

Water Supply Systems in Nepal: How to build better, more sustainable services

PART 2



## IMPLEMENTING 'LEVERS' TO IMPROVE SUSTAINABILITY

This case study is the first update on Oxfam's work on the sustainability of rural water supply systems in Nepal. Readers are advised to read the first paper on the topic from 2019: A. Adhikari and T. Wildman. (2019). Water Supply Systems in Nepal: How to build better, more sustainable services. Oxfam.

In a previous case study on building better and more sustainable water supply systems in Nepal (2019), <sup>1</sup> Oxfam identified five key 'levers' that could potentially transform water supply schemes in Nepal's Hills and Terai regions. This case study explains how these levers were implemented and the challenges faced during the process. The levers were implemented in Benighat Rorang Rural Municipality and Jwalamukhi Rural Municipality of

Dhading, representing the case study in the Hills, and Haripur and Rajpur Municipalities of Sarlahi and Rautahat district, representing the case study in the Terai. Levers 1, 3, 4 and 5 were tested across both the Hills and the Terai. The focus of implementing <a href="Lever 2">Lever 2</a> was in the Terai only as this area experienced a distinct challenge with users not shifting from hand pump to tap water.

Figure 1: Sustainability levers

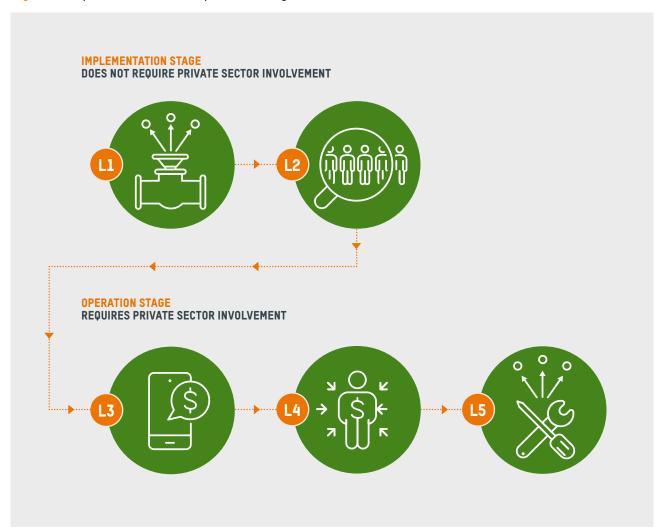


## When were the levers implemented?

Oxfam implemented <u>Lever 1</u> from 2019 to 2020. It took five years to approach Lever 2's target. Research on the context and local partners was required before <u>levers 3</u> and 4 could be implemented; this process took two years.

Oxfam had to substantially change its approach for <a href="Lever 5">Lever 5</a>. It could not be implemented through the private sector because no private company was ready to take responsibility for the operation and maintenance of rural water supply systems.

Figure 2: Implementation and operation stages



Source: A. Adhikari and T. Wildman. (2019). Water Supply Systems in Nepal: How to build better, more sustainable services. Oxfam.

## LEVER ONE: OUTSOURCE PIPE LAYING TO LOCAL PROFESSIONALS

Most water pipelines installed by community members were found not to be laid at the recommended depth (90cm) or properly jointed. As a result, the decision was made to give pipe-laying and pipe-joining responsibilities to professionals. In some cases, digging and filling work

were given to community members; however, project engineers always ensured the depth of the pipes were at least 90cm. Instead of joining the pipes manually, all pipes were welded using heating plates to ensure the joints were tight.



High Density Polyethylene (HDPE) pipes connected by jointing machine as part of Fatuwa water supply scheme. Photo: RDC Nepal, Rautahat.



The Rajpur Water and Sanitation Board manager ensures the depth of the water main excavation. Photo: RDC Nepal, Rautahat.

# LEVER TWO: ENSURE 80% OF THE POPULATION HAS PAID FOR A HOUSEHOLD WATER CONNECTION BEFORE THE WATER SYSTEM IS CONSTRUCTED

User tariffs are the main source of income for most water supply systems in Nepal. This means their revenues are directly proportional to the satisfaction of users.

Research by Oxfam and Le Fil Consult found that having 60–80% of users paying for water should make the supply system sustainable. In the Hills, where access to water is a struggle, people are more willing to connect to metered household connections. However, in the Terai, where using hand pumps to extract groundwater is the norm, people are more hesitant to switch to metered household connections and tend to prefer the installation and repair costs for hand pumps over monthly tariffs.

In the Hills, water users contributed to the construction of household connections through in-kind support (e.g. by providing labor) and arranged locally available materials. Communities in the Terai preferred to pay cash, but wanted local government or projects to pay for the connections. Oxfam tested multiple approaches to encouraging water users in the Terai to pay for household tap connections over three years.

Anecdotal feedback from communities in the southernmost belt of the Terai suggests that their actions have been heavily impacted by a nationwide 'open defecation-free' campaign run by different agencies from 2011–2019.² Households that did not construct household latrines during the campaign were able to purchase heavily subsidized materials from development agencies at the end of the campaign, which allowed the agencies to meet the target of ending open defecation.<sup>3</sup>

Many community members held similar expectations for discounted household tap connections if they held out until the end of the water supply campaign. Construction had to be halted as the target number of paying households was not reached.

Another major barrier in collecting the households' share of payment in the Terai was the lack of trust in organizations; community members spoke of many organizations promising to build sustainable water supply systems in the past, but never following through.

As communities expected evidence of construction before paying their share, Oxfam and its partners started construction of deep tube wells and overhead tanks while continuing consultative awareness-raising and community-influencing activities.



Pipe laying by professionals. Photo: Susma Panta/Oxfam.

## Community-influencing activities

**1. Discounts**: Various offers were given to households making early payments. This message was circulated through pamphlets (Figure 3) and community meetings.

Figure 3: A pamphlet circulated across communities to encourage early payment

## पिडारी खानेपानी तथा सरसफाई उपभोक्ता समिति

हरिपुर न. पा. ९, पिडारी के अनुरोध

वागमती सेवा समाज नेपालके समन्वयमे अक्सफामके सहयोग, हिरपुर नगरपालिका आ, ९ नं. वार्ड कार्यालय पिडारीके सहलगानीमें हिरपुर ९ पिडारी वासीके सुस्वास्थ्य आ सामुदायिक विकासके लेल बृहत खानेपानी आयोजनाके निर्माण होरहल्छी । यि आयोजना, जनताके सहभागिता विना सफल रूपसे सञ्चालन नहीतै । वहीं से, आंहां सव यि आयोजनाके सफलताके लेल समय में सदस्यता शुल्क वापत रु. 900 आ धारा जडान में फिटिङ्ग सामग्री के लेल रु. ६000 अपना अपना नाममें खानेपानीके खातामें जम्मा करेके लेल अनरोध करैछी ।

#### धारा जोड्ला से होएवाला फाइदासव

- ५०० फिट भितरके पानी निकलतई
- यि पानीमें गन्ध आ रंग नहोतई, पियेमे निमन लगतई
- यि पानीमें आइरन आर्सेनिक नहोतई
- कपडा धोएला के बाद कोनो रंगके सिकायत नहोतई
- यि पानी से खाना जल्दी बनतई स्वाद भि अच्छा होतई
- बर्तन सब जल्दी आ निमन से साफ होतर्ड
- बर्तन आ दांतमें कोनो किसिमके दाग नलगतई
- गिर्म आ ठण्डी महिनामे पानी के लेल कोनो दिक्कत न होतई
- छोटा बच्चा आ बृद्ध बृद्धा सवके पानी पियेके आ जम्मा करेके लेल सहज होतई
- धारा जोडेके लेल हलुक आ सस्ता परतई
- खराव पानीके चलते होएवाला रोगसवसे बचतै ।



Below is an English translation of the pamphlet:

Pidari Water Supply and Sanitation User Committee: Bagmati Welfare Society Nepal with the support from Oxfam is working in Haripur Municipality with cofinance from Haripur Municipality Ward 9 office to build a water supply system. This project is not possible without community support. For this, please deposit a total of NPR 100 for the membership fee and a total of NPR 6000 for household platform construction.

#### Advantages of having a clean water tap:

- Water comes from 500m below
- This water has no foul smell or colour
- This water has no iron or arsenic
- Your clothes will not be stained
- Your food will cook faster and taste better
- Your utensils will be cleaner

- You will easily get water in both the dry and winter seasons
- You will be protected from diseases caused by unsafe water
- In the long run, household connection will be cheaper compared to other services.

**Discount offer:** Any household that pays for household connection before 29 June 2018 will be given a 50% discount off the tariff for two months and completely free skilled labour for household connection. While any household that pays NPR 1,100 before 29 May 2018 and a regular payment of NPR 500 for the next 10 months will receive completely free skilled labour for household connection.

- 2. Local leaders: Local leaders were mobilized to increase the collection of household tap connection fees. This came about after influencing local political, social and religious leaders to recommend the need for safe drinking water. The leaders conducted door-to-door visits for certain periods to encourage local water users. This was done multiple times over the course of the project.
- 3. Government influence: Local governments, using their own initiative, encouraged the public to pay for household tap connections. They prioritized providing regular government services for those who had paid for household connection over those who hadn't. However, Oxfam did not recommend continuing this approach as each citizen has the right to receive government services.
- 4. Loudspeakers, posters and street dramas: Street dramas were performed to ensure that messages about the importance of safe drinking water and improved hygiene reached everyone in the targeted communities. The same messages were also spread via loudspeakers and posters.

### After commencing construction

As mentioned, due to a lack of trust in the water supplies ever being completed, a significant number of households in the Terai still had not paid for a household tap connection but it was decided that construction should start in order to build confidence. Once pipe laying was finished, the households that had already paid for the system received a private tap with a well-constructed platform.

The influence of neighbours and friends proved significant in encouraging others to pay for household tap connections. There were two major factors that contributed to the influence, apart from word-of-mouth.

**5. Green stickers and house numbers**: Each user who paid for a household connection was given a green sticker with a household number for the tap. This was one of the most successful approaches in enticing users to pay. Household members considered this sticker as a sign of social status and did not want to look 'lesser' than their neighbours.



Green sticker with a household number that uniquely identifies each household. Photo: BWSN, Sarlahai.

**6. Festivals**: Festivals had an unexpected impact on the process. Users with household connections were able to make abundant use of water during times of festival activity, while those without felt left out. This created a surge in households willing to pay for household tap connections so that they felt able to participate in festivals in the same way.

## What was done to ensure vulnerable households were not left out?

Three main approaches were used:

- 1. Providing subsidies to the households living in poverty. Oxfam and local governments identified the households experiencing the greatest poverty. The project subsidized 50% of the costs for tap connections. This reached 8% of the total targeted population.
- 2. Skill development training. The project identified the vulnerable households in six clusters (of two community groups per cluster) and provided kitchen gardening training to women. Women were targeted in this training to help them earn money by producing fruit and vegetables in their gardens during the time that they would have previously spent fetching water. They were provided with seeds and later allowed to pay their tap connection fees in three instalments by selling the produce. This approach reached a total of 340 households [18% of total households].

**3.** Offering an option to pay in instalments. Many households did not agree to pay upfront for household connections in a single tranche. Therefore, the option to pay in instalments was provided and taken up by all vulnerable households.

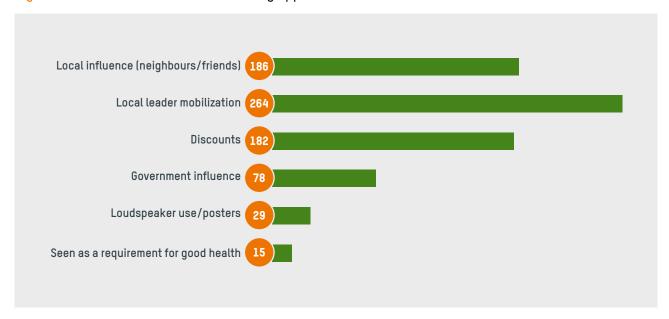
### Evaluating influencing approaches

Implementing <u>Lever 2</u> took place in the Terai only as this area experienced a distinct challenge with users not shifting from hand pump to tap water. The approaches applied during implementation focused on the southernmost belt of the Terai; communities of this area have geographic, demographic, social and cultural similarities with other communities that share a border with India.

Initial market penetration was difficult; the mobilization of local leaders was crucial in bringing in the first hundred buyers of household tap connections. Further market penetration was made by offering discounts for early bird registration through household payment.

Additionally, the use of green household stickers (Figure 4), and the influence of festivals continued the momentum of new households paying for the household connection to be a part of the water supply system. The use of loudspeakers, posters and pamphlets to sensitize communities to the importance of household tap connections did not prove as effective, as shown in Figure 4.

Figure 4: The effectiveness of influencing approaches in Sarlahi district



Note: This bar chart shows the results from surveying 754 households to understand which influencing approaches encouraged them to pay for household connection.

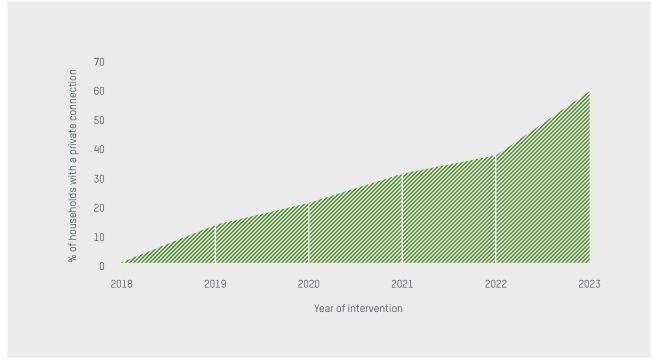
## Adoption curve

The adoption curve (Figure 5) shows the rate at which households signed for their household tap connection and had their tap installed. While other schemes in the vicinity have not been able to reach 40% coverage in 10 years, Oxfam was able to secure 50% in just three years, despite complications from the COVID-19 pandemic. On average, a vulnerable household took 665 days from their first instalment to make their full payment for household connection. However, it was not an easy process, with many households not fully convinced of the need for a tap connection over a hand pump, and the COVID-19 pandemic impacting the finances of households who were already living in poverty. This meant that some households took a long time to make full payments. A recommendation could be that a project should invest at least 665 days of the project period on engaging households to onboard users to household connection. However, it should be noted that our intervention was impacted by the pandemic in 2020 and 2021.



Women proudly pose in front of one of their household taps, a first-time moment for all three women. Photo: Susma Panta/Oxfam.

Figure 5: Household tap connection adoption curve in the targeted communities (Pidari Drinking Water Supply System, Haripur and Sarlahi) (%)



Source: Oxfam.

# LEVERS THREE AND FOUR: AUTOMATE BILLING FROM MOBILE PHONE CREDIT OR PRE-PAID CARDS, AND CENTRALIZE AND OUTSOURCE THE MANAGEMENT OF FINANCIAL ACCOUNTS

Levers 3 and 4 are focused on strengthening the financial and asset management of the water supply systems. The smaller water supply systems have neither an accountant nor an accounting system, so transactions are not recorded properly. There is a high risk of fund mismanagement.

Delays in tariff payment due to consumers having to walk long distances to the Water User Committee (WUC) office to pay in person were noticed during a 2021–22 financial analysis of water supply systems. In rural areas of the Hills and semi-urban areas of the Terai, Oxfam invested in a digital payment system and accounting software that centralized all the required information into a single dashboard. This is where the role of the private sector became prominent.

## Private sector engagement – the journey to find the right partner

- Oxfam spent almost two years identifying a private sector partner. Initially, the plan was to outsource all the roles in levers 3, 4 and 5 to a private sector partner. Oxfam considered 17 possible private sector partners working in urban areas who provided similar services to what was being sought.
- Oxfam conducted meetings with eight, of which five showed interest in our model. However, it was clear that:
  - Private sector partners would be comfortable to take over operations and maintenance only if all the existing loans of smaller schemes were paid off;
- They would be comfortable to take over operations and maintenance only if all the existing water supply systems were upgraded to a basic standard of operation;
- Companies were hesitant that they may only start to break even after around five years, and that there was no guarantee that they would be selected again for the management by new local governments (elections in Nepal are conducted every five years);

- They were also hesitant to commit to providing satisfactory delivery of services in the Hills, mostly due to the difficulty in reaching points of failure in the water systems on time due to the poor roads;
- Established organizations were not interested in managing these systems, and some of the startups that were interested went bankrupt during the COVID-19 pandemic;
- Some members of the community expressed doubts about whether private companies could provide high-quality and reliable services. They were also worried that their money would flow outside their location.

## Voices from the community that changed our path

A group of people from communities in the Hills met Oxfam and its partners after a year of exploration. They posed two interesting questions:

- What if the private sector realizes that they cannot make a profitable business out of this and exit? You [Oxfam and partners] will have exited, so what's the contingency plan?
- What if levers 3 and 4 are outsourced to the private sector, while <u>Lever 5</u> is managed by a structure we can make accountable?

These two questions from the community made Oxfam completely change its proposed management model from one led by the private sector to one led by a local institution. Oxfam supported the local governments of the Hills and Terai in the establishment of the first ever executive Water Supply and Sanitation Management Board (for rural and semi-urban areas of Nepal).

## Private sector engagement

At first, Oxfam explored the idea of using prepaid cards, such as those used in rural areas of Nepal by cable television service providers. However, a scoping study with 547 households in Gajuri, Siddhalek and Benighat

Rorang rural municipalities in Dhading District revealed that all had mobile phone access, of which 65% use the internet. Although only 4.4% of households reported using their phone for online payments or e-transfers for their water tariff, 51% said that they would consider paying their water tariff via mobile internet. Indeed, many were already using similar services to pay electricity bills.

The initial plan was to develop an online platform that would provide an enterprise resource management platform for all water supply schemes in an administrative boundary of Oxfam's working area of the Hills and the Terai, but later in 2021/22 Oxfam identified that Diyalo Technologies Pvt. Ltd had already created such a platform and had been working with water supply schemes in urban areas.

After a series of discussions with Diyalo Technologies Pvt. Ltd., their platform was customized to suit rural providers. Customizations required for the rural providers were made to add more details of the information on water supply systems and its users. Diyalo Technologies Pvt Ltd was later identified as the service provider for the automated billing and centralized account management system for all project suppliers in the Hills and the Terai.

## Services provided by the private sector

Diyalo Technologies Pvt Ltd. provide the following services in the online system called Watermark:

- 1. Centralized financial and human resource management. This provides details of the financial status of all the schemes. In future, all the financial transactions will be digital and will be linked to the system. This will allow decision-makers in the water supply management board to have an overview of financial progress on a dashboard. The system also provides a database of human resources.
- 2. Asset database. This platform will provide a digital database of all the schemes within the board (see <u>Lever Five</u>). This also contains the geo-referenced database of all the schemes, including water sources, pipes, tanks and taps. In future, this database will help to track areas in need of repair and maintenance. Currently, this is in process, and this information is uploaded to NWASH MIS system.<sup>4</sup> The information from NWASH, as well as from Watermark, can be easily transferred once the new system is ready.

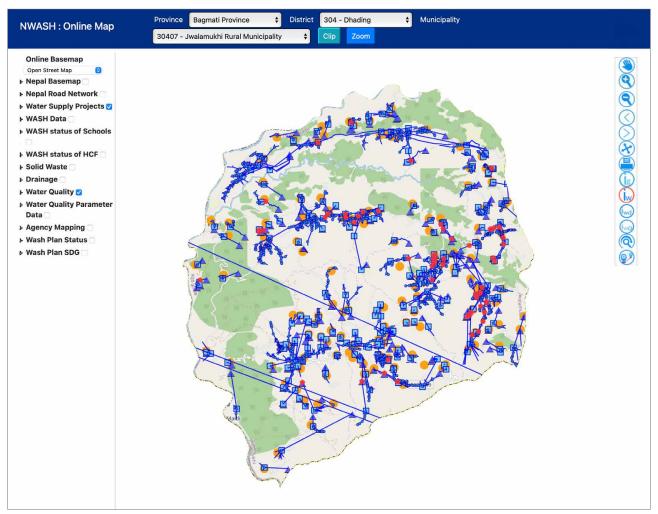
Figure 6: Dashboard of Rajpur Drinking Water and Sanitation Management Board

Source: Rajpur Drinking Water and Sanitation Management Board.

**3. Complaint and feedback handling.** The system will also provide facilities for users to raise complaints, with the system issuing tickets. The ticket will only be closed when the issue is resolved. This will increase the

responsiveness of board technicians, as the management of the board will be able to have a dashboard view of all pending complaints.

Figure 7: Screenshot of NWASH portal showcasing water supply systems in Jwalamukhi Municipality



Source: NWASH.

Figure 8: Screenshot of Rajpur Drinking Water and Sanitation Management Board's Watermark software



Source: Rajpur Drinking Water and Sanitation Management Board.



A woman drinks water from her personal household tap on a hot day in Dhading. Photo: Kishor Sharma/Oxfam.

# LEVER FIVE: OUTSOURCE OPERATIONS AND MAINTENANCE TO LOCAL PROFESSIONALS

To identify a management model that can work in the context of rural Nepal and be trusted by all stakeholders, Oxfam consulted with local governments, Water User Committees (WUCs), private sector actors, the Department of Water Supply and Sewerage Management, the Ministry of Water Supply and Bharatpur Water Supply Management Board, to identify an appropriate model, taking into account Section 3, dha-2 of Local Government Operation Act 2074.5

Section 3 of this act gives local government complete authority to take necessary measures to manage water supply at the local level.

## What is a rural water supply and sanitation management board?

'A rural water supply and sanitation management board is an autonomous corporate body with perpetual succession formed under Section 3 of the Water Supply Management Board Act endorsed by rural/municipalities making proper and effective provisions to provide, or cause to be provided, reliable services to the residents of the municipal areas by making water supply and sanitation services regular, managed, qualitative and easily accessible.'6

The objectives of a board are:

- 1. New construction, upgrading and repair/maintenance, and regular inspection of water supply systems in respective municipalities by mobilizing expert technicians;
- 2. Tariff setting based on income and expenses along with business plans, and tariff collection;
- 3. Awareness-raising on water, sanitation and health (WASH);
- 4. Sustainability planning and fundraising for the board;
- 5. Developing necessary policies and procedures for the operationalization of the board to provide quality services to customers.

## Forming the board

A series of meetings and orientations with local governments and WUCs were conducted to improve awareness of the plan to establish and operate a water supply and sanitation management board to manage WASH services.

After this, Oxfam worked with the local government to develop the Water Supply and Sanitation Management Board Act, which was later endorsed by the assembly meeting of the Palika (rural/municipality administration). The act was then published in the local government gazette.

A 'regulatory board' was formed, comprising the representative of the Palika, the Palika's WASH lead, an independent WASH expert and a representative of a local WASH NGO. The executive committee, regulated by the regulatory body, is led by the Executive Director.

The Executive Director leads both the administrative and finance sections and the technical and planning sections of the board. The former section maintains and manages all the financial transactions through the online platform and ensures all information related to human resources and asset management is up-to-date. This section oversees the statutory audit.

The technical and planning section leads all the technical works such as service extension (i.e. construction), repair and maintenance, as well as regular inspection services. There is also a subcommittee of existing WUCs that will play an important role in bringing users' voices in front of the board.

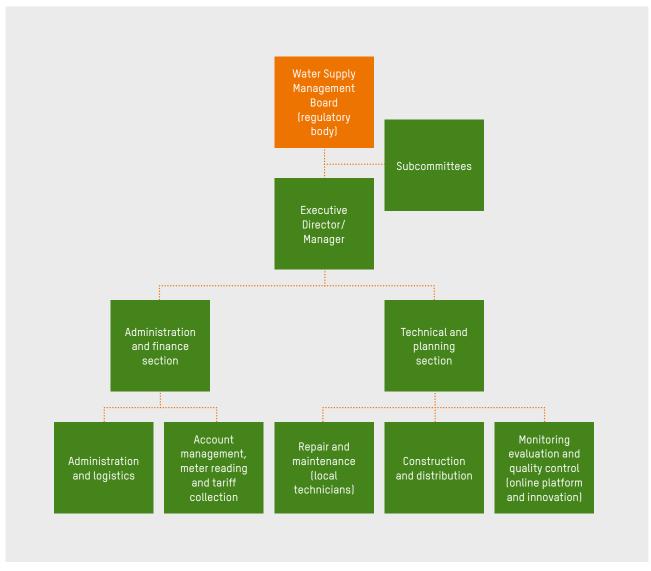


Figure 9: Rural water supply management board organogram

Source: Oxfam.

## Current progress with the formation and operation of Water Supply and Sanitation Management Boards

The Water Supply and Sanitation Management Boards are fully equipped with the necessary human resources, hired according to the new regulations. The boards have completed geo-referencing of all water supply systems along with preparing Detailed Project Reports of all water supply schemes supported by Oxfam. They have

developed business plans, on which basis tariffs have been finalized. The boards have been lobbying local and national governments about the funds needed to manage the water supply system. The boards are already providing their regular services to schemes that are joining. The boards are funded by grants received from the Government of Nepal, development agencies and donors; tariffs; service charges; tap connection charges; penalties; as well as by loans from financial institutions.

Figure 10: Thematic progress of the Boards

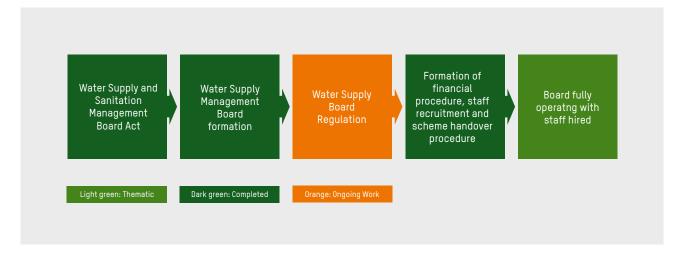


Figure 11: Operational progress of the Boards

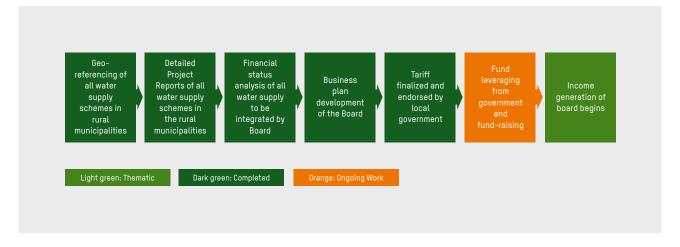
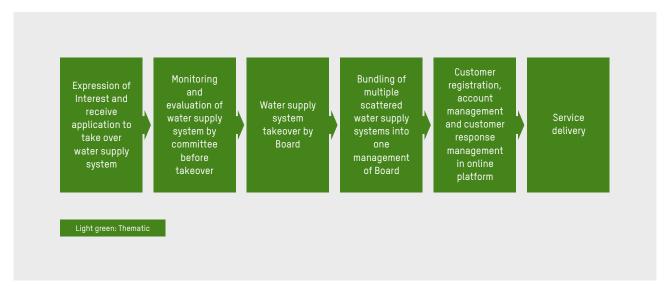


Figure 12: Financial progress of the Boards



**Note**: Rural municipalities would have around 150 smaller water supply systems which are scattered and managed individually by each user committee. Through boards, smaller water supply systems are 'bundled' and brought under single management.



Women now have access to clean water at home. A 'gagri' (copper pitcher) like the one in this image would previously have been filled and carried from a distant source. Photo: Susma Panta/Oxfam.

## **CONCLUSION AND NEXT STEPS**

Systems thinking is a key part of Oxfam's aspirations to make water supply services better for all. These projects have reached a different stage of implementation for each of the five levers. The projects have established professional pipe-laying schemes for rural water supply, and prioritized households shifting from tube wells to hand pumps in locations where the former have delivered poor quality water. While local leader mobilization has been a key factor in influencing communities, different approaches may be needed at different times depending on the sociocultural situation in respective communities.

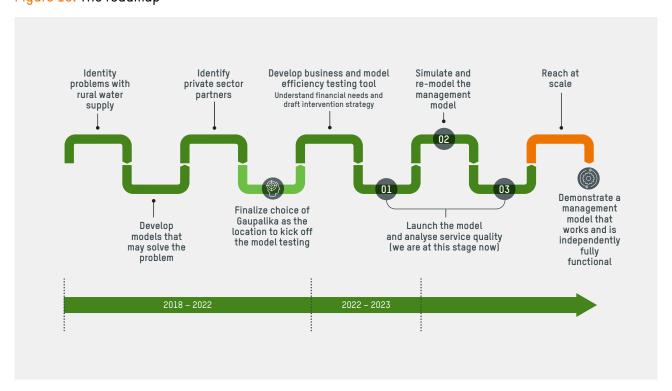
In 2024, Oxfam is now working across three key actors of the water supply system: regulator, delivery and recipients. The Rural Water Supply and Sanitation Management Board, being tested for the first time in rural Nepal as a service delivery unit, provides WASH service delivery on behalf of the local government and is regulated by a committee within the board. This idea has received nationwide appreciation and is highly regarded by the Ministry of Water Supply. As a result, there has been

greater political and governmental support for the idea of boards managing rural water supplies and sanitation.

Oxfam and its partners plan to continue the journey by focusing on improving the building blocks of governance of the service delivery unit and by strengthening regulation so that service users benefit from safely managed WASH services. Through regulatory frameworks and key performance indicators (KPIs), the regulation board will regulate the service provider. This regulation will ensure that the executive team of the board perform their role effectively and will help to hold them accountable.

The board model has been launched and a service is now being provided. The next steps will be to strengthen the board's internal regulatory processes, support the board in strengthening its services to water users, and continue to assess its service quality until the targeted governance level is achieved by a financially sustainable board.

Figure 13: The roadmap



#### **Endnotes**

- A. Adhikari and T. Wildman. (2019). Water Supply Systems in Nepal: How to build better, more sustainable services.

  Oxfam. Accessed 23 May 2024. <a href="https://policy-practice.oxfam.org/resources/water-supply-systems-in-nepal-how-to-build-better-more-sustainable-services-620844/">https://policy-practice.oxfam.org/resources/water-supply-systems-in-nepal-how-to-build-better-more-sustainable-services-620844/</a>
- <sup>2</sup> This is based on anecdotal reports from water, sanitation and health professionals' experiences in the districts of Sarlahi and Rautahat.
- <sup>3</sup> UN-Habitat. (1 October 2019). *PM KP Oli Declared Nepal as ODF nation*. Accessed 12 June 2024. <a href="https://unhabitat.org/">https://unhabitat.org/</a> news/01-oct-2019/pm-kp-oli-declared-nepal-as-odf-nation
- <sup>4</sup> NWASH is a digital platform that contains real-time database system of all WASH services in Nepal. This is operated by the Ministry of Water Supply. <a href="https://nwash.gov.np/">https://nwash.gov.np/</a>
- <sup>5</sup> DPNet Nepal. (2017). *Local Government Operation Act 2017*. Accessed 11 June 2024. https://www.dpnet.org.np/resource-detail/333
- <sup>6</sup> Rural Water Supply and Sanitation Management Board Regulation, 2022.
- New Spotlight Online. (20 December 2023). *National Workshop On Alternative Management Model Project And Rural Water Supply Management Board Modality*. Accessed 12 June 2024. <a href="https://www.spotlightnepal.com/2023/12/20/">https://www.spotlightnepal.com/2023/12/20/</a> national-workshop-alternative-management-model-project-and-rural-water-supply-management-board-modality/



Women now have access to clean water at home. A 'gagri' (copper pitcher) like the one in this image would previously have been filled and carried from a distant source. Photo: Susma Panta/Oxfam.

#### Oxfam International July 2024

For more information about this project or to comment on this report, email aadhikari@oxfam.org.uk

This publication is copyright, but the text may be used free of charge for the purposes of advocacy, campaigning, education, and research, provided that the source is acknowledged in full. The copyright holder requests that all such use be registered with them for impact assessment purposes. For copying in any other circumstances, or for re-use in other publications, or for translation or adaptation, permission must be secured and a fee may be charged.

Email: policyandpractice@oxfam.org.uk

Published by Oxfam GB for Oxfam International under DOI: 10.21201/2024.000027

Oxfam GB, Oxfam House, John Smith Drive, Cowley, Oxford, OX4 2JY, UK.

Cover photo: A woman in Dhading filling her 'Gagri' from her household tap. Photo: Susma Panta/Oxfam.

This case study was written by Anjil Adhikari, Man Bahadur Dhanha Magar, Biju Dangol, Bijay Thapa and Susma Panta.

Special thanks to our local partners Bagmati Welfare Society Nepal, Rural Development Centre, Focus Nepal, and our private sector partner Diyalo Technologies Private Limited.

Thanks to our funding partner Poul due Jensen Foundation.

Edited by Tom Fuller, Ally Davies and Lucy Cowie.

Designed by Nigel Willmott.

#### 0xfam

Oxfam is an international confederation of 21 organizations, working with its partners and allies, reaching out to millions of people around the world. Together, we tackle inequalities to end poverty and injustice, now and in the long term – for an equal future. Please write to any of the agencies for further information or visit www.oxfam.org.

Oxfam America (www.oxfamamerica.org)
Oxfam Aotearoa (www.oxfam.org.nz)
Oxfam Australia (www.oxfam.org.au)
Oxfam-in-Belgium (www.oxfamsol.be)
Oxfam Brasil (www.oxfam.org.br)
Oxfam Canada (www.oxfam.ca)
Oxfam Colombia (www.oxfam.colombia.org)

Oxfam France (www.oxfamfrance.org)

Oxfam Germany (www.oxfam.de)

Oxfam GB (www.oxfam.org.uk)

Oxfam Hong Kong (www.oxfam.org.hk)

Oxfam IBIS (Denmark) (www.oxfamibis.dk)

Oxfam India (www.oxfamindia.org)

Oxfam Intermón (Spain) (www.oxfamintermon.org)

Oxfam Ireland (www.oxfamireland.org

Oxfam Italy (www.oxfamitalia.org)

Oxfam Mexico (www.oxfammexico.org

Oxfam Novih (Netherlands) (www.oxfamnovih.nl)

Oxfam Québec (www.oxfam.gc.ca)

Oxfam South Africa (www.oxfam.org.za)

KEDV (www.kedv.org.tr)

