

A QUARTER CENTURY OF BILATERAL FINLAND—NEPAL WATER COOPERATION: LESSONS LEARNED AND THE WAY FORWARD



INTRODUCTION

The Finland and Nepal government-to-government (bilateral) development cooperation in the water, sanitation and hygiene (WASH) sector started in 1990 with the RWSSP Phase I. Today, Nepal is one of the long-term bilateral development partner countries of Finland.

In 2014, WaterFinns ry took the challenge to evaluate the long-term sustainability of Finland—Nepal WASH cooperation results. Supported by the Ministry for Foreign Affairs of Finland and Maa- ja vesiteknikan tuki ry, the organization launched the NAPA WASH project.

A large amount of quantitative and qualitative data was collected and analysed, to evaluate the current status of RWSSP water supply schemes that were completed over 10 years ago. RWSSP long-term results are an important point of interest, as the current bilateral Finland—Nepal WASH projects are built on the RWSSP modality.

Altogether, the NAPA WASH contributed to six master's theses, one bachelor's thesis and a comprehensive quantitative analysis of the long-term sustainability of RWSSP results.

This publication reflects the most interesting findings of the NAPA WASH study and aims to give a clear picture of the current state of the RWSSP achievements. Finally, it analyses factors that the current WASH projects should apply to improve further the sustainability of their results.



DEFINITIONS:

WASH: Water, sanitation and hygiene

RWSSP (1990—2005): *Rural Water Supply and Sanitation Project* Phases I (1990—1996) and II (1996—1999) and *Rural Water Supply and Sanitation Support Programme* Phase III (1999—2005), first bilateral water, sanitation and hygiene development cooperation project of Finland and Nepal.

WaterFinns ry: Finnish non-governmental organization specialized in helping young professionals to gain experience in international WASH projects.

NAPA WASH (2014-2016): *Nawalparasi and Palpa Sustainable Water Supply and Sanitation Project* purpose was to enhance sustainability of rural community-based water supply and sanitation in Nepal.

RWSSP—WN (Phase I 2008-2014 and Phase II 2014-2019): *Bilateral Rural Water Supply and Sanitation Project in Western Nepal* Phase II works for improved health and fulfilment of the equal right to water and sanitation through a decentralized governance system.

RVWRMP III (Phase I 2006-2010, Phase II 2010-2016 and Phase III 2016-2022): *Bilateral Rural Village Water Resources Management Project* Phase III works for access to drinking water and basic sanitation, improved livelihoods opportunities and renewable energy.

DEFINITIONS:

SCHEME: Drinking water supply system. In gravity-based schemes the water source is located above the users and the water flows to the users via gravity.

O&M: Operation and maintenance of a scheme.

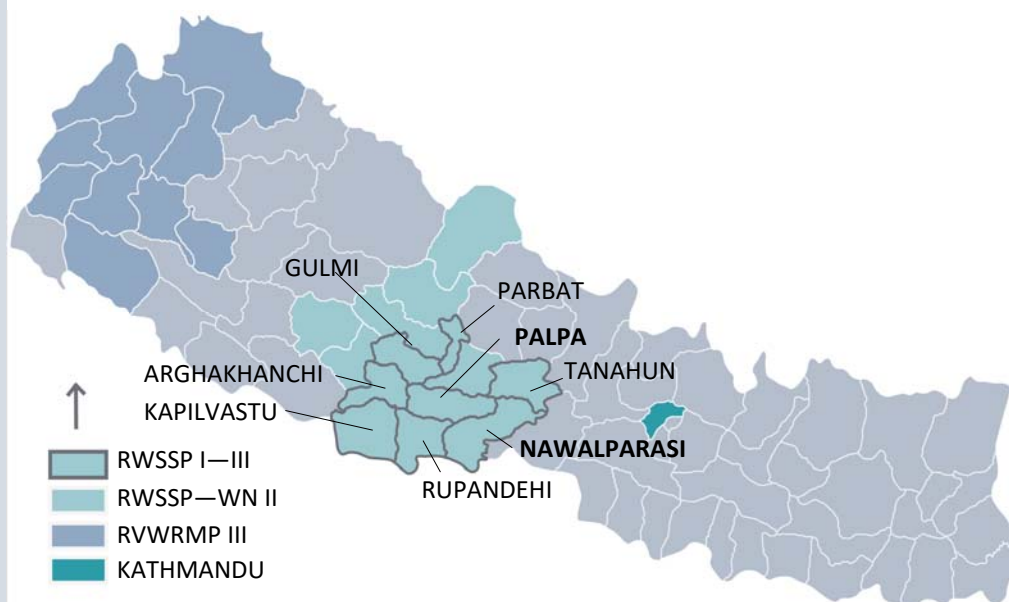
WUSC: Democratically elected *Water Users and Sanitation Committee* that is responsible for O&M. The WUSC consists of a chairman, a secretary, a treasurer and a number of other members. The WUSC should have gender balance and be representative of the ethnic/caste background of the users.

O&M FUND: The WUSC has the right to collect a water tariff from the water users and place the money into an O&M Fund.

VMW: Each scheme should have at least one *Village Maintenance Worker* for regular O&M. Projects train VMWs and provide them with basic tools. VMWs usually work with a regular compensation from the community.

FINLAND—NEPAL WASH COOPERATION

RWSSP Phase I started in six districts Arghakhanchi, Gulmi, Kapilvastu, Nawalparasi, Palpa and Rupandehi and extended also to Parbat and Tanahun in Phase III. In addition to these districts, RWSSP-WN II also works in Baglung, Myagdi, Mustang, Pyuthan, Rolpa and Syangja. RVWRMP III works in Achham, Baitadi, Bajhang, Bajura, Dadelhura, Dailekh, Darchula, Doti, Humla and Kailali. NAPA WASH studied 80 RWSSP schemes completed between 12 and 24 years earlier in the Nawalparasi and Palpa districts.



The bilateral Finland—Nepal WASH projects have followed the Step-by-Step approach from the beginning of RWSSP. The approach is under constant development and since RWSSP II, it has strongly emphasized community participation and ownership. In this community-based approach, the communities are made responsible for the planning, implementation, operation and maintenance of their own water supply services.

The community-based approach is justified especially in the rural areas of Nepal where the communities are often scattered and located in remote, difficult-to-access areas. As maintaining efficient centralized water supply services in remote communities would demand significant resources, simple, small-scale, community-run schemes are generally considered the most relevant option.

The technologies included mostly gravity-based water supply schemes, tube wells and rain water harvesting tanks. These were considered to be sustainable options for rural locations where access and/or ability to pay for spare parts and fuel can be limited.

WUSCs themselves were leading the planning and implementation as per the Step-by-Step approach. The communities are expected to contribute to the scheme implementation also financially in cash, labour or local construction materials. This approach is believed to create sense of ownership among the water users. The approach encourages communities, even small ones, to take responsibility in ensuring safe water supply in the villages.

Altogether, 234,000 people in RWSSP Phase I, 120,000 people in Phase II and 243,000 people in Phase III benefitted from new drinking water supply systems. In a 15 year period RWSSP provided drinking water supply services to approximately 597,000 people altogether.



NAPA WASH STUDY

The NAPA WASH study was conducted in Nawalparasi and Palpa districts. The study was divided into quantitative and qualitative parts. To gain a comprehensive understanding of the current status of RWSSP water supply schemes, the quantitative study targeted VDC and municipality officials, WUSC members, VMWs and water users' households (HH). The study was based on a structured questionnaire and conducted by Nepalese enumerators between 16.1.2015 and 5.2.2015 in Nawalparasi, and between 19.3.2015 and 10.4.2015 in Palpa.

Only RWSSP-supported gravity flow schemes that were more than 10 years old were included in the sample, as per the following criteria:

- Only schemes with 50 % Nepal 50 % Finland funding modality
- Schemes from all phases of RWSSP (I, II, III)
- Schemes from different geographical locations (Terai, Hills)
- Both large and small schemes (Large ≥ 150 HH; Small <150 HH)

The table below shows the sample size. In total, 46% of schemes were from Phase I, 35 % from Phase II and 19 % from Phase III. In each scheme 17 HHs and one VMW were interviewed (if the VMW was present).

NAPA WASH study sample

NAPA WASH	NAWALPARASI	PALPA	TOTAL
VDC	24	25	49
WUSC	40	40	80
VMW	39	34	73
HH	680	680	1360

The qualitative data was collected by six researchers (see the last page of this report) individually based on their research interests, considering that all of them represent different universities and faculties. The qualitative findings are used as case examples in this publication.

DEFINITIONS:

VDC/MUNICIPALITY

Village Development Committees and *Municipalities* were the local governance units in the governmental system of Nepal until mid-2017.

50:50 FUNDING MODALITY

Modality in which Finland and Nepal contribute matching funds to run the project activities.

TERAI, HILLS

Nepal is divided into three topographical zones that run east-west-wise across the country. Terai means the flat plains in the far south and the hills cover the area between the Terai-plains and the high mountains.

HH: Households. Here referring to those households that have benefited from improved water supply.

FEATURES OF GRAVITY BASED SCHEMES

Most schemes implemented in RWSSP were gravity-based water supply systems. Gravity-based schemes are technically very simple the main components being intake, pipeline, tapstands, valves and different chambers and tanks. The source of water is either a spring or a stream. Finding reliable water sources is not always easy and the sources might be located far away from the water users. This increases the length of the pipeline, together with the chance of pipeline damage.

In total, 51% of the schemes studied in NAPA WASH use spring water only, 21% stream water only and 28% both spring and stream water as their source. The water source itself is a critical aspect for the scheme functionality and water safety. This is where unwanted substances can enter the scheme, contaminate the water or block the pipeline.

Spring sources are generally regarded as safer than stream sources as they deliver groundwater that is potentially cleaner than surface waters. Spring sources are also easier to protect from contamination. Even though spring sources are preferred whenever possible they are not always available. In Nawalparasi, only 33% of the studied schemes use spring water sources whereas in Palpa the figure is 70 %.



Above: Simple dam intake on a stream-bed

Below: Public tap stand



Using a spring source is not enough to ensure the safety of water. To call the water source improved the source must be protected so that no harmful substances can enter the scheme. In total, 45 % of the studied RWSSP schemes use improved sources, 19% use both improved and unimproved sources and 36% use unimproved sources only.

Altogether, 89 % of the improved sources are spring sources. If the source is not protected it is likely that surface waters, mud and bacteria may enter the scheme from time to time. The quality of the water can be improved by several simple treatment technologies such as sedimentation or filtering. In the times of RWSSP, centralised water treatment facilities were still uncommon; 75% of the studied schemes do not have any treatment system.

In total, 84% of the studied schemes serve water through public taps. Public tapstands are usually located within a cluster of buildings and it is clearly determined which households use water from each tap. There are approximately 9 HHs sharing one public tap in the studied schemes. Public taps are common still today: 80% of RWSSP-WN II schemes serve water through public tapstands, but the demand for private connections is high.

SERVICE LEVEL OF RWSSP SCHEMES

Functionality can be measured in many different ways. Finally, the question is whether the scheme continues to deliver benefits over time for the water users, benefits being safe drinking water. One way is to analyse how well the scheme fulfils its service level requirements. Quantity-Accessibility-Reliability-Quality (QARQ) is a common service level analysis that is based on the World Health Organization Guidelines for Drinking Water Quality. It measures how well the scheme fulfils its requirements for *quantity*, *accessibility*, *reliability* and *quality*. The reference indicators are context specific. In the NAPA WASH study, the *Ministry of Physical Planning and Works Rural Water Supply and Sanitation National Policy 2004* criteria for drinking water service level was used as a basis for the analysis:

Quantity: Water quantity for domestic use should be 45 litres per capita per day (lpcd). In no case should per capita water availability be lower than 25 lpcd.

Accessibility: All households should be able to fetch water within 15 minutes per round trip.

Reliability: There will be few, if any, unscheduled outages, prompt repairs when breakdowns occur, minimum system downtime and little significant seasonal variation in water supply to users.

Quality: Water quality should meet minimum WHO (World Health Organisation) standards.

QARQ analysis is still in use in the current bilateral Finland—Nepal WASH projects. Only the quality indicator has been simplified. The current projects test the presence of faecal coliforms in the water as a critical indicator for water safety. In case of the reliability indicator, in this study, 11 months or more of water supply per year is considered adequate to meet the service level. Here the service level of the studied RWSSP schemes (n=80 schemes aged between 12 and 24 years, data collected in 2015), is compared to the RWSSP-WN (n=365 schemes aged between 0 and 8 years) and RVWRMP (n=506 schemes aged between 2 and 11 years) schemes:

QUANTITY

RWSSP: 80% of schemes deliver 25 lpcd or more, and 65% deliver more than 45 lpcd.

RWSSP-WN: 98% of schemes deliver 25 lpcd or more, and 78% deliver more than 45 lpcd.

RVWRMP: 100% of schemes deliver more than 45 lpcd.

ACCESSIBILITY

RWSSP: 77% of the RWSSP public tap user HHs reported their water fetching time not exceeding 15 minutes.

RWSSP-WN: In 93% of the RWSSP-WN public tap schemes the water fetching time does not exceed 15 minutes.

RVWRMP: In 95% of the RVWRMP public tap schemes the water fetching time does not exceed 15 minutes.

RELIABILITY

RWSSP: 80% of taps deliver water 11 months or more per year, and 78% deliver water all 12 months.

RWSSP-WN: 95% of schemes deliver water 11 months or more per year, and 94% deliver water all 12 months.

RVWRMP: 92% of schemes deliver water all 12 months.

QUALITY

RWSSP: 93% of the tested schemes fulfil Nepalese standards for safe drinking water.

RWSSP-WN: 83% of the tested schemes have absence of faecal coliforms.

RVWRMP: All the water schemes have been tested during the implementation phase. 95% of schemes have implemented a WSP & the quality of water is considered good.

As shown in the comparison between RWSSP, RWSSP-WN and RVWRMP, the RWSSP schemes are still delivering very good services regarding quantity, accessibility, reliability and quantity of water, even 10 or more years after their completion. Altogether, 598 households out of 1360 (44%) interviewed in NAPA WASH study reported all four (quantity, accessibility, reliability and quality) exceeding the required service level. This is a very positive result, considering the age of the schemes.

PHYSICAL STATUS OF RWSSP SCHEMES

Another method to measure functionality is to analyse the physical status of the scheme. In the NAPA WASH study, WUSCs were asked to assess the repair and rehabilitation needs of their schemes.

The categorization used in the assessment was the following:

No need of repairs/rehabilitation

Minor repair= can be repaired by WUSC without external support

Rehabilitation= upgrading works to raise services which need both technical (engineer) and financial external support.

Major repair= repair which WUSC cannot repair without external technical support (technician) and/or financial support

Not functional at all = no taps functioning (closed down)



Above: Broken taps are fixed in creative ways

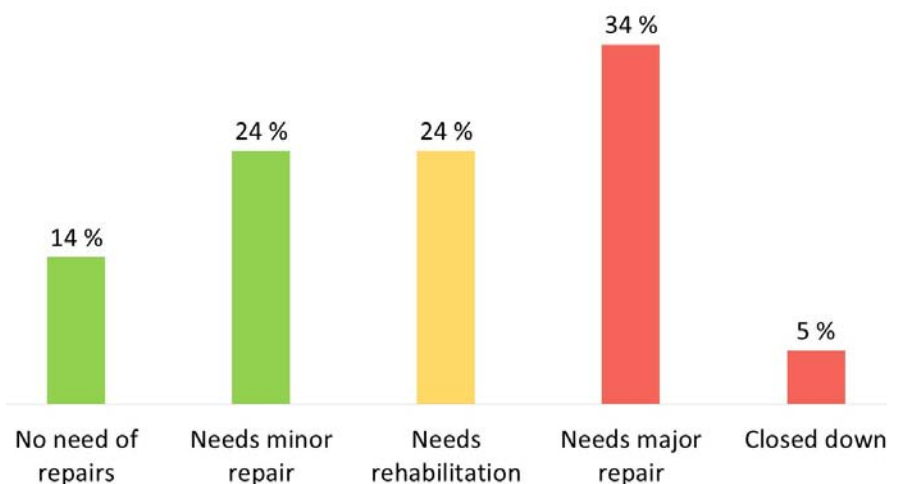
Water supply scheme functionality is known to be a major challenge in the Nepalese WASH sector. According to the *Ministry of Urban Development National Management Information Project* (2014), only 25% of the 41,205 water supply schemes in the country do not require any repairs or rehabilitation. The following figure presents RWSSP scheme repair needs, as analysed by the 80 WUSCs interviewed in NAPA WASH in 2015.

Whereas the WUSCs reported 65% of their taps to be functional at the time of data collection, only 14% of the WUSCs reported no repair or rehabilitation needs at all. This is natural, as 96% of the studied schemes are more than 15 years old, and thus are reaching the end of their life-span. Only 5% of the studied schemes are closed down which can be considered a positive result (See figure below).

Main reasons given in the NAPA WASH study for repair and rehabilitation needs are:

- Increase in HH number
- Demand for private connections
- Insufficient source water

This tells that the reason for repair and rehabilitation needs is not always a technical problem. There are many other factors that make the water users demand repairs and rehabilitation.



Altogether, up to 58% of the studied WUSCs in NAPA WASH study need external assistance to either support in major repairs (34%) or in upgrading their scheme to respond to such as increased population (24%).

This tells of the urgent need for flexible post-construction support mechanisms in Nepal: both technical and financial support is needed to ensure full scheme functionality and high service levels over the long-term.

NATURAL CALAMITIES AFFECT THE SERVICE LEVEL

Due to its fragile geology and steep topography, Nepal is known for being a hazard prone country. Various hazards such as floods, landslides, avalanches and earthquakes take place frequently in Nepal. NAPA WASH studied the impact of natural calamities on the RWSSP scheme functionality. The study showed that landslides and flooding cause harm to the water supply services, especially during the monsoon season when the area faces extensive rainfall. Landslides and flooding contribute to physical damage of the scheme structures, worsening water quality due to contamination with flood waters, as well as pipeline blockages and depletion of flow.

Altogether 68% of the studied WUSCs reported landslides having harmed their water supply service functionality over the last 10 years, of which 23% reported landslide-related challenges more than five times over that period. The second most common hazard has been flooding, which 54% of the studied WUSCs reported having harmed water supply functionality in the last 10 years, and 20% more than 5 times in the last 10 years. Other common hazards have been heavy rain and storms 20%, droughts 18% and fires 11%.

Landslides were reported to cause mostly physical damage of the scheme structures (in 93% of cases), depletion of water flow (in 20% of cases) and economic losses (in 13% of cases). Floods on the other hand were reported to cause physical damage (in 100% of cases), depletion of flow (in 33% of cases) and economic losses (in 23% of cases).

Natural calamities have an impact on the service level indicators quantity, reliability and quality. In times of drought, the water quantity decreases. Landslides and floods cause damage and blockages of pipelines, which naturally affect the water flow reliability. Especially flooding has a big impact on water quality as flood waters bring in plenty of mud and debris. What was found typical for these types of seasonal natural calamities was that they easily turn into chronic problems: the damaged infrastructure is often not fixed adequately by the time the disaster occurs again. Naturally, this hinders strongly the long-term sustainability of the water supply services.



Massive landslide in Rakuwa VDC. According to the Bahakholi WUSC, the landslide grows in size in every rainy season, washing down a transmission pipeline that runs below it.



Muddy flood waters have entered the scheme intake after a rain. The water source must be carefully protected to prevent any unwanted surface waters entering the scheme.

The importance of climate induced natural calamities on water quality is clear in the NAPA WASH study findings. Only 11% of the HHs estimated the scheme water to always be of good quality in the rainy season, whereas the figure was 59% in the dry season. In total, 26% of HHs considered their drinking water to never or rarely be good in the wet season, whereas the figure was 10% in the dry season. Considering the low water quality and lack of centralised water treatment systems, it is surprising that only 23% of HHs had adopted HH level water treatment habits. The treatment technologies mostly used were water boiling (76%) and water filtration (30%). Most HHs reported drinking their water without treatment or trying to avoid drinking the tap water as much as possible. This result demonstrates the negative impact of the monsoon season on water quality and that relatively little attention was given to water safety in the times of RWSSP.

SKILLED MANPOWER IS NEEDED TO MAINTAIN SCHEME FUNCTIONALITY

As per the Step-by-Step approach, the main responsibility for scheme repair and maintenance falls on the Village Maintenance Worker (VMW). Each scheme should have at least one trained VMW with adequate skills and tools to take responsibility for day-to-day maintenance works.

According to the NAPA WASH study results, 69% of the studied RWSSP schemes still have a trained VMW in place. This can be considered a great figure 10 or more years after the scheme completion and especially when compared to the average figure in Nepal of 32% (NMIP, 2014).

Altogether, 56% of the VMWs studied in NAPA WASH received their training during the scheme construction and 66% stated they are confident or very confident in scheme O&M. In total, 64% of the interviewed VMWs got regular payment for their work. This is an encouraging result as the turnover of qualified VMWs is known to be high, and the trained VMWs can search for better paid jobs elsewhere.

STRUGGLES IN MAINTENANCE LEAD TO LOW FUNCTIONALITY

Good coverage of confident VMWs is not enough when the scheme needs major repair or even rehabilitation. As per the NAPA WASH study, one of the challenges is that VMWs seem to take mostly reactive rather than proactive measures towards scheme maintenance: maintenance works are only performed when the scheme is in disorder. Altogether, 68% of the studied VMWs stated they do maintenance work only when it is required and 66% stated they visit the scheme only when required. Only 12% stated that they have sufficient tools for O&M. The lack of proper tools and spare parts can lead to poor quality of repair works that correlates with low scheme functionality.

In the current situation, the WUSCs are too often left alone after the scheme completion to cope with any challenges in the scheme operation and maintenance. As per the NAPA WASH study, WUSCs would benefit a lot from proactive post-construction support provided through the local governmental bodies, private operators and NGOs. The challenge is that traditionally, governmental institutions, donors and other supporters of the WASH sector have put more effort into constructing new schemes, rather than rehabilitating old ones. Limited governmental funds and the bureaucratic governmental system have made it difficult for WUSCs to request and to receive external assistance for scheme repair and maintenance.

GENDER EQUALITY AND SOCIAL INCLUSION — DEVELOPING THEMES IN THE FINLAND-NEPAL WASH PROJECTS

In the early 1990s, the RWSSP Phase I, took initial steps to involve women in water schemes planning and implementation. There were several female project staff, a requirement for two women in each WUSC, some all-female WUSCs, and specific activities for women on hygiene, sanitation and family health. However, it was noted that women members often did not participate or remained passive, reflecting traditional roles at the time in Nepal.

In 1996, at the start of RWSSP Phase II, staff realised that extra efforts would be needed in order to inform and involve women in decision-making, and in 1998 a Gender Analysis and Integrated Gender Plan was prepared. The Step by Step process was used to mainstream gender at each stage of the scheme development. During the Nepalese civil war (1996—2006) staff became more aware of the inequitable living conditions of Dalits and other disadvantaged groups and began to include them systematically in project activities in Phase III.

By 2008 in RVWRMP Phase I, the concept of 'gender' had broadened to become the Gender Equality and Social Inclusion Strategy (mainstreaming caste and ethnicity as well as gender).

In 2015 both RVWRMP and RWSSP-WN Phase II introduced the concept of the Human Rights-Based Approach. Issues such as age, disability and menstruation have entered the work, emphasizing the human right to water and sanitation.

Water is considered holy, and hence, subject to religious and cultural taboos. Untouchability due to menstruation and caste are still challenges. This influences much of the work of the projects; a true behaviour change is required to ensure access to water for all.

INSTITUTIONAL & SOCIAL SUSTAINABILITY

WUSCs play an important role for the rural people as a democratic institution. Due to political instability, before 2017, the VDC- and municipality-level officials had not been elected democratically for years in Nepal. The WUSC is a registered institution, through which people can reach higher administrative levels and communicate about their needs. WUSCs have thus had an important role as a stable institution under which people can unite and influence their development.

Approximately half of the WUSCs studied in NAPA WASH had remained active 10 or more years after the scheme implementation. In total, 55 % of the WUSCs were registered under the District Water Resources Committee, the Nepal average being 38 % (NMIP, 2014). Almost the same figure, 56 %, had organized at least one meeting in the last 12 months.

The Finland—Nepal WASH projects aim at increasing women's participation in the society. The policy of the Government of Nepal is to have minimum female representation of 33 % in the WUSC. In total, 35 % of the studied RWSSP schemes fulfil this criteria. In RWSSP-WN II and RVWRMP III, the criteria for female representation is minimum 50 % of WUSC members. Today, altogether 93 % of all the RWSSP-WN Phase II schemes fulfil the criteria, as do 83% of RVWRMP schemes (Phases I-III).

In Nepal, water fetching is traditionally women's work and that is why improved drinking water supply services influence especially women's lives in many ways. In addition to improved sanitation and hygiene, piped water supply saves women's time that can be used for more productive purposes. The following examples from the NAPA WASH study give ideas on how women's lives have changed due to RWSSP:

HYGIENE: Prior to the project, about half of the villagers bathed only every 15 days or more seldom. Following the project, almost everyone gets to bathe, weekly or more often.

REST: Women did not use to sleep well due to the tension of fetching drinking water early in the morning. Now women can sleep without any tension at night, they have time to participate in the meetings and to be involved in the community work.

INCOME: I use the time saved from fetching water for making thread from charka, from which I get 115 rupees per one kilogram. I am now self dependent through this activity. After finishing my household work, I prepare at least 20 kg thread per month in my spare time.

STUDIES: Students have started to go to school neat and clean and on time. Water carrying time of female students has also been saved which they are using in their studies so their results have improved.



MOST WUSCs STRUGGLE WITH FINANCIAL ISSUES

The NAPA WASH study showed that WUSCs struggle with financial issues, which makes it difficult to keep their schemes functional: the WUSCs can take responsibility for daily scheme functions but not for large scale works. Altogether, 71% of the studied WUSCs collect a water tariff from the water users, and 69% have still an O&M Fund in use. This can be considered a very positive result, as in Nepal on average only 5% of WUSCs have O&M Fund established (NMIP, 2014). In total, 53% of the studied WUSCs told that they keep their funds in a bank account and 43% lend the money out locally with interest. Still, only 21% reported that their income is enough to cover all the necessary O&M expenses.

Requesting financial support from higher tiers of administration is a bureaucratic and time-consuming task for an isolated rural community with small resources. Each request is circulated through several tiers of administration until the decisions are taken on the central level. Due to the bureaucratic system, schemes that request support this year, would most probably receive support only next year, in the case that they fit in the budget. This is of course frustrating for water users who may need to wait a long time in uncertainty and in the worst case, for months without drinking water supply.

Nepal is currently going through a reform of state decentralization, in which central government power is transferred to local elected governments. The new structure will bring the decision-making closer to the service users, which will hopefully contribute to greater accountability and more flexible planning and budgeting cycles. In the new context, the local governments could provide financial, technical and management support as well as facilitation, depending on the individual needs of communities.

One of the strongest messages of the NAPA WASH study was that the post-construction support services need to be available close enough to the communities. If the support was provided at the municipality level even the most isolated and deprived communities could access it. This would make it possible to respond to the O&M challenges before problems grow chronic, and ensure best the long-term sustainability of water supply.

SELF-RELIANT FUND — AN ALTERNATIVE TO LENGTHY PLANNING CYCLES?

Rural Water Supply and Sanitation Support Programme Phase III (RWSSSP III) launched a self-reliant funding modality that provided a flexible funding mechanism for rural water supply schemes.

Self-reliant funding schemes could be identified, planned, implemented and completed within less than a year.

In the self-reliant funding modality, the water users took strong ownership over the procedure: in the times of RWSSP III, the 50:50 funding modality users' contribution was on average 38 % but in self-reliant funded schemes it was up to 64 %.

The self-reliant funding modality leveraged remarkable local contributions, both in cash and kind, pioneering dynamic local WASH financing. The fund is based on the idea: "*Who can pay more, should pay more*" and the local contribution was tailored as per the water users' poverty status.

The self-reliant fund brought much welcomed flexibility to the Nepalese WASH sector. It brought decision-making power and accountability to the local level, activated water users and mobilised local resources. The current state decentralisation process of Nepal offers a good momentum to consider more flexible funding modalities. The self-reliant fund is one possible option to meet the financial support needs of communities.



LESSONS LEARNED AND THE WAY FORWARD

Effective water supply systems

The NAPA WASH project studied the long-term results of the Finland—Nepal WASH cooperation. The findings presented in the previous pages tell about both success and challenges. The good results in service level demonstrate the **good quality of scheme construction** 10 or more years back. The water sources have been carefully selected to deliver reliable water supply of sufficient quantity and water taps have been wisely located so that fetching time does not exceed 15 minutes. RWSSP has also succeeded in institutional development: the high coverage of trained **VMWs, water tariff collection and O&M Fund mobilisation** demonstrates the sustainable results achieved through the **Step-by-Step approach**.

The challenges

The studied RWSSP schemes suffer from **sustainability challenges** that are known to burden the Nepalese WASH sector in general. Most WUSCs had suffered from natural calamities such as floods and landslides. **Declining spring sources, interest in private connections, and rapid population growth** (especially in Terai and main road corridors), **lead to demands for scheme rehabilitation**. Up to 58% of the studied schemes would need external assistance to either repair or upgrade the scheme. Most WUSCs struggle with **financial constraints**. Only 21% of WUSCs reported that their income is enough to cover all the necessary O&M expenses. It was a clear finding that the lack of timely **post-construction support** hinders the long-term sustainability of RWSSP schemes.

Current projects have built on the learning from the past

The bilateral Finland—Nepal WASH projects are under constant development and many of the challenges listed in this publication are already addressed by the current projects (RWSSP-WN II and RVWRMP III). Both projects take **climate change adaptation, disaster risk reduction and water safety** very seriously. The projects oblige each WUSC to prepare a water safety plan and to take adequate actions to protect both the water source and the scheme infrastructure against natural calamities. To tackle the declining water sources, RWSSP-WN II has developed a **springshed approach**, which aims at the protection of spring sources and increased groundwater recharge. Both RWSSP-WN and RVWRMP have also introduced **post-construction support modalities**, including post-construction investment support for schemes that have faced functionality problems after their completion.

The way forward to supporting municipal WASH services

In the long run, the most important goal of any development cooperation project is to **strengthen local institutions** to provide quality services themselves, and to avoid dependence on external aid. At the moment, Nepal is going through historical changes as governmental and financial power is transferred from central level to elected local units. This gives an unprecedented possibility to strengthen the democracy in a country that is still recovering from political turbulence of the last decades. The elected members of the local government are now responsible for the development of their own municipality. This brings the planning and decision making closer to people and increases the accountability of the decision makers. It also increases the possibility to solve many of the WASH sector challenges listed in this publication: lengthy planning cycles, centralized bureaucratic decision making, lack of accountability, lack of timely post-construction and operational support to WUSCs.

In this situation, the **Finland—Nepal WASH projects have an important role in supporting the young local units in their first steps**. In addition to technical support, it is important to support the fresh institutions in establishing a **culture of good governance: transparency, accountability, inclusiveness, responsiveness, efficiency, participation and the rule of law**. The NAPA WASH study shows that to ensure a full coverage of functional water supply services, Nepal clearly needs robust government institutions that are close to the people, and provide timely and high quality support to communities. With sufficient resources and good management, the new local governments can make this possible.

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NAPA WASH STUDIES

Dr. Keshab Prasad Adhikari (2016) *Long-term Sustainability of the Rural Water Supply and Sanitation Schemes in Nawalparasi and Palpa Districts*, Center for Appropriate Technology Nepal, Kathmandu

Emma Hakala (2015) *Factors affecting the economic sustainability of water schemes – A willingness to pay analysis in Palpa and Nawalparasi*, University of Helsinki, Helsinki

Dipendra Ghimire (2016) *Long term sustainability assessment of community managed water supply schemes using multi criteria analysis (A Case of Finnish Funded Water Supply Schemes of Nawalparasi District)*, Tribhuvan University, Kathmandu

Radhika K.C. (2016) *Gender and Social Inclusion Related to the Sustainability of Water and Sanitation Scheme of Devchuli Municipality of Nawalparasi District*, Tribhuvan University, Kathmandu

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