Resilience and Peace-Building for Water-Related Vulnerabilities in Fragile and Conflict-Affected Communities: A Technical Guide

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CGIAR Initiative on Fragility, Conflict, and Migration

The CGIAR Initiative on Fragility, Conflict, and Migration aims to enhance the resilience of food, land, and water systems in fragile and conflict-affected settings, where migration-related challenges are prevalent. By taking a systems approach and working in partnership with local stakeholders, the initiative seeks to generate evidence to inform effective policies and programs that promote social and gender equity, climate resilience, conflict mitigation, and peace building in these settings.

Learn more about the initiative here: https://www.cgiar.org/initiative/fragility-conflict-and-migration/

Cover photo: Women gather beneath a tree with water containers (Photo: Petterik Wiggers/Panos Pictures)

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Content

Summary

Water-related vulnerabilities are increasingly contributing to tensions in fragile and conflict-affected communities (FCACs). Therefore, water development practitioners should be well-equipped to assess how their interventions can potentially reinforce vulnerabilities or support resilience and peacebuilding. The resilience-peacebuilding nexus is one of the critical entry points to addressing the complex and interconnected water-related challenges. This technical guideline aids the formulation and implementation of conflict-sensitive water-related development projects. It outlines three main steps to understanding the realities of water-related vulnerabilities and provides pathways for resolving them towards building resilience and peace. The first step focuses on the contextual analysis of the water system, including institutions, stakeholders and socio-demographic intersections. Step two is geared towards understanding the links of vulnerabilities and risks in the water system, to designing development projects in a fragile and conflict context. The third step provides a guide to mediating conflicts and building peace in the water system. The steps are important for ensuring that practitioners effectively manage challenges, generating additional risks and reinforcing water vulnerabilities to exacerbate conflicts in fragile contexts.

Introduction

Water is life, and important for sustaining food security and attaining most of the sustainable development goals . Yet, many countries have not attained water security - the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and stability (Grey and Sadoff, 2007). According to the United Nations World Water Development Report 2024, 2.2 billion people still live without access to safely managed drinking water. The United Nations projects that by 2025, 1.8 billion people will live in countries with absolute water scarcity. Growing water scarcity is exacerbating many local and national conflicts (United Nations, 2024).

The High-Level Panel on Water warns that 700 million people are at risk of being displaced due to intense water scarcity by 2023 , and water-related conflicts are expected to intensify in such contexts. More than 1.5 billion people are said to live in countries affected by violent conflicts, and about 20% of the world's poorest people live in fragile and conflict-affected situations . Increasing water scarcity has severe implications for FCACs because fragility and conflict contribute to water-related vulnerabilities and reduce adaptive capability (Tänzler and Ruettinger, 2014).

Water scarcity-related conflicts usually occur in local communities where most development interventions are implemented (Busby, 2021). Water scarcity interplays with several political, socio-economic, environmental and cultural factors that escalate existing conflicts or create new ones. For example, unresolved disputes between communities or households over water usage rights can turn into conflicts in the context of ineffective policies and informal rules and norms for effective water governance (Ahmadnia et al., 2022). On the other hand, such water disputes can provide opportunities for enhancing resilience and peacebuilding. There is thus a pressing need for water development project implementers to have a robust understanding of the complex interlinkages of vulnerabilities to conflicts at different governance levels to effectively build resilience and peace that minimizes water-related vulnerabilities in FCACs (Ruckstuhl, 2012).

Water-related vulnerability is the exposure to water stress that may negatively impact livelihoods and make it difficult for individuals, households and communities to be resilient and water-secure. To minimize conflicts over water resources, it is important to understand the vulnerabilities of different social groups in project intervention communities (Ruckstuhl, 2009). This will ensure that demand-driven and fit-for-purpose interventions are implemented to enhance resilience and peacebuilding processes as well as promote water security for all. A better understanding of the

context will also support water development practitioners in envisaging potential conflicts that may arise, executing anticipatory action to mitigate them, and ensuring maximum programme or project impacts. Practitioners generally do not assess water-related vulnerabilities and conflict situations to inform the design and implementation of interventions due to the lack of tools to guide the process of water projects that reduce the likelihood of conflicts.

This document is designed to provide straightforward guidelines for addressing water-related vulnerabilities, reduce their potential to drive conflicts and support practitioners with knowledge on how to build resilience and peace in addressing key risk factors of water systems in FCACs (Patel et al., 2023).

Guidelines on resilience and peace-building for water-related vulnerabilities in fragile and conflict-affected communities

Assessing water-climate vulnerability index

The sixth assessment report of the IPCC, places vulnerability as both a component of risk, and an important focus independently. Vulnerability is the propensity to be adversely affected by a situation (IPCC, 2022). It has evolved from exposure to climate hazards only to including social and contextual factors, and it also links to climate risks and disasters. The guide applies a re-conceptualisation of vulnerability that bridges the social and biophysical approaches. Thus, vulnerability is framed in the broader context of risk, together with hazards and exposure (IPCC, 2022)

In this context, vulnerability relates to the propensity of a water system to be adversely affected by a situation, including climate extremes, water shortages, and water-related natural disasters, within a certain socio-economic context. The main contributing factors to vulnerabilities can be categorized as: adaptive capacity (e.g. socio-demographic profile, livelihood strategies, socio-political networks); sensitivity (e.g. water access variability, assets); exposure (e.g. climate variability, natural disasters, water-related conflicts), (Bedeke, 2023; Phuong et al., 2023; Okpara et al., 2017). Vulnerability is assessed using a vulnerability index metric. The Water-Climate Vulnerability Index (WCVI) is a metric used to assess the vulnerability of water resources to climate change (Figure 1). The index helps project implementers in identifying regions, communities and/or sectors that are most at risk due to changes in climate, allowing policymakers and stakeholders to prioritize adaptation and mitigation strategies (Box 1). The goal is to provide a comprehensive understanding of how climate change impacts water resources, enabling better planning and resource allocation.
The WCVI generally captures four (4) key components namely:

Hydrological Indicators

Measures of water availability (e.g., river flows, groundwater levels), water quality, and existing water stress;

[1] https://www.unops.org/news-and-stories/stories/water-is-life
[2] Water scarcity | International Decade for Action 'Water for Life' 2005-2015 (un.org)
[3] https://www.waterbriefingglobal.org/report-warns-700m-people-at-risk-of-displacement-by-intense-water-scarcity-by-2030/
[4]https://blogs.worldbank.org/en/developmenttalk/how-world-bank-group-seen-eyes-opinion-leaders-fragile-and-conflict-affected-states#:~:text=There%20is%20little%20doubt%20that,shared%20prosperity%20will%20have%20to

Climatic Indicators

Data on temperature, precipitation patterns, frequency and intensity of extreme weather events such as floods, and other climate-related factors;

Socio-Economic Indicators

Demographic issues, economic activities, livelihood strategies, water usage patterns, water governance, conflicting claims, and infrastructure resilience;

Environmental Indicators

Health of ecosystems, biodiversity, and environmental regulations.

Figure 1: Steps to calculating the water-climate vulnerability index (Authors' illustration, Infographic by Klinsman Amissah)

Box 1

Case study of water-related vulnerabilities in Adamawa State, Nigeria

In Adamawa State of Northern Nigeria, the impacts of climate change and the increasing number of migrants are exacerbating existing water-related vulnerabilities and causing several socioeconomic challenges. In the fragile and conflict-affected communities (FCACs) of this State, experiences of risks related to water systems remain a growing concern. Reflecting on the adaptive capacity, sensitivity and exposure factors of vulnerability, a study that assessed the factors contributing to water vulnerability across different local government areas, show that, for example, Girei and Yola South communities exhibit the lowest vulnerability indices, attributed to their higher adaptive capacities and moderate exposure to water conflicts and climate variability (Figure 2). The two communities also have robust socio-demographic profiles, effective livelihoods and have built strong social networks over time. Conversely, Song and Hong communities are the most vulnerable, primarily due to their lower adaptive capacities and higher sensitivity and exposure to environmental and conflict-related risks. These communities are also highly sensitive, due to significant water variability and asset, in addition to high exposure to recurrent water conflicts and climate-related hazards. Understanding the risks to the water system of FCACs and the socioeconomic transformation resulting from these risks is critical to developing and implementing robust anticipatory action (AA) and contributing to resilience and peace-building in FCACs.

A woman fetching water at a pond in Malkohi Village Yola South LGA, Adamawa State 23/02/2024 Picture by Michael Amurtiva

Children queuing for water at the well in Shaforon Community, Numan LGA, Adamawa State

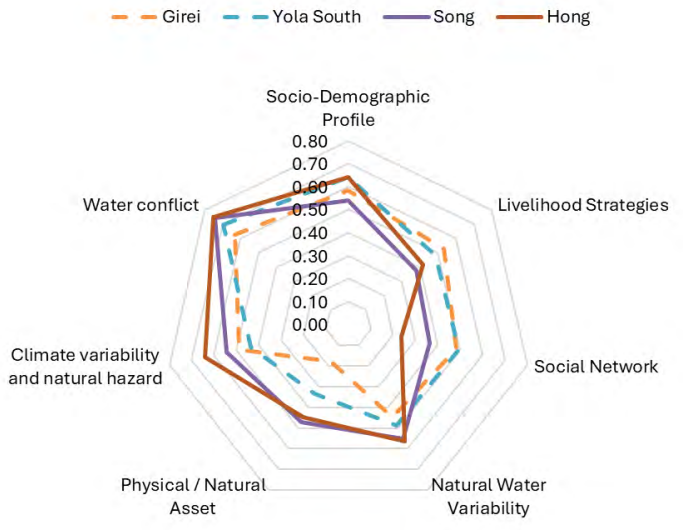

Figure 2. Water-climate vulnerability index of selected communities in Adamawa state

Understanding water-related conflicts

Generally, conflicts occur when people do not get access to basic human needs, leading to demands for improved opportunities, like water resources (Kremer, 2008; Ruckstuhl, 2012). Tension between competing water users can trigger conflict. Water-related conflicts may occur at local, national, and international levels (du Plessis and du Plessis, 2019; Schillinger et al., 2020). The ways through which water contributes to conflict can be clustered into three main factors: socio-economic, institutional and environmental (Figure 3). Critical early signs and triggers of conflicts may include: a surge in illegal water pumping connections and supply diversions to households and enterprises; unwillingness of people to invest in water use; lack of effective monitoring systems for water infrastructure and services; increasing and consistent cases of water use disputes; ethnic wars and insurgencies from terrorists; political instability; destruction of water infrastructure; unresolved violence at water resources points, as well as contradictions and incoherences in water policies.

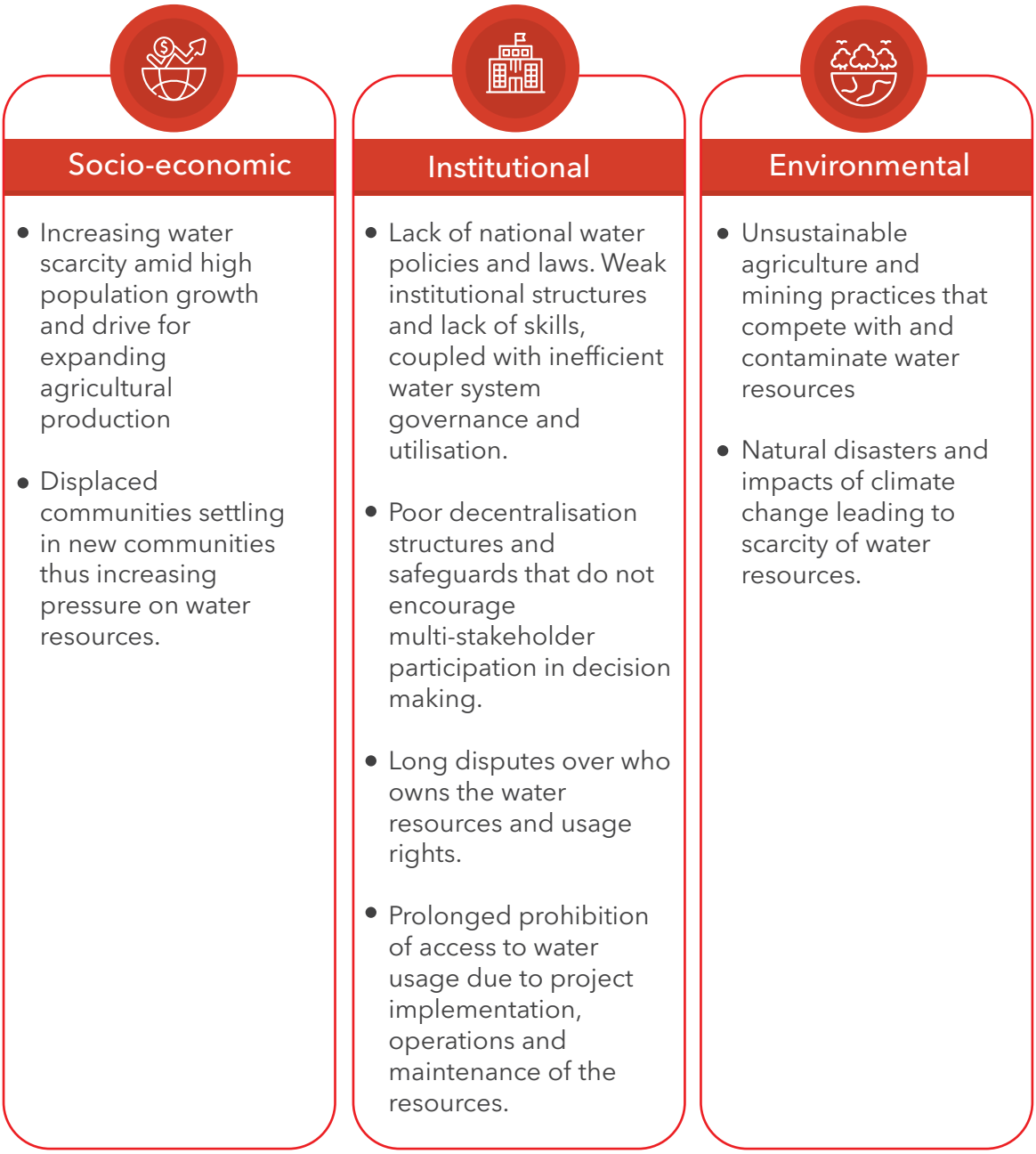

Figure 3: Water-related factors driving conflicts (based on Gehrig and Rogers, 2009)

Building resilience in water systems

Resilience is the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (IPCC, 2022). The concept of resilience has a wide range of meanings, but generally relates with vulnerability, adaptive capacity and risks.

The concept of resilience has mostly been applied in previously stable social-ecological systems which are currently facing stresses (Clement et al., 2024; Adger and Hodbod, 2014; Ruckstuhl, 2011), to provide better understanding of how the systems cope with the stresses. However, less is known of how the concept can be applied in water systems of FCACs. In this guide, an underlying principle of resilience is that actors and structures are situated in complex non-linear relations, and a bottom-up approach that is centred on preparedness, absorption, adaptation and transformation of the complex social system is important for peace-building (Juncos and Joseph, 2020). This approach advocates for peace-building interventions that are informed by locally-driven knowledge and capacities rather than externally driven solutions (Juncos and Joseph, 2020; MacGinty and Richmond, 2013). In line with this, indicators from Cinner and Barnes's (2019) framework of the social dimensions of resilience in social-ecological systems (Figure 4) are adapted in the technical guideline for understanding contextual issues and building resilience in the water systems of FCACs.

Dimensions of resilience building	*Description*
Assets	Access to productive assets, promote greater resilience and adaptability to change and shocks, including climate change pressures.
Livelihood flexibility	Capacities to switch between strategies and/or alternative livelihood activities.
Social organisation	Strongly establish formal and informal institutions, social networks and polycentric governance that promote participatory decision making.
Learning	Access to and the utilisation of information; the ability to recognise change and its causal factors that needs to be addressed.
Agency	Power and freedom to make choices that contribute to one's resilience. It includes ability to access assets, have flexibility in livelihood, utilising learning and socio-cognitive capacities.
Socio-cognitive construct	Household risks attitudes, experience, social norms, and cognitive bias. General willingness to take risk under shocks or pressures.

Figure 4: Dimensions of resilience building (modified based on Cinner and Barnes, 2019)

Resilience building in FCACs can be constrained by many challenges that water development practitioners must be mindful of. The challenges, according to Lindström, 2021), may include the complexity of the context, including interwoven issues of climate vulnerabilities, poverty, demographic pressures and political instability; narrow scope of interventions related to short project cycles, siloed and short-term thinking, and centralised planning, and inadequate funding for conflict preventive strategies.

Elements of peace-building in water systems

Peace-building extends to all activities undertaken before, during and after a violent conflict to prevent or end conflicts (Reychler, 2010). It, therefore, requires context-specific interventions by implementers in different sectors and governance levels. It is crucial to manage water-related conflicts arising out of the aforementioned factors by promoting peace-building among competing households and communities. Water development practitioners must, therefore, be equipped with peace-building techniques for resolving conflicts. A water system with peace-building potential has effective stakeholder engagements and inclusive decision-making on the management of water resources. It also has stakeholders who are highly interested in good practices of integrated water resources management and exhibit a high collaborative spirit.

Peace-building is usually needed in a fragile context, where conflict issues can be resolved or can easily deteriorate. Therefore, in-depth situational analysis and monitoring with continuous evidence-based programming are necessary for water development practitioners to anticipate and take appropriate action[5]. Drawing from Gehrig and Rogers (2009), four main elements of

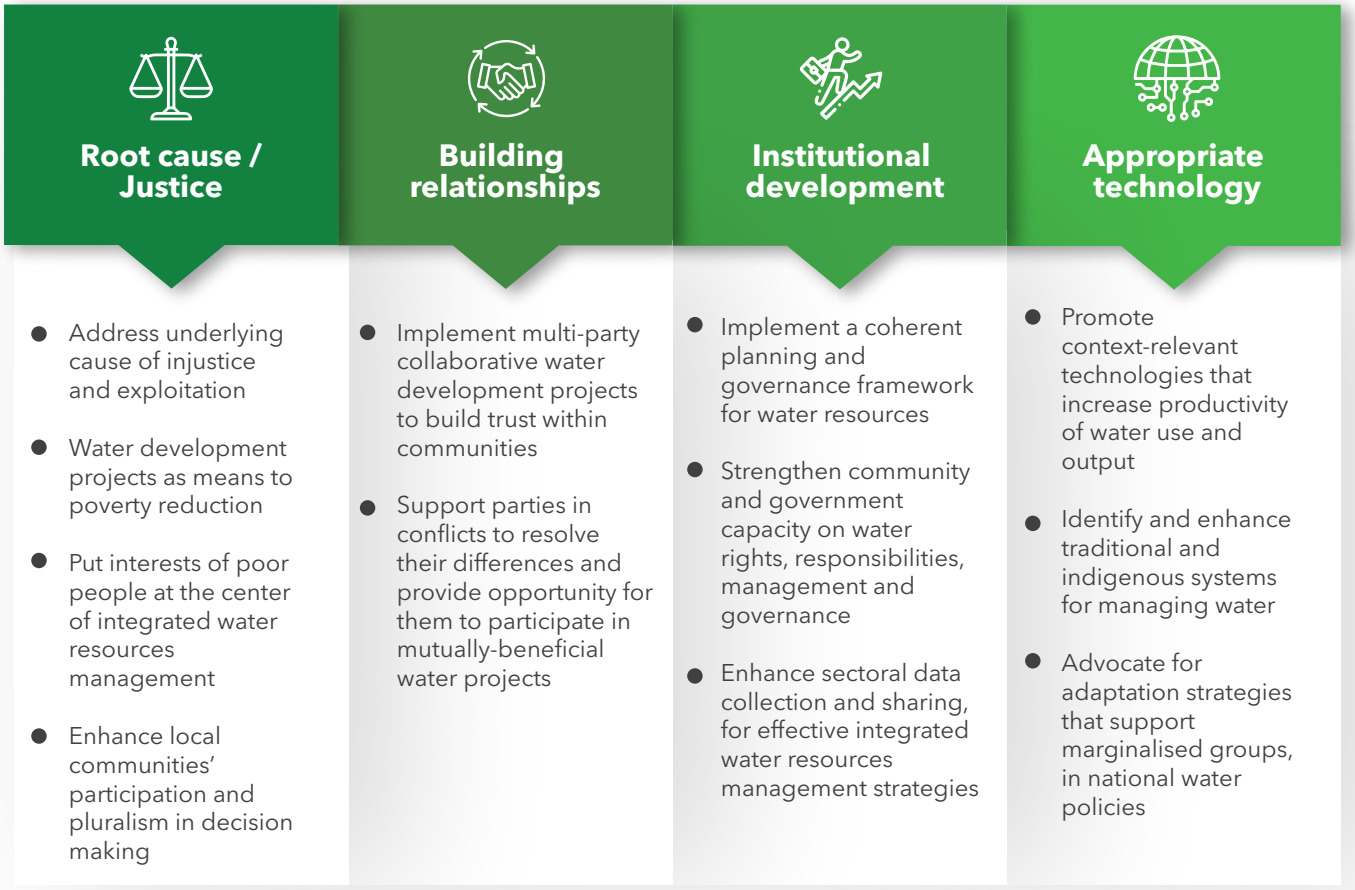

Figure 5: Elements of peace-building (based on Gehrig and Rogers, 2009)

[5] https://2012-2017.usaid.gov/sites/default/files/documents/1866/WaterConflictToolkit.pdf

The elements are: root cause and justice, building relationships, institutional development and appropriate technology and development approach. The focus of building peace in a conflict situation is centred on conflict sensitivity (knowing how projects can impact or be impacted by the dynamics of conflicts); conflict prevention (strengthening positive relations around shared interests to reduce conflicts); and conflict resolution (mediating disputes and reconciliation) (Bujones et al., 2013).

Steps to conflict resolution and peace-building on water-related challenges in FCACs

This section provides a step-by-step guide to peace-building towards a conflict-sensitive water development project or programming. It is intended to help practitioners to implement in-depth context analysis through interviews, situational assessments, and surveys. Users of the guide should note that not all the questions are relevant for each context, due to biophysical, socio-economic and cultural differences. What is important is to incorporate context-specifics into the design of the water interventions. The interventions could be short, medium and long- term, but linked together such that insights from the short term guide the framing and designing of future interventions.
Generally, there are three main steps in resilience and peace-building, namely, preparation and scoping; planning and negotiation; implementation and monitoring.

These steps should be guided by six main principles (Crawford et al., 2015):

1. Apply integrated context analysis as the basis for planning
2. Keep a balance between short and long-term priorities
3. Focus on climate-water resource-conflict interconnections
4. Work across different sectors and water governance levels
5. Pursue a forward-looking approach to planning
6. Make resilience and peace-building a pivotal objective

The following illustrated steps adapted from Crawford et al (2015) provide guidance for water development practitioners towards building resilience and peace in FCACs.

Step 1 Understanding the context of water-related conflict

The first step entails in-depth contextual analysis to understand past and emerging trends, policies, institutions, societal norms, power dynamics, gender equity, and different actors or stakeholder groups (Box 2).

Issues to focus on	Select unit of analysis or the geographic scope of engagement (country, district or community); Collect and synthesise historical trends, past and recent developments on political, socio-economic, demographic, environmental, and gender relations and equities	Identify and map out actors and key stakeholders of the water system	Assess the magnitude and frequency of e.g communities' exposure to shocks and stressors of the water system
Methods for collecting information	Desktop research, interviews, and key informant interviews with water resources experts, water user associations and community members. Data should be disaggregated by gender and its intersections e.g., education, access to resources, migrant status	Desk reviews, focus group discussion, key informant interviews and stakeholder analysis and mapping, participatory scenario building. The analysis should be done with local partners	Desk reviews, personal interviews, community observations and household surveys with semi-structured questionnaires
Examples of thematic question areas	Main formal and informal water rules, norms and strategies Conflict dynamics, trends, patterns of grievance, traditional resilience strategies and their effectiveness. Existing conditions that trigger conflicts or peace The impacts of conflicts and outcomes of peace, and the implications for general wellbeing and prosperity of communities	Key actors of water system and mobilisation mechanisms for peacebuilding or conflict.	What shocks and stressors are households or communities exposed to? What is the perceived ability of the communities to mitigate, adapt to and recover from different shocks and stressors

Box 2

Sample questions for contextual analysis (adapted from Gehrig and Rogers, 2009)

Water infrastructure, supply and power dynamics

- Who has secure and reliable access to water; and who is denied access in sufficient quality and quantity?
- What is the extent of water infrastructure and supply adequacy for all water users?
- Which communities have water infrastructure and supply gaps; which social groups are most affected by the gaps; and what actions are being implemented to bridge the gaps?
- What are the competing claims of the various water resources in the communities?
- Who makes decisions on water allocations in the communities?
- What contradictory decisions exist in water-related issues made by different institutions (agriculture, fishery, regional development)?
- What power relations exist between different users and where are the points of inequities?
- What different groups of social class do water-sharing parties belong to?
- What are the existing water-unrelated tensions; and how are they being addressed?

Water management mechanisms and effectiveness

- To what extent are water management mechanisms effective, enforced and perceived as fair?
- In what ways are water inadequacy, flooding, water development projects impacting human health, livelihoods, and driving people to migrate?
- What is the level of capacity for water management institutions and communities to adapt to situations of water scarcity and abundance?
- Which informal and formal organisations are responsible for water risk reduction, and how are their effectiveness and legitimacy perceived by the communities?
- What reliable database exist and, is information shared among water-using parties?

Impacts of climate change and natural disasters

- How is current climate variability affecting water resources in the community?
- How are the (1) communities and (2) government water-related departments responding to the effects of climate variability on water resources?
- How could communities adapt better to minimize water insecurity and risk of conflicts?
- What are the anticipated climate change impacts on water resources; and which social groups will be most affected?
- How do you perceive future natural disasters will impact on water availability, quality and access by different social groups in the community?
- Which social groups are most vulnerable to the impacts of natural disasters on water and which ones have high adaptive capacity to cope with the impacts?

Mobilization for action

- Who mobilizes groups to express discontent and grievances related to water issues; and how is the mobilization done?
- Who mobilizes groups to collaborate peacefully on water resource management and governance issues; and how is this done?

Step 2

Understanding the interlinkages between water development project and conflict context

This step reflects on the intended water project in the context of the fragile communities where the interventions will be implemented. The important issue here is to ensure that the project will address potential conflict situations by building peace and not escalating existing tensions and/or creating new conflicts (Box 3).

Issues to focus on

Identify and synthesise information on how the intended water development intervention or project will fit or interact in the fragile and conflict context.

Focus on central water conflict themes likely to arise from, upstream and downstream users; other interventions, extractive industries; access to water supply; water scarcity-induced migration

Methods for collecting information

Key informant interviews; survey of households and water-related institutional stakeholders

Examples of thematic question areas

Interaction between the identified elements of conflict and fragility and key elements of the intervention

The main thematic areas should focus on information on: (1) the intended project, (2) the partners and stakeholders, and (3) the organisational setup.

Factors in each of the 3 categories which are creating tensions or positively affecting the conflict context.

Box 3

Samples questions on understanding interlinkages between the intended water project and the fragile context

- What is the main objective of the intended project?
- To what extent does the objective align to the water needs of the community?
- Will the intended project reduce to water resources for some social groups; and If so, do affected social groups perceive the likely reduction to be a deliberate manifestation of a discriminatory project?
- To what extent has the project identified and recognized all group with legitimate interests or formal/informal access to water rights?
- Will all groups of water users be highly dependent on the intended water development project, or their needs can be addressed through other projects or interventions in the communities?
- Who will have access to water equipment or treatment options e.g., solar pumps, irrigation pipes?
- Who will have access to the water infrastructure for (1) domestic and (2) income-generating purposes? Who will be excluded and why?
- To what extent will benefits from the water development project go to specific social groups or communities; and what are the processes to consult the excluded groups and compensate them?
- What will be the consequences or implications of the project excluding some social groups from access to water?
- What conflict management mechanisms exist, and how will the project sustain the functional processes?
- What human and technical capacity strengthening activities will the project implement and how will it ensure it benefits vulnerable groups, and enforces comprehensive water management strategies?

Step 3

Adapting and making strategic decisions

In this step, the intended project implementers integrate peace and resilience-building mechanisms and execute them as part of their planned water-related activities (Box 4).

Issues to focus on

Implement resilience and peacebuilding interventions through regular multi-stakeholder engagements or dialogue meetings and other relevant processes

Monitor and evaluate, and reflexively learn from implementation of intervention – tracking progress by monitoring change attributable to resilience and peacebuilding interventions

Methods for collecting information

Multi-stakeholder platform processes
Co-identify solutions toward peace and resilience building, based on insights from conflict contextual analysis

Relevant MELIA tools e.g. theory of chanage, outcome influence log, stories of change, outcome mapping

Examples of thematic question areas

Baseline information of the context issues and project designed activities.

Types of stakeholders and their needs

Processes of resilience and peacebuilding

What changed happened, and for whom?
How to minimise negative outcomes and sustain positive attributes of resilience and peace

Box 4

Samples questions on resilience and peace-building action

- Which of the project-related water resources, infrastructure, and institutions were intentionally damaged; by whom, why, when; and which social groups suffered most from the consequences of the damage?
- Were the project's water resources, infrastructure and institution damaged unintentional e.g. through, ethnic wars, armed violence and riots/protest. How did it happen; who was involved, which social groups were impacted most etc
- Which stakeholders contributed to resilience and peacebuilding, an d what were their roles, power, and interests?
- To what extent do the project mobilise institutions to equitably mediate competing claims for water access, social and environmental impacts, and benefit sharing?

Conclusion

This technical guideline is designed to support water development practitioners to better understand the water-related vulnerabilities in FCACs and inform resilience and peace-building. It outlines three main steps to understanding the realities of water-related vulnerabilities and provides pathways for resolving them towards building resilience and peace. The first step focuses on the contextual analysis of the water system, including institutions, stakeholders and socio-demographic intersections. Step two is geared towards understanding the links of vulnerabilities and risks in the water system, to designing development projects in a fragile and conflict context. The third step provides a guide to mediating conflicts and building peace in the water system. The steps are important for ensuring that practitioners effectively manage challenges, generating additional risks and reinforcing water vulnerabilities to exacerbate conflicts in fragile contexts.

The guide is to help practitioners to prioritise water development interventions that address specific informal and formal institutional gaps and strengthen local adaptive capacities to effectively manage risks to water vulnerabilities and conflicts. This is because in FCACs, it is important that all water development projects or interventions are strategic and intentional in reducing existing conflicts and avoid creating new ones.

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