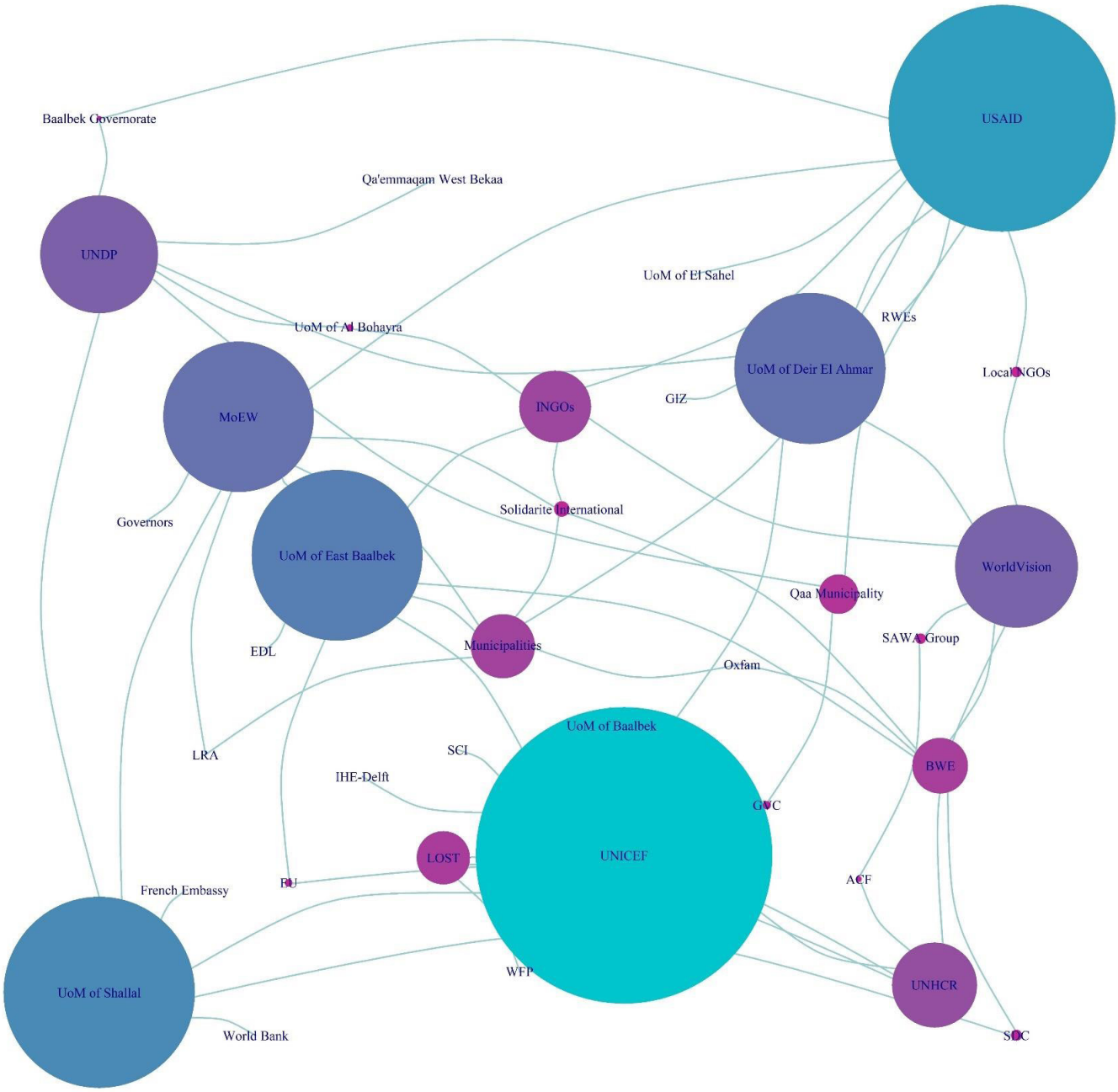


**FIGURE 33:** Key players in peacebuilding projects network map showing degree centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values

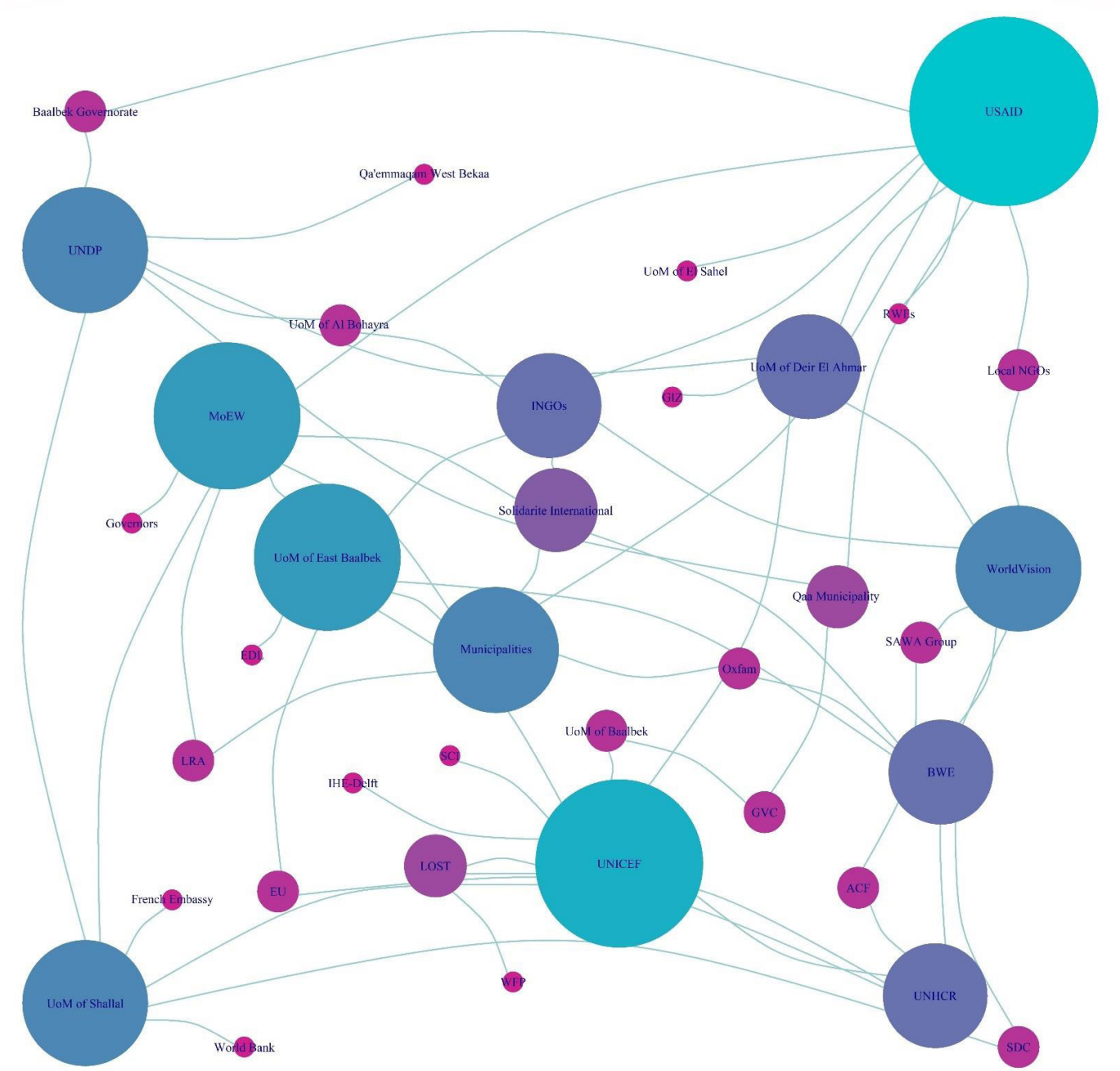
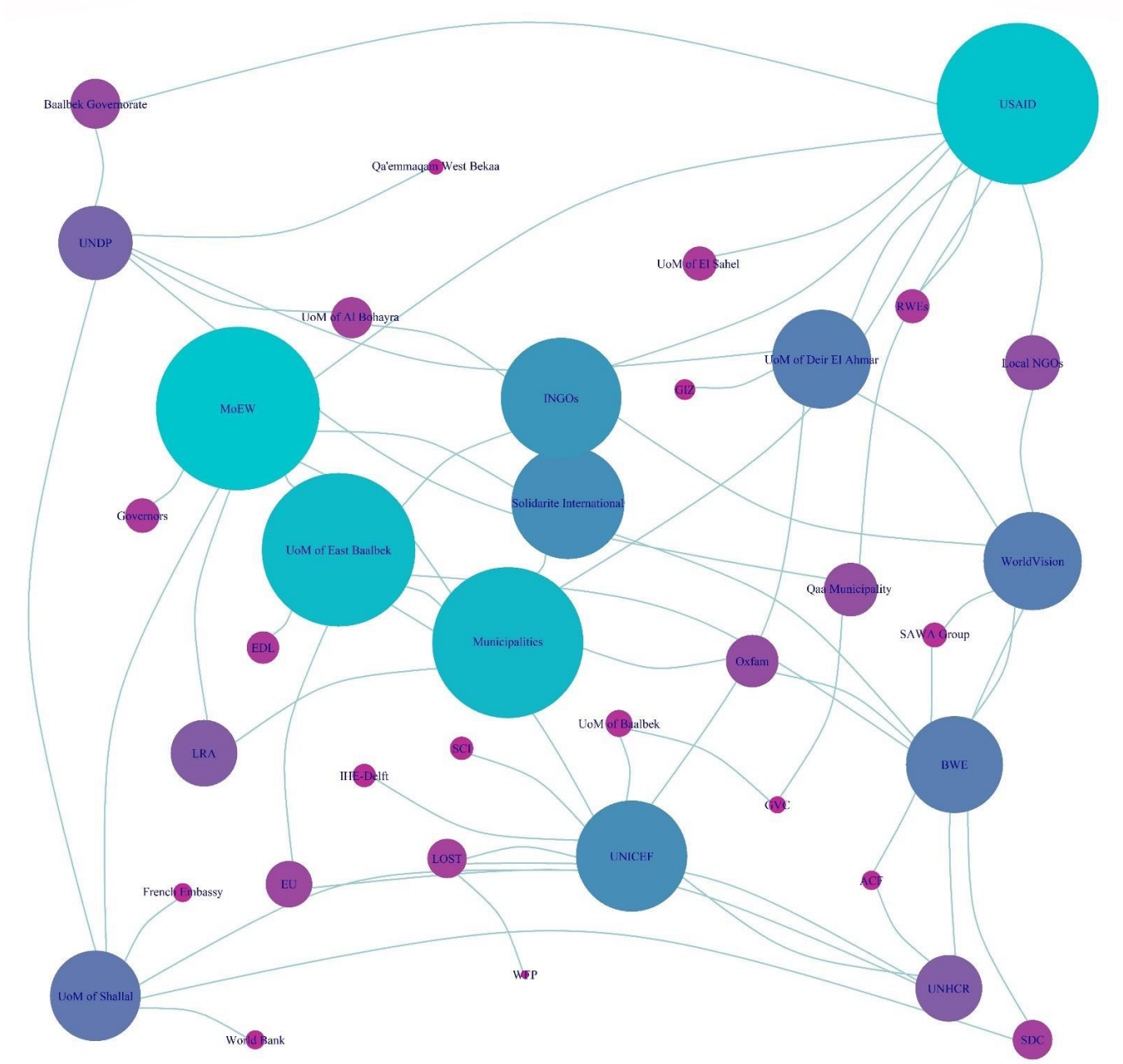


**FIGURE 34:** Key players in peacebuilding projects network map showing eigenvector centrality as a function of node color. The colors graduate from purple representing the lowest values and blue representing the highest values



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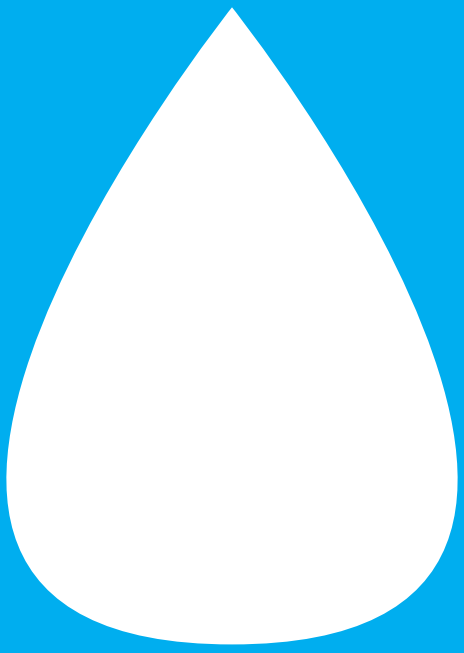
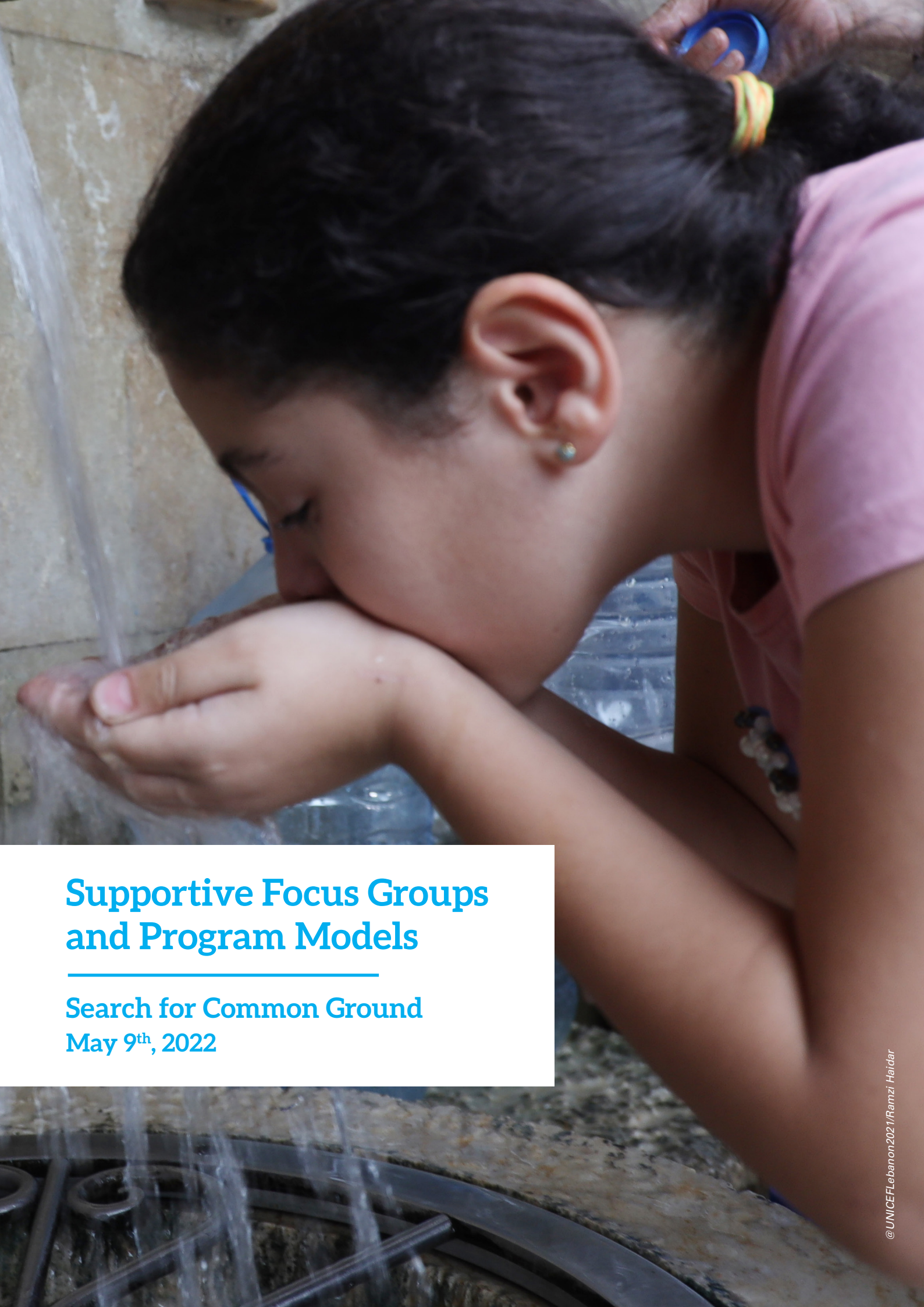


# PART II



# Supportive Focus Groups and Program Models

## Search for Common Ground

May 9th, 2022

@UNICEFLebanon2021/Ramzi Haidar

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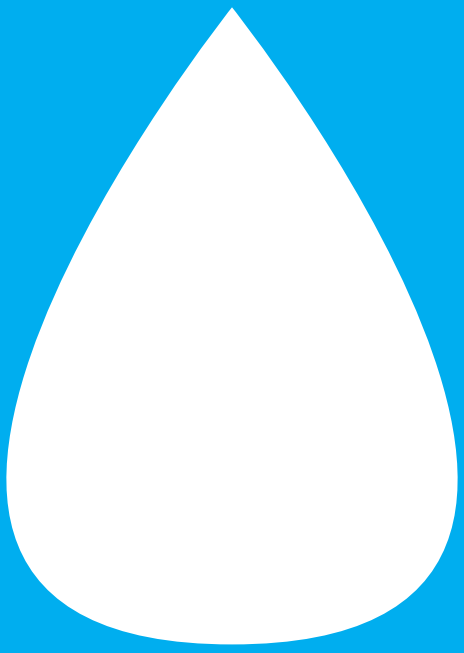
# Abbreviations

| | |
|---|---|
| **AUB-IFI** | American University of Beirut Issam Fares Institute for Public Policy and InternationalAffairs |
| **BWE** | Bekaa Water Establishment |
| **FGD** | Focus Group Discussion |
| **INGO** | International Non-Governmental Organization |
| **MCM** | Million Cubic Meters |
| **MEAL** | Monitoring, Evaluation, Assessment, and Learning |
| **NGO** | Non-Governmental Organization |
| **RWE** | Regional Water Establishment |
| **Search** | Search for Common Ground |
| **SGBK** | Sexual and Gender-based Violence |
| **SNA** | Social Network Analysis |
| **UOM** | Union of Municipalities |
| **WASH** | Water, Sanitation, and Hygiene |
| **WLO** | Woman-Led Organization |



# INTRODUCTION

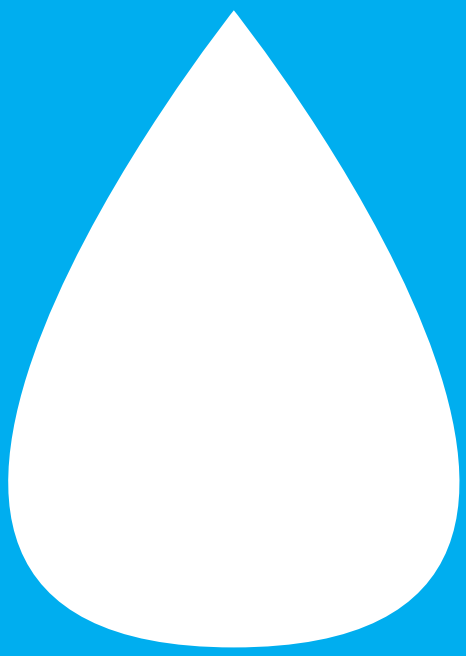
# Introduction

In order to gain better insight into residents' perspectives on water-related issues in Baalbek and West Bekaa following the American University of Beirut Issam Fares Institute for Public Policy and International Affairs' (AUB-IFI) report Water as a Tool for Defusing Socio-Political Tension, a qualitative study utilizing focus group discussions (FGDs) was conducted. In this study, the following research questions were asked to help develop project proposals for localized conflict resolution:

1. What resilience factors, connectors, and dividers (with a primary focus on connectors) exist around water access and management in the study's target regions;
2. Who are key influencers, possible champions, and social connectors within each community; and
3. What potential points of entry could water, wastewater, and conflict resolution programs capitalize upon?

The study drew community stakeholders together in Baalbek and West Bekaa to explore their perceptions regarding possible, sustainable solutions to localized water-related conflicts. Search for Common Ground (Search) selected a qualitative approach to explore and illuminate the findings AUB-IFI's data had established, and FGDs were chosen in particular to gain an in-depth understanding of the social dynamics between – and perceptions of – individuals at the community level. Search also conducted a desk review of relevant literature to support and situate its findings within the broader context of water-related issues and systems present within Lebanon. Academic and mission-driven sources were consulted during this process and pertinent information was woven into the findings and recommendations presented in this report. Through these three sources – AUB-IFI's study of socio-political issues, targeted FGDs, and supporting literature – Search addressed its research questions.

All decisions made throughout the course of this study were taken to enhance collective understanding of what form concrete and effective water-related conflict resolution programs should take in order to best address tensions and leverage entry points for peace in Baalbek and West Bekaa.



# METHODOLOGY

# Methodology

## Focus Groups' Rationale

Focus groups were chosen for this study because they lend themselves to comprehensive elicitation of individuals' views and observation of group dynamics as community members participate in collective sense-making (O. Nyumba et al., 2018). Additionally, FGDs allow for data collection in which communities reframe research topics within their local knowledge and expertise. This process elevates research subjects to the level of knowledge producers, as they reassess and rethink problems within the emergent power dynamics of their communities and the discussion groups themselves (Barbour, 2008).

Consultation with the communities who will benefit from water-related projects was deemed critical for forming a comprehensive understanding of what interventions can and should be prioritized, and helped ensure consideration of conflict-sensitivity and inclusivity throughout projects' research, implementation, and evaluation life-cycles. Insight into the perspectives of both historically represented and underrepresented community members from the study's target areas was indispensable in building a rounded understanding of various stakeholders' influence, different groups' prioritization of needs, and potential challenges that might await localized water-related projects.

## Data Collection

### Data Collectors

Two facilitators were recruited for the study: one man from Baalbek (age 29), and a woman from West Bekaa (age 24). These facilitators moderated the study's FGDs alongside trained notetakers – a woman in Baalbek (age 25), and a man in West Bekaa (age 25) – who recorded details on each discussion, and group dynamics and interactions. The facilitation teams were purposefully gender congruent.

Upon recruitment, the data collectors attended training sessions that presented the study's objectives, its relation to AUB-IFI's work, its methodology, and data collection procedures. At the beginning of both rounds of FGDs, data collectors were introduced to the relevant questionnaire and were given time to reflect on and engage with these guides. Further training was provided on Search's ethical requirements, the study's consent form and its backing ideology, the importance of a Do No Harm approach, participants' right to anonymity and confidentiality, data security, and culturally appropriate communication styles.

### FGD Questionnaires

Across two rounds of FGDs, facilitators used pre-tested questioning guides that combined structured prompts and pre-planned probes to balance explorative and directed data collection. Questions in the first round of FGDs were modeled on AUB-IFI's Social Network Analysis (SNA) survey, and the second round questionnaire was based on both AUB-IFI's preliminary findings and needs related to this study's aforementioned research questions. Specific insight was sought into: available water sources, water-related problems and conflicts, key relevant actors, barriers to water-related conflict resolution, project possibilities, personal engagement and institutional trust, collaboration, past water-related projects, and communication practices.

The English and Arabic questionnaire guides from both rounds of FGDs are annexed within this report (Annex One and Two, respectively). All questions included in the study were based around knowledge gaps regarding water-related conflicts in Lebanon, particularly in Baalbek and West Bekaa, and the potential for concrete and sustainable water-related projects in these areas. While the study's FGD facilitators were guided by these documents, care was taken to: initiate discussion beyond strict parameters, encourage participants to voice their opinions, and promote interaction between the groups' participants. Sessions were planned to last between one and two hours, depending on group dynamics.

### Sampling and Recruitment

A random, convenience sampling was used to recruit participants from Baalbek and West Bekaa. The first round of FGDs targeted community members from locations with high composite water-related conflict scores identified by AUB-IFI, and included: Deir El Ahmar, Iaat, Yammouneh, Dar el Ouassa, Jenta, Yahfoufa, Qaa Baalbek, Chlifa, Aarsal, and Bouday in Baalbek, and Haouch el Harime, Khiara, and Ghazze in West Bekaa. In order to broaden the study's reach in both target areas and ensure a comprehensive dataset through which water-related issues could be understood, findings from the first round of FGDs were used to select communities for the second. The inclusion of new areas in the second round of FGDs helped Search mitigate challenges related to inclusive sampling faced during the first round. All participant communities were identified as vulnerable to water-related issues in AUB-IFI's research and their relatively higher population density eased outreach and recruitment processes within the study's brief timeframe. These locations included: Aarsal, Ras Baalbek, Serraaine el Tahta, Seraaine el Fauqa, Nabi Chit, Youmine, Douris, Fakeha, and Zeitouneh in Baalbek, and Haouch el Harime, Ghazze, Mansoura, Loucy, Jebb Jannine, and Kamed el Laouz in West Bekaa.

Search constructed its sampling pool by collecting commercial databases that listed resident telephone numbers from the study's targeted municipalities and representative Unions of Municipalities (UOM). Community members were then randomly selected from this list and contacted by the data collectors, who introduced potential participants to the purpose, design, and goals of the study. Following initial contact with this randomized sample, a snowballing technique was used to identify and include community members with direct involvement in, or knowledge of, regionalized water-related conflicts, resources, and potential solutions. Phone numbers of candidates who expressed interest in the study were recorded, and after reaching saturation in numerical (six to eight participants per FGD) and inclusive (e.g., sex, age, economic status, and residential/displacement status) criteria, participants were selected. Following this process, data collectors contacted participant community members and scheduled the dates, times, and locations for each FGD session.

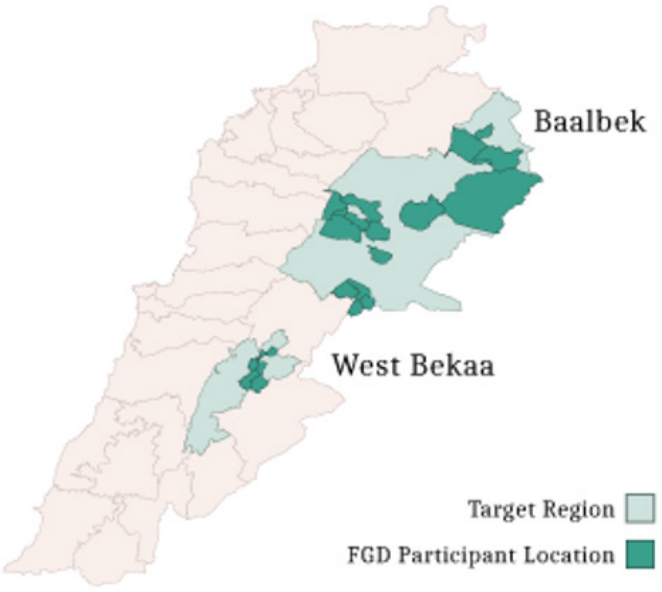



**FIGURE 1:** Participant Regions and Municipalities from both Rounds of FGDs

In order to ensure the perceptions of classically underrepresented groups whose views are often influenced or suppressed by dominant power structures were captured – namely women and youth – Search also conducted three FGDs with homogeneous participant groups during the second round of FGDs (IFES 2020, ILO 2021). Two sessions were held solely with women, and another solely with youth, which provided additional insight into water-related issues' impact on sustainability, hygiene and sanitation, and home usage (UNDP, 2013).

### FGD Implementation

Both rounds of FGDs were conducted in-person between March 23 and April 13, 2022. Between individual sessions and between the study's first and second rounds, data collectors met with members of Search's Monitoring, Evaluation, and Learning (MEAL) team to debrief, transcribe results, and refine questions for upcoming sessions. Initially, Search planned to conduct a total of eighteen FGDs between Baalbek and West Bekaa, with half of the sessions per location using the first questionnaire, and half using the second.

**TABLE 1:** Participants in Round One of FGDs, Disaggrageted by Sex

| REGION | LOCATION | TOTAL PARTICIPANTS | MEN | WOMEN |
|---|---|---|---|---|
| Baalbek | Aarsal | 8 | 4 | 4 |
| | Chlifa, Bouday, and Dar el Ouassa | 8 | 6 | 2 |
| | Iaat | 8 | 7 | 1 |
| | Jenta | 4 | 4 | 0 |
| | Qaa Baalbek | 8 | 5 | 4 |
| | Yahfoufa | 4 | 3 | 1 |
| | Yammouneh and Dier el Ahmar | 7 | 5 | 2 |
| West Bekaa | Ghazze | 8 | 5 | 3 |
| | Haouch el Harime | 8 | 5 | 3 |
| | Khiara | 8 | 3 | 5 |
| | | 71 | 46 | 25 |

**TABLE 2:** Participants in Round Two of FGDs, Disaggrageted by Sex

| REGION | LOCATION | TOTAL PARTICIPANTS | MEN | WOMEN |
|---|---|---|---|---|
| Baalbek | Aarsal | 8 | 4 | 4 |
| | Douris | 8 | 2 | 6 |
| | Nabi Chit (Youth Group) | 8 | 4 | 4 |
| | Ras Baalbek, Zeitouneh, and Fakeha | 8 | 2 | 6 |
| | Serraaine el Fauqa and Serraaine el Tahta (Women's Group) | 8 | 0 | 8 |
| West Bekaa | Youmine | 8 | 1 | 7 |
| | Ghazze | 8 | 4 | 4 |
| | Haouch el Harime | 8 | 2 | 6 |
| | Mansoura, Ghazze, Jebb Jannine, Kamed el Laouz, and Loucy (Women's Group) | 8 | 0 | 8 |
| Total | | 72 | 19 | 53 |

Sessions were held in private venues, such as municipal and communal meeting halls, and private residences. All locations for FGDs upheld the safety of participants and protected their individual privacy, while also taking COVID-19-related precautions and restrictions into consideration. Upon arrival, participants were given a written consent form that detailed the study's purpose, Search's data collection processes and its contact information, potential risks and benefits related to participation in the study, and participants' right to withdraw from the study without consequence. Direct consent was also requested and obtained for audio recording of the sessions. Upon receiving and documenting participants' consent, moderators introduced themselves and the notetaker, clarified their purpose in the conversation as a discussion guide, and distributed a socio-demographic form to participants, which included questions on individuals' age, country of birth, education level, employment status, area of residence, and economic status. This form is included in Annex Three, and the demographic details from round one and two of the FGDs can be found in Annexes Four and Five, respectively.

After these preliminary steps were completed, moderators initiated discussion and guided participants through the questionnaires. On average, sessions lasted between 60 – 90 minutes. At the close of each session, moderators thanked attendees for their participation and assured them all information provided during the sessions would be taken into consideration. Moderators also reminded participants that the collected data would be anonymized and would only be used for the purpose of this study.

### Data Analysis

Demographic characteristics from the FGDs were analyzed with SPSS software to establish the study's descriptive statistics. Concurrently, the sessions' audio recordings were transcribed verbatim and translated into English. Analysis of the FGD sessions followed a thematic approach consisting of six phases (Clarke, Braun, & Hayfield, 2015). Sequentially, Search's research team: 1) immersed themselves in the collected data by reading and re-reading each transcript, and created an initial framework for data coding based on this familiarity, 2) openly coded the data, 3) defined and built narrative illustrations of emergent themes, 4) established axial coding through team-wide discussion of identified themes, 5) developed a final thematic framework for analysis linked to the study's core social phenomena, and 6) produced a summative narrative for both rounds of the FGDs. This internally consolidated narrative was triangulated with notes and observations recorded by the FGD facilitators and notetakers, and the data and analysis developed by AUB-IFI in their study of institutional and political bodies in Lebanon. The findings developed during this process are detailed in the next section of this report.

## Ethical Considerations

### Informed Consent and Confidentiality

Data collection was based on voluntary participation and strict adherence to the informed consent of participants. The study's data collectors ensured all respondents agreed to participation only after they were informed of and understood the following:

- The overall purpose of the FGD and the research;
- Their right to withdraw consent at any time during or after the FGD;
- Their right to not answer any question(s) for any reason;
- Their right to ask any questions before, during, and after the FGD;
- Their right to information in clear, easy to understand language;
- Their right to respectful, dignified treatment throughout the FGD;
- Their right to safety from harm and freedom from abuse;
- Their right to report any and all concerns or feedback regarding participation; and
- Works resulting from participation would not contain personally identifying information.

### Data Security

Data collected for the study was anonymized and any information that could be used to identify respondents was divorced from the data during the study's initial coding. All files and data transferred from the field to Search's possession were encrypted and password protected.

### Conflict Sensitivity and Do No Harm

Search's research team and the data collectors ensured participant anonymity throughout the study. Additionally, data collection processes followed "Do No Harm" procedures and strove to minimize any inadvertent harm that could potentially arise during the data collection and evaluation processes. All FGD questions and communication with participants were checked for cultural appropriateness, especially when materials were translated from English to Arabic.

### Credibility and Reflexivity

The FGD mediators were selected from the same areas they facilitated sessions in and shared fluency in the same first languages as participants. This linguistic, geographic, and cultural expertise enabled data collectors to efficiently and easily communicate with participants during the discussions. All recorded audio was transcribed verbatim by the data collectors, translated, and fed into the study's main data repository.

A reflective diary including the personal thoughts, judgments, and interpretation of the data collectors was kept. These diaries were used to identify and manage personal assumptions and biases that may have influenced the FGDs, particularly in instances of requested elaboration or the clarification of answers from participants, and the development of preliminary themes during the first phases of data analysis.

### Limitations and Challenges

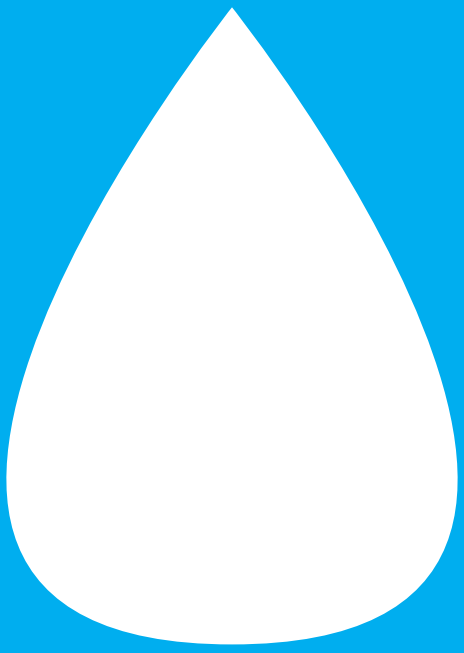
Both preemptively and adaptively throughout the data collection process, Search worked to minimize and account for the impact of participants' bias and ensure rigorous data collection standards. The six primary challenges experienced by the research team and the strategies developed to address them are detailed below:

1. While the research team intended to satisfy all its inclusion criteria in each FGD location, the conservative culture of some communities (i.e. Iaat, Yammouneh, Qaa Baalbek, Yahfoufa and Jenta) resisted the equal and cooperative participation of women and men together. There was similar resistance to the inclusion and participation of youth as well, because senior men from some communities believed youth lacked an awareness of water-related issues and lacked the capacity for valuable input. In order to accommodate these concerns sensitively and still collect data from the targeted demographics, dedicated sessions for youth and women were held during the second round of FGDs;
2. Participants from the neighboring communities of Yahfoufa and Jenta refused to attend the same FGD because of differences in their religious views and political affiliations. In order to avoid harm and safeguard participants, two separate sessions were held for four attendees from each community during the first round of FGDs;
3. In both Baalbek and West Bekaa, the study's data collectors reported hesitancy from some prospective participants because of a belief that the research was related to upcoming local elections. The data collectors mitigated this concern through clear, transparent, and consistent communication of the study's purpose and its participant members;
4. During FGD recruitment in Khiara, the study's data collectors noted a hesitation to participate from some community members, as many local residents claimed they did not suffer from water-related issues thanks to the construction of two water wells funded by a local expatriate and the village's mayor. In order to encourage participation and learn from Khiara's experiences, the session's questionnaire was adapted to inquire about former water-related issues and paths to water-related solutions;
5. During the first round of FGD recruitment, particularly in Baalbeck, the study's data collectors

found a smaller pool of potential participants than expected, due to the common practice of winter relocation to Beirut. In order to ensure full participation during the second round of FGDs, Search expanded its regional focus to adjacent communities with higher population density identified as vulnerable to water-related issues by AUB-IFI; and

6 During the first round of FGDs, the study's data collectors noted a sense of bias in favor of local municipalities and UOMs' performance when engaging with water-related issues. Because the initial recruitment lists were built off of contact lists provided by these same entities, Search expanded its selection pool through a snowballing technique during round two of the FGDs. This helped Search reach community members who might hold different opinions and mitigate the influence local municipalities might have held over recruited participants.

As with all qualitative research derived from field-based data collection, the extent to which this study's findings can be generalized is not fully known. Nevertheless, there is confidence in the study's ability to 1) provide insight into water-related issues in the targeted locations, 2) triangulate the findings developed by AUB-IFI, and 3) inform future analysis related to this study's targeted locations and locations with similar profiles.



# FINDINGS

# Findings

## Lebanon's Water System

Lebanon's water infrastructure has experienced neglect and damage over years of civil strife, and governance around water-related issues has fared similarly. Estimates show less than half of Lebanon's population is connected to official water supplies, and those who do have access find public sources rarely work properly. As a result, nearly one in three Lebanese citizens purchase drinking water from alternative sources, usually in the form of bottled drinking water or water delivered by mobile trucks, which is kept in personal storage tanks. Those who cannot afford alternative sources of water rely solely on insufficient or poor quality water sources for their household needs. (USAID, 2015). Recent trends of increased urbanization, population growth, and an influx of displaced persons have combined to further strain Lebanon's water resources. These realities, hand in hand with a declining economy and further strain from climate change, mean water insecurity will continue to worsen in Lebanon (UNDP, 2020).

Reliable data from 2011 showed that across all of Lebanon, groundwater and surface water accounted for 53.4 percent and 30.2 percent of the total water supply, respectively (UNDP, 2011). At that time, spring sources provided a majority of the surface water used in Lebanon. Springs, however, are particularly vulnerable to impacts from climate change and a lack of instrumentation prevents accurate measurements for all spring sources. In 2019, the Lebanese Ministry of Energy and Water estimated a total annual yield of 1,200 million cubic meters (MCM) from all spring sources, though this decreases to less than 200 MCM of available water during summer months (UNDP, 2020). Additional surface water primarily comes from storage dams, like the Qaraoun and Chabrouh Dams which provide roughly 45 MCM of personal and agricultural water per year.

Groundwater also provides a significant source of the country's drinking water, and is drawn from public, government-owned wells and private wells. In total, about 80 percent of Lebanon's potable water comes from groundwater sources (MoE, UNDP & GEF, 2021). Estimates for actual water consumption and demand vary by source. Lebanon's Ministry of Energy and Water forecasted a total annual water demand of 1,483 MCM in 2015. Around 60 percent of this water was identified for use in agriculture, 30 percent for domestic uses, and 10 percent for industry. International institutions, such as the World Bank, estimated substantially higher demand for 2020 and 2030, at 2,055 MCM and 2,818 MCM, respectively (Fanack Water, 2021). Increased demand is linked to Lebanon's growing population and increased urbanization.

Baalbek and West Bekaa are two of Lebanon's most vulnerable areas in terms of water-related issues, despite the presence of their existing water and wastewater related infrastructure (UNICEF, 2021). Participants from Search's FGDs and AUB-IFI's research have confirmed this information at both communal and residential levels.

**TABLE 3:** Water Systems and Infrastructure in Baalbek and West Bekaa

| REGION | WELLS | SPRINGS | WATER TREATMENT PLANTS | CHLORINATION STATIONS | PUMPING STATIONS | RESERVOIRS | ELEVATED TANKS |
|---|---|---|---|---|---|---|---|
| Baalbek | 98 | 17 | 1 | 15 | 5 | 131 | 6 |
| West Bekaa | 39 | 17 | 0 | 2 | 6 | 52 | 10 |

During the FGDs, participants from Ghazze, Khiara, Aarsal, Iaat and Qaa Baalbek stated they mainly depended on water from common wells located within their villages, which they used for drinking, household tasks, agriculture, and irrigation. Residents from Jenta and Yahfoufa relied on the Yahfoufa Spring; Chlifa, Bouday, and Yammouneh villages met their needs by drawing on the Yammouneh Lake; and Deir El Ahmar primarily drew water from the Oyoun Orghosh and Aynata Springs. In Haouch el Harime, participants stated they relied primarily on water from their Regional Water Establishment (RWE) and in Khiara, residents accessed private wells built by a local expatriate and their mayor. Some individuals from Qaa Baalbek, Ghazze, and Haouch el Harime also stated they accessed nearby rivers and private wells when the aforementioned sources were insufficient. Agricultural needs were specifically mentioned in Deir El Ahmar, where farmers depend on rivers and springs for their crops.

## Water-Related Problems

### Fuel and Electricity

Across all communities consulted and both rounds of FGDs, there was strong consensus that unreliable power generation, largely driven by Lebanon's struggles with escalating fuel prices and availability – as well as other forms of fuel dependency – negatively affected communities' water quality, availability, and distribution. Frequent electrical outages and shortages were cited in every community and many individuals across West Bekaa and Baalbek ranked reliable energy as the highest priority water issue facing their communities. In Youmine, Nabi Chit, Ras Baalbek, and Zeitouneh participants stated a general lack of fuel and a particular lack of affordable fuel hampered water distribution. Similarly, frequent cuts to electricity and fuel prices affecting water access and distribution were identified as the main barriers in Ghazze, Haouch el Harime, and Qaa Baalbek.

The upstream effect of unreliable energy was seen as the root of many water-related problems:

> **The highest priority is water scarcity… Water is provided once every fifteen days. They [RWEs] claim that they don't have [the] fuel [needed].**
> — *Woman, Serraaine*

### Water Quality

The second most widely agreed upon water-related problem identified by participants in both rounds of FGDs centered on water pollution and the contamination of potable water resulting from contact with wastewater. Only in Youmine and Nabi Chit did participants not mention poor quality water as a significant problem. Identification of this problem's prevalence was consistent with AUB-IFI's findings, which found water contamination and poor quality water were the most cited water-related issue among the stakeholders they consulted in Baalbek and West Bekaa.

The most common mitigation strategy adopted by affected community members was purchasing bottled water and water for filling storage tanks. Unfortunately, this strategy has become less effective as Lebanon's overall economic situation worsens and the Lebanese Lira continues to devalue. The negative effects of Lebanon's economic conditions were noted in AUB-IFI's study at an institutional level as well. Decreased purchasing power's impact on water quality will likely compound with the region's increased poverty conditions and severely escalate tensions without intervention.

### Water Accessibility and Distribution

Alongside contextual problems related to reliable fuel and electricity, multiple communities identified other water access and distribution issues. In Ghazze, Haouch el Harime, Aarsal, and Jenta, expensive and poorly maintained water extraction equipment was stated to have a negative impact on access and distribution. Residents cited damaged, unreplaced water equipment in Qaa Baalbek (compressors) and Ghazze (water pumps). Private, cost-prohibitive water deliveries to fill personal water tanks affected residents of Yahfoufa. Additionally, some communities identified difficulty when accessing water sources because of physical distance.

> **Even though the water is available, we need quality resources and equipment to extract it, which we don't have and are expensive.**
> *— Man, Ghazze*

> **- We can't afford equipment to deliver the water to our house.**
> **- 150,000 LL every three days for a water tank is too much.**
> **- It takes fifteen kilometers [driving by car] to reach Yammouneh Lake. This is expensive nowadays.**
> *— FGD Participants*

Alongside equipment and geographic concerns, participants also noted distribution concerns related to human influence. In Haouch el Harime, Yammouneh, Chlifa, and Bouday terms like "corruption" and "unfairness" were used to negatively describe water management and distribution practices. In these locations, water distribution was perceived negatively, as unequal access was provided to individuals with particular political or religious connections. In Chlifa, participants stated that people connected to local leaders would resell water from public sources. Residents of Haouch el Harime, Aarsal, Ras Baalbek, Zeitouneh, Douris, and Nabi Chit all stated unequal water distribution was a priority issue in their communities.

> **In addition, we suffer from the unfairness of water distribution. In fact, the water distributor only runs the water for the areas that he wants, ignoring the rest.**
> *— Man, Douris*

### Water Scarcity

In Aarsal, Ghazze, Chlifa, Bouday, Deir El Ahmar, and Haouch el Harime, participants said they lacked the water resources necessary to sufficiently support all the water-related needs of residents and the villages themselves. Community members stated the areas they lived in were overpopulated and primarily attributed this challenge to the presence of Syrian refugees. Individuals in these areas believed Lebanon on the whole had reached its upper limit of hosting refugees and lacked the capacity to provide for more. Only in Khiara did participants report an adequate water supply, thanks to the village's access to wells. Elsewhere, residents relied on secondary, private sources of water to meet their daily needs, and the practice of purchasing water to fill storage tanks was common. In Ras Baalbek and Zeitouneh, participants noted how the COVID-19 pandemic had increased residents' need for water, as hand washing and other hygiene tasks demanded greater resources.

More often than men, women cited water scarcity as a concern, particularly in all parts of West Bekaa, Serraaine el Fauqa, Serraaine el Tahta, Ras Baalbek, Zeitouneh, and Douris.

> **Women use water daily in all household tasks, including washing dishes, doing the laundry, cooking, washing fresh foods, and more.**
> — *Woman, Serraaine*

**TABLE 4:** Water-Related Conflicts Identified by FGD Participants

| LOCATION | INVOLVED ACTORS | TENSIONS |
|---|---|---|
| Regional | Residents and RWEs | Cost-for-service rendered perceived negatively |
| Aarsal | Lebanese nationals and Syrian refugees | Water access, scarcity, and wastewater cross-contamination |
| Bouday | Residents | Water distribution |
| Bouday | Residents and farmers | Water access |
| Deir El Ahmar | Residents | Water scarcity |
| Deir El Ahmar | Residents and farmers | Water access |
| Douris | Residents | Water access (resolved) |
| Ghazze | Residents and farmers | Water access and scarcity |
| Ghazze | Residents | Water access |
| Haouch el Harime | Residents | Unequal water distribution |
| Haouch el Harime | Residents and governing bodies | Wastewater cross-contamination |
| Haouch el Harime and Khiara | Residents from both communities | Water access and scarcity |
| Laboue and Qaa Baalbek | Residents from both communities | Water access |
| Nabi Chit | Residents and government employees | Stealing fuel for water well generators |
| Serraaine and Nabi Chit | Residents from both communities | Water access (resolved) |
| Serraaine | Residents | Water access |
| Serraaine | Residents and RWEs | Water distribution |
| Yammouneh | Residents, clans, and the Lebanese Forces | Water scarcity |
| Zeitouneh | Christian and Muslim Residents | Unequal distribution of fuel for water well generators |
| Zeitouneh | Residents and government employees | Stealing fuel for water well generators |
| Zeitouneh | Residents and the municipality | Insufficient support |

All areas, excluding Jenta, Yahfoufa, and Iaat, reported some level of water-related conflict. Identified problems were most often related to issues of access and scarcity, or to tensions related to the presence of refugees. The most common actors in conflicts across all villages reporting concerns were municipal bodies, the RWEs, Lebanese nationals, and Syrian refugees. In Yammouneh, local clans and the Lebanese Forces (القوات اللبنانية) were also mentioned as core actors in water-related conflicts, and specific reference to the Maronite church in Deir El Ahmar was made as well.

The most common conflicts expressed between groups were related to competing demands for limited resources. In Ghazze, significant conflict had arisen between neighbors accessing the village's common well for their daily needs and farmers utilizing public water sources instead of private wells for their land. Residents of both Haouch el Harime and Yammouneh felt they were not given fair and equal access to their local water supply. Conflicts of this sort manifested through damage to competing community members' water pumps and physical confrontations. Similar conflicts occurred when residents in Haouch el Harime closed water taps in Khiara, thereby limiting the village's access to water. Sensitivity around this conflict remains today. Conflict around unresolved wastewater flooding also arose in Haouch el Harime, and participants stated the local municipality, the government, and individual actors had all failed to respond to related concerns.

Community members from Serraaine blocked Nabi Chit's access to a local road when their access to water was cut off. Unlike other tensions identified in the FGDs, this conflict was resolved when water access was restored to Serraaine thanks to the intervention of municipal representatives and Hezbollah. Tensions also exist between residents of Laboue and Qaa Baalbek who disagree about access rights regarding the water supply at Laboue's spring.

The most severe intra-community conflict occurred in Bouday, when tensions over neighbors selling access to a water supply relied on by local farmers escalated to the point of armed "bloodshed."

In a majority of FGDs, participants stated that conflicts regularly occur when RWEs raise prices or collect fees, as citizens refuse to make payment because of insufficient, poor quality water they receive. This overarching tension interacts with the aforementioned localized conflicts and dissuades residents from cooperating and trusting public water institutions.

> **The person who is paying doesn't have access to water, but the person who isn't does. Why bother to pay such a corrupt establishment?**
> *— Man, Haouch el Harime*

Similar frustration was voiced in Zeitouneh, where participants believed the local municipality and government authorities, "...stole every penny" and provided no action or benefit to the community for water-related payments made.

Lastly, participants of Aarsal claimed that disputes between Lebanese nationals and Syrian refugees regarding water occur frequently. Tensions have escalated to the point where demands for relocation have been made of Syrian refugees, as overpopulation is believed to be the cause of wastewater flooding in the area. Some refugees have been forbidden from using local land for planting and accessing common irrigation systems for crops.

## Past Solutions to Water-Related Problems and Conflicts

### Community-Driven Initiatives

Alongside the activities of international non-governmental organizations (INGOs), non-governmental organizations (NGOs), and other institutional actors effectively documented by AUB-IFI, there were many examples of granular, community-level solutions to water-related conflicts and problems across the consulted communities. While the effectiveness, sustainability, and transparency of these solutions varied from project to project, there was a clear pattern of community-driven action. Such projects included:

- Two local citizens in Khiara financed and established two wells which provide water to the entire village;
- An individual from Ghazze donated a filtration system to the village which helps meet the potable water needs of some community members;
- Ghazze has opened up cross-community water sharing with residents who drive from Haouch el Harime in moments of particular need;
- Citizens from Deir El Ahmar, Qaa Baalbek, and Laboue formed an agreement to share water from the Laboue Spring based on percentage distribution;

> **We reached an agreement with the people in Laboue where they get 48 percent of the Laboue Spring water and we get 52 percent.**
> *— Man, Qaa Baalbek*

- Individuals in Ghazze and Aarsal installed solar panels to mitigate the impact of electricity cuts to their local water supplies;
- Syrian refugees from Youmine joined together and borrowed a generator from a Lebanese national to power a water pump. Both parties now work together to collectively purchase fuel and mitigate the impact of electricity cuts;
- Residents in Qaa Baalbek contributed half the total fuel costs necessary for newly purchased water tanker supporting their village; and
- While kept discrete for the sake of anonymity, a water-supply based conflict between neighbors in Douris was successfully mediated through the intervention of other community members;

While organic initiatives of community development were noted, participants in every village, excluding Khiara, stated these efforts were not sustainable, and did not address the full scope of their communities' needs. By example: residents of Ghazze said their water filtration system was small and lacked the capacity needed to satisfy the entire village's demand for water, the solar panels installed in Aarsal did not fully cover the power needs of water-related services, and multiple villages said the funds used to purchase water from other sources was finite.

### Individual Support from Outside

Alongside these community efforts, a participant in the woman's FGD in West Bekaa from Kamed El Loz stated that expatriates had donated a generator to move water from local wells directly to households in her village, and that local households now pay their municipality monthly for the fuel necessary to operate these machines. Participants viewed this solution as both successful and sustainable, as the continued cost of water access was borne by the community. The participant who shared the story highlighted the transparency with which the expatriates acted and stated that collaboration between community members, the municipality, and these benefactors was critical to the initiative's success.

### Municipal, Institutional, and Political Support

Against commonly held perceptions of corruption at municipal and institutional levels, there were several instances of conflict mitigation and water-based solutions shared by the study's participants involving these actors. When residents in Ghazze (neighbor-to-neighbor) and Aarsal (host community-to-refugee community) experienced tensions over water access and wastewater flooding, municipal actors stepped in to resolve rising conflicts, with Ghazze's mayor playing a major role and representatives from the Syrian Refugee Voice Committee doing the same. Participants from Ghazze stated their mayor's actions were transparent and understood by the local community. Alongside local leadership, the community was able to reduce water waste and make improvements to their water infrastructure. Participants in Aarsal, however, said there was no transparency around the conflict-resolution actions taken and stated the enacted solutions were not sustainable. The specific actions taken included: installation of a water filtration system donated by the Qatari Crescent, which relied on the financial capabilities of this independent stakeholder, digging of wastewater holes far away from water sources, and increased use of chlorine in sewage treatment. While mentioned less frequently than the previous two examples, participants from Haouch el Harime also told of how their municipality donated a generator to help with the power needs of local wastewater management.

In Ras Baalbek, participants cited an instance in which the director of their RWE helped resolve localized conflict alongside their municipality, and said Hezbollah had also provided fuel for water-related needs in certain situations. Residents from Nabi Chit also mentioned Hezbollah's assistance in repairing a damaged water pump, although this action lacked transparency and specifics regarding the repair were not readily known.

## Critical Actors, Roles, and Leadership

When discussing the current and potential roles and responsibilities of actors within Lebanon, a host of views were presented. Consensus and disagreement varied across all demographic measures, and while some locations held a general sense of alignment, not all views were universally held. Nevertheless, responses revealed a strong sense of pessimism, potentially rising from fatigue and past disappointments, and the difficulty of communities' daily challenges. Conversations around the question, "What entities would you feel comfortable reporting to or discussing water-related issues with?" provided valuable insight, however, sensitivity concerns prevented further probing:

> **No one – nobody answers. With no water, we have to buy tanks for 200,000 or 250,000 LL each.**
> — *Young Man, Nabi Chit*

> **No one listens and no one cares. And sometimes we don't report any problem, just to prevent conflict from happening. Last week because of a dispute between two families which escalated and other people interfered, a conflict happened and five people ended up being killed. The situation is really bad here. So sometimes it is better not to report.**
> — *Man, Haouch el Harime*

> **We don't trust anybody: not the government, the municipality, or the village's notables… We trust God and the supervision of NGOs on any type of project.**
> — *Woman, Zeitouneh*

Concurrent with these views, however, indicators of hope and a desire for progress were present. Anecdotally, participants from Youmine latched onto Search as a potential actor, as the exploratory FGDs signaled an opportunity for change and engagement:

> **Honestly, we trust Search for Common Ground since it was the only NGO that asked us about the water-related problems and conflicts we face.**
> — *Woman, Youmine*

The remaining paragraphs in this section detail the views most commonly held by participants in each location regarding: INGOs, local NGOs, and international agencies, municipal actors, public and government institutions, religious actors, and the communities themselves.

#### INGOs, Local NGOs, and International Agencies

Beyond all other actors, participants trusted the work and leadership of INGOs and local NGOs. Residents tended to prefer that such organizations take lead roles in the implementation of all water-related projects in their communities, and stated that organizations had both villages' best interests in mind and the financial capacity to achieve results. Communities' willingness to trust INGOs and other international actors paired well with the high degree of closeness, betweenness, and eigenvector centrality AUB-IFI identified among these entities. Overall, participants held the most trust in the UNDP, UNICEF, and the Red Cross.

A direct interplay between trust and financial backing was apparent in Ghazze, Aarsal, Haouch el Harime, Ras Baalbek, Zeitouneh, Serraaine el Fauqa, Serraaine el Tahta, Nabi Chit, and Youmine. Given communities' frustration with corruption, economic freedom likely signaled an organization's ability to independently and fairly execute water-related projects without being beholden to interests outside of the water-related issues at hand.

> **Only non-governmental organizations and the United Nations [can help], since they have international financing and we trust that they won't rob us.**
> — *Young Woman, Ghazze*

A majority of the study's participants in Ghazze, Haouch el Harime, Aarsal, Ras Baalbek, and Zeitouneh mentioned INGOs, the UN in general (and UNICEF specifically), local organizations, and other international actors by name, as did women from across West Bekaa. Specific references common to certain locations included: USAID in Ghazze; UNICEF by the West Bekaa women's group, Ras Baalbek, and Zeitouneh; the International Rescue Committee (IRC), ABAAD, the Qatari Crescent and Action Against Hunger (ACF) in Aarsal; and the Lebanese Organization for Studies and Training (LOST) and Medair in Youmine. Additionally, women from across West Bekaa and participants from Haouch el Harime said they were not familiar with any women-led organizations (WLOs) that could play a role in water-related conflict resolution.

Regarding the roles and responsibilities INGOs and NGOs could or should play, and how they might collaborate with other actors, residents from Haouch el Harime stated these organizations were trustworthy of planning, financing, implementing, supervising, and evaluating projects to address water-related conflicts. Participants from Ghazze thought INGOs were particularly well suited to project planning and should partner with local municipalities for project implementation. Many communities echoed this sentiment when speaking about local NGOs, and believed NGO/municipal partnerships could generate positive collaboration. In instances where other agents took leadership roles in water-related projects, participants across West Bekaa and Baalbek thought collaboration with relevant UN agencies and INGOs was still critical, especially during project development and evaluation phases, as they could mitigate water-related conflicts that might arise and assist with projects' long-term sustainability.

The only concern mentioned regarding INGOs regarded the equal distribution of support and services, as Lebanese participants from Youmine were uncertain of whether or not assistance would be given to all residents or only to Syrian refugees. Participants phrased this concern positively and said they were hopeful for efforts that could meet all community members' needs.

### Municipal Actors

The individuals most commonly engaged with at the municipal level across all participant communities were local mayors. A majority of participants viewed their interactions with and responsiveness of mayors positively when engaging on water-related issues, complaints, and needs. While mayors were not notably connected to other stakeholders in AUB-IFI's research, municipalities' high degree of centrality values indicated they may well serve as localized points of contact when engaging with specific communities whose residents are less socially connected. Particularly high levels of trust in local municipalities were found in Ghazze and Ras Baalbek, where residents felt their leaders could implement water-related solutions to conflicts and problems. Participants from Haouch el Harime, Aarsal, and women from across West Bekaa also mentioned the importance of their municipalities as key actors for water-related projects, even if they did not fully trust them.

### Public and Government Institutions and Political Actors

A majority of participants stated they had lost all trust in all of Lebanon's public institutions and the government itself:

> **We don't trust the government to help us whatsoever.**
> — *Man, Ghazze*

> **Anyone but the government and its organizations… we are tired of their false promises and lack of responsibility.**
> — *Man, Haouch el Harime*

In instances where the government's involvement would be mandatory, participants insisted that INGOs take on supervisory roles, and monitor and evaluate the government's work to lessen the likelihood of corrupt action. Only in Khiara did participants believe the government had a valuable role to play, as it could serve as a key agent of sustainable development for all of West Bekaa.

Responses regarding RWEs were slightly more positive and most participants had some form of direct contact or interaction with them. Still, there were participants across West Bekaa and Baalbek who felt the RWEs rarely cooperated with their communities. While AUB-IFI's findings noted the Bekaa Water Establishment (BWE) held a high degree of betweenness within conflict resolution networks, FGD participants' responses indicated this interconnection did not necessarily translate into favorable perception:

> **The water establishment is not responsive when we report water shortages or water issues.**
> — *Man, Khiara*

> **There is a clear nepotism from the water establishment. Water related conflicts are between the water establishment money collector and the community members, since water is not received, but the establishment still asks for the fees every month."**
> — *Man, Haouch el Harime*

In Serraaine el Fauqa, Serraaine el Tahta, and Douris, residents clearly expressed that RWEs were responsible for addressing water-related issues in their communities and needed to do so. Only in Douris and Ras Baalbek, however, did residents express a willingness to collaborate with their RWE and discuss local concerns with them.

> **The director of the water establishment lives in Ras Baalbek and helps the villagers by responding to their needs with the support of employees.**
> — *Man, Ras Baalbek*

Other political actors were referenced during the FGDs as well, though these groups were less frequently spoken of when compared to Lebanon's government and RWEs. In Nabi Chit, participants stated they trusted Hezbollah and thought the political party could help sustain the effectiveness of water-related solutions. Individuals from Douris also thought Hezbollah could play a role in conflict resolution alongside municipal representatives and religious groups, though there was doubt as to whether or not Hezbollah's actions would be transparent. Lastly in Ghazze, locally formed committees comprised of individuals with notable public reputations, status, or financial capability were mentioned as potential public collaborators.

### Religious Actors

Views regarding religious groups and actors varied significantly by community. In Serraaine el Fauqa, Serraaine el Tahta, and Nabi Chit, participants cited regular reliance on such groups for help with peaceful solutions and reconciliation, and in Ghazze, Haouch el Harime, Aarsal, Youmine, and Douris, participants felt religious actors could: 1) contribute meaningfully to water-related resolutions, and 2) support education and awareness initiatives regarding water usage and wastewater management. Women from Aarsal said they could work with their local Sheikh and Mukhtar on water-related issues.
Conversely, individuals from other areas stated:

> **Religious groups should leave the country and let us live [collective laugh].**
> — *Young Woman, Participants from Ras Baalbek and Zeitouneh*

Community members from Ras Baalbek, Zeitouneh, and the women's group in West Bekaa stated that religious groups should hold no direct role or authority in the resolution of water-related issues or the implementation of water-related projects.

### Local Communities

Lastly, regarding the involvement of local community members themselves, many participants declared they were willing to support every feasible water-related project proposal they themselves had a hand in shaping. Having lost trust in the Lebanese government, individuals felt it was their responsibility to unite and prevent water-related conflicts from escalating. Participants hoped for peace, for themselves and their communities, and were willing to collaborate with others, regardless of their religious affiliation or nationality. No participants in the FGDs were uncomfortable sharing their water resources with people from different nationalities or backgrounds, as expressed through statements such as: "Water is a right," "We're all human," and "No problem—we all live together." However, this willingness to cooperate and share resources with others was predicated on fulfillment of individuals' needs and self-sufficiency:

> **When there is an excess of water supply, we don't have a problem [sharing]. But if we don't have a proper water supply we can't give anyone anything.**
> — *Women's Group from Across West Bekaa*

> **When I have water but my neighbor doesn't, I help her and give her some of my portion when I don't need it. We need to fulfill our own water needs first .**
> — *Woman, Ghazze*

> **I'm Syrian, my neighbor is Lebanese. She always helps me with water. It's a matter of humanity.**
> — *Woman, Youmine*

In every location other than Nabi Chit, participants were willing to work with individuals from all backgrounds toward better water-related conditions. Details regarding hesitance in Nabi Chit were kept intentionally vague, and were not probed for further information. It is possible, though not certain or confirmed, that cultural norms around age affected participants' willingness to speak in Nabi Chit, as the FGD session hosted there was an all-youth session.

> **There are some people that want to have power over us, but we would prefer not to disclose their names.**
> — *Young Man, Nabi Chit*

Residents from Ghazze, Haouch el Harime, Ras Baalbek, Zeitouneh, and women from West Bekaa and Baalbek all stated they were willing to work and help with the implementation of projects within their communities, although only women in Ghazze said they had been involved in past conflict resolution efforts. Most of these communities said they could also help reduce household usage if necessary for eventual progress. In Ras Baalbek, Zeitouneh, Serraaine el Fauqa, and Serraaine el Tahta participants said they could help by monitoring tasks and raising public support. Participants from Haouch el Harime and Ghazze both stated they could help sustain larger projects enacted in their communities and minimize wasted water. Community members from Aarsal, Serraaine el Fauqa, Serraaine el Tahta, Youmine, and the women in West Bekaa stated that local communities were particularly capable of building unity around water-related projects, peacefully protesting against current concerns, and identifying and reporting problems.

Despite a willingness to collaborate and contribute, participants from Youmine, Nabi Chit, and Aarsal were hesitant to dedicate themselves to specific action due to limitations in their personal capacities:

> **People have limited capacities regarding this issue. Even if people collaborate, they can't help the whole village.**
> — *Man, Aarsal*

> **We hope that women get to have a bigger role in society, especially when it comes to water-related issues, because women actually need water more than men in housework. We also hope that you can support women empowerment in society.**
> — *Women's Group from Across West Bekaa*

Beyond individuals' action, women from across West Bekaa said collaboration between the area's informally organized youth groups, the heads of municipalities, and wealthy or influential community members could contribute to the sustainability of newly proposed solutions. Participants from Iaat and Aarsal echoed the positive role well-regarded or connected community members (both Syrian and Lebanese) could play in conflict resolution. In Aarsal, attention was drawn to a local committee of volunteer youth as a potential collaborator, and in Nabi Chit and Ras Baalbek, residents suggested that wealthy community members from their villages should help finance future projects.

## Community Project Recommendations

Over the course of the FGDs, many solutions were proposed to address water-related problems and conflicts, and there was a general sense of excitement over the possibility of progress. In all communities – excluding Douris, Nabi Chit and Youmine – participants requested that: 1) proposed solutions be sustainable, 2) the actions of all participant actors be transparent, and 3) INGOs be involved in implementing collaborative, culturally appropriate action. Financial transparency, specifically, was identified as a high priority, as past projects in the regions had promised, but rarely delivered, accountability to residents.

> **When all information is shared and action is transparent, the right for accountability becomes easier'.**
> *— Women's Group from Across West Bekaa*

In the aforementioned locations, participants stated they had not seen satisfactory responses in the past and were unsure of what effective work should look like, though they did believe collaboration and communication between all engaged parties was necessary for success.

Youth participants in the FGDs, while eager to help, felt they were rarely included in localized projects and were disillusioned with broken political processes that favor "certain" actors. While youth were often pushed to the margins of projects and social action, the importance of their inclusion was highlighted by community members. Literature and chronology both show youth will inherit all water-related problems and conflicts in their communities and sustainable action necessitates intergenerational partnerships to avoid capacity gaps (UNDP, 2016).

All participants in the FGDs stated communication regarding water-related projects in their communities was highly important, and all participants said social media was the best communication tool for keeping them informed. In Ghazze, Facebook was mentioned by name, and Instagram was mentioned in Ras Baalbek. Additionally, participants in some areas cited specific actors and practices they trusted to keep them informed:

- Participants from Ghazze, Haouch el Harime, Aarsal, Nabi Chit, Youmine, and the women's group in West Bekaa stated their municipalities had served as reliable sources of information;
- Participants from Ghazze, Haouch el Harime, and the women's group in West Bekaa said community meetings or conferences could be effective;
- Women from West Bekaa trusted mosques and churches to keep them informed;
- In Douris, Ras Baalbek, and Zeitouneh direct communication from volunteers was suggested;
- In Serraaine, participants trusted Hezbollah to provide information;
- In Youmine, members of the Lebanese Parliament (MPs) were deemed reliable; and
- Regardless of who implemented future water-related projects, participants across Baalbek, Serraaine el Fauqa, Serraaine el Tahta, Aarsal, Nabi Chit, and the West Bekaa women's group hoped information would be shared directly by projects' leads.

Sustainable infrastructure improvements and policy changes over the long-term generated the most ideas for local projects; however, participants were quick to acknowledge the importance of meeting immediate water-related needs as well. To this end, participants from Ghazze, Haouch el Harime, Chlifa, Bouday, Qaa Baalbek, and Iaat recommended support for purchasing private water to fill personal water tanks and potable bottled water to bridge needs in water access, decrease scarcity, and prevent further conflicts. The only other stand-alone project concept generated by participants came from Aarsal, Ras Baalbek, Zeitouneh, and the women's group in West Bekaa, where education sessions and specific education around water-related issues and conflict resolution was requested. Participants stated advancements in education could help individuals more appropriately respond to their present circumstances.

### Infrastructure Improvements

Technical and mechanical improvements to water-related infrastructure were the most commonly recommended for improving participants' living conditions and reducing or resolving water-related conflicts. While there were many recommended improvements, clear consensus existed around the need for sustainable sources of power and alternatives to Lebanon's volatile fuel market. Solar panels for resolving electricity shortages and outages were mentioned in Ghazze, Haouch el Harime, Chlifa, Bouday, Iaat, Qaa Baalbek, Aarsal, Ras Baalbek, Youmine, Yahfoufa, Zeitouneh, Nabi Chit, and the women's FGD in West Bekaa. Achieving water systems' energy independence and sustainability was the most common approach recommended for reducing rising water-related conflicts.

> **If the electricity never breaks, all of our water related problems will be solved.**
> *— Man, Haouch el Harime*

Alongside this suggestion, many localized projects related to needs identified by residents' were raised. Recommendations varied on their specificity, and included:

- Cleaning of the Litani River;
- Financing and installing water wells in Ghazze, Haouch el Harime and Douris;
- Repairing underground water infrastructure in Ghazze and Yammouneh;
- Constructing water refining systems and performing needed maintenance of current water-related infrastructure in Iaat, Deir El Ahmar, Chlifa, and Bouday;
- Constructing water filtration systems in Haouch el Harime and across West Bekaa;

> **A water filtration system is a must. We are suffering from water contamination.**
> *— Women's Group from Across West Bekaa*

- Identifying and resolving issues related to poor water quality with the well in Haouch el Harime;
- Constructing a new well in Haouch el Harime;

> **We need financing to install an independent water system with maintenance, so that all the villagers meet their water needs.**
> *— Man, Haouch el Harime*

- Financing and constructing a dam to improve water quality and access in Aarsal;
- Resolving maintenance issues with existing water infrastructure in Haouch el Harime, Aarsal and across West Bekaa; and
- Repairing and improving existing wells across Baalbek.

> **There are wells too that can provide for all the village, but the water network installed needs maintenance.**
> *— Man, Aarsal*

### Policy Changes

During discussions where participants suggested policy changes, recommendations tended to be framed as generalities, and specific, implementing actors were infrequently paired with direct action. The necessary authority to implement the following recommendations and the consensus needed to adopt them peacefully and successfully was not determined by the scope of this study. In Ghazze, participants suggested policies to minimize individual water consumption, scale water payments with water consumption, fine individuals who wasted water, and divide the village into sectors to regulate and resolve water distribution and access issues. Participants from Douris, Ras Baalbek, Zeitouneh, and the women's group in West Bekaa advocated for similar measures to improve water distribution, and in Serraaine el Fauqa, Serraaine el Tahta, Ras Baalbek, and Zeitouneh improved transparency from RWEs and their employees was recommended as a potential path towards this end.

> **If they divide Ghazze into different sectors then people will know their turn and we'll have water for all the village.**
> *— Man, Ghazze*

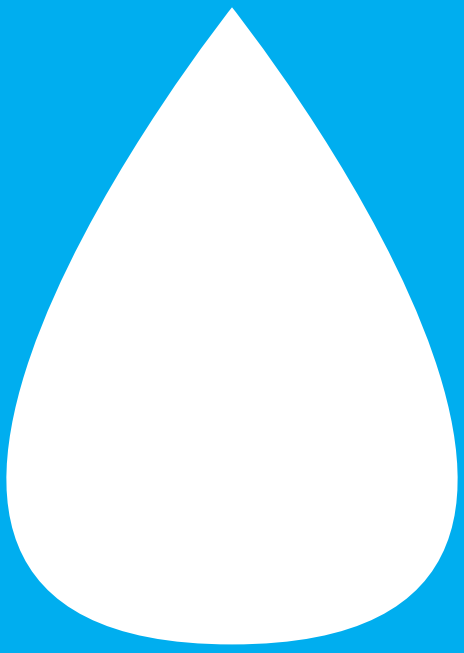
## Summary of Key Findings

The core water-related issues driving tension and conflict within the study's targeted communities related to: water quality, accessibility, distribution, and scarcity. Across all communities consulted and both rounds of FGDs, there was strong consensus that unreliable power generation, largely driven by Lebanon's struggles with escalating fuel prices and availability – as well as other forms of fuel dependency – negatively affected communities' water quality, availability, and distribution. The second most agreed upon problem identified by participants centered on water pollution and the contamination of potable water resulting from contact with wastewater. Decreased purchasing power has diminished residents' main mitigation strategy and problems will likely compound with the region's increased poverty conditions and climate change, and severely escalate tensions without intervention.

All areas, excluding Jenta, Yahfoufa, and Iaat, reported some level of water-related conflict stemming from these issues. The most common conflicts expressed between groups sprung from competing demands for limited resources and tensions related to the presence of refugees. The most common actors in conflicts across all villages reporting concerns were municipal bodies, RWEs, Lebanese nationals, and Syrian refugees.

In the presence of these problems and conflicts, there were many examples of granular, community-level solutions to tensions. While the effectiveness, sustainability, and transparency of these solutions varied from project to project, there was a clear pattern of community-driven action. Despite this organic support for progress, participants did not believe they had the ability to address all of their water-related concerns alone. To help address this gap, participants primarily trusted the work and leadership of INGOs and local NGOs the most. Residents tended to prefer that such organizations take lead roles in the implementation of all water-related projects in their communities, and stated that organizations had both villages' best interests in mind and the financial capacity to achieve results. Support from municipal leaders, and political and religious actors, were mentioned as well. Contrastingly, communities stated they had lost all trust in all of Lebanon's public institutions and the government. In instances where the government's involvement would be mandatory for progress, participants insisted that INGOs take on supervisory roles, and monitor and evaluate the government's work to lessen the likelihood of corrupt action.

Many solutions were proposed to address water-related problems and conflicts in communities, and there was a general sense of excitement for progress. In most communities, participants requested that: 1) proposed solutions be sustainable, 2) the actions of all participant actors be transparent, and 3) INGOs be involved in implementing collaborative, culturally appropriate action. While sustainable infrastructure improvements and policy changes were the most requested projects for implementation, participants were quick to acknowledge they had immediate water-related needs as well. All FGD participants stated communication regarding water-related projects in their communities was highly important, and all participants said social media was the best communication tool for keeping them informed.



# PROGRAM MODELS

# Program Models

## Overview

Based on these findings, there are clear water-related concerns within the communities of Baalbek and West Bekaa. While the tensions and conflicts that exist around these concerns may complicate the implementation of appropriate solutions, technical projects that address water-related problems can also serve as concrete opportunities for creating peace. To this end, Search has developed: 1) general program recommendations for any WASH (Water, Sanitation, and Hygiene) related work within the study's targeted areas, 2) specific suggestions for high-priority technical projects, and 3) accompanying opportunities for peacebuilding that can and should accompany future WASH interventions. These recommendations are made to address significant issues regarding: 1) water quality, access, and distribution; management of water resources; and water scarcity, 2) persistent energy concerns, and 3) local conflict dynamics and ongoing tensions.

While similarities were found between many of the locations included in this study, the specific and nuanced needs of those communities (and the many unrepresented communities) demand localized knowledge and cultural expertise to guide any project's planning, implementation, and sustained impact. Thus, emphasis has been placed on the importance of supporting community members' agency and efficacy, and their deep cultural understanding and direct connection within society to address community needs, dynamics, and underlying issues of social cohesion. This focus should be read and understood in concert with AUB-IFI's institutionally driven project recommendations. The successful implementation of peacebuilding activities requires transparency, inclusivity, and representative participation. In communities that are deeply skeptical of government intervention but hopeful for change nonetheless, collaborative action must work to build partnerships between international actors, local NGOs, relevant local authorities, and local communities.

While all of the peacebuilding activities proposed are designed to work in complementary fashion and reinforce gains made across each, they can also be implemented as standalone interventions. The financial, human capital, time-based, and logistic requirements of any conflict resolution program are significant when planning for short, medium, and long-term results. Thus, this study presents its recommendations in a modular form, so the capacities of any implementing partner at any given time can determine what level and form of implementation is most appropriate.

## General Recommendations

**Mainstream and include women in program decision-making and implementation:**

Women are engaged with water-related issues and WASH concerns regularly, but are often excluded from decision-making processes regarding them. Additionally, women in the FGDs voiced a desire for greater self-determination. While clean water and sanitation practices are vital for all members of society, efforts that include women and girls can have simultaneous positive impact on reducing poverty and sexual and gender-based violence (SGBV) (SIDA, 2019). Because institutional and cultural norms in Lebanon lean towards traditionally separated gender-roles, women's particular water-related needs – as they perceive them – are often absent from public discourse. This skewed perspective likely lacks critical information regarding household water uses and procurement practices. In order to fully address the complex conditions of all water-related problems and conflicts within Baalbek and West Bekaa, women must be empowered to voice their thoughts, concerns, and solutions, and be heard, understood, and valued when doing so. The path to women's inclusion and empowerment must be executed carefully and regard nuance, as aggressive engagement with cultural norm could inflame tensions and counter projects' goals;

**Foster long-term sustainability by including youth in water-related programs:**

Throughout the FGDs, youth were often the most critical of current political structures and corruption. There were also mixed feelings from other community members over whether young people should play a role in water-related conflict resolution. Youth around the world experience a "violence of exclusion" from processes and decision-making around issues that affect their daily lives (Simpson, 2018). This exclusion largely results from discrimination regarding youths' competence, and stereotypes of young men as troublemakers and young women as passive actors needing paternalistic protection. Such views are often internalized by youth themselves. However, WASH-related efforts across the globe have effectively seen young people lead critical, life-saving conflict transformation and peacebuilding initiatives. Their inclusion in water-related programs and peacebuilding is necessary not only because they will inherit any and all water-related issues, but also because they already have important capacities and innovative perspectives they can contribute. Including youth can transform traditional intercommunal relations, and seed long-term change through increased knowledge and capacities for intergenerational collaboration around conflict dynamics, decision making, and civic engagement.

**Seed indicators of progress in all stages of project implementation, especially early on:**

While many community members consulted during the FGDs were eager to support new initiatives and highlighted the importance of water-related issues in their communities, general fatigue and a history of unsuccessful government-led action has limited their energy and capacity. Without tangible, meaningful indicators of change and improvements to individuals' quality of life, sustained commitment from community members may be a challenge to maintain.

## Technical Project Recommendations

Many water-related issues identified by AUB-IFI and Search's research are either caused or compounded by Lebanon's struggle with escalating fuel prices and unreliable energy. These energy concerns affect water security at personal and institutional levels, and addressing them is of the utmost importance to the community members questioned during the FGDs and institutional representatives survey by AUB-IFI. While the scale of need and most relevant solutions might vary by community, the importance of stable energy is apparent.

In response to rising fuel prices and the overall state of Lebanon's economy, communities are looking for ways to address unreliable or costly sources of energy that negatively impact their access to clean, quality water. Some FGD participant communities have begun to use solar panels to meet these needs, and there is room to expand these efforts, both in terms of capacity and geography. Simultaneously, there are many water infrastructure issues that must be addressed in local communities. While the financial cost and legal responsibility of these concerns vary from location to location, addressing some needs could have a disproportionately large and positive impact on communities when compared to the time and financial investment required to address them. Partnership-based working group made of representatives from local NGOs, municipalities, relevant authorities, RWEs, and the peacebuilding bodies detailed below should be developed in order to identify, construct, and maintain localized, sustainable options that address the fuel and energy concerns impacting water access and management and implement quick-to-address infrastructure improvements.

The recommendation made by FGD participants and AUB-IFI that energy needs of water infrastructure (e.g. pumping stations, wastewater treatment facilities, etc.) should be met through stable, sustainable sources is seconded by Search. Doing so would decrease recurring costs and reliance on volatile fuel prices. Due to climate and topographical variations between communities, a universal model for sustainable energy should not be developed and implemented. Rather, individual communities should build working partnerships by identifying and mapping locations for sustainable energy projects (i.e. solar and wind) first. Mapping projects of this sort are already underway and it may be possible to loop local representation into these processes. A general, nation-wide mapping for solar and

wind projects has been conducted by AUB-IFI, and more localized maps are being developed by groups like USAID, the EU, and the Agence Française de Développement. Coalitions between the aforementioned water-based stakeholders could work alongside these mapping efforts to ensure future development projects are deployed equitably and sensitively. Additionally, mobilizing Water Management Committees (WMCs) and local mediators – both detailed below – during mapping processes to provide additional insight into water-related tensions and conflicts and prioritize community needs, would increase the process' conflict sensitivity and generally contribute to lower water-related tensions. Mapping tasks related to the needs and interests of project donors could easily be appended to this process as well.

Simultaneously, local coalitions between residents, municipal leaders, and RWEs should identify high-gain, low-cost interventions with the potential for immediate amelioration of identified tensions (e.g. purchasing water tanks or replacing/repairing faulty equipment). Because mapping processes and the construction of sustainable infrastructure operate on a lengthy schedule, it is important to find opportunities to address communities' needs in the short-term. Addressed issues could positively affect residents' water-related concerns and their willingness to participate in future efforts with longer implementation timelines.

Both the construction of sustainable energy sources and the development of new water distribution plans could be overseen by local NGOs to ensure equitable implementation, and transparency and accountability with communities from local authorities. Participants in the FGDs regularly stated they trusted NGOs and believed they had villages' best interests in mind and the financial capacity to achieve results. Local NGOs with limited capacity but relevant technical expertise and missional directives are prime candidates for this project, as they operate with the trust of local residents and municipalities alike. With the backing and support of international organizations' resources and connections, local NGOs' capacity could be bolstered, which would increase their long-term potential for impact in Lebanon and create accountability to both communities and institutions.

**Any technical project's success depends on the cooperation of municipalities, RWEs, and local communities**. Communicating the benefits of specific projects and incentivising economic support and energy independence may help foster effective and willing participation from these actors. Technical projects will likely also be challenged when targeted areas experience improved energy access, and thus improved water distribution and/or quality. In these instances, the potential for heightened inter-community tension exists with areas where projects have not been implemented. Disproportionate benefit or even feelings and perceptions of unequal benefit should be addressed through project transparency and community involvement. The peacebuilding recommendations detailed below can help address this challenge.

## Peacebuilding Recommendations

The importance of inclusive participation is often reduced, in practical terms, to the fulfillment of numerical requirements for demographic categories. Far from this reductionist perspective, however, **representation and participation have the potential to dramatically improve project outcomes, mitigate tensions, and strengthen personal agency**. The following recommendations are predicated on this understanding. While disempowerment and hopelessness feed cycles of conflict, agency, efficacy, and participation in cooperative action can transform the ways communities and individuals perceive themselves, each other, and the trajectory of their society on the whole. The approaches detailed below can improve the social stability outcomes of any WASH-related activities implemented in Baalbek and West Bekaa, including those recommended by AUB-IFI, and direct action on notes of community concern within the FGDs.

### Water Management Committes

In order to iteratively build trust and accountability between residents, RWEs, and local public authorities, **a civilian structure that consolidates public sentiment and empowers community members could foster social stability and contribute to sustainable solutions for water-related issues**. While all areas where RWEs are perceived as uncooperative or ineffective in West Bekaa and Baalbek could benefit from this project, Douris residents' particular willingness to work alongside their RWE makes that community a strong candidate for pilot programming.

In each community they are established, WMCs – made of a representative cross-section of residents – would identify water-related issues and recommend potential solutions to their RWE. Committees would also be responsible for: coordination with and providing support to local authorities to improve water infrastructure, ensuring the accountability of authorities responding to issues raised by the community, and assisting in knowledge sharing and dissemination within their community to increase feelings of trust and transparency. These committees would also work with, and possibly include, members of the local municipality and other local authorities on water-related concerns, and liaise with relevant stakeholders and technical experts on issues at hand. In their report, AUB-IFI recommends the development of formal, public consultation processes for draft plans, regulations, and laws in the WASH sector, and WMCs could provide a functional mechanism for engaging community stakeholders.

When establishing WMCs, participants should be drawn from circles of established community leaders and underrepresented groups when possible, and should include: individuals who can effectively represent the needs of all local nationalities (e.g. Lebanese, Syrian, and Palestinian), women, men, young people, and community elders. Social dynamics present within every participant community should be considered when selecting WMCs' members. While some communities may be ready for the participation of Syrian and Lebanese leaders alongside one another, cooperative engagement in areas with particularly scarce water resources may exacerbate tension.

**Participants should be diverse and representative of communities' demographic makeup, and they should also be democratically selected by community members in order to ensure 1) quality representation is achieved within cultural parameters, and 2) representatives – and thus WMCs – are trusted when responding to water-related concerns**. Additionally, AUB-IFI recommends tapping into the knowledge of local businesses and tradespeople to maintain and support WASH-related equipment and infrastructure. Including representatives from these same groups on WMCs would provide a clear path for this knowledge to be shared.

Terms of reference that state participants' roles and responsibilities should be well defined and collaboratively constructed with communities themselves. **By creating clear parameters around the limits of WMCs' activities, there would be less risk of WMCs overstepping their bounds into legally restricted action**. If some locations' WMCs were particularly successful and their partnership was embraced by relevant authorities, memorandums of understanding could be drawn up to expand their impact on a case-by-case basis.

Programming for WMCs would begin with the inclusive formation of committees. Alongside demographic representation, it would be important to include members with technical expertise, municipal representatives, Mukhtars, and trusted (formal or informal) community leaders. The implementation of any localized water-related projects could be monitored by area WMC in order to create greater transparency and accountability from municipalities, RWEs, and outside partners. Members of the committees would be able to report on progress, obstacles, and other relevant issues to community residents throughout a given project's life-cycle. Other possible duties might include, but are not limited to:

1. Facilitating open dialogue and information sharing between community members, local authorities, and other governance bodies regarding water-related issues, policies, and projects;
2. Providing capacity building sessions and raising awareness of water preservation, water-related hygiene awareness, other critical mitigation strategies with community members;

3. Identifying water-related tensions, water usage patterns, and readily actionable points of improvement; and
4. Developing sub-committees to broaden inclusion and reach all members of the community (e.g., a women's or religious leaders' sub-committee that could visit and listen to the particular needs and concerns of these demographics).

**Capacity building activities and coaching sessions for committee members, and municipal and RWE representatives interacting with the CWEs would support members' ability to accomplish their designated tasks, the sustainability of this project, and of programs beyond this project's duration as well**. Additional technical and financial support from international actors and local NGOs could help WMCs craft meaningful interventions backed by best practices from across the world. Officially registering WMCs as formal bodies could also help ensure their sustainability and long-term local ownership over programming.

In summary, **WMCs could improve sensitive, community-led problem solving and generate solutions to water-related issues. They would also serve as a conduit for communication with local municipalities and RWEs, and would facilitate community engagement around water infrastructure improvements. Implementation of WMCs would increase transparency and accountability, and build trust between communities, municipalities, and local authorities**. All of these results could help generate trust and improve transparency, thereby decreasing tensions and reducing conflicts around water-related issues.

### Challenges, Risks, and Limitations

Achieving inclusive and representative participation within the WMCs is a substantial challenge. During the FGDs, many women and youth stated they often are left out of decision-making processes and felt far removed from change. Nevertheless, almost all FGD participants stated they would work with people from different backgrounds if their lives improved as the end result. **Highlighting the positive roles and contributions youth and women could play within the committees and subsequent projects is critical for both the success of the WMs and the gradual shift of perceptions and norms that prevent inclusion and support marginalization**. Liaising with municipalities also poses a challenge, based on traditional holdings of power and a long-standing lack of trust. Still, the participation and financial backing of international stakeholders and the potential for change provide strong layers of influence and incentive for public authorities' cooperation.

While financial support from outside sources cannot be considered a sustainable mechanism for facilitating cooperation or ensuring long-term development, it may help initiate new forms of community participation and build the long-term capacities of communities.

Consideration of Lebanon's current legal and institutional water management landscape would be necessary for proper implementation of the WMCs. Guiding laws – particularly Water Law 77 and Law 192 which supersedes it – do not natively provide a legal framework for WMCs, and developing an extra-legal framework might raise questions regarding commissions' allegiance, responsibilities, organization, and transparency (UNEP, 2020). Analysis of UNICEF's successful WMC implementation in other countries could help implementing actors navigate legal barriers and other sensitivities around the foundational stages of program development.

### Local Conflict Mediators

International actors who support localized efforts could further enable communities' peacebuilding around water-related issues by identifying local community leaders (women, youth, traditional social or religious leaders, etc.) within the many representative demographics of targeted locations and training them as grassroots-level mediators skilled in conflict resolution and consensus building. While WMCs operate as a collective body and primarily interface with water-related issues, mediators would nimbly and individually – though with the capacity for partnership and collaboration – engage directly with conflicts and tensions. **Grassroot-led mediation directly addresses local-level tensions in communities through inclusive dialogue and cooperative**

**action. This, in turn, improves social cohesion, builds resilience to conflict, deescalates violence, and encourages the adoption of sustainable, non-violent conflict resolution mechanisms and norms within communities.**

Local-level mediators are suggested for all of Baalbek and West Bekaa. However, they are most important to consider in communities that have high potential for future water-related conflict and other, exacerbating tensions (e.g. inter- and intra-communal tensions). Areas included in this study that fit this profile include Bouday, where intra-community tensions have risen to the point of physical violence, and Aarsal, where water-related disputes between the Lebanese host community and Syrian refugees persist. Development of a mediator model that accompanies WASH-related programming would necessarily include:

1. **Identification and recruitment**: While mediators can be found through pre-existing peacebuilding activities and community recommendations, a wider, more inclusive mapping of potential candidates would yield better program results. Identifying participants with 1) access to groups outside stakeholders do not have connection to, 2) deep knowledge of existing conflicts, 3) established, trusted relationships with conflict-involved actors, 4) wider trust within their communities, 5) passion for civic engagement, and 6) willingness to work with people from different backgrounds would give mediation efforts the greatest opportunity for positive impact;
2. **Training and support**: The key skills mediators should be equipped with include: conflict analysis, conflict resolution, group facilitation, community engagement, problem solving, impartiality, patience, self-awareness, communication, teamwork, and the ability to reflect and learn from the mediation processes. By employing a wide range of capacity building activities, mediators could develop these skills and pass them on throughout their community;
3. **Active analysis and response**: Alongside specific mediation skills, participants would hone and practice conflict analysis. With further training and support, mediators would map existing points of tension and conflict within their communities, identify entry points for resolution, and develop localized initiatives that respond to persistent or emerging tensions; and
4. **Community education and exchange**: Successful implementation requires communities know how to leverage their local mediators in response to tensions and conflicts. By creating outreach opportunities for mediators and community members, localized peacebuilding networks can be built to increase social stability. Additionally, cross-community networking and exchange between mediators would support their personal resilience and the sharing of best practices and local successes.

In particular, **it would be beneficial to mobilize youth in this role, as participation could reinstill a sense of agency in mediators and provide a path for youths' contribution around local conflicts when other roles and responsibilities are gated behind traditional barriers or positions. Youth have successfully participated in similar programs throughout Lebanon and the region and have addressed tribal conflicts, waste management issues, and social instability concerns, all while reducing overall community tensions** (European Union, 2015; NDI, 2012; Search, 2021; Search, 2019). Positioning mediators on WMCs or having mediators facilitate conflict resolution training for WMCs could greatly increase the ability of these bodies to respond to water-related conflicts.

Training and support for local mediators should involve local NGOs, such as Sawa Group and the Lebanese Organisation for Studies and Training, who were identified in AUB-IFI's study. These organizations could aid in training and supporting mediators' initiatives. Similar to other recommendations in this report, international organizations and supporters could aid local NGOs with relevant capacity building sessions to promote local ownership and sustainable management structures.

In summary, **a community-based mediator program would prepare local residents to identify and address conflict dynamics, and build a culture of dialogue in response to conflicts and tensions. These individuals would also be able to respond to rising tensions with coordinated, sensitive, and sustainable action.**

**Challenges, Risks, and Limitations**

It is essential that grassroots mediators and the services they provide be known and trusted by local community members. Thus, mediation networks' action must include visible, on-the-ground engagement and successfully intervene in tensions to demonstrate their value. If mediators and conflict management mechanisms are not understood by their communities, their impact and relevance will not be sustainable. Lastly, community leaders may resist the inclusion of specific demographics, especially women, as mediators. In order to mitigate this risk, early attention should be given to ensuring collective buy-in from all participants and supporting actors and development of a strong, relationally driven mediator cohort.

**Education and exchange opportunities**

Communities across Baalbek and West Bekaa lack mechanisms to share their knowledge, experience, and mitigation strategies with one another. Nevertheless, FGD participants' desire to learn about new opportunities and programs run by NGOs, and share their wisdom for the benefit of other communities was a recurring theme within this research. Likewise, RWEs and municipalities could benefit from increased opportunities to share water management solutions and learn in networks that have successfully implemented water-related peacebuilding activities in the past. At a point where residents in Baalbek and West Bekaa are doubtful of their government's ability to address water-related issues and long-term economic struggles, the need for hope-generating engagement is high.

Bringing local communities together for town halls or other informational events either directly related to water issues or adjacent to them would provide residents with new opportunities to share their knowledge and experiences with others. Events of this sort could build the capacity of communities through knowledge transfer and improve social stability and trust between groups that rarely communicate. Both of these outcomes have the potential to dislodge a general sense of hopelessness and encourage the spread of community-led resolutions. Specific instances of institutional success and change could also be shared in town halls by their relevant implementing authority as an additional avenue for transparent communication between RWEs and residents in a non-hostile environment.

**Positively framed town halls, whether created from scratch or connected to existing community gatherings, can be used as knowledge-sharing opportunities. Both models would enable communities to share their personal experiences and successes around water-related issues and tensions.** The use of performing and visual arts, culturally significant sites, tie-ins to shared history, and age-appropriate activities are strongly recommended to create welcoming and non-hostile environments of exchange. By building activities around community-level solutions and ideas regarding common water issues, residents' sense of personal agency can be reinforced. Past cooperation between Ghazze and Haouch el Harime make them valuable locations for reinforcing progress, and their mutual cooperation could be shared in nearby communities as a model of success if nurtured further.

**Events should allow for interaction between municipalities and community members to help rebuild eroded trust either concurrently or in advance of new water-related projects.** Designing paths for municipalities to meaningfully engage with their communities is critical for the success of any water-related project because effective collaboration from a wide variety of stakeholders establishes the strongest foundation for sustainable development.

In order to ensure participation and culturally sensitive design, **community members should be at the forefront of creating event models. The proposed WMCs are a strong candidate for a lead implementer, though the support of local NGOs and international organizations is recommended to foster additional community capacity development.**

Alongside town halls for residents, municipalities and RWEs would both benefit from knowledge transfer with their peers in other areas. This recommendation is made by both AUB-IFI and Search, and naturally flows from their combined studies. **Exchange visits between municipal leaders seeking technical information and those**

**who have successfully reduced water-related tensions and addressed management issues in their communities are highly recommended, particularly when both municipalities are within Baalbek, West Bekaa, or Lebanon.** Similar visits between RWEs and their international counterparts throughout the Global South would provide opportunities for comparing experiences and successes as well. Further investigation of the reported cooperation Deir El Ahmar, Qaa Baalbek, and Laboue achieved through a water-sharing agreement of the Laboue Spring may reveal if they are prime candidates for a knowledge-sharing pilot.

Technical visits between municipal leaders and their peers, and RWEs would best be implemented through cross-visitation. Opportunities for individuals from communities facing challenges to visit sites of success and vice versa both provide unique opportunities and benefits for knowledge transfer. **Exchanges between peers have the ability to redefine individuals' sense of possibility and encourage creativity.**

While WMCs and municipal leaders would be able to organize and sustain local-level exchange, the logistics and requirements for institutional cross-learning would either require the establishment of a new body capable of facilitating such events or the expansion of an existing body's workload. Both of these prospects would require significant initial support, which international actors are best positioned to provide. Because the greatest benefits of knowledge sharing and network development occur over the long term, it is important to implement exchange activities as a continuous process and engrain their normalcy within municipalities' and RWEs' milieu.

In summary, communities who engage with one another through social stability events and exchange programs should be able to effectively share solutions and knowledge, and build hope for improved water and energy conditions. **Local events would increase transparency, encourage trust, and help restore collaboration between community members and municipalities. Wider exchange opportunities for RWEs and municipalities could lead to the adoption of highly effective programming in new locations, strengthened professional networks, and mold-breaking experiences.** Piloting these events and exchanges would be most important in areas with very little trust in government officials, such as Zeitouna and Haouch el Harime, as well as in communities where increased transparency from RWEs was identified as a pressing need, such as Serraaine el Fauqa, Serraaine el Tahta, and Ras Baalbek. Participants' from West Bekaa (Ghazze, Haouch el Harime, and the women's FGD) specifically mentioned their interest in community meetings as well, which signals a potential willingness to engage in this program.

### Challenges, Risks, and Limitations

Organizing and executing these events with multiple communities poses travel and logistical challenges, as well as challenges related to the inclusive participation of women, youth, and other underrepresented groups given the differences in social norms between localities. Making sure these groups' voices are recognized in inter-community discussions, especially in the presence of municipal representatives, is critical as well. Communities who learn of localized successes will likely want to benefit from such programs. Simply put, when people see progress and aid distributed elsewhere, they will want progress for themselves. If the groups who seed and support local improvements lack the capacity to grow their efforts to new areas and opportunity is perceived as disparate, this could exacerbate inter-community tensions.

**Efforts must be made to guarantee the exchange-based nature of local events do not feel frivolous or dismissive of the pressing needs communities face**. Positive framing sets a meaningful stage for cooperative interaction, but it should not come at the expense of compromising the time and capacity community members have for participation, or the exclusion of society's most vulnerable members who cannot take time away from meeting their livelihood needs. Additionally, careful consideration of current and previous conflict dynamics within and between communities would need to be addressed. Development of a conflict sensitive space would require knowledge of conflict dynamics beyond water-related issues in order to be safe and effective. If the local mediator approach recommended in this section is implemented, cross-collaboration between these individuals could directly address this concern.

### Highlighting Shared Success

**Incorporating social stability components into technical WASH programming can reduce community tensions and bolster programs' sustainability through wider ownership of deliverables. Whether implemented through the proposed installation of sustainable energy sources or other water-related activities, organizations can identify shared sources of community concern and use their resolution as key opportunities that create narratives of partnership and common good**. Within Baalbek and West Bekaa, it is important that Lebanese host communities and Syrian refugees work together on shared concerns, overcome concrete challenges, and create physical indicators of their success so current and future generations have visible reminders of how collaboration can transform communities. Encouragingly, FGD participants were open to working with people from different nationalities, religions, and political affiliations to solve water-related issues if their combined efforts produced mutual benefit. This receptiveness to cooperation presents potential to reduce intra-community tensions and resolve conflicts peacefully through cooperative action.

**Joint activities that include collaborative success and dialogue can foster stronger relationships between community members and generations**. While improving the personal and social perceptions and attitudes of intra-communal groups is a long-term process, early points of collective success around water-related changes can improve communities' resilience to emergent tensions. Involving and equipping young people as well as their adult counterparts to collaborate on water-related problem-solving and peacebuilding can also shift traditional, hierarchical age dynamics and lead to recognition of the positive role that young people can and should play in their society. Intergenerational collaboration is particularly important as youth in the FGDs described experiences of exclusion and hopelessness. Tangible opportunities that address daily challenges provide an opportunity for youth to exercise agency and solidify their communal connections.

### Challenges, Risks, and Limitations

While shared successes can reinforce positive relationships and quell tensions, mutual failures can exacerbate conflict if not managed properly. If a project were to fail because of a critical community-level decision and this decision was attributed to only one participant group, increased resentment would be likely. Thus, supporting organizations should build the willing consensus of all participants around project decisions early and often when community members work alongside one another across socially dividing lines.

### Comprehensive Capacity Development

The recommendations in this report reference the importance of stakeholders' capacities regularly. Although municipalities, RWEs, individual community members, and other stakeholders all have intentions and interests, they may or may not be capable of pursuing these ends. As noted in the FGDs, some communities' willingness to collaboratively address water-related issues was hampered by their self-perceived inability. **By systematically identifying capacity gaps at municipal, institutional, and personal levels, peacebuilding efforts paired with water-related interventions can equip relevant actors with the skills and knowledge necessary to transform systems and society alike**. Building agency is paramount, not only for peacebuilding and conflict resolution, but also for regional ownership and long-term, sustainable development. Institutional leaders, community members, youth, women, and other marginalized groups can all benefit from acquiring the skills necessary to strengthen inclusive, participatory processes within their communities.

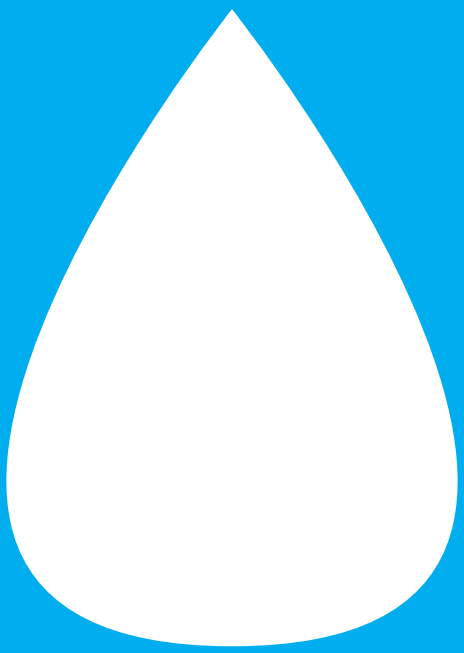
In the recommendations made by AUB-IFI, the importance of capacity development activities for local authorities and community members that have demonstrated a central role in addressing water-related conflicts is highlighted. Alongside the knowledge and experience sharing recommendations proposed by both AUB-IFI and Search, training and coaching sessions with topical experts, and practical opportunities for practicing newly acquired skills are strongly recommended. **For institutional and municipal**

**leaders, and community members alike (including WMC members and local mediators), sessions on the following topics would be valuable: non-violent communication, non-adversarial advocacy, transparency, inclusive and participatory governance models, gender sensitivity, and project management.** The requirements of individual actors' roles within water-related conflict resolution should shape and direct the methods used to equip individuals with relevant skills.

Upon completion of individual training sessions – or ideally, comprehensive capacity training schemes – **capacity gains should be reinforced with personalized coaching sessions facilitated by topical experts. A series of coaching opportunities would allow for deeper contextualization of newly acquired knowledge. Likewise, cooperative initiatives that allow individuals to put new knowledge and skills into practice would strengthen educational gains**. The localized water-related initiatives recommended by AUB-IFI and Search would serve as ideal opportunities for action, as would other WASH-related projects planned for Baalbek and West Bekaa.

### Challenges, Risks, and Limitations

Capacity development components provide the most benefit when implemented early in a project's lifespan. However, this point in time coincides with projects' least visible or discernable progress. Thus, it may be difficult to recruit the most important stakeholders into capacity development schemes if there are no other explicit incentives. Additionally, **without opportunities to practice and mainstream newly acquired knowledge and skills into participants' lives, capacity gains can be lost or minimized**. In order to prevent this, trainings should always be paired with concrete points of action to increase their sustainability and impact. Opportunities where participants teach others and pass their skills on are particularly useful for reinforcing gains.



# CONCLUSION

## CONCLUSION

Based on the data and findings consolidated by both AUB-IFI and Search, there is a clear need for projects that resolve water-related issues in Baalbek and West Bekaa. Technical projects can help address immediate and long-term issues of water quality, accessibility, distribution, and scarcity in these regions. If these projects are paired with peacebuilding approaches that mainstream inclusion, validate and enable diverse perspectives, train and equip localized mediators, facilitate cross-network knowledge exchange, and build stakeholders' capabilities, there is a strong likelihood that tensions both related and unrelated to communities' core water-related issues can either be resolved or at least mitigated.

Improving social cohesion and stability must be understood as a long-term, complex process that requires deep cultural understanding and direct connection within society in order to be effective and sustainable. Encouragingly, community members consulted during this study were vocal and willing to work with others unlike themselves if doing so would improve their living conditions. As coalitions are built to broadly address WASH-related issues in Baalbek, West Bekaa, and similar locations, this willingness can be utilized to create mutually beneficial, tangible changes within communities.

As a final note, participants in this study spoke highly of international organizations and NGOs, and preferred their action to that of other public actors. Beyond the parameters of this study, common experience in the field of peacebuilding has shown a resistance – or even a hostility – to the intervention of international actors in politically conservative areas. Towns or villages that hold strong, insular views and values may refuse to coordinate or engage with, or accept assistance from international actors associated with Western countries. Within any peacebuilding or water-related project in West Bekaa or Baalbek, it would be prudent to consider such locations' worry over hidden motives and cultural rivalry. Search recommends the inclusion of cultural sensitivity and awareness training not only for the communities who hope to address their water-related needs, but also for any and all organizations and partners intending to implement such work.

# ANNEXES

# Annexes search for common ground

## Annex 1: FGD Round One Questionnaire (English and Arabic)

1. What water sources are available in your area/neighborhood?
   - 1.1: Please describe how accessible these water sources are.
   - 1.2 Please describe any obstacles or difficulties people have accessing or utilizing water sources and water-related services (e.g. affordability, reliability, etc.).
2. What are the main water-related problems in your area/neighborhood?
3. If any of these water-related problems have escalated into water-related conflict, please describe them.
   - 3:1 What form did these water-related conflicts take?
   - 3.2: What drove the escalation?
   - 3.3: What actors and groups are usually involved in the conflict?
   - 3.4: Why were these actors or groups involved?
4. How have these problems been addressed and by whom?
   - 4.1: If they were addressed, what solutions were proposed?
   - 4.2: To what extent were proposed solutions sustainable?
   - 4:3 Did solutions address the root causes or underlying structure of the problem? Please
   - elaborate.
   - 4.4: Which, if any, of the listed problems have not been addressed and why?
5. Who do you normally contact regarding water-related conflicts in your area?
   - 5.1: How responsive are these entities/individuals?
   - 5.2: Why do you contact them in particular?
6. What are the main barriers and challenges for water-related conflict resolution?
7. What kind of projects could help mitigate these challenges or prevent conflict?
   - 7.1: Who are key players (organizations/municipalities/ministries/key stakeholders/etc..)
   - that could play an effective role in implementing the suggested project?
   - 7:2: Why would these key players be effective?
   - 7.3: Describe your relationship and engagement with these previously mentioned key players.
   - 7.4: Are there groups or individuals who are not involved with mitigating these challenges who could be mobilized to create more progress? If so, who?

1 ما هي مصادر المياه المتوفرة في منطقتك أو المنطقة المجاورة ؟

- 1.1 ما مدى سهولة الوصول إلى مصادر المياه هذه.
- 1.2 يرجى وصف أي عقبات أو صعوبات يواجهها الأشخاص في الوصول إلى أو استخدام مصادر المياه والخدمات المتعلقة بالمياه (مثل القدرة على تحمل التكاليف والموثوقية وما إلى ذلك).

2 ما هي المشاكل الرئيسية المتعلقة بالمياه في منطقتك أو المنطقة المجاورة؟

3 إذا تفاقمت حدة أي من هذه المشاكل المتعلقة بالمياه إلى نزاع يتعلق بالمياه ، يرجى وصفها.

- 3.1 ما هو الشكل الذي اتخذته هذه النزاعات المتعلقة بالمياه؟
- 3.2 ما الذي دفع إلى هذا التفاقم؟
- 3.3 ما هي الجهات الفاعلة والجماعات التي تشارك عادة في النزاع؟
- 3.4 لماذا شارك هؤلاء الفاعلون أو الجماعات في النزاع؟

4 كيف تمت معالجة هذه المشاكل ومن قبل من؟

- 4.1 إذا تمت معالجتها، ما هي الحلول المقترحة؟
- 4.2 إلى أي مدى كانت الحلول المقترحة مستدامة؟
- 4.3 هل عالجت هذه الحلول الأسباب الجذرية أو البنية الأساسية للمشكلة؟ الرجاء التوضيح.
- 4.4 أي من المشاكل المدرجة، إن وجدت، لم تتم معالجتها ولماذا؟

5 مع من تتواصل/ين عادةً بشأن النزاعات المتعلقة بالمياه في منطقتك؟

- 5.1 ما مدى استجابة هذه المؤسسات أو هؤلاء الأفراد؟
- 5.2 لماذا تتصل/ين بهم على وجه التحديد؟

6 ما هي العوائق والتحديات الرئيسية لحل النزاعات المتعلقة بالمياه؟

7 ما نوع المشاريع التي يمكن أن تساعد في التخفيف من هذه التحديات أو منع النزاع؟

- 7.1 من هم المؤثرون الرئيسيون (المنظمات / البلديات / الوزارات / أصحاب المصلحة الرئيسيون / إلخ ..) الذين يمكنهم لعب دور فعال في تنفيذ المشروع المقترح؟
- [ملاحظة للميسر - التحقيق في المؤسسات المتعلقة بالمياه]
- 7.2 لماذا قد يكون هؤلاء المؤثرون الرئيسيون فعّالين؟
- 7.3 صِف/ي علاقتك وانخراطك مع هؤلاء المؤثرين الرئيسيين المذكورين سابقًا.
- 7.4 هل هناك مجموعات أو أفراد غير مشاركين في التخفيف من حدة هذه التحديات ويمكن استقطابهم لتحقيق المزيد من التقدم؟ إذا كان الأمر كذلك، فمن؟

## Annex 2: FGD Round Two Questionnaire (English and Arabic)

1. Which of the following water-related issues are the highest priority in your community? [1) Poor quality water or contamination, 2) water scarcity, 3) unfair or unequal water resource distribution, 4) a lack of fuel or affordable fuel, 5) poor water infrastructure, or 6) electrical outages and shortages]
   - 1:1: What approaches would you suggest to address these issues?
   - 1.2: Which types (or specific) actors do you trust to fairly and effectively implement solutions?
   - 1.3: How should community members be involved in implementing such solutions?
   - 1.4: Which types of actors (or specific actors) do you trust to sustain or maintain solutions to these issues?
   - 1.5: How should community members be involved in sustaining or maintaining such solutions?
2. What support or change would enable you to confidently respond to new water-related conflicts in your community?
   - 2.1: What entities would you feel comfortable reporting or discussing water-related issues with?
   - 2.2: What role should INGOs, Local NGOs, and public institutions play when addressing water-related conflicts?
   - 2.3: What role should religious groups play when addressing water-related conflicts?
   - 2.4: If you raised a concern regarding water-related issues with one of these actors, what would a satisfactory response entail?
3. What kind of collaborative framework between these actors would be appropriate for addressing water-related issues?
   - 3.1: How should community members fit into this framework?
4. Under what conditions would you willingly share access to your water source with members from your community?
   - 4.1: From neighboring communities?
   - 4.2: From different nationalities?
   - 4.3: Are there any groups you would be hesitant to work with for mutually improved services?
5. Describe a water-related conflict or issue that was managed well or resolved in your community.
   - 5.1: What made the resolution successful?
   - 5.2: What actors were involved in finding a solution?
   - 5.3: Were community members involved?
   - 5.4: Were the actors involved transparent with their actions and accountable to the community? If so, who held them accountable and how.
   - 5.5: What practices were used to manage and preserve the solution?
   - 5.6: What lessons from this experience could other communities learn to help with their own conflicts?
6. How important is information about water-related projects implemented in your community to you?
   - 6.1: Who do you expect to share this information with you?
   - 6.2: What are the best communication tools for keeping you informed?

**1** أي من القضايا التالية المتعلقة بالمياه هي ذات الأولوية القصوى في مجتمعك؟ ١) سوء نوعية المياه أو التلوث، ٢) ندرة المياه ، ٣) التوزيع غير العادل أو غير المتكافئ لموارد المياه، ٤) نقص الوقود أو نقص الوقود بأسعار معقولة، ٥) البنية التحتية السيئة للمياه، أو ٦) انقطاع التيار الكهربائي ونقصه

- 1.1 ما هي الأساليب التي تقترحها لمعالجة هذه القضايا المتعلقة بالمياه؟
- 1.2 ما هي الجهات الفاعلة التي تثق بها لتنفيذ مثل هذه الحلول بشكل عادل وفعال؟
- 1.3 كيف يجب أن يشارك أفراد المجتمع في تنفيذ مثل هذه الحلول؟
- 1.4 ما هي الجهات الفاعلة التي تثق بها لإدامة أو الحفاظ على حلول لهذه القضايا؟
- 1.5 كيف يجب أن يشارك أفراد المجتمع لإدامة أو الحفاظ على حلول لهذه القضايا؟

**2** ما هو الدعم أو التغيير الذي سيمكنك من الاستجابة بثقة للنزاعات الجديدة المتعلقة بالمياه في مجتمعك؟

- 2.1 من هي الجهات المعنية التي قد تشعر بالراحة للإبلاغ أو مناقشة القضايا المتعلقة بالمياه معها؟
- 2.2 ما هو الدور الذي يجب أن تلعبه المنظمات غير الحكومية الدولية والمنظمات غير الحكومية المحلية والمؤسسات العامة عند معالجة النزاعات المتعلقة بالمياه؟ [ملاحظة إلى جامع البيانات: اذكر المنظمات التي تقودها النساء واسأل عما إذا كان أي من أصحاب المصلحة الموجودين في المرفق أدناه يمثلون جهة فعالة في حل النزاعات المتعلقة بالمياه في المجتمع
- 2.3 ما هو الدور الذي يجب أن تلعبه الجماعات الدينية عند معالجة النزاعات المتعلقة بالمياه؟
- 2.4 إذا ناقشت أو ابلغت عن قضايا متعلقة بالمياه مع أحد الفعاليات كيف تتوقع أن تكون الاستجابة المرضية؟

**3** ما هو الإطار التعاوني الأنسب بين هذه الجهات الفاعلة لمعالجة القضايا المتعلقة بالمياه؟

- 3.1 ما هو دور أفراد المجتمع في هذا الإطار التعاوني؟

**4** في ظل أي ظروف يمكنك مشاركة مصادر المياه الخاصة بك عن طيب خاطر مع أفراد من مجتمعك؟

- 4.1 مع أفراد من المجتمعات المجاورة؟
- 4.2 مع أفراد من جنسيات مختلفة؟
- 4.3 هل هناك أي مجموعات قد تكون مترددًا في العمل معها من أجل تحسين خدمات المياه بشكل متبادل؟

**5** صِف نزاعًا أو مشكلة متعلقة بالمياه تمت إدارتها بشكل جيد أو تم حلها في مجتمعك

- 5.1 ما الذي جعل حل النزاع ناجحًا؟
- 5.2 ما هي الجهات الفاعلة التي شاركت في إيجاد الحل؟
- 5.3 هل تم إشراك أفراد المجتمع؟ ملاحظة لجامع البيانات: حدد ما إذا كان الشباب أو النساء مشاركين
- 5.4 هل كانت الجهات الفاعلة المعنية شفافة في أعمالها ومسؤولة أمام المجتمع؟ إذا كان الأمر كذلك، فمن حمّلهم المسؤولية وكيف؟
- 5.5 ما هي الممارسات التي تم استخدامها لإدارة الحل والمحافظة عليه؟
- 5.6 ما هي الدروس المستفادة من هذه التجربة التي يمكن أن تتعلمها المجتمعات الأخرى للمساعدة في نزاعاتها المتعلقة بالمياه؟

**6** ما مدى أهمية تلقي المعلومات حول المشاريع المتعلقة بالمياه المنفذة في مجتمعك بالنسبة لك؟

- 6.1 من الجهة الفاعلة التي تتوقع مشاركة هذه المعلومات معك؟
- 6.2 ما هي أفضل أدوات الاتصال لإبقائك على اطلاع حول المشاريع المتعلقة بالمياه؟

## Annex 3: Demographic Form

1. الجنس ذكر / أنثى

2. ما هو تاريخ ميلادك (DD/MM/YYYY)؟

3. ما هي جنسيتك؟

4. ما هو أعلى مستوى من التحصيل العلمي الذي وصلت إليه؟

- لم ألتحق بالمدرسة
- المدرسة الابتدائية
- المدرسة المتوسطة
- المدرسة الثانوية
- دبلوم تعليم تقني/فنّي.الرجاء التحديد:
- شهادة جامعية. الرجاء التحديد:
- رفض الإجابة

5. ما نوع العمل الذي تقومين به؟

- طالب(ة)
- ربة منزل
- موظف(ة) بدوام كامل ، يرجى تحديد الوظيفة:
- موظف(ة) بدوام جزئي ، يرجى تحديد الوظيفة:
- صاحب(ة) عمل الخاص ، يرجى تحديد العمل:
- عاطل(ة) عن العمل و يبحث عن وظيفة
- عاطل(ة) عن العمل ولا يبحث عن وظيفة
- متقاعد(ة)
- غير قادر(ة) على العمل

6. ما هي حالتك الاجتماعية؟

- أعزب / غير متزوج(ة)
- متزوج(ة)
- مطلق(ة)
- أرمل(ة)

7. في أي منطقة/محافظة في لبنان تقطن؟

8. ما هو الدخل الشهري للأسرة (ل.ل.) (ويشمل هذا مجموع رواتب المرأة وزوجها ، والدخل القادم من الأقارب، والدخل الآتي من استئجار منزل أو أرض أو أصول أخرى)؟

- أقل من ٦٠٠،٠٠٠ ل.ل.
- ٦٠٠،٠٠١ – ٩٩٩،٠٠٠ ل.ل.
- ١،٠٠٠،٠٠٠ – ١،٤٩٩،٠٠٠ ل.ل.
- ١،٥٠٠،٠٠٠ – ١،٩٩٩،٠٠٠ ل.ل.
- ٢،٠٠٠،٠٠٠ – ٢،٤٩٩،٠٠٠
- ٢،٥٠٠،٠٠٠ – ٢،٩٩٩،٠٠٠
- ٣،٠٠٠،٠٠٠ أو أكثر
- لا أعلم/غير متأكدة
- رفض الإجابة
- لا ينطبق

## Annex 4: FGD Round One Participant Demographics*

| PARTICIPANTS' CHARACTERISTICS | TOTAL (N=71) |
|---|---|
| **Age (years)** | |
| | 44.65±13.32 |
| **Sex** | |
| Women | 25 (35.2) |
| Men | 46 (64.8) |
| **Nationality** | |
| Lebanese | 55 (77.5) |
| Syrian | 14 (19.7) |
| Palestinian | 2 (2.8) |
| **Education** | |
| Up to primary school | 15 (21.1) |
| Up to high school | 35 (49.3) |
| University or higher (including Technical Diploma) | 21 (29.6) |
| **Employment Status** | |
| Working | 45 (63.4) |
| Not working | 25 (35.2) |
| Refused to Answer | 1 (1.4) |
| **Marital Status** | |
| Married | 52 (73.2) |
| Single/Divorced/Widowed | 17 (24.0) |
| Refused to Answer | 2 (2.8) |
| **Income** | |
| <=600,000 – 999,000 | 19 (26.8) |
| 1,000,000 – 1,999,000 | 27 (38.0) |
| 2,000,000 – 2,999,000 | 5 (7.0) |
| ≥ 3,000,000 | 1 (1.4) |
| Refused to answer | 19 (26.8) |
| **Location** | |
| Aarsal | 8 (11.3) |
| Bouday | 2 (2.8) |
| Chlifa | 5 (7.0) |
| Dar el Ouassa | 1 (1.4) |
| Deir El Ahmar | 3 (4.2) |
| Ghazze | 8 (11.3) |
| Haouch el Harime | 8 (11.3) |
| Iaat | 8 (11.3) |
| Jenta | 4 (5.6) |
| Khiara | 8 (11.3) |
| Qaa Baalbek | 8 (11.3) |
| Yahfoufa | 4 (5.6) |
| Yammouneh | 4 (5.6) |

## Annex 5: FGD Round Two Participant Demographics

| PARTICIPANTS' CHARACTERISTICS | TOTAL (N=72) |
|---|---|
| **Age (years)** | |
| | 33.83±11.62 |
| **Sex** | |
| Woman | 53 (73.6) |
| Men | 19 (26.4) |
| **Nationality** | |
| Lebanese | 45 (62.5) |
| Syrian | 24 (33.3) |
| Palestinian | 3 (4.2) |
| **Education** | |
| Up to primary school | 9 (12.5) |
| Up to high school | 35 (48.6) |
| University or higher (including Technical Diploma) | 28 (38.9) |
| **Employment Status** | |
| Working | 16 (22.2) |
| Not working | 56 (77.8) |
| **Marital Status** | |
| Married | 41 (56.9) |
| Single/Divorced/Widowed | 30 (41.7) |
| Refused to Answer | 1 (1.4) |
| **Income** | |
| <=600,000 – 999,000 | 24 (33.3) |
| 1,000,000 – 1,999,000 | 18 (25.0) |
| 2,000,000 – 2,999,000 | 3 (4.2) |
| ≥ 3,000,000 | 1 (1.4) |
| Refused to answer | 26 (36.1) |
| **Location** | |
| Aarsal | 8 (11.1) |
| Douris | 8 (11.1) |
| Fakeha | 1 (1.4) |
| Ghazze | 11 (15.3) |
| Haouch el Harime | 8 (11.1) |
| Jebb Jannine | 2 (2.7) |
| Kamed el Laouz | 1 (1.4) |
| Loucy | 1 (1.4) |
| Mansoura | 1 (1.4) |
| Nabi Chit | 8 (11.1) |
| Ras Baalbek | 4 (5.6) |
| Serraaine el Tahta | 3 (4.2) |
| Seraaine el Fauqa | 5 (6.9) |
| Youmine | 8 (11.1) |
| Zeitouneh | 3 (4.2) |

## Annex 6: FGD Participant Demographics Combined

| PARTICIPANTS' CHARACTERISTICS | TOTAL (N=143) |
|---|---|
| **Age (years)** | |
| | 39.20±13.58 |
| **Sex** | |
| Woman | 78 (54.5) |
| Men | 65 (45.5) |
| **Nationality** | |
| Lebanese | 100 (69.9) |
| Syrian | 38 (26.6) |
| Palestinian | 5 (3.5) |
| **Education** | |
| Up to primary school | 24 (16.8) |
| Up to high school | 70 (49.0) |
| University or higher (including Technical Diploma) | 49 (34.2) |
| **Employment Status** | |
| Working | 61 (42.7) |
| Not working | 81 (56.6) |
| Refused to Answer | 1 (0.7) |
| **Marital Status** | |
| Married | 93 (65.0) |
| Single/Divorced/Widowed | 47 (32.9) |
| Refused to Answer | 3 (2.1) |
| **Income** | |
| <=600,000 – 999,000 | 43 (30.1) |
| 1,000,000 – 1,999,000 | 45 (31.5) |
| 2,000,000 – 2,999,000 | 8 (5.5) |
| ≥ 3,000,000 | 2 (1.4) |
| Refused to answer | 45 (31.5) |
| **Region** | |
| Baalbeck | 95 (66.4) |
| West Bekaa | 48 (33.6) |
| **Location** | |
| Aarsal | 16 (11.2) |
| Bouday | 2 (1.4) |
| Chlifa | 5 (3.5) |
| Dar el Ouassa | 1 (0.7) |
| Deir El Ahmar | 3 (2.1) |
| Douris | 8 (5.6) |
| Fakeha | 1 (0.7) |
| Ghazze | 19 (13.3) |
| Haouch el Harime | 16 (11.2) |
| Iaat | 8 (5.6) |
| Jenta | 4 (2.8) |

| | |
|---|---|
| Kamed el Laouz | 1 (0.7) |
| Khiara | 8 (5.6) |
| Loucy | 1 (0.7) |
| Mansoura | 1 (0.7) |
| Nabi Chit | 8 (5.6) |
| Qaa Baalbek | 8 (5.6) |
| Ras Baalbek | 4 (2.8) |
| Serraaine el Tahta | 3 (2.1) |
| Seraaine el Fauqa | 5 (3.5) |
| Jebb Jannine | 2 (1.4) |
| Yahfoufa | 4 (2.8) |
| Yammouneh | 4 (2.8) |
| Youmine | 8 (5.6) |
| Zeitouneh | 3 (2.1) |
| Zeitouneh | |

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unicef

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United Nations Children's Fund (UNICEF)
Lebanon Country Office
www.unicef.org/lebanon