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Perform or wither: role of water users' associations in municipalities of Nepal

Sreoshi Singh[a], Krity Shrestha[b], Menaka Hamal[c] and Anjal Prakash[d]

[a]*Corresponding author. 1136, Casa Serenita, Sobha City, Thanisandra Road, Bangalore 560064, India*
E-mail: sreoshi@gmail.com
[b]*Practical Action, Indira House, Panipokhari Hill, Kathmandu, Nepal*
[c]*International Centre for Integrated Mountain Development, GPO Box 3226, Khumaltar, Lalitpur, Kathmandu, Nepal*
[d]*TERI – School of Advanced Studies – Hyderabad Campus, Sy. No. 37/1/2, Gopanpally, Gachibowli, Hyderabad, Telangana 500 032, India*

Abstract

In Nepal, water institutions have played a very significant role, and in Tansen and Damauli, the presence of user groups has indicated that proper management of water can help people avert critical water shortages. However, although in both Tansen and Damauli the user groups have been operating for a long time, their performances vary. In Tansen, infrastructural constraints tend to throw up challenges, although operational hazards associated with the supply systems are no less threatening. Moreover, there is large-scale corruption in the systems' upkeep and maintenance, allowing low grade vendors to operate in place of readily available efficient institutions. In Damauli, the systems have been rather perfectly managed, except for minor glitches from time to time. Funding has been good and community bonding has paid off. This paper delves into the community-managed water systems in the two cities and how the performance varies across them and the factors that play a role.

Keywords: Damauli; municipalities; Nepal; Tansen; water institutions; Water Users' Association

Introduction

Water is essential for sustaining life and livelihoods. Over the years, continuous discussion has centred around how water should be managed, due to the inherent challenges. Economic, social and political factors have often been found to determine people's access to water (Gareau & Crow, 2006). These factors

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have primarily determined how policies are framed by the state, resulting in the poor being marginalized. At this juncture, identifying the importance of governance and more specifically 'water governance' is crucial (Huitema *et al*., 2009). Studies across the globe have identified the role of communities in the planning and management of resources as ideal for sustainable and inclusive growth (Lopez-Gunn, 2003). This is where 'governance' as a concept becomes all-encompassing. It is broader than just the government, incorporating both state and non-state actors, both private and public (Peters & Pierre, 1998).

In Nepal, water institutions play a critical role in the irrigation sector (Roth *et al*., 2005) and 'proved to be very popular and successful in developing awareness amongst the farmers and in making the WUAs more active and responsive to the needs of the users' (Howarth *et al*., 2005: 1). A research project in the 1950s around the irrigation sector in Nepal laid the path for a well-developed community-managed irrigation system in the country (Pradhan, 1989). Pradhan (2015) mentioned how their research findings emphasized the need for farmer management irrigation systems (FMIS) for judicious use of water across the different irrigation users while maintaining better cooperation among the users (Bhatta *et al*., 2006). Its key features focus on water being a community resource which must be properly allocated and distributed within the community based on water titles, implying obligations of the users so that operation and maintenance is done on that basis. While decision-making will lie with the general assembly, the implementation will remain with the executive committee, and non-adherence to terms and conditions laid down would lead to penalties. The researchers identified that these features could only be sustained through 'strong social capital development in the irrigators' community over long period of time' (Pradhan, 2015: 42). Additionally, infrastructure development without the role of social capital will be unsustainable (Ostrom, 2000).

This paper focuses on the role of water user groups in providing access to drinking water in two urban locations in Nepal. It focuses on the question of how well the urban water user groups have been performing in providing access to water for the urban poor. This paper draws from data of 350 household surveys conducted in the two selected towns of Tansen and Damauli in Nepal. The survey was conducted in 2017–18 with a view to investigating households' response to questions regarding the status of water sources, supply systems and satisfaction levels on access, quality and quantity of water and coping mechanisms wherever water is inaccessible. Based on the results of the data analysis of some of the key indicators, the paper dwells on the working of governance mechanism in the two towns. This paper is divided into the following sections. After the introduction, a section focuses on the major developments in the drinking water sector in Nepal and the evolution of drinking water user groups. Next, a brief background of the two towns is given and data from the primary survey are presented. This is followed by a section that focuses on the drinking water user groups formed in the two towns and evaluates their performance. Then, a detailed analysis of the drinking water user groups is presented to discover why they underperform and finally, conclusions are drawn.

Major developments in drinking water scenario in Nepal

In this section, we document the evolution of the water users' associations (WUAs) in Nepal through acts and regulations. The changes and legitimization of WUAs have implications on governance and management of water at a local level especially. We focus on the drinking water sector where WUAs have been functioning for more than five decades, which was further recognized by the constitution, and promulgated in 2015. The right to drinking water in Nepal has been protected by the constitution of Nepal, 2015 in Article

25, sub article 4 of Part 3 – Fundamental rights and duties (Nepal Law Commission, 2015). Also, under Nepali law, drinking water is a consumer commodity. The Essential Commodity Protection Act 1955 deems drinking water to be an essential commodity and, as such, declares that it should be strictly protected. The main legislation in relation to drinking water in Nepal is the Water Resource Act 1992, an umbrella act, governing not only drinking water, but other uses of water and overall water resource management in Nepal (Magar, 2009; Aryal, 2011). It further gives priority to the right to use water for drinking purposes over any other domestic or commercial use. There are two regulations under the Act, for drinking water purposes the Water Resource Regulation 1993 and the Drinking Water Regulation 1998.

Evolution of drinking water users' group/associations and liaison at local level

The Drinking Water Regulation 1998 specifically deals with drinking water and sanitation. Among other things, it regulates drinking water users' associations (DWUAs), known simply as water users' associations (WUA) or water users' cooperatives, the quality of drinking water and drinking water suppliers. Rule 3 of the Drinking Water Regulation 1998 provides that groups of people who wish to benefit collectively from developing and operating their own project may form a WUA. A WUA may also be registered for the operation of a project developed by GoN (Government of Nepal) (then His Majesty's Government). If GoN wishes to operate a project through a WUA as per Section 11 of the Water Resource Act 1992, persons willing to operate the project must form and register a WUA as per Rule 5 of the Water Resource Regulation 1993. Drinking water suppliers are also considered as WUAs and corporate bodies that are essentially fulfilling a state's responsibility to supply drinking water as a service and for commercial gain. They are regulated by the Drinking Water Regulation 1998 which defines a water supplier as a WUA and/or licensee holding a licence for the operation of a water supply system. Here, the emphasis was given on enabling the communities themselves to take up the lead role in the identification, selection, formulation, implementation and management of water supply programmes. It gave priority to the disadvantaged and promoted hygiene, sanitation and promised to minimize environmental impacts. As per the policy, most of the water projects were to be handed over to the user committee, municipality, water supply-related organization or community-based organization. As Mayntz (2006) puts it very rightly,

> '*this represents a shift to a new form of governing society that is more inclusive and cooperative than the traditional ordered rule of government and concept of political steering; moving from placing state governments and political authorities at the centre of action to control socio-political processes to meet socio-economic goals.* (Hill, 2012: 17–18)'

The Act of 1993 itself mentioned the role of user groups, which will perform like a corporate body, with perpetual succession and will target using water for collective benefit. While several rural projects have been successful, there have been multiple challenges due to lack of knowledge of sources, lack of participation, guidelines regarding role of state and role of users in pricing and cost recovery.

The major role of the DWUAs is to supply water while maintaining the water quality parameters. They are also responsible for maintaining and repairing the water supply system and compensating communities and households as per the country's current rules in the case of purchasing/using water sources from other areas/communities. They are not allowed to pollute the water sources and are responsible for conducting necessary source conservation activities such as regular cleanliness, among others. The

regulation has bestowed the WUAs with certain powers as well; they are empowered to impose conditions of service, such as tariffs and to reduce or cease the service and levy service charge. However, these powers have to be exercised as per the agreed constitution. In the case of changes in power, the proposal may be amended in the general assembly.

The other major pieces of legislation governing drinking water are the Nepal Water Supply Corporation Act 1989. This Act establishes the Nepal Water Supply Corporation (NWSC) as a public corporation responsible for providing clean drinking water and sewerage services to the urban population. The scope of work of the Corporation has been determined by His Majesty's Government (HMG) by notification in the Gazette. This Act establishes the right of people to drinking water and sanitation and imposes a duty on the state (through the Corporation) to provide drinking water and sanitation. The Local Self Governance Act 1999, which primarily deals with the decentralization of government, also gives local bodies some responsibility in relation to the utilization, conservation and management of water resources, maintenance of sanitation facilities and waste management. The Act and its regulations make local bodies (village development committees, district development committees, and municipalities) responsible for delivering certain services, apart from providing them with the power to make policies and implement programmes related to drinking water and sanitation and to raise revenue via local taxation, fees and other means (Water Aid Nepal, 2005).

As per the Federation of Drinking Water and Sanitation Users Nepal (FEDWASUN), there are about 41,250 DWUAs in Nepal. Before 1992, these WUAs were directly registered with District Administrative offices in their respective districts. Since the promulgation of the Local Self Governance Act (LSGA) in 1999, they are registered at the municipality/local level because the local bodies have ownership rights over the water resources within their respective administrative boundaries. Hence, the LSGA gives precedence to the local bodies of the respective water resource over the ownership by the state, as depicted in the Water Resources Act.

A case of two emerging towns of Nepal: Tansen and Damauli

About 85% of the population in Nepal lives in rural areas. Recently, many people have been migrating to urban centres of the country due to economic and social factors. The urban population of the country is largely concentrated in the Terai region and the valleys of the mid hills spread across 58 municipalities. The urban population has been rising since 1971, from 4% of the total population to 13.9% in 2001, and is expected to reach 26.7% by 2021. Simultaneously, urban water demand has also been increasing at the rate of 6 to 9% (WHO, 2014). In urban areas, the data from Central Bureau of Statistics (CBS, 2011) shows that around 87% of the total population living in urban areas has access to drinking water while 85% of the population in rural areas has access to water. Similarly, if we look across the ecological regions, 84.89% of the total population in the hills has access to drinking water. The access to drinking water in the hills is higher than in mountains or Terai (CBS, 2011).

The pressure on water and sanitation services are high, although latest estimates show that 85% of the total population has access to basic water supply services and 62% has access to basic sanitation facilities (access to toilets). Nepal has already achieved the Millennium Development Goal (MDG) targets for water supply (73%) and is making progress to the MDG target for sanitation (WHO, 2014). It is estimated that 40,000 water supply schemes of multiple types and scales including rural, semi-urban and urban, gravity flow and pumping are in operation. While most of the rural and semi-urban water schemes are operated and

managed by water users and sanitation committee (WUSC) – a kind of community-based organization formed by the consumers themselves, the urban schemes are operated by a water utility such as NWSC, a semi-government agency (WHO, 2014: 1).

Tansen was recognized as a municipal town in 1961 (Nepal, 2001) while Damauli became a municipality in 2011. Both the towns are considered among the most planned municipalities in Nepal. Tansen lies in Palpa District and is the administrative centre in the hills of western Nepal. Located at an altitude of 1,372 m, on the highway between Butwal and Pokhara, on the crest of the Mahabharat Range, the town overlooks the valley of the Kaligandaki River to the north. The town is famous for the Newari traders and artisans known for their metal and Dhaka (textile) industries. Tourism is also prevalent during October–December and March–April. There is also a huge influx of religious tourists during Maghe Sankranti (February) festival in the Ridi River (Portnov & Adhikari, 2006). Old records from Tansen indicate that the first water supply system through gravity flow was set up during the rule of the Ranas in Nepal. Engineered by the British, the system can supply over 150,000 litres of water per day to around 12,000–15,000 people (Joshi, 2017). The water user group in Tansen was formed in 1980 and has been officially distributing and managing drinking water supply in its urban wards. Water is supplied to all wards except Wards nos. 9, 12 and 14, as they are peri-urban wards of the municipality. Water supply in peri-urban wards is through local resources such as springs and handpumps. There are 1,760 taps registered with the users' committee, and no new taps registered after 1994. According to the users' committee, total water demand, for 15 wards, is 35,00,000 litres per day (120.29 lpcd) whereas 2,000–2,500 litres of water is supplied per household per day and the current storage capacity of reservoirs is around 13.5–14 hundred thousand litres (Poudel, 2017). Figures 1 and 2 show the spring water and storage infrastructure within the two municipalities.

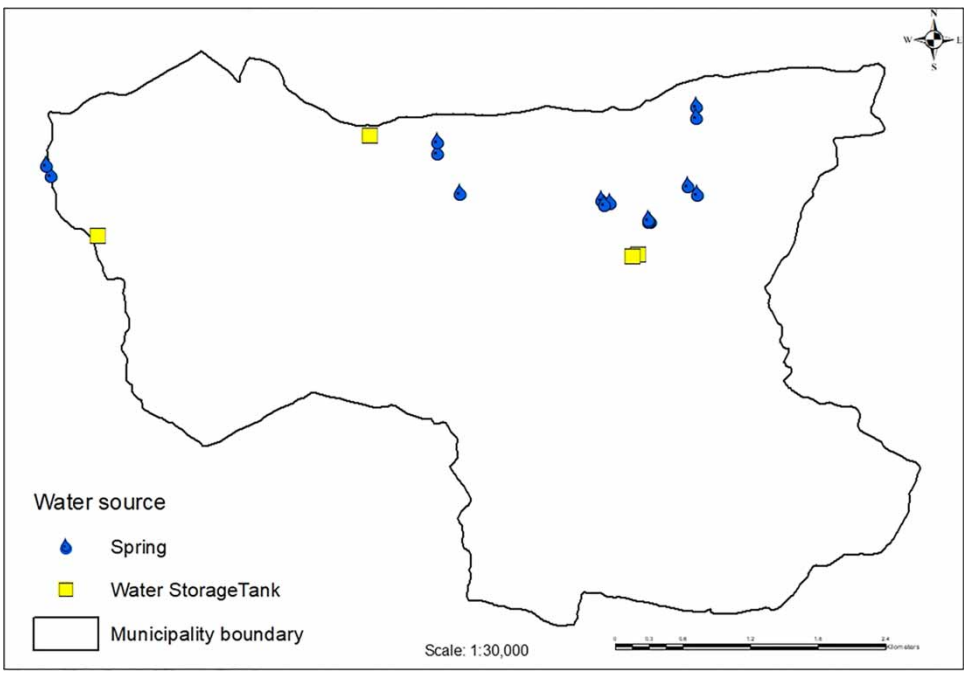

Fig. 1. Springs and tanks in Tansen municipality. (*Source*: Department of Survey, Nepal.)

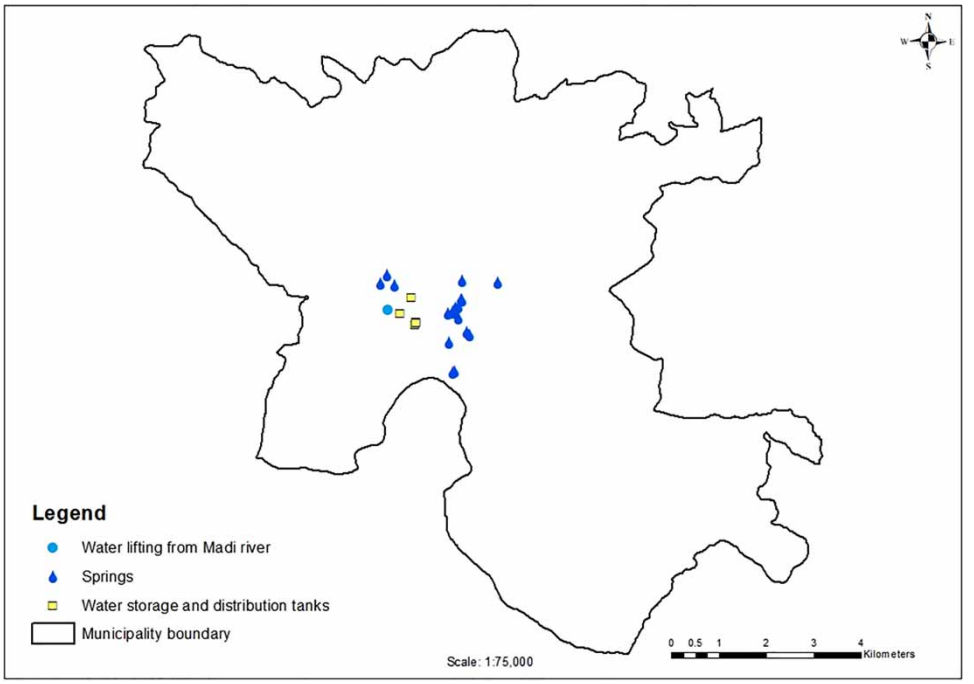

Fig. 2. Springs and tanks in Damauli, Vyas municipality. (*Source*: Department of Survey, Nepal.)

Vyas, a municipality of which Damauli town is a part, was established in 1992 after re-establishment of multi-party democracy in Nepal in 1991. The municipality is a hub of local economic activities, due to which it has witnessed huge in-migration from the surrounding villages and from other areas within the district and outside. People are settling there for business, better infrastructure, better employment opportunities and education facilities. Hence, the population of the city and demand for water is rising. There are two water supply systems providing drinking water to the residents of Damauli through 1,902 taps in the municipal areas of which 36 are public taps. Damauli Drinking Water and Sanitation Cooperative was officially registered and became operational in 2008. Latest official figures indicate that there is a demand for 2.5 million litres of water per day in Damauli, but the supply is just around 1.5 million litres (Poudel, 2017). The current storage capacity of the tank is about 1.6–1.7 million litres. To meet the deficit, the municipality is also looking for new sources, as groundwater extraction is only a temporary solution. In this process, various stakeholders have been involved, including residents of particular wards where water supply is not adequate.

A primary study was conducted in 2016–17 to understand the water budget of the two towns and the role of institutions in managing water supply. Household level data were collected from 350 households across the two towns (208 in Damauli and 142 in Tansen). In the next section, we provide the key findings of the study.

Household water use in two towns: heavy dependence on spring sources

In Tansen and Damauli, the numbers of households that originally belonged to these two towns was rather limited. From around the year 2001, there has been substantial migration, indicated by the

respondents. Almost 71% and 69% of respondents have been living in the respective towns for a maximum period of 15 years with only a small proportion (12% and 23%, respectively) being born there. This is also a clear indication that water demands in these two urban centres have increased substantially owing to the increasing number of residents.

Table 1 shows that 92% of households in Tansen depend on municipal supply for drinking and only 6% on springs, while in Damauli, only 56% and 34% are dependent on these two sources, respectively. This is attributed to the fact that municipal water is actually derived from springs and, therefore, people prefer using this rather than using the spring water directly to drink. In Damauli, the low proportion of households depending on the municipality may be attributed to the fact that the municipal water systems are not able to serve the peri-urban wards as efficiently as the core areas. Households in the peri-urban areas depend largely on other minor spring sources. An interesting observation stemming from the data indicates that in Tansen and Damauli, the figure for spring water users across all uses is high (69% and 53%, respectively). Further, data for the two cities (see Table 2) show that residents in Damauli use more spring water than Tansen (34% and 6%, respectively) irrespective of the season.

Piped water supply from the municipality is available only to 60% of surveyed households in the core urban wards of Damauli with the duration of supply being around one and half hours in almost 63% of households (see Tables 3 and 4). On the contrary, duration for which water is available in 92% of households in Tansen with access to a municipal source for drinking and other purposes, is up to 1 hour, received by 74% of the households. This association has also been found to be statistically significant.

Table 1. Main source of water for drinking in Tansen and Damauli.

	Surveyed households (%)	
Sources of water for drinking	Tansen	Damauli
Municipal supply	92	55.8
Groundwater (drawn through personal borewell/tube well)	0	0.5
Groundwater (drawn through community tube well)	1.4	1.0
Stream/lake	0	0.5
Bottled water	0.7	1.5
Springs	6.2	34.0
Open well	0	6.8
Total	100	100

Source: Primary household survey, 2016–17.

Table 2. Season-wise use of spring water.

	% of surveyed households	
Use of spring water (season-wise)	Tansen	Damauli
Throughout the year	21	74
Summer and pre-monsoon	73	24
Monsoon	6	0
Winter	0	2
Total	100	100

Source: Primary household survey, 2016–17.

Table 3. Access to municipal water source in Tansen and Damauli.

	% of surveyed households	
Access to municipal water	Tansen	Damauli
Access available	92.4	60.2
No access	7.6	39.8
Total surveyed households	100	100

Source: Primary household survey, 2016–17.

Table 4. Duration of water supply from municipal source.

	% of surveyed households	
Duration of water supply from municipal source	Tansen	Damauli
Less than 30 minutes	7	6.4
31–45 minutes	7	0
45–60 minutes	74	23.4
61–90 minutes	10	7.4
Above 91 minutes	2	62.8
Total	100	100

Source: Primary household survey, 2016–17.

Focus group discussions with households reveal that the supply schedules are not satisfactory. In the case of Tansen, the most water-scarce period is during the pre-monsoon (*Chaitra-Jestha* – in local terms) when water is available for only 1 hour in 7–9 days. During the monsoon period (*Asar-Bhadra* – in local terms), there is minor improvement, but it still continues to be a cause for serious worry for residents. During the post-monsoons, water is received for 1 hour in 3–5 days and again worsens (in *Ashwin-mangsir*) with 1 hour in 5–7 days. The winter schedules are similar to those of pre-monsoons. Therefore, increasing use of bottled water and tanker water as an alternative to municipal source has been observed here (see Table 5), a practice mostly restricted to the core areas, where households from the higher income groups reside and can afford the delivery charges of commercial sources. Hence, it is a coping mechanism of the rich and elite while poor households cope with water shortages, by fetching water from nearby springs, lakes and stone spouts. Additionally, lack of large storage systems in the homes of the poorer households hinders the purchase of water from tankers.

At this point in time, where some of the key issues have been brought forth and inequities are visible, a review of the water supply system providing water to Tansen and Damauli is of utmost importance.

Table 5. Purchase of water from private tankers.

	% of surveyed households	
Water tankers use	Tansen	Damauli
Using tanker water	48	7
Not using tanker water	52	93
Total households in both municipalities	100	100

Source: Primary household survey, 2016–17.

Our purpose in this paper is also to review the larger governance issues. The piped drinking water supply system in Tansen and Damauli is actually drawn from the spring sources. In Damauli, water from the Madi River is also tapped through a pumping system. Both the systems were handed over to the community in Damauli and Tansen in 2008 and 2012. In Damauli, the handover happened rather quickly, as the town was selected for the ADB project (Small Town Drinking Water Scheme), whereby the supply system was to be augmented and infrastructure improved. Despite this, the town's demand for water continues to increase, with inequity in access. Focus group discussions in Tansen have not indicated a very positive response from people regarding the challenges faced in accessing water. We realize that the role and performance of the DWUAs have an implication for water availability in the households of these two municipalities.

Water user groups in Tansen and Damauli: an analysis

The distribution of springs and water storage in Tansen and Damauli are shown in Figures 1 and 2. Further, detailed accounts of each of the water sources for the respective user groups follows. In Tansen, water supply is drawn from five large springs and a few smaller ones. The main spring sources Bhulke, Sisne (Khane) Mul, Banjha, and partially, Holongdi and Teendhara are used by the Tansen water user group; Banjha is the only gravity system, which is currently out of use due to lack of repair and maintenance. Bartung water user group draws water from Changdi and Dhondre, and Kunsare-Kajipauwa-Prabhas drinking water users' committee draws water mainly from Holongdi and Baghchahara. In Damauli, households had been receiving water from the municipal sources, namely, the Gunadi spring from which only three wards received water until the water user committee became functional. The other source is a pumping system from the River Madi – also meant for the core urban wards. Both these sources have limited capacity. Before the municipality in Damauli was in charge, the District Division office had been managing the supply system. When it was handed over to the municipality in 1991, there were 800–900 taps in the town.

The system was unable to meet the water demands of the growing population in general and specifically the households residing in the peri-urban wards. This was mainly attributed to the pipeline system which was not well connected to all the nooks and corners of the municipality, and to limited carrying capacity of pipes and reservoirs. As a result, the water treatment capacity was also low.

The shortfall was met by households (for purposes apart from drinking) using either direct access to the river water or from other nearby springs. To manage the system more efficiently, the formation and governance by water user cooperatives, with improved water services being the foremost priority, became the need of the hour. Therefore, the Damauli Drinking Water and Sanitation Cooperative was officially registered in 2008, after which, 1,200 taps were available in the city. The ADB project for Drinking Water in Small Towns in Nepal, launched in 2000, did work as a precursor, intending to provide safe drinking water to all the wards in Damauli. The pipeline system was laid by the municipality and then taken over by the water user committees in 2008. However, the committees in the urban cores have been found to be more pro-active than the peri-urban wards. Out of 12 cooperatives, Damauli Drinking Water and Sanitation Cooperative has been mainly responsible for supplying drinking water to the core urban Wards nos. 2, 10 and 11 and the partial areas of the peri-urban Wards 1 and 8, of the city. The cooperative in Damauli is run by the 11 working committee members who are elected by the general assembly, formed by the elected committee members.

Infrastructural constraint and operational hazards

In Tansen, the municipality has 1,760 taps and is in need of more taps. The authorities are unable to take applications due to their constraints in providing new connections. This is mainly due to current storage capacity which is only 1.4 million litres and is presently operating at its peak. At the very beginning, therefore, infrastructural constraints tend to throw up challenges, although operational hazards associated with these supply systems are no less. Water from Bhulke, the most important source for the Tansen water users group is pumped up to Tansen Bazar using 15 pumps, which run 24 hours on a dedicated electricity line. In the wake of even one pump failing or an electricity snap, the entire cascade of pumps is disturbed and supply is stalled. The late arrival of the technician due to the distant location delays the repair process and distribution further. The capacity of this pumping system has also declined over the last 30 years, from 1 million litres, to approximately 0.7 million litres in 2016–17 during the monsoon, and around 0.4 million litres during the dry season, attributed mainly to inefficiency of the new pumps, which have replaced the JICA funded pumps. On the contrary, in Damauli, Rudepani Drinking Water and Sanitation Cooperative is responsible for the pipeline system supply to the community in Ward 13. Operating at a smaller scale, this cooperative is performing better because it is functioning in coordination with the municipality and division drinking water office in Damauli for funds and technical support, not only concerning repairing old tanks but also building new reservoirs near the source. The *tole* (lane in English) development committee is also active in the process and is cooperating to raise funds. As a result, any disruption in the system is handled with care and utmost urgency, although there was an instance of the dalit community complaining that when their pipes were damaged during road construction, they took over four months to be repaired.

In Damauli, responses from the field have indicated that in the core areas, water supply timing that is fixed by the user committee for an hour from 5 am to 6 am and a similar routine in the evening does not reduce the water woes. FGDs with womens' groups have indicated that these timings are not maintained and keep varying from household to household and *tole* to *tole* (*lanes/areas within the wards*) resulting in some households getting water for 4 hours, while some for 1 hour or even less. Users continue to face uncertainty regarding a tap water supply system for everyday use and therefore the dependency on springs is not only high, but also is being used throughout the year as a source. In households of the peri-urban wards, water is available almost every day from a minimum 2 hours up to 5 hours.

Declining water availability from limited sources: implication and consequences

Sisne is a major spring source, located in a peri-urban ward of the municipality, from which water has been channelled since 2006. Previously, it was a part of farmland of the upstream communities and used for irrigation. The government/committee paid money to the owner/community member and installed a water extraction system here. According to the caretaker, a 5-inch (12.7 cm) diameter pipe collects water from the source to the tank (with capacity of 1,000,000 litres). However, in recent years, he has observed the discharge reducing to half during pre-monsoons and although several storage tanks are in other locations, the situation is quite bleak. Low water discharge leads to higher prices for water. In areas within the Bartung user committee, the last two years have seen an increase in the amount of money paid by users; from NPR 20 (20 cents USD) for 6,000 litres up to NPR 80 (about 80 cents USD) for 6,000 litres of water. Moreover, no tanker services are available in these wards due to the location being away from the core city areas. Hence, people depend on the committee supply, even if it becomes

more expensive, and from the nearby spring sources. Discussions in the field indicated that the supply from the DWUA is not uniform within wards. Moreover, households are split across the Bartung and Tansen water users groups and therefore water availability varies as the sources change. Households within the Bartung user group lack taps and often rely on nearby springs and water spouts. In some clusters, such as Durgabhawani/Raksaha Tole, Devidanda there is potentiality a source of groundwater, available at a depth of 1,000–1,500 m and the households in these areas completely rely on the tube wells. Households in Barbhanjyang also use tubewells. These households have installed a borewell which draws water and transports it using a pipe of 10 inches (25.4 cm), but according to households, only 4 inches (10.16 cm) of water is available. This shows that even the borewell potential is diminishing in the area. Similar scenarios have been reported from Damauli, where discharge from the Rudepani spring source, spring sources of the Kaura Pateni drinking water cooperative, has reduced substantially; along with water availability from the Kholsi drinking water lifting project since 2010, leading to an increased burden of water collection for women. In Ward 13, women often have to wait in long queues to collect water, for which they have to get up very early in the morning. Households in Ward 9, that depend on the lifting project in Damauli, are faced with water quality issues and diarrhoea is reported during summer and monsoon seasons.

The Prabhas drinking water committee, according to a senior member, is performing very well and has managed to fulfil the demand of 60,000 litres per day in the area it serves (from Baghchahara and Holongdi, which are the major sources for the system). However, the users disagree with the statement and speak of approximately 327 households owning private taps, of which 122 households in Pravash have a metered connection. Similarly, in Kunsare, 80 households share one public tap provided by the users' committee. Several other areas (mostly the peri-urban households) within the jurisdiction of this committee have a similar story to relate, and the exorbitant amount to be paid for a new connection (NPR 50,000, i.e., USD 440)) dissuades households, which are largely agrarian in nature. As a result, two to three households pool their personal funds to apply for a community private tap. In peri-urban wards of Tansen, a very interesting issue was raised by the households, who spoke about how the larger committees like Tansen water user committees are lobbying to buy the sources of water from where the smaller water user committees access water. This would lead to further inequity across the wards of Tansen, a practice that would work against the well-being of people. In Damauli, the user groups are more pro-active in the urban wards. Purandi Drinking Water and Sanitation Cooperative in Damauli is a very successful case where the communities are very satisfied with the water supply. Additionally, there are seven springs from where households fetch water for drinking, cooking, washing, bathing and livestock watering and no complaints have been reported regarding the quality during the discussions. Partial reduction in the discharge was reported by the households. Women are extremely happy as all the households have a connection and the drudgery of water collection is reduced, although power failures and breakdown of the pump drawing groundwater disrupts the supply occasionally. Only in such situations, do they fetch water from the river. The cooperative has also received ||NPR 1,100,000 (about USD 9,700) as funding from the municipality for repair and maintenance of the old infrastructure. The CBO members go to the Municipality and Division Drinking Water Office for technical support as may be required during this process.

The problem of drying up of spring sources and lowering of the groundwater table is expected to escalate over the years. During focus group discussions, various participants and key informants were asked to narrate their observations in terms of these declining trends. Increasing drought, heavy and infrequent rainfall and increasing temperatures are some of the impacts almost all the participants

unanimously agreed upon. These changes are closely associated with changing climatic conditions. They also reported that winter rain is gradually disappearing and hence the dry season is prolonged, causing more water tension. These trends and impacts will only become more prominent over the years adding more woes to the water supply scenario.

Water user groups: why are they malfunctioning?

Tansen and Damauli water user groups have experienced multiple challenges in operation and maintenance. When bigger projects are the focus, a huge gap in technical capacity and governance practices has often translated into the inefficiency of the system. In Tansen, for example, Kajipauwa-Kunsare-Prabhas drinking water user committees have access to more sources and therefore experience larger issues of governance, transparency and accountability, apart from the frequent political influence. Smaller water user groups tend to be less political and more transparent, which, of course, in the case of Damauli has been in name only. These challenges lead to lack of trust between the committees and the users. Focus group discussions, for example, exposed the corruption and collusion between the private repair agencies and the WUAs to allow their businesses to flourish, whereas efficient technical institutions like Butwal Institution, which is closer to Tansen, are ignored, despite their efficiency capacities. As a result, the system crashes frequently, when the inefficient private technical agencies are called for repairing the pumps. Even during the purchase of pumps, a considerable amount of money is paid to committees by private agencies to promote low quality pumps and parts associated with them, which tend to break down frequently, and help the business of the incapable private institutions to thrive. This not only disrupts the water distribution and households' daily challenges but allows the seeds of corruption to be sown within the system, perpetrating long-term gains of a few people. Additionally, unequal access is also an issue which only those who have the power within the committee manage to deal with, while frequent protests by others (regarding the mismanagement of the system) fall on deaf ears.

The above governance issues and malpractices resonate with households' strong belief that the institution rules and policies are not inclusive and not 'community oriented'. There are issues of disparity in access and inequality in distribution. The decision-making process is unfair and operates more or less like a syndicate, because power is held by force and political support rather than through fair and inclusive processes. Therefore, users' participation in the committee is uninvited and even mandatory meetings are not organized. In households of the Bartung committee, for example, application for a new tap connection (costing NPR 50,000 (USD 440)) requires a long wait time to get one; some households have been waiting for 11 years, while those who pay double the amount (NPR 100,000 (USD 880)) get a connection faster and avoid queues. Unfortunately, the households getting new connections are getting less water as the diameter of the pipes are smaller and supply less water. These malpractices are only leading to inefficiency in performance and, therefore, the committees are incurring huge losses despite the water price hike. There are no mechanisms to ensure representation of poor, women and marginalized households or even subsidies to these communities. Lack of transparency and accountability to the people allows these practices to be sustained. Most of the committee members are affiliated to various political parties, and these political appointments have made the committee unaccountable to the users and their grievances. As per the users' group constitution, there is a mandatory election mechanism, but the communities have indicated that over the years, the same people are elected, and the communities have no influence or say in the process.

Women, who are solely responsible for collecting and managing water in most of the households, are barred from the associations, as the tap is generally registered in the name of their male counterpart. Many women in the discussions shared how they were unable to engage in income generating activities due to irregular hours of water distribution from the municipal supply and the uncertainties associated with it. In Tansen, women must spend around 6–7 hours, especially in the dry season, collecting water from stone spouts. As a result, livestock rearing as a livelihood option for women in peri-urban areas, around Tansen, is gradually declining. Women in urban as well as peri-urban areas are, therefore, impacted due to the mismanagement of water by the user committees and consequent water shortages. Unlike Tansen, Damauli has shown better representation in the associations, not only in terms of the members, but also coordination across other groups in the wards. For example, Baireni drinking water and sanitation committee have seen women at the executive level in the committee. Both male and female members of the committee go to the municipality and other relevant organizations to demand funding support and negotiate for the best deals. Additionally, political influences are unheard of and therefore practices are clean and more transparent, although issues of supply may arise from time to time. Due to the proper coordination and cooperation among members, these issues are resolved more easily than what has been observed in Tansen.

Conclusion: will WUAs survive or wither?

Much of the Global South has embraced decentralization since the 1990s, enabling efficient mobilization and allocation of resources for improved governance at the local level. This process also generated a renewed focus on community participation in water supply and sanitation projects. Studies have shown that community participation in water projects in developing countries results in ownership and promotes project sustainability. It helps settle internal differences, make better decisions, that are accepted by all, and increases technical knowledge and management experiences of the beneficiaries of these water projects (Njogu, 2014; Das, 2015).

The literature on the sustainability of community-managed water supply is, however, controversial as there seems to be a lack of agreement about the sustainability of the model. However, Marks & Davis (2012) point to the fact that the extent of involvement during the project planning phase determines, to a large extent, the feeling of ownership in the project and its success in the future. This paper has reviewed the cases of two towns in Nepal, where WUAs have been fairly successful in one, while in the other, they have fallen at the last hurdle. This is of large concern since the projected urban population in Nepal is estimated to reach 50% of the total population by 2030 and has a significant bearing on governance, programming and management for urban WASH services. The Small Towns Water Supply and Sanitation Project in Nepal, implemented initially in 29 towns in the first phase, has seen both success and failure; Damauli representing the former group, while in the second phase, it intends to target another 21 towns (ADB, 2018). There is a need to review some of the arguments that support the success of Damauli WUAs as against those in Tansen. The WUAs in Tansen are large, and have been found to be less efficient as there has been a lack of community engagement, due to political interference leading to sustained control of the resource by a privileged few, who engage in corrupt practices within the system; thus, unable to provide services to the poor and marginalized who need it most. Moreover, at every stage, efficiency of the system is compromised along with the daily struggle for water access. Our research has shown that source maintenance, quantity of water available and future planning is extremely limited in

Tansen, which is also reflected in the low per capita water consumption (41.42 lpcd). In Damauli, the ADB project, has perhaps played a role in laying the path for not only new systems to be installed, but also funds utilized wisely and in a planned manner for improved services in this municipality. The per capita water consumption of Damauli is also higher than that of Tansen (65.9 lpcd and 41.42 lpcd, respectively), although neither meet the international standards set by WHO which stands at 125 lpcd. Further, discussions with communities in Damauli regarding water supply within homes, infrastructure development, performance and overall satisfaction levels point towards the success of the WUAs, in making them socially inclusive, more transparent and accountable vis-à-vis those in Tansen.

It must be understood at this stage that over a period of time the demand for water in both the municipalities will increase further and, therefore, proper management of the systems is essential. Both Tansen and Damauli are already experiencing low water discharge from some of the major sources, but no interventions involving sustainable practices and innovations by the committees/cooperatives have been planned. This is critical as sources are drying up and efforts to rejuvenate spring sources, and springshed management is essential to meet the increasing water demands. The aspect of climate change adaptation, and resilience, seems to be lacking in the working of the WUAs. Users, especially in Tansen's urban core areas, are increasingly reliant on alternative water sources and private water tankers. In Tansen, users are paying as much as Rs 357 (about USD 3) for every 1,000 litres of water from private water tankers. The option of water tanker use is for big hotels and rich households concentrated in core urban areas of Tansen, who have adequate storage facilities. Households on rent and those living in peri-urban areas do not have access to a water supply from private tankers due to limited affordability. During discussions, the households with access to the alternative private sources revealed that they preferred these expensive alternatives against the unreliable water supply from municipal sources, which further raises concern about the diminishing trust between the WUAs and the beneficiaries thus leading to subsequent alienation.

This trend has directly led to increased disparity vis-à-vis rich and poor, urban and the peri-urban residents. Experience in Tansen shows that adaptation is only possible for the rich, through alternative sources; private water tankers and therefore WUAs have actually failed with regard to water equity.

The groups need to identify that increasing population-induced water demand, upcoming technology and changes in rainfall patterns call for a specific paradigm on spring water management (Patil *et al.*, 2018), which is the traditional source of water in these towns. Hence, development of a science-based, community-involved approach to managing the springs, if adopted as part of the WUAs' charter of activities, can make these towns more resilient to future water scarcities driven by climate change. Additionally, policies around proper land use mapping and infrastructure planning from the municipality can greatly aid in conservation of existing sources. Smaller WUAs such as Bartung in Tansen have already bought some land around their water sources to conserve the water sources. These pro-active measures by the larger groups in Tansen will lead to sustainable water supply in the core urban as well as peri-urban areas. ADB's role in the STWSSP has been increasing, through value addition built on previous ADB interventions in the sector.

'*It will strengthen particularly (i) technical robustness, (ii) institutional capacity focusing on project municipalities and WUSCs, (iii) long-term operational sustainability, and (iv) climate-resilient approaches and smart technology application. To overcome start-up delays, the project will assist project development by supporting the detailed designs of WSS sub-projects for newly established provincial capitals and district headquarters apart from Kathmandu valley. The project is aligned with the government's sector policies, ADB's Urban and Water Operational Plans, ADB's Water*

for All Policy, and the Sustainable Development Goals (gender equality, clean water and sanitation, and climate change). (ADB, 2018: 3)'

The outcomes that have been observed are, better functioning of the WSS systems, greater institutional strengthening and improved financial planning. As part of the improved process and planning, Tansen and Damauli would benefit at large, but without donor support, who will always try to push their agenda forward. At this moment, Tansen and Damauli are both functioning without donor support and there are success stories. Hence, if WUAs come together as strong institutions to find ways of better and effective governance, they can rule out the interference of donors.

The water user committees are independent bodies that are run as per their constitution and are independent of municipality or government scrutiny. However, most of the water user groups have a municipality/local government representative as the officiating member on their respective board and executive committee. As a result, there is widespread corruption and bad governance practices. The communities would like the municipality to play a positive role and mitigate these malpractices. From the larger lens of urban development and rising water demands, essential goals need to be set ahead to ensure that the water cooperatives/committees are more pro-active, accountable and inclusive in structure. Their roles must be reviewed at regular intervals and their performance monitored by the local communities, for which, municipal bodies must have written rules and regulation on how these cooperatives must operate. In this regard, experiences across the globe, particularly from Africa, highlight key aspects which help in the success of the community-managed water projects. First, capacity building, construction supervision and providing support to the community water project management committees during the first year of implementation are strongly recommended for sustained community participation. Second, a budget is essential and should be carefully prepared to ensure that there is no misappropriation of funds. It also increases transparency within the community members who are in charge of the funds and the way it has been spent by the persons responsible for each expense related to the project (Twebaze, 2010 in Njogu, 2014). Third, at the construction and implementation phase, clear communication channels need to be put in place so as to keep stakeholders informed of any modification to the project design and implementation strategies. Lastly, careful selection of members on the committee is very essential if the project is to be successful. It is essential, therefore, to involve women and youth during the implementation/project planning phase. Poricha & Dasgupta (2011) mention that through participatory processes of engaging with the local communities, NGOs and civil society organizations working in the area can help improve existing systems and also develop new site-specific suitable systems for water supply and sanitation. Moreover,

'*practical guidelines for the managers of participation processes is available, through numerous case studies, either as elaborations of the concept of participation, or in the form of research that usually focuses on the question of what are the criteria of 'good' or 'effective' participation processes.* (Von Korff *et al*., 2012: 33)'

The two municipalities Tansen and Damauli are growing urban centres of Nepal. With water user committees representing more and more women and marginalized groups, one would have expected considerable change in access to water in these two towns, but it has not really materialized as expected. Reducing disparity in access, inequality in services, quality of water supplied, functionality and overall sustainability of system remain key challenges of the water projects in these towns. Water governance in

the form of community participation is considered most desirable, as it involves greater sense of ownership along with accountability. In this regard, the argument, which the title of the paper proposes, 'perform or wither' somewhat strongly affirms the need for change within WUAs, for their success. Across the globe, experiences have shown that the success of community water projects lies in their performance, which in turn, largely depends on the organizational composition, rules of selecting members, putting together ideas of members wisely, capacity building and learning new techniques, to design projects; planning and managing finances efficiently at every level, keeping members well informed of who is in charge of which aspect of spending, along with proper implementation and monitoring. If the chain breaks at any point, success will be skewed. Tansen and Damauli both have equal potential to develop and strengthen their WUAs. These water user groups already have a network at national level called Federation of Water and Sanitation Users Nepal (FEDWASUN) which can play the crucial role of building their capacities and improving governance.

Withering is definitely not a solution and cannot help these towns cope with future water demands. It will only result in increasing the gap between the rich/powerful vs poor/powerless with regard to water access, and allow international donors to promote their agenda. Therefore, through appropriate and corrective measures, performance/efficiency-related governance practices (within WUAs) can actually change the entire environment of these towns and breed sustainability and self-reliance. With good governance in place, performance indicators of WUAs are bound to show higher scores and will sustain and become an inspiration nationally and globally.

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