

Understanding the drinking water challenge in Nepal

Key takeaways from our feasibility study

November 2024

Nepal faces a significant decline in access to safely managed drinking water, with **only 14.2% of the population currently consuming water free from fecal contamination**, according to the latest JMP data. This concerning trend comes as the 2030 target for universal access to safe drinking water (SDG 6) approaches. Several factors contribute to this situation: **worsening raw water quality, limited centralized treatment systems, and the quasi absence of household-level treatment practices**. Meanwhile, recent improvements in water quality monitoring now reveal gaps that were previously undetected when assessments relied mainly on infrastructure type (e.g., piped water assumed to be safely managed).

Besides quality, a major sectoral issue is the sustainability of existing water supply systems, with only **25% reported as fully functional**. This is attributed to low water tariffs, undermining financial viability and inadequate professional management in community-operated systems.

Nepal's federal transition, slow economic growth, and increasing climate impacts add further complexity to an already struggling sector. **Achieving universal access will require substantial financial resources, capacity-building, and innovative models to address systemic challenges.**

A Collaborative Feasibility Approach: Combining Local Knowledge with 1001fontaines' Expertise

Nepal's pressing need for safe drinking water came to 1001fontaines' attention through discussions with the **Asian Development Bank (ADB)**, which was implementing an agricultural resilience project in Madesh Province. During field studies, access to safe drinking water emerged as a critical issue affecting rural communities.

With over 20 years of experience in bridging safe drinking water gaps in Cambodia and expanding these services across Asia, **1001fontaines** was well-positioned to provide expertise and explore sustainable solutions tailored to the Nepali context. To ensure an in-depth understanding of local conditions, we engaged local partners, notably the social enterprise **Smart Paani**, which focuses on increasing safe water access, especially in urban areas and schools. Together with **Practical Action Consulting**, we conducted a comprehensive study focused on household behaviors and water quality, combining our operational expertise with local insights.



In Madhesh Province: Specific Challenges in Safe Drinking Water Access

Madhesh Province in Nepal faces significant economic and climate vulnerabilities, which directly impact access to safe drinking water. The region's agrarian economy is threatened by erratic rainfall, prolonged droughts, and frequent flooding, all of which degrade water quality and disrupt supply systems. Additionally, inadequate investment in infrastructure and over-reliance on untreated groundwater leave much of the population without access to safely managed drinking water. These challenges are compounded by Madhesh's dense population, which intensifies pressure on limited resources and heightens the need for innovative, climate-resilient water solutions.

Heavy Reliance on Untreated Groundwater

Groundwater remains the primary drinking water source, with 71% of residents believing their water is safe despite bacteriological contamination. Most residents rely on shallow or deep hand pumps and base their confidence on the water's appearance and cool temperature, disregarding health risks. This reliance contributes to widespread waterborne diseases, as confirmed by local health workers and statistical evidence.

Limited Coverage and Sustainability of Piped Systems

The flat terrain has hindered the development of gravity-fed systems. Piped water connections are mainly limited to urban centers, served through overhead tanks. In rural areas, coverage is minimal, with centralized treatment systems rare. Utility providers, supported by government and development agency funding, focus on expanding access but face significant challenges in ensuring sustainability and quality.

Emerging Market for Bottled Water

Over the past decade, a market for bottled water has emerged, primarily targeting hotels, offices, and other institutional consumers seeking convenience and safety. While households are generally considered price-sensitive, 20-liter bottled water containers have started gaining traction in areas with severe groundwater issues (e.g., scarcity, high iron content). Around 33% of residents expressed dissatisfaction with current water sources, showing openness to paying for reliable alternatives.

Potential for an Alternative Service Delivery Model

Madesh Province presents a promising opportunity for **20-liter bottled water as a utility**, leveraging:

- **High population density**, enabling efficient service delivery.
- **Flat terrain**, facilitating cost-effective distribution logistics.
- **Supportive local authorities**, who have shown interest in community-focused, sustainable models like 1001fontaines.

The success of social entrepreneurship initiatives such as **Build Up Nepal** underscores the potential for combining **local entrepreneurship** with innovative service models to address social challenges in Nepal.

Looking Forward: Preparing for a Pilot Project

The feasibility study has reinforced 1001fontaines' belief in the viability of a sustainable, bottled water service for Madesh Province. To transition from concept to delivery, a nine-month **pre-launch phase** is planned to:

- **Establish local partnerships.**
- **Design an operating model** tailored to the region's needs.
- **Set up and test a pilot.**

This groundwork aims to deliver a **safe, accessible, and community-centered drinking water service**, bridging the current gaps and contributing to **universal access in Nepal**.



For more information:

1001fontaines is a French non-profit organization specialized in designing and deploying safe drinking water solutions.

Our innovative approach of providing bottled water as a public service to generate long-lasting behaviour change and durably improve the health of vulnerable populations has proven effective, and 1001fontaines now stands ready for further expansion to new geographies.

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