



Water Safety Plan ++ RWSSP-WN BRIEF 4-2016



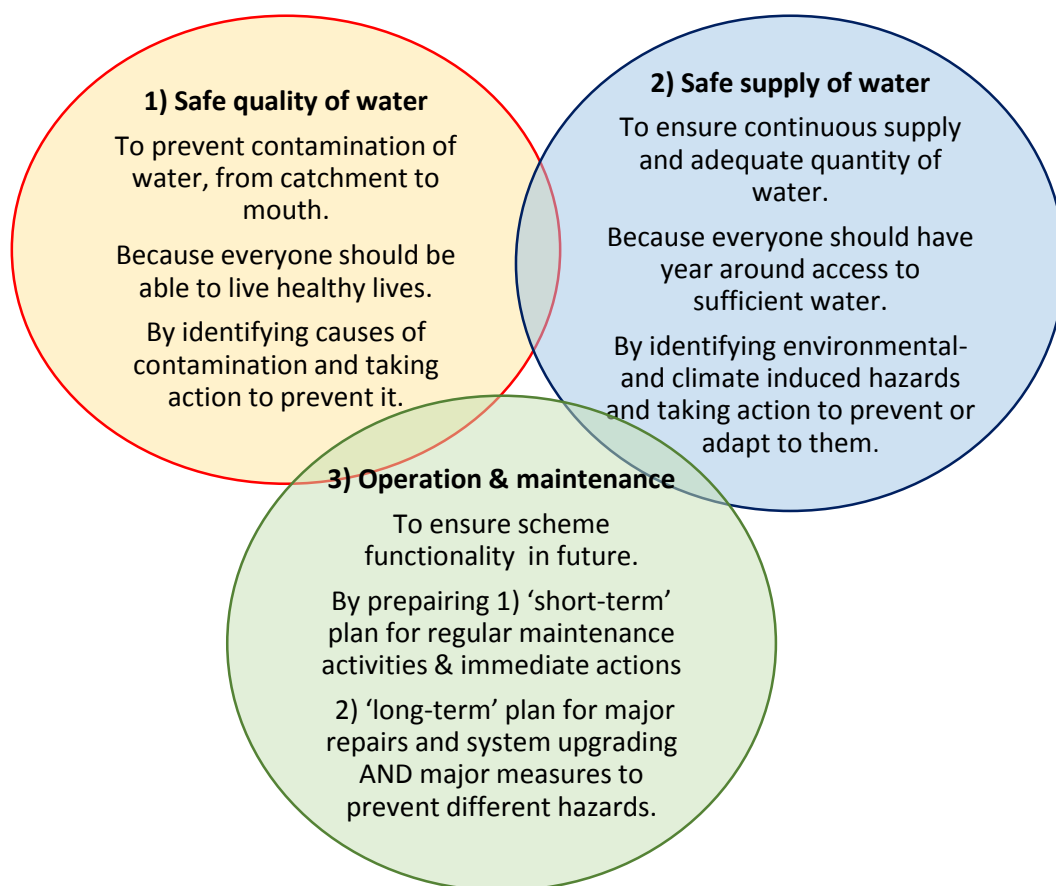
- What is new in the WSP++ concept?
 - Aims at safe water supply in terms of quality & quantity, and continuity & reliability of service.
 - Integrates regular operation and maintenance with water safety plan
 - Serves both long term and short term thinking related to climate change adaptation & disaster risk reduction
 - Calculates a water tariff that works!
- What are the key factors in successful WSP++ ?
- How to mainstream CCA and DRR in WSP++?

This Brief is based on a number Water Safety Plan related documents prepared in RWSSP-WN Phases I and II. It captures the essence of the new broadened version of WSP++. This Brief was prepared by Sini Pellinen.

Water Safety Plan Plus Plus (WSP++) concept

WSP++ is about both water quality and quantity, now and in the future. The minimum service level standards set by the Government of Nepal are: **quantity** of water 45 litres per person per day, **accessibility** within 15 minutes round trip fetching time, **reliability** year around and **quality**. WSP++ is the main tool for improving and maintaining these service level standards.

The below graph presents the three sides of WSP++ and answers to what it is about, why and how it is done. Water supply standards concern both water quantity and water quality, as well as reliability of service.



Many of the activities that aim at ensuring good water quality require regular actions that otherwise come under O&M plan. These are for example regular cleaning of tanks and tap stands, repairing cracks and broken cover slabs, maintaining fencing around the structures etc.

Therefore, it is practical to integrate all necessary maintenance activities (ref. adjoined photos) in the WSP++ instead of making a separate O&M plan which would partly overlap with WSP.

WSP++ requires regular implementation and it should be updated periodically. It is not a plan that is prepared and implemented once, a one-off activity. Rather, WSP++ is something continuous.



What are the key factors in a successful WSP++?

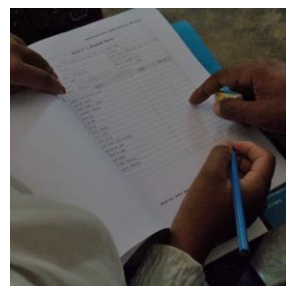
WSP++ aims at maintaining and improving the scheme service level and therefore keeping all users satisfied with the service. It is not enough to prepare a WSP++, but all users' must realize its benefits and implement it regularly. The below is based on the **lessons learnt from WSP++s in RWSSP-WN schemes**. Let us all learn from the successful WSPs as well as from the failed WSPs so that we will not make the same mistakes again, but instead make even better WSPs!

Before WSP++ preparation

- All users are aware on the purpose of WSP++ and committed to its implementation. After all, the users are also expected to do their share for implementing the WSP++!
- WUSC is active, meets regularly and mass meetings & public auditing are conducted on a regular basis. If there are old disagreements or unclarified issues between WUSC members and users, these must be solved before starting the WSP++ process!
- WSP team is selected demographically from among the users; the selected members must have interest and time to prepare and monitor the WSP++.
- There must be at least one Village Maintenance Worker (VMW) in the scheme who is responsible for the more technical aspects of WSP++ implementation and scheme maintenance.

During WSP++ preparation

- It is not possible to do the hazard assessment inside a class room. The field inspection must reach from water catchment to household taps and households. If the source is located far away, reserve enough time for this!
- Water quality (Presence/Absence vial) must be tested in all intakes and reservoir tanks, and in selected tap stands. Follow the instructions carefully to avoid misleading results.
- Reducing water yields at source and shortage of water for household use are a reality in many schemes. This and other environmental- and climate induced hazards should be addressed in the WSP++s to ensure adequate water supply.
- Fill in the risks and related activities in WSP++ book, including timeline and responsible parties for implementation and monitoring. Also add all other regular maintenance activities in the plan! This way there is a record of the plan, and it is easy to monitor, review, discuss with users and revise periodically.
- The prepared WSP++ must be presented to and approved by users in a mass meeting, otherwise how are they supposed to do their share of work?



After WSP++ preparation

- Satisfied customers are willing to pay for the water tariff! Users' satisfaction survey also helps to verify the effectiveness
- WSP++ requires periodic verification and review to see whether it has led to the expected outcomes. It should be updated periodically to reflect new situations.
- Follow up by the field staff can ensure that the plan is being implemented. The field staff can support in any technical challenges. They can also help to link with the relevant government or private sector service providers if needed.
- Water quality must be re-tested to see that the actions taken under WSP++ have been effective. In terms of water quality, we focus on bacteriological quality, although other parameters may also be measured.

There is no sustainability without financial sustainability!

Financial resources are needed to implement WSP++ and integrated O&M plan. Regular expenses consist of the salary of VMW (pump operator) and the cost of basic spare parts, materials and components. Each WUSC must have adequate sum in the O&M fund to cover these basic costs. Bigger repair work may require outside repair services (that are outside the capacity of VMW) or replacing of a major component. WUSCs can also plan for scheme upgrading or extension works, or for catchment improvement, ground water recharge or soil stabilization works which require finances.

Financial sustainability is a sum of various factors concerning WUSC and all users, as presented in below figure. The actions to ensure financial sustainability of scheme are 1) defining water tariff, 2) collecting and managing O&M fund and 3) using the fund for O&M and repairs.

The process is not sustainable if WUSC and VMW do not possess relevant skills. Also the users must have the right attitude (see the below figure). Firstly, WUSC must be able to calculate **water tariff** based on expenses and convince users about the tariff rate. Users must be aware of the basis of the tariff and endorse the rate in a meeting. Secondly, WUSC must be able to **manage the O&M fund** and be accountable to users on how it is used. Users must be triggered to pay for the tariff; payment is also a sign of trust towards the WUSC. Thirdly, WUSC and VMW must have a **plan for carrying out O&M and scheme improvements** (i.e. WSP++) and the funds must be used on implementing such works. This way the scheme service level is maintained and users remain content and willing to pay their tariffs in future.

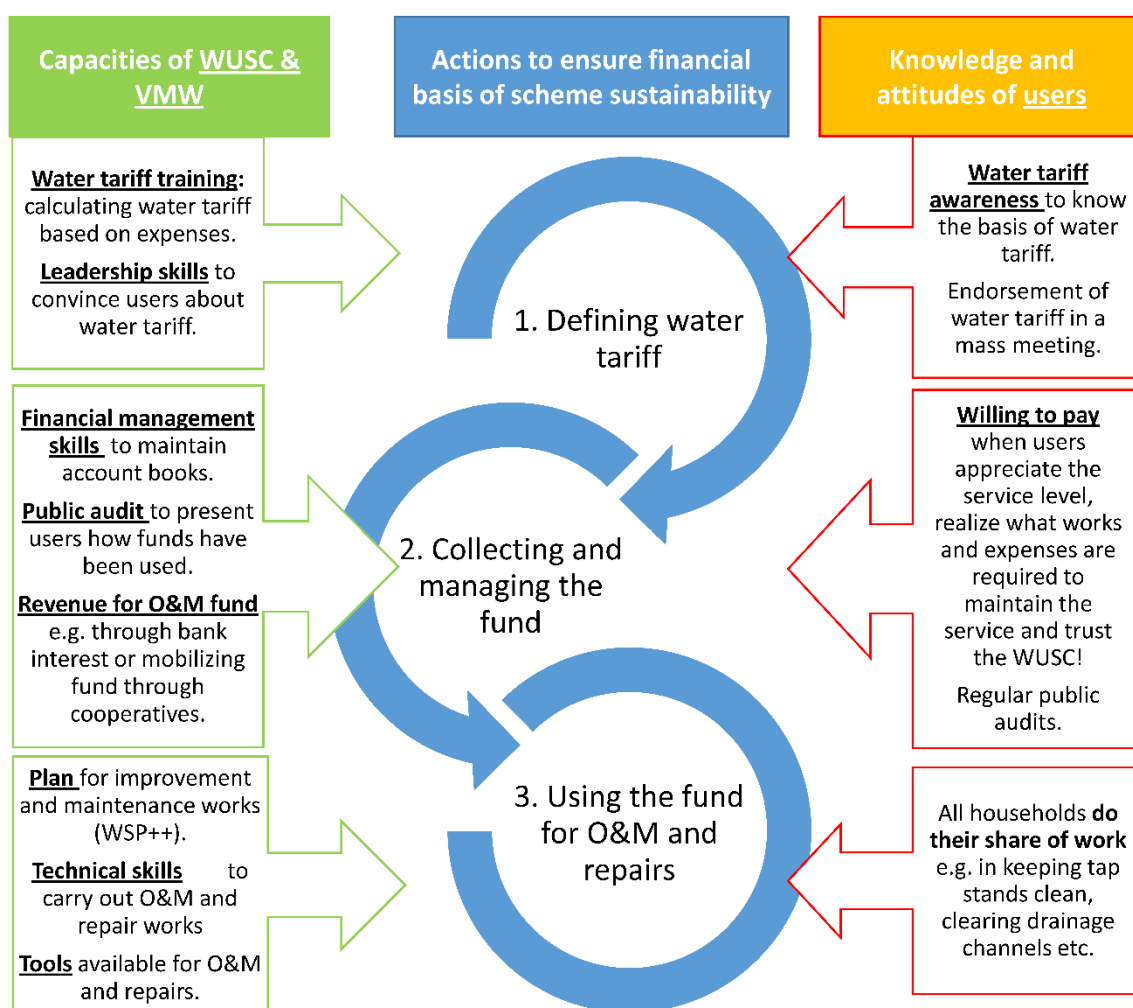


Figure: Necessary actions, capacities and attitudes to guarantee financial sustainability of a water supply scheme.

How to mainstream Climate Change Adaptation and Disaster Risk Reduction in WSP++?

Example of WSP++ preparation in Syangja:

During the first day's orientation session, the WSP facilitator explained the participants how extreme weather events like heavy rainfall and higher temperatures, which the villagers had also experienced, are linked to global climate change. The participants told that due to delayed monsoon rains and prolonged dry seasons, their farming has been affected. The facilitator then explained how springs are formed and how the characteristics of water catchment impact on water infiltration and percolation into ground water.

On the second day, the WSP team members assessed the hazards in the scheme area. The participants told that water volume of the source has declined within the last 10 years. During dry season there is only 20-30 litres of water available per household per day, which is not enough. The WSP team also observed land uses in the catchment area. The land has been deforested over the years, and now grows mostly grasses, bushes and scarce trees. Some lands are used for cultivating seedlings, which causes erosion and has led into a gully formation near the intake. Pipelines and other structures were perceived safe from environmental hazards. Waste water from tap stands was drained on the foot path without proper management.

On the third day, the WSP team and facilitator discussed the findings of the hazard assessment and possible measures to address them. The team agreed that to control soil erosion, it was necessary to stop seedling cultivation and restore vegetation in the lands above the intake. They also discussed about controlling cutting of trees and plantation of indigenous trees in the catchment; however, this would only work if all households agreed about it and therefore it should be first discussed in a mass meeting. Given the scarcity of water, they wanted to try if they could improve source yields by digging recharge pits in the springshed. The plan also includes proper management of wastewater, which, if reused in gardens, helps to reduce the water demand.

Solutions to environmental and climate-induced hazards



Catchment degradation (e.g. due to deforestation, overgrazing) affects water cycle

- Restore vegetation by planting.
- Regulate grazing, collection of fodder and firewood.
- Prevent soil erosion.

Source depletion & dry-up (due to catchment degradation, climate change, or natural reasons.)

- Improve water recharge i.e. by ponds, eyelash pits etc.
- Improve water retention i.e. by vegetation cover.
- Adaptation by collecting and storing surface water, waste runoff and rainwater; water conservation & reuse.

Landslides, gullies and soil erosion

- Bio-engineering works, check-dams, gabion boxes.
- Control deforestation and grazing.

DEFINITIONS

Water Safety Plan (WSP): WHO defines WSP as a plan to ensure the safety of drinking water through the use of a comprehensive risk assessment and risk management approach that encompasses all steps in water supply from catchment to consumer. <http://www.who.int/wspportal/wsp/en/>

Climate Change Adaptation (CCA): UNFCCC defines CCA as actions taken to help communities and ecosystems cope with changing climate condition. <http://newsroom.unfccc.int/>

Disaster Risk Reduction (DRR): UNISDR defines DRR as actions to reduce the damage caused by natural hazards like earthquakes, floods, droughts and cyclones, through an ethic of prevention. Reducing exposure to hazards, lessening vulnerability of people and property, and wise management of land and the environment are all examples of disaster risk reduction. <https://www.unisdr.org/>

REFERENCES & SUPPORTING DOCUMENTS

WSP++ guidelines: (available at www.rwsswn.org.np)

RWSSP-WN II (2015). Rural Water Supply and Sanitation Project - Water Safety Planning Guidelines for Gravity, Lift and Overhead tank Schemes – With integrated Operation & Maintenance Plan and Water Tariff Calculation (English and Nepali, separate guidelines for each technology)

O&M manuals – all available at www.rwsspwn.org.np

Rural Water Supply and Sanitation Support Project Phase III (RWSSP III) (2004) Village Maintenance Worker's manual for gravity schemes (Nepali)

RWSSP-WN II (2015). Solar lift scheme Operation & Maintenance Manual (Nepali)

Other materials (MoFALD/DoLIDAR handbooks available at www.rwsswn.org.np)

MoFALD/DoLIDAR (2013). Recharge Ponds Handbook – For WASH Programme. RWSSP-WN I

MoFALD/DoLIDAR (2013). Handbook on Community-wide Water Safety Planning. RWSSP-WN I

UNICEF/Global Water Partnership (2014). WASH Climate Resilient Development. Technical Brief. Local participator water supply and climate change risk assessment: Modified water safety plans.



RESULTS INDICATORS FOR RWSSP-WN II

This brief relates to the following RWSSP-WN II indicator:

- 2.1 **Safe water:** # of water supply schemes supported by the Project fund in the Phase I and Phase II apply a Water Safety Plan with CCA/DRR component.
- 2.2 **Institutional capacity:** # of WUSCs supported by the Project fund in the Phase I and Phase II are inclusive and capacitated to provide sustainable services. WUSC should fulfil the following criteria:
 - b) O&M plan made and applied
 - c) Adequate water tariff defined and collected
 - d) VMW trained and regularly working as needed
- 2.3 **Improved services:** # of water supply schemes supported by the project in Phase II provide improved water supply services for previously unserved households. Scheme defined as improved and functional when it has the Service Level 1 for quantity, access, reliability and water quality.

Rural Water Supply and Sanitation Project in Western Nepal Phase II is a bilateral development cooperation project funded by the governments of Nepal and Finland, and implemented through local governments and users' groups under the Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR), Ministry of Federal Affairs and Local Development. RWSSP-WN II works in 14 districts in Western and Mid-Western development regions in Nepal.

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