

Case Study: **Nepal**

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IMPROVING THE FUNCTIONALITY OF COMMUNITY WATER SUPPLIES THROUGH WATER SAFETY PLANNING (WSP) IN NEPAL



■ Background

Water is one of the most important natural resources of the nation. Nepal has an abundance of water resources, including snowpacks, rivers, springs, lakes, and groundwater. Rivers, streams, lakes, reservoirs, springs, and groundwater are the major sources of drinking water. Tap or piped water, tube wells or hand pumps, covered or uncovered wells, spout water, rainwater collection, and river or stream water are available options for the primary supply of drinking water. Piped water supply system has the highest coverage among all the options. Can be said, according to the Department of Water Supply and Sewerage (DWSSM) report of 2019, 87.88% population have access to a basic level of water supply and out of which coverage of piped water supply is 51.69%, followed by tube-wells (33.38%) and 12.12% from lake, ponds and streams. The report of DWSSM also reveals that a total of 42,039 piped Water Supply Systems (WSS) are registered in municipalities or in-district water supply resource committees. Coverage of those systems varies from small to very high (minimum of 5 to more than 5,000 households (HHs)). Though there are plenty of options for drinking water supply in different geographic locations, the quality of water utilized from those sources is observed to be poor.

The data presented above suggests that there is access to basic water supply services in Nepal. However, community water supply projects face serious challenges in functionality, water quality, and suitability. As per the DWSSM 2019 report, only 28% of water supply projects are at a proper functional status and the remaining need minor to a major repair, maintenance or rehabilitation. Likewise, the Multi Indicators Cluster Survey (MICS) report of 2019 also shows, that among all those community water supply projects, only 19% of water supplied in the households and communities is safely managed while the remaining 81% need an improvement in water quality.

This case study focuses on Karnali and Sudurpaschim provinces where the status of the functionality of installed water supply systems is almost similar to the nation (29%). However, the quality of the water is questionable, as it stands at 14.7% for Sudurpaschim and 3.5 % for Karnali respectively. To address those challenges, the government's top priority is the improvement of functionality with the initiation of the National Drinking Water Quality Standard in 2005 and the approach of the Water Safety Plan (WSP)¹ since 2006 with technical support and guidance of WHO and UNICEF.

Due to the differences in the areas/communities, there might be variation in the factors, however, most of them appear to be common and connected in this case. The most relevant and common factors include the following:

Project selection, planning, and implementation:

- Wrong selection of projects with the influence of political and powerful personnel of the society
- Poor structures, designs, and inadequate budget allocation
- Use of low-quality construction materials
- Long construction period (construction period of some projects is noticed from 10 to 15 years)
- Negligence of water users from selection to completion of selected water supply projects
- Poor engagement of water users during survey, design, and construction of selected projects
- Inadequate application of water safety principles and measures,
- Per capita investment in remote areas and mountainous areas is very high.

Coordination and communication:

- Poor coordination among government bodies, development stakeholders, and community people
- Conflict among community people
- Disputes regarding the water source
- Duplication of resources.

Technical support, monitoring, and supervision:

- Poor monitoring and technical support during the survey, design, and construction phase
- Water supply system repair and maintenance are not conducted in time.

¹ The WSP is an approach for the improvement of the functionality of a water supply system. The entire process is divided into seven major steps, which are i) formation of WSP team, ii) assessment and analysis of system, iii) identification of hazards and risks in water supply system (WSS), iv) development of improvement plan, repair, and maintenance of the WSS, v) monitoring of process initiated, vi) verification of progress, and vii) consumer satisfaction.

Governance and transparency:

- Meetings of user committees did not happen in the agreed period or were irregular
- Records of procurements and materials used are not maintained
- Budget details are not shared with the water users
- Water tariffs not provisioned and paid
- No provision of maintenance workers in the water supply system
- Lack of trained human resources for minor repair and maintenance, water quality tests and need-based chlorination/treatment of water supply systems
- Misuse and corruption of allocated funds.

Resilient structures, disaster, and climate change:

- Depletion of water sources because of unplanned structural works and deforestation,
- Poor and less resilient structures,
- Unexpected and irregular rainfalls,
- Extraction of ground water without environmental impact assessment (EIA).

Furthermore, during the assessment, it was noticed that rather than maintaining and repairing the existing water supply, investing in a new project was deemed effective due to the higher dependency on external resources. Each of these multiple and interlinked factors makes the functionality and sustainability of community water supply systems more challenging. To accomplish the highlighted challenges and gaps, geo-specific interventions (i.e., province and municipality), policy formulation, endorsement and their effective implementation were deemed essential.

■ Strategy and implementation

In 2020, UNICEF Nepal initiated context and geo-specific interventions with a small modification to the existing WSP approach for the improvement of functionality and sustainability of the community. WSS ensured access to safe water for community people and improve the sanitation status of the catchment areas of selected WSS (including communities, schools, and health care facilities). That was initiated in close coordination with the provincial and local governments of Nepal and named Water Safety Planning to Water Safe Community (WSC)², which was implemented through three field offices of UNICEF Nepal.³ All three offices have been closely working with the provincial and local governments of assigned areas.

Most of the development indexes (including the functionality of status of water supply projects and water quality status) of both the provinces are very poor compared to other provinces of Nepal.

To scale up the process of WSC, the Nepalgunj Field Office (FO) team coordinated with the selected 19 local governments of Karnali and Sudurpaschim provinces, and identified communities having difficulties in

² The Water Safe Community (WSC) concept was introduced by UNICEF Nepal during earthquake recovery during 2016-2018 and further expanded in regular projects from the 2019-2022 CDP cycle. Additional steps added on WSP to upgrade the project at status of WSC are i) drinking water is available to every household at their premises or within a 30-minute round trip, (ii) water quality conforms to the national water quality standards, (iii) has a sustainable operation and maintenance mechanism, and (iv) inclusive and active water supply user committee.

³ UNICEF Nepal Field Offices:

a) Janakapur FO: Madesh Province (province 2) located south east from the capital city, Kathmandu,

b) Bhairahawa FO: Lumbini Province (province 5), located south west from the capital city, Kathmandu,

c) Nepalgunj FO: Karnali & Sudurpaschim Province (provinces 6 and 7), located in the mid-west and far-west from the capital city, Kathmandu.

accessing safe water. With the technical support and guidance of the WASH team in Kathmandu, the FO team carried over the following major tasks to move forward.

Coordination and communication

- Established coordination and communication with the leaders and executive committee members of the local governments and development stakeholders for collaborative actions.

Project selection, planning, and implementation

- As per the priorities of the local government, prioritized projects where WSP was most important were jointly identified
- The local government allocated some funds for scaling-up the proposed interventions and UNICEF contributed to fulfil the gaps
- The local government took full ownership of the process, allocated matching funds, and the process of WSP leading to a water safe community was initiated.

Support for policy formulation and capacity development

- Policies required to facilitate the process of improvement of functionality, water quality tests, and sustainability were updated and developed as per local needs
- Members of water user committees of selected water supply projects were capacitated especially on the process of improvement of functionality, sustainability, water quality tests, and periodic treatment of water supply systems
- The role and responsibilities of all stakeholders were identified and well explained.

Technical support, monitoring, and supervision

- A dedicated and trained technical team assigned from the programme municipalities and Civil Society Organizations (CSO) conducted feasibility studies of the selected projects and prepared estimates and designs
- Planned activities were dedicatedly implemented with regular monitoring and technical guidance along with close monitoring and supervision of technical human resources.

Interventions for the improvement of functionality and water qualities were initiated in 93 projects from 19 municipalities in Karnali and Sudurpaschim provinces with the approach of the WSC with the limited technical and financial support of UNICEF Nepal. The target was for three years (2020-2022); all projects were implemented in close coordination with the leadership of local governments with the expectation to accomplish tangible results by the proposed period.

■ **Progress and results**

As of December 2021, there was an improvement in the functionality of community water supply projects, water taps were installed, either within the premises or within the distance of two-way commuting distance of 30 minutes, and periodic monitoring of water quality was completed in 30 WSS despite immense disturbance from the COVID-19 pandemic. With the completion of the planned work of WSC, 4,191 people from 1,278 HHs were directly benefitted. Furthermore, children studying in 21 schools and patients visiting 2 health care facilities within the catchment area of 30 WSS were directly benefitted by the intervention. Moreover, the project is ongoing in the remaining 63 WSS with the expectation to complete all them by 2022. Along with the tangible outcomes, some of the other invisible achievements are described below.

	Main components	Results and key achievements
1	Coordination, communication, and behaviour building	<ul style="list-style-type: none"> • Good coordination and communication were established among user committee members and local government officials • Budget details and responsibilities of user members were shared in advance, which minimized confusion and disputes • The social mobilization process was initiated in catchment areas of 93 projects for behaviour building of local people • The practice of regular hand washing and toilet use is strongly maintained in the catchment areas of 30 WSC declared WSS.
2	Project selection, planning, and implementation	<ul style="list-style-type: none"> • In total, 93 appropriate and feasible projects were selected through a transparent process. Estimate designs were prepared promptly, the budget allocated and implemented • The approach of WSP with a resilient structure is initiated in 93 projects.
3	Support for policy formulation and capacity development	<ul style="list-style-type: none"> • Project-implementing 19 local governments prepared local policies for the adoption of the approach of WSP leading to WSC and water quality monitoring through local effort • In total, 1,023 user committee members (with 360 being female) were capacitated on the importance of water quality, the process of improvement of functionality, and the concept of WSP and WSC • An operation and management mechanism was established with regular water tariff collection in 30 projects.
4	Technical support, monitoring, and supervision	<ul style="list-style-type: none"> • Dedicated technical staff were assigned for the timely completion of the agreed 93 projects. • In total, 30 repair and maintenance workers are identified and capacitated for minor repair and maintenance as well as need-based chlorination or treatment of water supply systems • Periodic water quality test mechanisms are established and operationalized for 30 WSS.

Additionally, there was a decrease in diarrhoea and water-borne disease (drastically reduced) in WSC and the culture of sanitation in the families and communities was also established. The sanitation and hygiene status of WSC-declared communities improved along with the functionality and water quality. The local government, highly acknowledged the process, allocated matching funds to fulfil the gaps, and adopted the same approach for the WSS through the resources of the local government.

■ Lessons learned

The following are some of the lessons learned which can be replicated in similar contexts:

- The goal of increasing access to safe water and improving the sanitation status of the catchment areas of intervened WSS can be achieved with a single intervention of WSC. Thus, this intervention proved to be simple, cost-effective, and efficient.

- Proper planning, adequate budget allocation, updating and formulation of required policies at the local level, capacity building of water user committee members in the aspect of WSP and WSC and transparent actions are very important for community-managed water supply systems and approaches of WSC are found most appropriate.

■ Way forward and potential application

After the declaration of the nation as a Federal Democratic Republic country in 2008, most powers, authorities, and roles were decentralized to provincial and local governments. However, the process of the establishment and operationalization of institutional mechanisms for the systematic improvement of water supply and sanitation services is still under process. Therefore, most of the laws, acts, bylaws and guidelines need amendment, for which UNICEF and development partners need to provide required technical support as well as push three tiers of the government (federal, provincial, and local). Likewise, the approach of WSP leading to WSC has already demonstrated in four provinces of Nepal (in technical support of UNICEF), which has been observed very effective and appropriate to increase the access to safe water and improve the sanitation status of the community. Additionally, advocacy and lobbying with the three tiers of governments, development stakeholders, and donors are crucial for scaling-up the approach.

Related links:

1. [Multiple Indicator Cluster Survey 2019](#)
2. [Nationwide Coverage and Functionality Status of Water Supply and Sanitation in Nepal, 2019](#)
3. [Climate Resilient Water Safety Plan Guideline, 2017](#)
4. [Water safe communities: An approach towards achieving SDG 6.1 in Nepal](#)
5. [Water Environment Partnership in Asia \(WEPA\)](#)
6. [Drinking water status in Nepal: an overview in the context of climate change](#)

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