KINGDOM OF CAMBODIA
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Ministry of Rural Development

Guideline
on
Rural Water Safety Plan Resilient to Climate

Step 1. Community engagement and assembling a group of rural WSP resilient to climate

Step 2 – Drawing map and describing water sources and rural water supply systems

Step 3 - Identifying and assessing hazards and control measures including risks caused by climate

Step 4 - Developing and implementing improvement plan of rural water supply systems resilient to climate and awareness raising campaign

Step 5 – Monitoring and follow-up of the progress and communication of the results

Step 6 - Reviewing and updating of improvement plan

May 2023

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Preface

The Royal Government of Cambodia has made efforts to develop infrastructure in the field of Rural Water Supply, Sanitation and Hygiene (RWSSH), which is considered the foundation for development in Cambodia. The National Strategic Plan for RWSSH for 2014-2025 has developed priorities for Cambodia and is a roadmap for the implementation of the fourth phase of the Rectangular Strategy within the framework of physical infrastructure development, including water supply and sanitation construction. To contribute to poverty reduction through the provision of water services with a focus on water quality and safety, the Ministry of Rural Development has established and developed a guideline on rural water safety plan resilient to climate as a tool for all involved parties to be used in the implementation of rural water supply programs.

Water quality and safety are fundamental to human development and well-being. Providing access to safe drinking water has made a significant contribution to health promotion and poverty reduction. World leaders and the Royal Government of Cambodia have endorsed sustainable development goal (SDG) including goal 6.1 in the areas of rural water supply, sanitation and hygiene, confirmed the commitment to universally achieving equitable access to safely acceptable water for all by 2030 and to achieving 100% of the national strategic vision for Rural Water Supply, Sanitation and Hygiene for 2011 to 2025 stated **"By 2025, all people in rural communities must have adequate water supply and sanitation and live in a hygienic environment."**

Ensuring the timely achievement of the vision and Sustainable Development Goal remains a major problem and challenge. According to the 2015 Cambodian Socio-Economic Survey, only 52% of the rural population has access to improved water sources and most of them are drinking unsafe water. A World Health Organization's recent study found that only 23% of rural households drink safe water (microbiological quality). There are many reasons for unsafe drinking water, such as pollution of water sources, unhygienic methods of transporting and storing water.

The Guideline for rural water safety plan resilient to climate is to outline a step-by-step approach for improving rural drinking water quality and making water supply more resilient to climate change and disaster. There is also important information on rural water safety, for example, information on household water treatment and safe storage, which is important for Cambodia because most people in rural areas do not have access to safe and reliable water supply.

The Guideline for rural water safety plan resilient to climate can be implemented by the Provincial Department of Rural Development, local authorities, civil society, and communities to prevent drinking water polluted from water sources to drinking water points. The guideline also helps ensure compliance with the provision of the Rural Drinking Water Quality Guideline. This guideline has been developed based on the experience gained from the implementation of the rural water safety plan pilot in Prey Veng and Kampong Speu provinces and the discussion results with 25 municipality and provinces. In addition, thoughts and suggestions have been received from universities; development partners in the field of water, sanitation and hygiene; commune councils; schools; health centers or health posts; and other stakeholders.

On behalf of the Ministry of Rural Development and myself, I would like to thank all stakeholders involved in establishing and developing the Guideline for Rural Water Safety Plan Resilient to Climate.

Phnom Penh, June 6, 2023
Signed and sealed
H.E. Bandith Sakpheachar Ouk Rabun
Minster for Rural Development

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The Guideline for Rural Water Safety Plan Resilient to Climate has been established and developed by the Technical Working Group of the Department of Rural Water Supply in close collaboration with development partners and stakeholders.

On behalf of the Technical Working Group of the Department of Rural Water Supply, we would like to express our deepest gratitude to His Excellency Bandith Sakpheachar Ouk Rabun, Minister of Rural Development; His Excellency Ouk Ponhea, Secretary of State and Director of Cabinet; His Excellency Try Meng, Secretary of State; His Excellency Dr. Nuon Danhel, Secretary of State; His Excellency Yim Chong, Secretary of State; His Excellency Nuon Pich Nimith, Undersecretary of State; His Excellency Ung Vanna, Undersecretary of State; and His Excellency Chreay Pom, Director General of Technical Affairs, highly supported and guided the establishing and developing the guideline on rural water safety plan resilient to climate.

Finally, we would like to deeply thank all development partners and stakeholders for their thoughts, suggestions and inputs on the establishment and development and dissemination of the guideline for rural water safety plan resilient to climate.

Phnom Penh, 22 May 2023

Director of Department of Rural Water Supply

Signed and sealed

Srin Poutthy

Abbreviations

- BCC: Behavior Change Communication
- BSF: Bio-Sand Filter
- CFU: Colony-Forming Units (measurement of bacteria in water)
- CBO: Community Based Organization
- CC: Commune Council
- CCWC: Commune Committee for Women and Children
- CDHS: Cambodia Demographic and Health Survey
- CDP: Capacity Development Plan
- CFP: Commune Focal Point (for RWSSH)
- CIPS: Cambodia Inter-Censal Population Survey
- CLTS: Community Led Total Sanitation
- CMDG: Cambodian Millennium Development Goal
- CSES: Cambodia Socio-Economic Survey
- CWP: Ceramic Water Purifier
- DA: District Administration
- DOECD: District Office of Economic and Community Development
- DOSH: Department of School Health (Ministry of Education, Youth and Sport)
- DP: Development Partner
- DRHC: Department of Rural Health Care
- DRWS: Department of Rural Water Supply
- HC: Health Centre
- HF: Health facility
- HH: Household
- KAP: Knowledge, Attitudes and Practices
- µg/l: Micrograms per litter (unit of concentration in water)
- µS/cm: Micro-Siemens per centimeter (electrical conductivity of water, used to approximate "total dissolved solids")
- mg/l: Milligrams per Liter (unit of concentration in water)
- MRD: Ministry of Rural Development
- MISTI: Ministry of Industry, Science, Technology and Innovation
- MOEYS: Ministry of Education, Youth and Sport
- MOH: Ministry of Health
- MOI: Ministry of Interior
- MPN: Most Probable Number (measurement of bacteria in water)
- NAP: National Action Plan
- NGO: Non-Governmental Organization
- NSDP: National Strategic Development Plan
- NSP: National Strategic Plan (for RWSSH 2014-2025)
- NTU: Nephelometric Turbidity Unit
- O&M: Operation and Maintenance
- OD: Open Defecation
- ODF: Open Defecation Free
- PAP: Provincial Action Plan
- PDRD: Provincial Department of Rural Development
- PED: Provincial Education Department (MOEYS)
- PHD: Provincial Health Department (MOH)

- RSH: Rural Sanitation and Hygiene
- RWS: Rural Water Supply
- RWSP: Rural Water Safety Plan
- RWSSH: Rural Water Supply, Sanitation and Hygiene
- SDG: Sustainable Development Goal
- SNV: Netherlands Development Organization
- TWG: Technical Working Group for RWSSH
- UNICEF: United Nations Children's Fund
- VFP: Village Focal Point
- WASH: Water, Sanitation and Hygiene
- WHO: World Health Organization
- WSP: Water and Sanitation Program of the World Bank
- WSUG: Water and Sanitation User' s Group

Glossary

- **Water resources:** they are useful water sources or have significant potential for people and the environment. For example, many uses such as in agriculture, industry, household, recreation and environmental conservation. Most people consume water from freshwater sources.
- **Water source:** it refers to where water can be extracted and used, such as groundwater, surface water and springs.
- **Water supply:** it provides domestic water for drinking, laundry, bathing and use for economic activities.
- **Improved water supply:** it refers to the supply of water from community small-scale piped water supply systems, all kinds of wells, surface water sources equipped with filters, rainwater harvesting systems and community water supply stations.
- **Access to an improved water supply:** it refers to the accessibility of water from an improved water source which takes less than 30 minutes to fetch and return, including waiting time.
- **Clean water:** it is water which is clear, odorless, colorless, tasteless, germ-free and free of excessive chemicals and does not affect health.
- **Safe water:** it is clean water which can be drunk at any age, anywhere and anytime.
- **Household water treatment and safe storage:** it is a method of ensuring safe drinking water in households (for example, the quality of drinking water is in accordance with the limits set in the Rural Drinking Water Quality Guideline of the Ministry of Rural Development). Household water treatment methods include water filtration and boiling, etc. Methods for safe storage of drinking water include the use of a water tap device which protects against hand exposure to water or other equipment.
- **Water safety plan:** it is an effective approach to ensure the safety of water supply. It is a comprehensive assessment of risks and risk management at all steps from the water source to the end use. The overall purpose is to ensure the safety of water through: 1) Finding sufficient water sources throughout the year and preventing water pollution; 2) Water treatment to reduce all contaminants; 3) Prevention of recurrence of bacterial / viral contaminants during water storage, water distribution, and end use of water such as drinking.
- **Danger:** it is the risk which can arise from bad events such as lack of water sources, pollution of water sources, floods which cause bacteria, infections or chemicals into the water and cause harm to people's health. Risks can be low, medium or high and can have serious effects on public health.
- **Preventive measures:** they are actions or methods of management or other means of preventing, reducing or eliminating toxins and germs from water sources or rural water supply systems.
- **Water quality monitoring and follow-up:** it is an activity of taking water samples for regular analysis to know the water quality.
- **Improved latrines:** it refers to pour flush latrines which are connected to a sewage system or connected to a septic tank or pit with cover, dry latrine with slab and/or pan or VIP latrine.
- **Access to improved latrines:** it is to have access to improved latrines at the house level.
- **Personal hygiene in water management:** it refers to behaviors related to hygiene/sanitation practices in storage and use of domestic water and other hygiene/sanitation practices. Good personal hygiene is a good practice which keeps our place and living space clean to help prevent bacteria / viruses and contaminants caused diseases.

- **Environmental sanitation:** it is a clean environment and does not cause diseases related to water and feces.
- **Sustainability services:** they are services which have both financial and human resources for operation and maintenance and repair with consideration of technical, social, institutional, and environmental aspects in order to continue to provide basic and acceptable services on a regular basis.
- **Rural area:** it refers to an administrative geographical area with a maximum population density of 200 people per square kilometer, with over 50% of men employed in agriculture and a total population of 2,000 people per commune.

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1. Current Situation of Rural Water, Sanitation and Hygiene

Cambodia has made great progresses in rural water supply and improved sanitation since 1990, and by 2015, although almost half of the rural population did not have access to basic water supply, sanitation and hygiene services. In addition, there is a large gap of having access to the services between rural and urban areas and between the poor and the rich[1]. However, there is still much work to be done to achieve the vision that all people in rural communities need to have adequate water supply, sanitation and hygiene, and live in a sustainable environment by 2025.

Lack of WASH infrastructure / facilities and inadequate sanitation practices have many negative consequences, especially for the poor in rural areas. Six (6) out of ten (10) diseases reported in Cambodia are caused by drinking unclean water. Poor sanitation and personal hygiene can lead to a high mortality rate of 10,000 people each year, most of them are children[2]. The economic losses associated with these issues are estimated at more than 7% (of Cambodia's Gross Domestic Product), or equivalent to $ 32 per capita[3].

The rates of access to improved WASH services in urban and rural areas are shown in Table 1 below.

Table 1. Access to water, sanitation and hygiene services in urban and rural areas

Description	1990[4]	2014[5]	2021/2022[6]
Improved water supply in rural areas	20%	47%	82.7%
Improved water supply in urban areas	32%	81%	94%
Improved latrines in rural areas	0%	46%	83.7%
Improved latrines in urban areas	18%	79%	95%

In 2014, the Royal Government of Cambodia formally approved the National Strategic Plan on Rural Water Supply, Sanitation and Hygiene. The goal of this national strategic plan is simple, but it seems difficult to achieve. By 2025, "All people in rural communities must have adequate water and sanitation supply and live in a healthy environment." The framework of the National Action Plan for Rural Water Supply, Sanitation and Hygiene is implemented in two phases, the first phase from 2014-2018 (Rural Water Supply, Sanitation and Hygiene), and the second phase from 2019-2023 (Rural Water Supply, Sanitation and Hygiene).

The framework of this National Action Plan sets out the following targets:

[1] Cambodia Socio-Economic Survey Report (CSES), 2012, 2013 and 2014.
[2] Cambodia Water Supply and Sanitation Sector Review, Royal Government of Cambodia and the World Bank (2012).
[3] Economic Impacts of Sanitation in Cambodia, WSP Research Report (2008).
[4] Progress on Drinking Water and Sanitation, 2014 Update. WHO and UNICEF (2014).
[5] Cambodia Socio-Economic Survey Report (CSES), 2014.
[6] Cambodia Socio-Economic Survey Report (CSES), 2021/2022.

Table 2. Target in National Action Plan (NAP) - Phase 1

Outcome	Baseline (2013)	Target 2018	Gap[7] (Population)	Gap (Household)
1. Access to improved water supply services	46.6%	60%	2.02 million	439,400
2. Use of improved latrines	40.9%	60%	2.67 million	580,400
3. Washing hands with soap at critical times	46.5%[8]	60%	2.03 million	441,900
4. Appropriate use of household water treatment methods	70%	80%	1.79 million	388,700

Table 3. Indicator, Output and Target in National Action Plan (NAP) - Phase 2

Outcome	2017 Baseline (%)	2023 Target (%)	Gaps to be filled (People)	Gaps to be filled (Family/Household)
1. Rural households use basic water supply services	58.7	90	3,529,771	797,839
2. Rural households use safely managed water supply services	16	33	2,230,900	504,500
3. Households in rural areas use basic sanitation services	71.2	90	2,264,836	511,924
4. Rural households use safely managed sanitation services	N/A	35	4,593,040	1,044,000
5. Rural households have hand washing facilities with soap and water	77.1	90	1,692,860	383,000

The National Action Plan (NPA) and Targets for 2018 and 2023 are developed to accelerate the progress in the area of water supply, sanitation and hygiene through harmonization, caring for the poor, strengthening good cooperation between the Royal Government and development partners, and increasing investment capital.

The guideline for rural water safety plan resilient to climate is related to the fourth high-level outcome of the National Action Plan-Phase 1 (2014-2018) presented on Table 2 above. The fourth outcome on increasing the use of suitable household drinking water purification methods which is appropriate and effective at the level of 70%-80% identified can be achieved according to the baseline data (70% in 2013). The first outcome indicator of the second phase of the National Action Plan (2019-2023) also shows that 58.7% to 90% of the households in rural areas will use basic water supply services. However, a study of the last glass quality assessment in 2013 by the World Health Organization found that only 23% of the households in rural areas had "**Safe**" drinking water (Ecoli). Only 35% of the households reported having purified drinking water in accordance with the standards set out in the Ministry of Rural Development's Rural Drinking Water Quality Guideline[9].

[7] The gap "in this and the next row is the difference between the existing data (2013) and those specified in the Action Plan 2018 targets. This figure assumes that the historical population growth rate remains stable.

[8] At least three times per day, KAP survey (2010).

[9] National Microbial Assessment of Rural Household Point-of-Consumption Drinking Waters. MRD and WHO (2013).

The National Action Plan recognizes the importance of increasing the supply of improved water and safe drinking water, which will be promoted through the implementation of the rural water safety plan resilient to climate for 100 communes by 2018 and 500 communes by 2023.

Leading towards ensuring safe drinking water is linked to the Sustainable Development Goal (SDG): *Goal 6.1*[10] *"By 2030, achieve universally equitable access to safe drinking water and acceptable for all."* The Sustainable Development Goal (SDG) highlights the importance of protecting water quality, reducing water wastage (or promoting water re-use), implementing better water resources management, and other activities in line with the promotion process in the water safety plan[11].

This document aims to provide important guidance in developing a rural water safety plan resilient to climate in Cambodia. The guideline for rural water safety plan resilient to climate has been established and developed for the Provincial Departments of Rural Development (PDRDs), District Administrations and Commune Councils, Development Partners (DPs), Civil Society Organizations (CSOs) and Public Institutions in rural areas for use.

2. Overview of Rural Water Safety Plan Resilient to Climate

2.1 Introduction

Hazard control methods for all aspects of rural water supply from **"water sources"** to **"the end use of water"**. Does the rural water safety plan resilient to climate focus on ensuring drinking water in households, schools, health centers or health posts, pagodas and other public places is safe for human health? The overall objectives of a rural water safety plan resilient to climate are to ensure that:

"Everyone in rural communities has access to safe drinking water anytime and anywhere"

There are four key points in implementing a rural water safety plan resilient to climate:

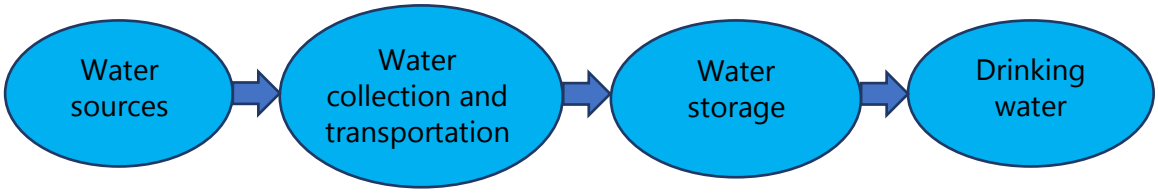


Figure 1. Four (04) key points in the process of rural water safety planning resilient to climate

A rural water safety plan resilient to climate is a critical approach and an effective way to manage water quality issues at all levels, from the household level to the community level and to water sources. In practice, a rural water safety plan resilient to climate helps identify measures that can be implemented by individuals in households, villages, schools, health centers or health posts, pagodas, and by local administrations (for example, Commune Councils). As shown in **Figure 1: Four key points** in the process of rural water safety planning resilient to climate above, these measures help prevent water pollution in water sources during collection of water for use (e.g. pumping water or taking water from a water source) while transporting water to the house (or other locations) by using a type of water container during water storage at home and during the use of drinking water, such as hand and cup / glass should be clean.

[10] Goal 6: Ensure Availability and Sustainable Management of Water and Sanitation for All.

[11] For further details of SDG.6, please see https://sustainabledevelopment.un.org/sdg6.

The rural water safety plan resilient to climate is a participatory planning which responds to local situations and focuses on high-priority activities which reduce or prevent the health effects of unclean water, as well as other issues related to sanitation and hygiene. Thus, rural water safety plan resilient to climate will contribute to promoting health and well-being, economic, and equity of communities, and reduce poverty, especially among the poor and GESI poor households who have not had access to improved water supply.

In addition, rural water safety plan resilient to climate also responds to climate change. Climate change may change the time and climate, which can affect the quantity of water resources and the quality of water supply and sanitation services. Although it is difficult to accurately predict the impact of climate change, Cambodia is considered one of the most vulnerable countries. Increased water shortages due to droughts, declining groundwater levels and seasonal floods are some of the issues related to climate change in Cambodia. The implementation of a rural water safety plan resilient to climate must consider how to ensure the resilience of rural water supply systems when climate has changed.

The rural water safety plan resilient to climate must focus on the principle that drinking water is a rare resource which must be protected, safely kept, and properly used without wastage. Safe drinking water is important to ensure the improvement of public health because waterborne diseases are the major causes of death in Cambodia, especially among children.

The process of implementing a rural water safety plan resilient to climate is simple, but there are many problems and challenges. Each step and the proposed/existing activities can be implemented by the Provincial Department of Rural Development (PDRD), Commune Council, Village Leaders and Village Focal Points. Remember that a rural water safety plan resilient to climate is not processes or a process or an exercise which can be achieved or not, every action has been taken by the commune or village is a step towards improving water safety, although the implementation of rural water safety plan resilient to climate may face many problems and challenges.

The rural water safety plan resilient to climate is not an "object" but a "process" which requires regular support and monitoring and follow-up by leaders at all levels (e.g. village chief, commune authority and other stakeholders).

The rural water safety plan resilient to climate has a series of steps which must be implemented and reviewed regularly to update and continue improvement all the time.

For this reason, in order to successfully implement a rural water safety plan resilient to climate, it is necessary to:

- Efforts with effective leadership at commune and village levels
- Support from officials of the Provincial Department of Rural Development (PDRD) and the District Office of Economic and Community Development
- The willingness of individuals and households to implement the plan and change behaviors in their community
- Budget and other resources to implement the improvement plan activities

2.2 Outcomes of Rural Water Safety Plan Resilient to Climate

There are five (05) main outcomes that will result from the implementation of a rural water safety plan resilient to climate:

- Protection of water sources: community-improved water sources have enough quantities of water to meet the needs and are protected from pollution, chemical and microbiological contamination.
- Proper use of water: fetching water, storing water, and using water for drinking do not cause transmission of bacteria / contaminants.
- At the end of water for drinking must be safe: the final drinking water quality is in line with the guideline set in the Rural Drinking Water Quality Guideline (using appropriate drinking water treatment techniques).
- Good environment at community level: regular cleaning (liquid and solid waste must be handled properly). This includes the completion of open defecation and other activities necessary to ensure a clean and hygienic living environment.
- Climate change resilience: community water resource / supply systems are properly constructed and managed that are resilient to disasters and climate change.

Progress towards achieving these outcomes should be recorded, verified and recognized by the Ministry of Rural Development. The "last desire" is the village to become a "safe water village." At the commune level, the main goal is all the villages to have "safe water villages" and become a "safe water commune".

3. Rural Water Safety Plan Resilient to Climate

The six steps are the basic steps for implementing a rural water safety plan resilient to climate. However, it is necessary to think about step-by-step process defined in all the steps which will be continued in the future. The need for clean water and a clean environment cannot be achieved at the same time, and there is no case that it will be sustainable without continued attention and effort. Therefore, **a Rural Water Safety Plan Resilient to Climate** is a cycle of six steps, including Step 1: Community engagement and assembling a group of WSP resilient to climate; Step 2: Focusing on two points, drawing map and describing community water sources and rural water supply systems, which study about water resources including the size and quantity of water resources and opportunities for additional water sources; Step 3: Identifying and assessing hazards and control measures including risks caused by climate, focusing on three main points: a). identifying hazards and water quality testing, b). assessing hazards caused by climate and environment and impacts on rural water supply systems and water sources, and c). assessing hazards and monitoring and follow-up measures; Step 4: Developing and implementing improvement plan of rural water supply systems resilient to climate and awareness raising campaign; Step 5: Monitoring and follow-up of the progress and communication of the results; and Step 6: Reviewing and updating of improvement plan **(Figure 2)**.

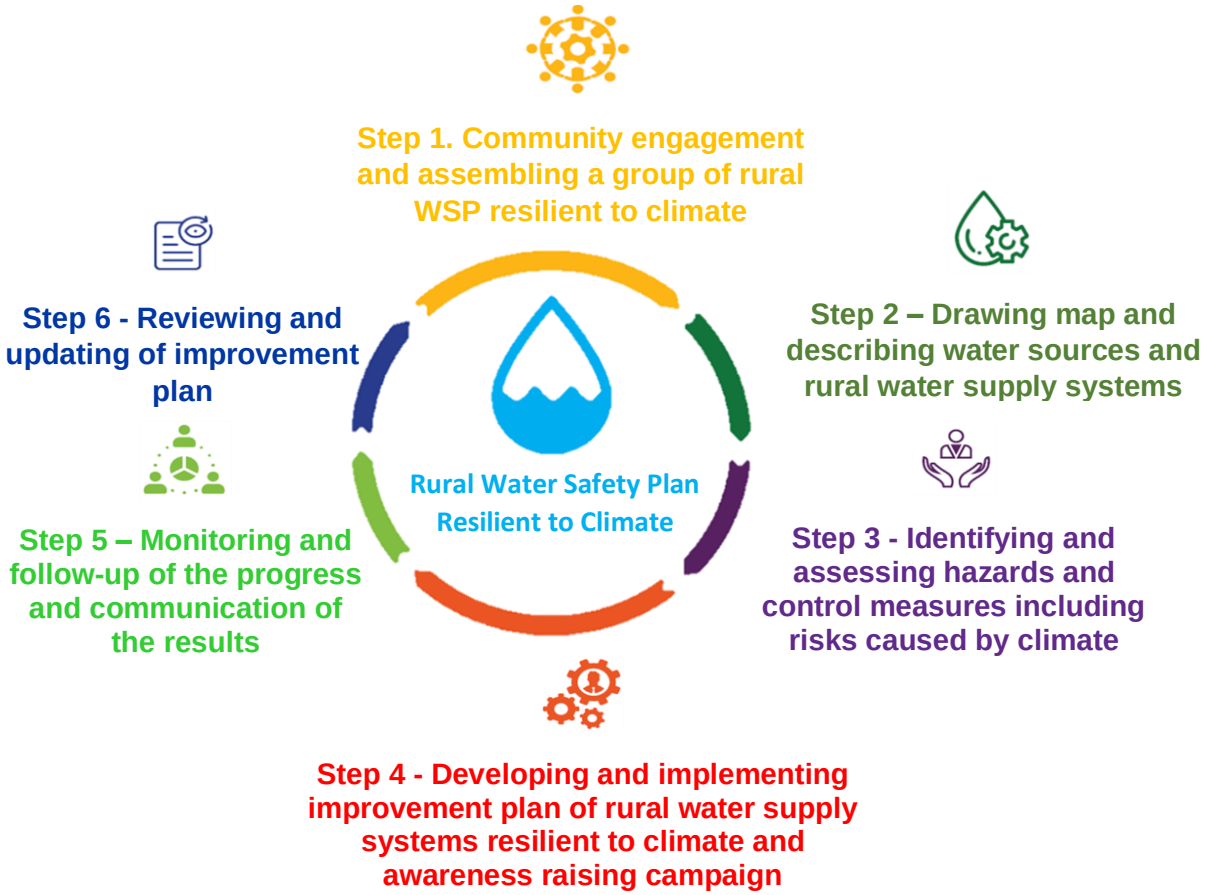


Figure 2. Six Steps of Rural Water Safety Plan Resilient to Climate

3.1 Step 1 - Community engagement and assembling a group of WSP resilient to climate

3.1.1 Commune Level

A rural water safety plan resilient to climate should be implemented at commune level, the level of local administration which is closest to the village. Commune Council has the authority to invest their resources (commune and villages) in infrastructure and other development work as part of the Commune Investment Plan (CIP).

Commune Council responsible for women's and children's affairs and Commune Council responsible for WASH can receive support for capacity building and process of rural water safety plan resilient to climate from the Office of Economic and Community Development of the District Administration and the Provincial Department of Rural Development (PDRD).

Commencement of commune water safety planning should take place through a one-day commune orientation and planning meeting, chaired by the Commune Chief and supported by the Provincial Department of Rural Development (PDRD). During this orientation meeting, a

commune water safety plan working group should be established. The commune water safety plan working group should have as follows:

- Commune Chief (or first deputy chief as the next choice)
- Commune Council member in-charge of women's and children's affairs
- Commune Council member in-charge of WASH
- All Village Chiefs in the commune
- Chief of Health Center or Health Post
- Representative of all primary school principals in the commune (1 person)
- Religious leaders (1 or more)
- Community Water Supply System Manager
- Representatives of the private sector providing WASH services and other stakeholders

The number of members of the commune working group may vary from commune to commune, although it is at least nine members. Name and title with contact information of each member must be recorded and shared with all members. Commune water safety plan working group records must be kept at the commune hall.

The commune water safety plan working group should be led by the commune chief and the first deputy chief. The deputy chairperson of the commune water safety plan working group and other members should be elected with the guidance of the Provincial Department of Rural Development (PDRD). These members should be elected at the end of the orientation meeting. Another good choice for the deputy chairperson and other members of commune WSP working group should be individuals who show good understanding and interest in the work during the meeting. Other options could be a commune council member in-charge of women's and children's affairs, a primary school principal, a health center or health post chief, or a highly motivated village chief.

Other members may be formed and selected by the commune WSP working group, such as treasurer, secretary, monitoring and reporting facilitator, technical officer, resource mobilizer, etc. The working group should also have a gender balance.

At the end of the orientation meeting of the commune water safety planning, commune chief, all group members and participants should:

- Understand the importance of safe drinking water and the role of commune and village to make environment clean to promote health, safety, economic well-being, resilience to climate change and disasters.
- Understand the specific objectives, key steps and levels of progress that will be recognized in the commune water safety planning process.
- Establish a commune water safety plan working group.
- Have a basic idea to develop and support the commune water safety planning process.
- Agree with a schedule for regular meetings to monitor and follow up the implementation of commune water safety plan.
- Agree with timing for a start of the process of the commune water safety plan, as well as the names of the Commune Council members and officials of the Office of Economic and Community Development and Provincial Department of Rural Development (PDRD) who will support.

- Have guidance documents related to rural water safety planning resilient to climate and educational materials.
- Have a list of roles and information for contact with commune council members as well as PDRD officials in charge of supporting commune water safety planning.

❖ **Roles of Commune Water Safety Plan Working Group**

- Complete the water safety plan working group schedule.
- Map the commune to identify water sources and find out information related to water use, including issues related to disasters and to climate change.
- Identify potential hazards to water from water sources to drinking water, including potential problems due to disasters and to climate change.
- Plan with prioritizing and lead activities to improve all community water supply systems.
- Plan and lead activities to raise village awareness for families about proper practices in keeping water use safe.
- Plan and monitor the progress of rural water safety plan resilient to climate, including monitoring and follow-up of water quality at community and household levels and sharing information.
- Prepare and develop a plan for the Provincial Department of Rural Development (PDRD) or local authorities and stakeholders to conduct a field visit at the village level to help monitor whether the implementation of a rural water safety plan resilient to climate is accurate and effective.
- Conduct a meeting to review the progress of activities of the rural water safety plan resilient to climate and discuss whether the implementation has been achieved based on the activities planned. Update or modify (if necessary) to help improve performance and achieve the goals set.
- Prepare a budget plan, mobilize or request budget allocation (commune, district and province) for rural water, sanitation and hygiene.

3.1.2 Village level

Each village in the commune will implement its own rural water safety plan resilient to climate, which is part of the commune water safety plan.

Village water safety plan group should start the village water safety plan where community can achieve quick results to increase trust and show a good example to other villages, especially where they can learn from each other.

As the commune level, the village water safety plan should begin with a one-day orientation and planning meeting. The meeting must be participated in by the village chief, influential individuals in the village and community, which is an event to raise awareness to launch the village water safety plan. The meeting should be chaired by the village chief. Officials from outside (possibly from commune, district or province) should participate in opening the meeting and provide information from the village water safety plan group and the reason for today's meeting.

The commune representative (Chief of the Water Safety Plan Working Group) (the commune chief or commune council member responsible for water, sanitation and hygiene) should chair and facilitate the village water safety plan meeting.

The purpose of the meeting is to inform the community about the process of commune water safety plan and developing village water safety plan. At the end of the meeting, participants will:

- Understand the importance of safe drinking water and the role of village to make environment clean to promote health, safety, economic well-being, resilience to climate change and disasters.
- Understand the specific objectives, key steps, and “level of progress that will be recognized” in the village water safety planning process.
- Establish a village water safety plan group.
- Have a basic idea to develop and support the process of the village water safety plan.
- Agree on a schedule for regular meetings to monitor and follow up the process of the village water safety plan.
- There is an agreement on when to start the process of village water safety plan, which at least can achieve three steps.
- Have guidance documents related to rural water safety plan resilient to climate and educational materials.
- Have a list of role and information to communicate with the commune council and other key people to support the process of the village water safety plan.

The composition of the village water safety plan group can be decided by the village chief and other stakeholders. However, the village water safety plan group should be composed of the following:

- Village chief (deputy village chief is the next choice)
- Health center staff or health post or village health worker (if available in the village)
- Primary school principal (if available in the village)
- Religious leader in the village
- Village development committee member (if any)
- Water and sanitation user group member (if any)
- Community water supply system manager (private)
- Citizens who are interested and willing to participate.

If there is already a committee or working group in charge of community water management in the village, this committee may be a working group on village water safety plan but can have more members including individuals as described above. The use of existing committee can speed up the implementation of village water safety plan by adding responsibilities related to village water safety plan.

If the time permits, the village water safety plan group can visit any nearby village or the village which has already started a rural water safety plan resilient to climate with good progress, which is an opportunity to learn from the experience and methods already applied.

Some additional ideas and recommendations for the village water safety plan group:

- The village water safety plan group leader must have sufficient authority to fulfill his/her role (this is why the village chief is a good choice to be the group leader).

- Names and roles and responsibilities of members of the village water safety plan group must be disseminated within the group and in the community.
- Gender balance in the group and caring to find capable female members is important because women are responsible for water use in the household, food preparation, and caring for family health and children.
- Use key events related to water, sanitation and hygiene programs such as World Water Day (March 22) to raise awareness and interest in water safety and to mobilize resources needed for improvement.
- Establish partnerships with neighboring communities to exchange knowledge on rural water safety plan resilient to climate and issues related to water, sanitation and hygiene. These can be especially useful when a village is to begin implementing a rural water safety plan resilient to climate (for example, a “new village” can be compared to a community which is already experienced from a rural water safety plan resilient to climate).

3.1.3 Roles and Responsibilities

A rural water safety plan resilient to climate process requires the support and involvement of development partners and relevant institutions from the national to the local level.

The roles and responsibilities of the relevant institutions are as follows:

❖ **Department of Rural Water Supply of the Ministry of Rural Development**

- Establish, develop and disseminate guideline on rural water safety plan resilient to climate.
- Provide training to the Provincial Departments of Rural Development and stakeholders.
- Implement water quality testing program in accordance with the guideline on rural drinking water quality.
- Recognize the results from the water quality control laboratory which has signed an agreement with the Department of Rural Water Supply of the Ministry of Rural Development.
- Implement monitoring, follow up, and evaluation of drinking water quality in accordance with the guideline on rural drinking water quality every three months.
- Follow up and respond to any problems caused by water use in rural area.
- Collect, compile, and manage rural drinking water quality data throughout the country
- Report to the ministry leaders every three months

❖ **Provincial Department of Rural Development**

- Collaborate with the Department of Rural Water Supply of the Ministry of Rural Development to disseminate guideline on rural water safety plan resilient to climate to all stakeholders.
- Advise and cooperate with all stakeholders to collect and send the results and water samples to the water quality control laboratory of the Department of Rural Water Supply of the Ministry of Rural Development.
- Implement monitoring, follow up, and evaluation of drinking water quality in accordance with the guideline on rural drinking water quality on a monthly basis.

- Follow up and respond to any problems caused by water use in rural area.
- Collect, compile, and manage rural drinking water quality data in the municipality-province.
- Report to the Rural Water Supply Department every 3 months

❖ **Development partners and NGOs**

- Collaborate and support, establish, develop and disseminate the guideline on rural water safety plan resilient to climate.
- Build capacity and support resources for the operation of the water quality control laboratory of the Department of Rural Water Supply of the Ministry of Rural Development.
- Collaborate and support the dissemination of guideline on rural drinking water quality.
- Cooperate and encourage stakeholders to implement water quality testing in accordance with the guideline on rural drinking water quality.
- Collaborate and provide information on the risks of water sources and water use.

❖ **Private sector**

- Collaborate and support guideline on rural water safety plan resilient to climate.
- Collaborate and implement water quality testing in accordance with the guideline on rural drinking water quality.
- Collaborate and provide information on water use risks.
- Cooperate with local authorities at all levels.
- Collaborate and support the dissemination and implement the guideline on rural water safety plan resilient to climate to all stakeholders.
- Follow up and provide information on water use risks.
- Cooperate and report to the Provincial Department of Rural Development or other stakeholders.

❖ **District administration**

- Collaborate with the Provincial Department of Rural Development, commune authorities and stakeholders to disseminate the guideline on rural water safety plan resilient to climate to all stakeholders.
- Participate in the implementation of monitoring, follow-up, and evaluation of drinking water quality in accordance with the guideline on rural drinking water quality once per month.
- Participate in follow-up and responding to any problems caused by water use in rural area.
- Participate in collecting, compiling, and managing rural drinking water quality data in the municipality-province.
- Report to District and Provincial Rural Water, Sanitation and Hygiene Working Groups (DWG and PWG).

❖ **Commune administration**

- Lead, support, prepare and implement commune water safety plan in collaboration with all stakeholders.
- Allocate commune budget for the implementation of the commune water safety plan.
- Follow up the implementation of water safety plan in the villages.
- Report to Commune Working Group and District Working Group of Water, Sanitation and Hygiene.

❖ **Village**

- Lead, support, prepare and implement rural water safety plan resilient to climate in collaboration with all stakeholders.
- Request funding for the implementation of rural water safety plans resilient to climate.
- Report to commune.
- Disseminate and follow up community performance on rural water supply, sanitation and hygiene.
- Strengthen the roles and responsibilities of Water and Sanitation User' s groups (WSUGs) in the community.

3.2 Step 2 – Drawing map and describing water sources and rural water supply systems

3.2.1 Drawing maps

Mapping water supply is an important factor in raising awareness of the rural water safety status in the community in relation to local water use as a whole. Water supply maps can also help members of village or commune working group understand their local water supply situation, not only water sources and water distribution networks, but also it is a common system of water sources, water collection, transportation, water storage, challenges or climate risks, and water use in households, schools, health centers or health posts.

Mapping rural water sources and rural water supply systems can encourage community discussion and thinking about their drinking water status, and it can also provide specific information (map) which is important to plan for improvement of water safety and help show the progress of safe water in community (if the map is updated regularly). Maps of water sources and community water supply systems can include the following components:

➢ **Components to be included in the village map**

- **Village infrastructure** (road, households, commune hall, school, police post, pagoda / temple, market, health center or health post)
- **Locations of water sources** (e.g. river, stream, lake, pond and other natural water sources)
- **Water points** (e.g. private and community wells)
- **Water distribution systems** (e.g. piped water supply systems (community and private), including drinking water stations (community and private), (etc.)
- **Locations of other pollution sources** (e.g. waste (factories, handicrafts, farms), landfill sites, slaughterhouses

- **Locations experienced/ disasters** (e.g. areas previously affected by floods or droughts)

➢ **Components to be included in the commune map**

- **Commune infrastructure** (road, commune hall, school, police post, pagoda/temple, market, health center or health post)
- **Locations of water sources** (e.g. river, stream, lake, pond and natural water sources)
- **Water points** (example: community wells)
- **Water distribution systems** (e.g. piped water systems (community and private), including drinking water production station (community and private), (etc.)
- **Locations of other pollution sources** (e.g. waste (factories, handicrafts, farms), landfill sites, slaughterhouses (etc.)
- **Locations experienced/ disasters** (e.g. areas previously affected by floods or droughts)

During mapping water supply, the working group of rural water safety plan resilient to climate must participate in and involve all stakeholders (for village water supply maps, the community must be involved in the process of mapping). This task can be organized through public meeting or visiting to household, schools, and pagodas, etc. The main purpose is to create opportunities for working group of rural water safety plan resilient to climate to disseminate throughout the village or commune about safe water and the process of developing rural water safety plan resilient to climate. Examples of maps of village and commune water supply systems are shown in **Figure 3** and **Figure 4** below.

❖ **Mapping method**

- Use the geographical map of the village or commune as a model (if any)
- Mark the direction on the map (north)
- Define the geographical boundaries of the village and commune
- Draw roads in villages and commune (national roads and trails/paths)
- Key notes (components of the village and commune above)

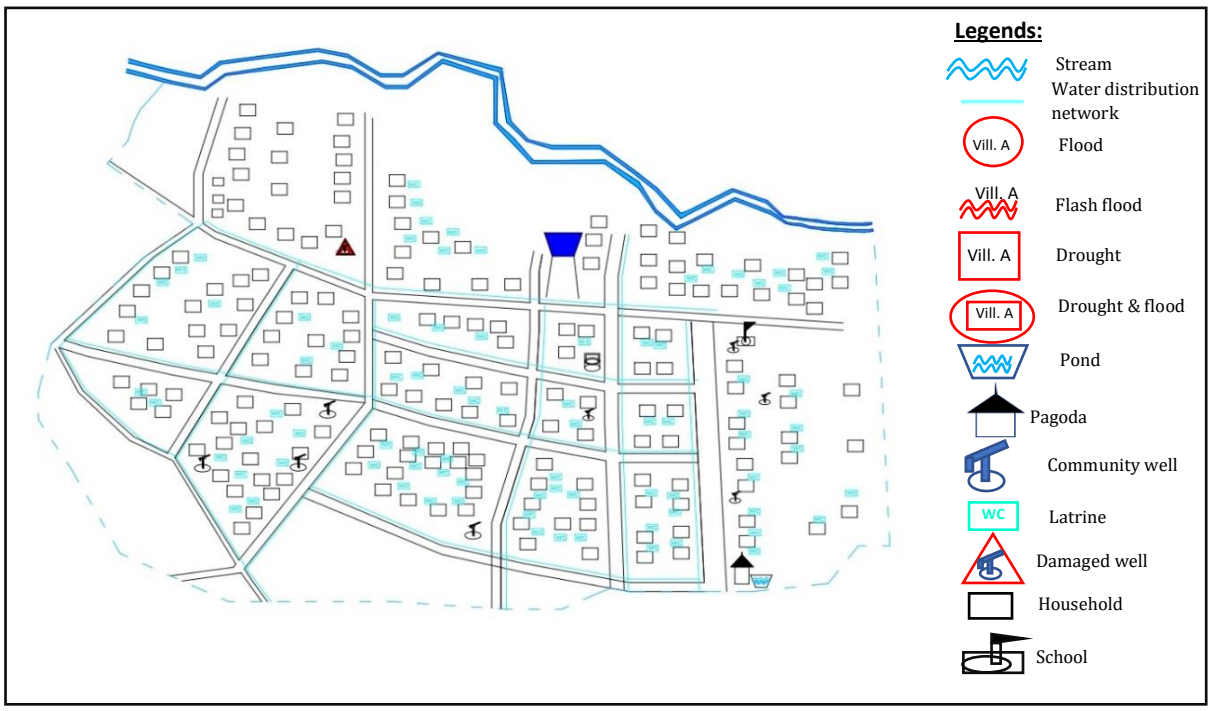


Figure 3. Map of water sources and water supply systems at village level

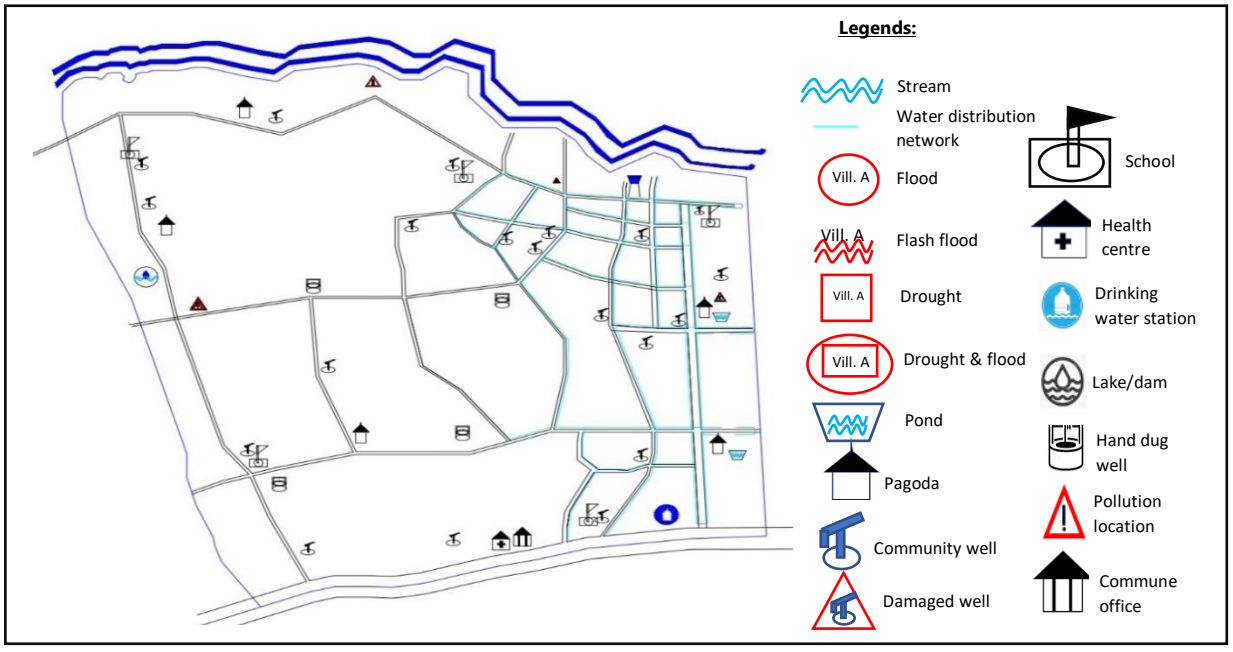


Figure 4. Map of water sources and water supply systems at commune level

3.2.2 Describing water sources and rural water supply systems

In addition to mapping rural water sources and water supply systems, the working group of rural water safety plan resilient to climate will discuss, observe and assess water sources, water collection (e.g. fetching or pumping water), transportation, storage, and practicing water treatment in communities (schools, health centers or health posts and other public institutions). Although water is safe for drinking from the source, it can be contaminated with bacteria/ contaminants during transport, storage, and use. Therefore, the working group of rural water safety plan resilient to climate needs to observe and assess the water treatment process of communities, schools and health centers or health posts as part of **the second step**, which includes as follows:

- **Water source**
  - Brief information on the type of the water source, the status of the water source, the supply capacity of the water source
  - Detailed information of the commune piped water supply and drinking bottled water
  - A brief report on the situation or challenges present in the community such as information and experience of the climate or disasters which should be described, including the frequency, level of impacts, and other damages in the villages and commune
- **Collection of information on water collection and transportation practices includes:**
  - How to get water from the source (type of equipment or motor pump)
  - Way of transportation (means of transportation or container)
  - Is the water protected (proper cover) during transport?
  - Distance from the source to be transported (distance and time)
  - Who is the water carrier?
- **Collection of information on water storage practices includes:**
  - What equipment is used for water storage? (e.g. equipment size)
  - Does the water storage equipment have a small or large mouth? (e.g. hand can be inserted or not)
  - Where does the water storage equipment usually place? (e.g. inside or outside the house)
  - Is there a source of bacteria / contaminants nearby?
  - Does the water storage equipment lid have protection against bacterial / contaminants?
  - How is water taken from the water storage equipment? (e.g. a tap or a "dipping" with glass or other materials?)
  - Is there any other information or observations related to water storage equipment, possible bacteria / contaminants transmission to water?
- **Collection of information on water treatment practices includes:**
  - Are there any water treatment methodologies used for drinking water?
  - According to the survey, are the water treatment equipment still working and usable?
  - If so, what are the water treatment methodologies and how do they use?
  - Probe about their water treatment methodologies (e.g. if boiling water - what type of that boiling equipment? How long has it been used?)
  - Is drinking water always or occasionally treated?
  - Do all household members drink the water treated or some do not drink?
- **Collection of drinking water information includes:**
  - What equipment is used to drink water? (e.g. glass, cup, etc.)

- Is the drinking water equipment shared to drink water in the house? (Or use individually?)
- Does the drinking water equipment place on the floor (or on the ground) or in a place where bacteria / contaminants can be transmitted?
- Is the drinking water equipment properly cleaned? Does it have lid or turn it upside down to help prevent bacterial / contaminants transmission?
- Is there a container or a handwashing device near the water storage container? Is there soap? Is the soap used?
- Is there any other information or observations related to drinking water equipment? When the mapping in the second step is completed, the result will be as follows:
- Map of water use in villages and commune
- Information on the use of improved water sources, non-improved water sources and climate risks
- Community practices related to water collection, water transport, water storage, water treatment, and water use

After obtaining the above results, the chief of the village water safety plan group must report the results and findings to the commune water safety plan group, and must keep the original documents for further use as a reference.

3.3 Step 3 – Identifying and assessing hazards and control measures including risks caused by climate

After completing the second step, the working group of rural water safety plan resilient to climate (and community) will have a clear understanding of the water use situation in the villages, the next step is to analyze the hazards and take preventive measures to reduce or eliminate those hazards. The working group of rural water safety plan resilient to climate must have sufficient time to work on this step and engage the community as much as possible. Through the active participation of the community, villagers will better understand the Hazards posed for water sources, water use and give them the opportunity to share ideas on ways to manage those hazards.

The first part of **Step 3** identifies hazards with three (3) main components:

3.3.1 Step 3 A- Hazard identification and water quality testing

3.3.1.1 Hazard identification

Observing the condition of water sources, behaviors and hygiene of water use will provide important information related to the vulnerability of bacteria / contaminants or other pollutions to water. It assists working groups of rural water safety plan resilient to climate in identifying problems and sources of bacteria / contaminants or other pollutions in their communities and is an important part of the hazard study.

A sanitation survey form is a tool for identifying hazards, a list of questionnaires for monitoring and follow up of sanitation at water sources and household practices provided in **Appendix B**. The list of sanitation survey may not be answered everywhere, the working group of rural water safety plan resilient to climate can use it where is appropriate.

A list of sanitation monitoring and follow-up questions has been developed to help facilitate the working group for conducting the survey, and all answers must be based on surveys or interviews with the community.

The rural water safety plan resilient to climate group should conduct regular monitoring and follow-up of sanitation (for example, quarterly, semester, annual); typically, sanitation monitoring and follow-up system not only supports the third step of a rural water safety plan resilient to climate, but also is useful for other purposes, such as monitoring and follow-up of the progress **(Step 5)** and to help identify issues that could immediately affect water quality.

All sanitation monitoring and follow-up forms must be kept with various records of the rural water safety plan resilient to climate.

3.3.1.2 Water quality testing

Water quality testing provides clear evidence of safe water (or bacteria / contaminants transmission) for community or rural water safety plan working group resilient to climate.

The most commonly used water quality test method is the **"Present-Absent"** test for total coliform bacteria. This test does not give any specific result of what type of bacteria it is. The **"Present-Absent"** test method is simple and inexpensive. The result of this test let the water users know whether their water is bacterial or not, safe or unsafe to drink.

The testing methods of other parameters set out in the Rural Drinking Water Quality Guideline of the Department of Rural Water Supply of the Ministry of Rural Development can also be used to test community drinking water. However, testing those parameters requires additional equipment and costs which are difficult to fully implement by the rural water safety plan group resilient to climate.

Specific water quality testing methods must be done in a well-equipped water quality control laboratory and a qualified specialist. These water quality tests are highly accurate, but require sufficient budget and commitment.

The working group of rural water safety plan resilient to climate must prioritize water quality testing and develop a sampling plan prior to conducting community outreach work. For example, a community water quality sampling plan should be as follows:

- Test all water sources or all water supply systems available in the community in accordance with the guideline for rural drinking water quality.
- Conduct selective testing (10%) of private water sources in accordance with rural drinking water quality guideline.
- Conduct selective testing (20%) of household drinking water stored in drinking water containers for contaminant and bacteria.

In fact, water quality testing (bacteria) must be performed at the site (community) in Step 3 and then Step 5 (when monitoring progress) to determine the level of progress. The test must be performed by technical officials from the Provincial Department of Rural Development or by a non-governmental organization or a trained member of the working group of rural water safety plan resilient to climate or a trained private water supply operator.

The results of this test must be monitored by the Provincial Department of Rural Development with the working group of rural water safety plan resilient to climate and disseminated to the community as part of awareness raising. The records (or other documents) of all tests must be kept by the Provincial Department of Rural Development and the working group of rural water safety plan resilient to climate for future use and for comparison with the next tests.

As mentioned above, if possible, all community water sources should be tested. Private (family) water sources can be tested for about 10% to save time and resources. The 10% sample must be randomly selected from different locations in the village.

Drinking water quality test results (e.g. water from a kettle or household drinking water container) must be provided to family members immediately. Education and behavior change are highly influenced by test results (especially if the family is drinking unsafe water). It can also be a great tool for changing behaviors. Water quality testing can also be performed at schools and health centers or health posts.

Water quality testing can be carried out after sanitary monitoring and follow-up at water sources and in households, schools and other institutions. Sanitation monitoring and follow-up can be used to identify **'high hazard'** and **'low hazard'**, as well as water sources with high and low hazard (e.g. working group of rural water safety plan resilient to climate can test two-thirds (2/3) for high-hazardous water sources and one-third (1/3) for low-hazardous water sources.

At the end of the first round of water quality testing, community meeting should be organized by the working group of rural water safety plan resilient to climate, and commune council and officials from the Provincial Department of Rural Development should be invited to present the results to the community and to respond to any questions which may have. Water testing results can be an effective way to inform the community about safe water and the hazards of bacteria / contaminants in their drinking water.

3.3.1.3 Components and responsibilities of water quality testing

The components of water quality testing include the Department of Rural Water Supply of the Ministry of Rural Development, the Provincial Department of Rural Development and the commune water safety plan working group.

The **"Present-Absent"** bacterial test is to show the presence of total coliform bacteria. The technical working group of the Department of Rural Water Supply must conduct the training for technical officials of the Provincial Department of Rural Development. In turn, the Provincial Department of Rural Development conducts training to the commune and village water safety plan groups for implementation to the community.

3.3.2 Step 3 B- Assessment of hazards caused by climate and environment and impacts on rural water supply systems and water sources

The working group of rural water safety plan resilient to climate should study and assess water sources and water supply services in the community which may be affected by disasters or climate change based on what happened in the past or on the hazard forecast (depending on locations and other factors). Factors which the group may consider include:

- Is there a shortage of surface water due to the longer dry season or shorter wet season, resulting in longer time supplying of water and more water storage requirement?
- Does the amount of groundwater decrease due to the amount of seasonal rainfall or human activities such as more pumping (e.g. urbanization development or agricultural activities)?
- Does that area experience seasonal / rainfall flood and lead to the inflow of bacteria / contaminants into ponds, wells or other water sources? Does surface water sources

(rivers, ponds, lakes) decrease or increase in pollution due to changes in rainfall, human activities, or changes in soil layers?
- Information on climate change and future weather forecasts, etc.
- Is the quantity or quality of water affected (negatively) by any changes in those activities?
- Have the newly constructed or new water sources considered future climate change and resilience?

Rural water supply systems resilient to climate change and disasters are becoming important in Cambodia which must be considered and included in rural water safety plans resilient to climate. Guidance or support from the Provincial Department of Rural Development is an important factor in assessing these hazards.

For more details, please see **Appendix A**. **Commune Water Safety Plan** in Step 3, Table 3.1, Table 3.2 and Table 3.3.

3.3.3 Step 3 C- Hazard assessment and monitoring and follow-up measures

Sanitation monitoring and follow-up and showing water quality testing results should be carried out by the working group of rural water safety plan resilient to climate to assess water safety hazards in the village or commune. Water safety hazards may be related to water quality (safe water) or water quantity (e.g. decreasing water quantity at the water use sources or due to technical problems or disasters). Water quality hazards include bacteria / contaminants, chemical pollution (e.g. arsenic, fluoride) or physical characteristics (e.g. high iron content in water, poor taste, high turbidity, or other problems). Some examples of potential hazards to water quality in rural area include:

- Open defecation or improper disposal of baby feces
- Latrines built closer to water sources (distance less than 15-20 meters)
- Disposal of natural or agricultural wastes, including animal manure
- Occurrence of natural chemical toxins in groundwater source (e.g. arsenic)
- Pool of dirty water near the well
- Improper disposal of household liquid and solid wastes (on unused land or unsealed pits)
- Inflow of solid and liquid wastes from factories and enterprises that may affect water quality
- Loss / pollution of water sources due to climate (drought, flood and pollution by soil erosion)
- Decline of groundwater levels or problems and challenges to other groundwater resources
- Broken well aprons or non-standard building of wells such as installation of handpump well, building of well aprons and drainages
- Lack of maintenance around the well (e.g. no fence around the well)
- Water containers are not washed or having the habit of not washing the containers
- Household water storage equipment and how to drink water are not hygienic

The results of the hazard assessment should be disseminated to the community through meeting to provide opportunities for questions and answers (if possible, the commune level and the Provincial Department of Rural Development should attend the meeting). The working group of rural water safety plan resilient to climate (or a facilitator from the Provincial Department of Rural Development) must encourage community to participate in analyzing the issues they identified, which is the encouragement to understand better about the hazards.

Once each hazard has been identified and discussed, participants must begin to identify the appropriate **"preventive measures"** for each issue. For example, potential hazards to drinking water and related preventive measures with related monitoring and follow-up in **Table 4** - **Table 6** below.

Table 4. Example, potential hazards to drinking water sources and responsive measures

S/N	Potential hazards to drinking water sources	Responsive measures
1	Animal manure on or around the well or near surface water sources	- Build a fence (or repair a fence) to keep animals out - Clean garbage in and around the well - Create a community ban (do not allow cows, buffalos, pigs come near the well) - Store animal manure on a slab
2	Broken or cracked well apron, poor drainage surrounding	- New construction (or repair) of well apron - Improve the slope around the well - Ensure that the well apron has a working drainage and the soak-pit has a gravel / sand at the bottom - Pour chlorine solution into the well after repairing the apron or drainage to kill bacteria / contaminants
3	Open defecation in the village	- Complete open defecation through sanitation campaigns, construction of hygienic latrines and use of the latrines for all households
4	Latrines built near wells (e.g. less than 15-20 meter)	- Build latrines far from water sources - Construction of latrines with seals between the rings
5	Pond without fencing or without protection caused algae (e.g. plant) in the pond which pollutes the pond water	- Raise the soil above the pond or around the pond - Build (or repair) fences to prevent cattle to enter the pond - Clean the surrounding pond and clear the growing plants (especially in the dry season) - Create a community ban to prevent dumping wastes, washing clothes or cattle entering the pond
6	Unprotected hand dug wells (no apron, well rings, drainage or well cover)	- Make well cover to protect the well (apron with drainage and well cover) - Use a pump motor (e.g. do not allow users to use water container to take water directly from the well)
7	Well water dries	Find new water sources such as: - Surface water by digging a pond large enough to store water for future drought - Drilling a new well with water quantity calculation and pumping test and following technical standards - Hand dug wells must be rehabilitated or dug to a deeper depth. - Construction of rainwater tank that can supply water during the dry season in accordance with a forecast of the dry season - Search for water source network

S/N	Potential hazards to drinking water sources	Responsive measures
8	Wells flooded	- Disinfection of wells after flood - Raising the well aprons above the flooded level and constructing the well resilient to porous water and force of waterflow (concrete ring well)
9	Using water source network in flood-prone area	- Water connection from the piped water supply should be above the flood level

Table 5. Examples of potential hazards during fetching and transporting water and protection measures

S/N	potential hazards during fetching and transporting water	Responsive measures
1	Place a water container on the ground or on a dirty place before fetching water from the hand dug well	- Water fetching place with apron - Having cover for the water fetching container after use - Covering the hand dug well or using a motor pump to prevent someone using fetching container to take water directly from the well - Prohibiting the use of unclean water container to fetch water from the well
2	Water container not cleaned (bacteria / contaminants may be present in the water)	- Cleaning water container regularly, using chlorine solution or boiled water to clean the container and upside down it at a lean and dry place

Table 6. Examples of water storage hazards and protection measures

S/N	Water storage hazards	Responsive measures
1	Drinking water storage equipment without the lid or with a large open mouth which can be accessible by hands or transmitting bacteria / contaminants	- Use a drinking water storage equipment/ container with lid - Use a drinking water storage equipment/ container with a water tap - Buy or make a lid for the drinking water storage equipment/ container
2	Keep water jars on ground or in places where many people or animals pass which give them assess that can cause bacteria / contaminants in the water	- Make lids for water jars - Make an apron or a bottom support for the water jars - Keep the water jars in safe places away from animals or children
3	Water jars have no lids, have algae and other visible problems	- Water jars must be cleaned regularly - Mix chlorine solution to clean the water jars, especially after the first cleaning - Water jars must always be covered

Table 7. Examples of water treatment and storage and management measures

S/N	Water treatment and storage	Management measures
1	Drinking water at the household level (suspected) may not be safe due to no treatment	- Test water quality and disseminate results to users - Encourage the use of proper water treatment methods
2	Households do not use water treatment methods properly	- Visit home, test water and show results - If necessary, the household must be instructed to change the method of water treatment - Encourage well-practiced families to explain or join a village health volunteer group to learn more about how to store water safely
3	Keep drinking water storage container outside or under the house in an unclean place	- Keep drinking water storage container in the house - If left outdoors, it must be covered and kept above the ground level (clean place)
4	Store drinking water container on ground or floor in the place where people pass which give them assess or in a dirty place	- Keep drinking water storage container above the ground level or on something higher than the ground or floor
5	Drinking water storage container has no tap, so they must dip a drinking equipment / glass into the water storage container	- Use a drinking water storage container with tap which cannot be touched by hand or dipped by a water equipment / glass into the water storage container
6	Household members use a common (share) a cup or glass	- Each member should have her/his own cup / glass or at least one for each kid
7	Drinking water glass is not washed or keep in an unclean place	- Keep the drinking water glass high above the floor and must have a glass equipment to cover the glass

The working group of rural water safety plan resilient to climate and the community must jointly monitor water supply hazards and management measures, assess and prioritize hazards that are necessary for the community using forms available in the water safety plan book.

In conclusion, in this process the working group of rural water safety plan resilient to climate and community must have a priority list of water safety plan which will be responded by the working group.

3.4 Step 4 - Developing and implementing improvement plan of rural water supply systems resilient to climate and awareness raising campaign

3.4.1 Developing an improvement plan

After identifying hazards and management measures in Step 3, the working group of rural water safety plan resilient to climate must make a detailed improvement plan. The improvement plan is an important part of rural water safety plan resilient to climate. In the improvement plan, awareness-raising campaigns must be included to raise awareness of the hazards happened in the villages and commune.

The improvement plan must be developed by the working group of rural water safety plan resilient to climate, which includes the following key points:

1. Who: All members of the working group of rural water safety plan resilient to climate must be present. The group leader can invite some community representatives, especially those who had a lot of interest and understanding during water use mapping, water use assessment and water quality testing. Similarly, commune representatives and officials from the Provincial Department of Rural Development should be invited to support this process.

2. When: The plan should be made immediately after the water use assessment (**Step 2** and **Step 3**).

3. Venue: Large space available for tables and chairs and place to stick the map of rural water supply system and other flipcharts. A good choice can be at school, commune hall or pagoda. They must set a specific time and place to ensure that they can organize the meeting.

4. Methodology: The chairperson of the working group of rural water safety plan resilient to climate and members must have a clear agenda for the meeting and make sure that everyone knows who the facilitators of the meeting are **(most of the cases is the chairperson)**. Confirm:

a. The desired results of the meeting are clear
b. The ground rules for the meeting are clear.
c. Meeting materials include flipchart, marker, tape, etc.
d. Prepared notes for record are brought along (maps of rural water supply systems, minutes of previous meetings, IEC materials on rural water safety plan resilient to climate, and IEC materials on behavior communication for change, etc.).

Development of an improvement plan will be required to analyze the hazards identified in Step 3 and the monitoring and follow-up measures (activities) implemented. The working group of rural water safety plan resilient to climate will consider the challenges of the practical implementation such as available resources. The working group of rural water safety plan resilient to climate will work with community and the Provincial Department of Rural Development, as well as other supporters to find resources.

Short-term planning can be focused on existing resources and capabilities available in the community. Long-term planning needs the support of local administrations, NGOs, development partners and other institutions to provide technical skills, materials, equipment, and financial resources.

- Short-term planning (for example):
  - **Cleaning environment:** Remove anything which can be a source of bacteria / contaminants or other pollutions such as dumping garbage, poor sewage system, and clogging drainage.
  - **Protecting hand pump wells:** Replace (or repair) fences around wells, clean and improve drainages, and place well and surrounding area bans, such as not allowing cows, buffalos and pigs to enter the well and surrounding areas or nearby, or other activities which lead to bacteria / contaminants transmission.
  - **Operation** and **maintenance (O&M):** Organize (or modify) water and sanitation user groups (e.g. WSUGs) for existing rural water points or water supply systems. This may

include the creation (or modification) of water utility fees and other means to ensure that wells or rural water supply systems are maintained and operated sustainably.
- **Raising awareness:** Campaign locally to raise awareness of practices related to waterborne diseases, water treatment and sanitation in communities, schools and health centers or health posts.
- **Eliminating open defecation:** Organize and campaign to end open defecation and promote proper latrine construction and use.
- More activities listed on Table 4-7 above.

- Long-term plan (example):
  - **Repairing a malfunctioning or damaged rural water supply systems:** Repairing a motor pump and repairing a well apron or a rural water supply system that is not working or damaged.
  - **Build new rural water supply systems or other rural water supply systems for communities** for equity and sustainability in accessing 100% improved water supply for people.
  - **Provide options for access to finance for the poor,** attract micro-finance institutions and establish revolving capital funds or other means to enable the poorest households to participate in improving rural water supply and sanitation services in households, such as purchasing water filters for households use, repairing motor pumps or construction of latrines. It can include the creation of criteria and conditions for the transfer of funds or other mechanisms to the poorest households (for example, those who cannot afford to borrow money to buy).

In developing the improvement plan, the working group of rural water safety plan resilient to climate must be aware of the following issues:

- **Practicality:** Does the plan succeed if there are limited technical and financial resources with the deadlines which the group considers appropriate?
- **Benefits:** How many people will benefit from this mitigation measure, and how will this measure be implemented equally to all community members?
- **Cost-effectiveness:** Is the required resources (budget, time, manpower, equipment, etc.) appropriate to be achieved (risk reduction, health promotion, time saving, etc.)?
- **Environmental Sustainability:** Are long-term protection measures in place (for example, 10-25 years) to prevent climate change, global heating and disasters?
- **Practical politics and society:** Is the proposed improvement plan in line with the goals and policies of local and national administrations? Is it acceptable (both culturally and socially) at the grassroots level?
- A sample of an improvement plan for rural water safety plan resilient to climate is provided in **Appendix A. Commune Water Safety Plan**, Step 4.

3.4.2 Implementing an improvement plan

The improvement plan should address the issues of water sources, rural water supply systems, and all major water uses in the community, including schools, health centers or health posts, or other public institutions or gathering places.

It is important that the improvement plan of the working group of rural water safety plan resilient to climate identifies an individual (for example, a village chief) or an institution (for example, a health center or health post) responsible for each task or activity. Please note that responsibility

does not mean that an individual or institution acts or implements all preventive measures alone, but the responsibility is to ensure that the actions or implementations are carried out as agreed.

We have sufficient resources to implement the improvement plan of the rural water safety plan resilient to climate, which are the key factor to success. The resources include budget, labor, equipment, and skills, etc. The resources are identified by the working group of rural water safety plan resilient to climate with the assistance of local, district and provincial authorities and the support of external partners.

End date must be set as precise as possible to make it easier to specify an end date or an estimate of number of days or weeks for short-term, medium-term, and long-term activities, and month estimation (end of month or year) may be enough.

The working group of rural water safety plan resilient to climate must also consider three major activities during preparation of the rural water safety plan resilient to climate:

- **Physical activities** (e.g. repairing water sources, building new wells, expanding rural water supply systems, etc.)
- **Campaigns to raise awareness and change behavior** (e.g. promoting the effectiveness of household water treatment methods, campaigns to end open defecation, hand-washing campaigns, environmental clean-up campaigns, etc.)
- **Working processes and structures** (e.g. establishment of a working group of water safety plan resilient to climate and school sanitation, seeking development partners and resources to support the implementation, monitoring and follow-up, and reporting of progress to local administrations or the development and implementation of other community measures related to safe water).

3.4.3 Awareness raising activities

Awareness-raising plans are defined as specific plans to promote community awareness that can take place in different forms, at different locations, and at different stages of the implementation process. The working group of rural water safety plan resilient to climate is working with local authorities, schools, health centers or health posts to create awareness campaigns in line with specific needs (**and deadlines**) for families, students, teachers, staff, health centers or health posts, patients, and water supply service providers. The Provincial Department of Rural Development or the Commune Administration should provide educational materials related to safe water and strengthen the capacity of the working group of rural water safety plan resilient to climate to:

- Test the quality of drinking water using a test kit for the presence or absence of bacteria / contaminants (Present-Absent Test).
- Lead discussion on water-related diseases prevention methods, water treatment methods and safe storage techniques.
- Organize celebrations of water and the environment, such as World Water Day, National Environment Day and National Sanitation Day, or other events related to water and sanitation issues, etc.
- Awareness-raising efforts must be made on a regular basis as part of the activities of the working group of rural water safety plan resilient to climate, such as home-to-home visit, community meetings or other occasions.

Other options are to raise awareness, which can be transferred to specific responsible groups or individuals who are fit and motivated to perform those key activities. Examples:

- Student Club (peer educating group and outreach to the community)
- Village Health Volunteers
- Agricultural Extension Workers (e.g. village veterinarian ....)
- Water and Sanitation User Groups
- Women, Children and Nutrition workers
- Village Environmental Cleaning Committee
- Community-Led Sanitation Program

Awareness-raising messages are organized according to the actual water supply situation of the village (or commune) assessed and identified in Step 2 and Step 3. In Step 4, the improvement plan of the working group of rural water safety plan resilient to climate has priority actions to help ensure water safety for all people in the community. Some improvement plans of the rural water safety plan resilient to climate require physical changes (e.g. repairing well apron or cleaning the surrounding environment), but other activities require both physical and behavior changes. Some other activities focus entirely on changing behaviors.

At this stage of the process of rural water safety plan resilient climate, the problems and behavior changed must be clear and usable for the development of awareness-raising efforts. For example, responding to the problems includes:

- Modify a method of transporting water and storing water at the house level which is safe.
- Reduce the deposal of liquid and solid waste and baby feces in the open spaces.
- Provide information on options for household water treatment and safe storage.
- Establish and strengthen water and sanitation user groups to be responsible for the use and maintenance of water sources and many other activities.

Changing behaviors of communities, households and individuals related to safe water is very complex, and the working group of rural water safety plan resilient to climate should be encouraged to do their work. They should not feel pressured, overwhelmed, or discouraged by the work. The key points to focus on are the goals, methods and timelines set out in each awareness campaign plan. Commune focal points for commune water safety plan, commune council member in charge of women and children’s affairs and the Provincial Department of Rural Development must work with the working group of rural water safety plan resilient to climate to support awareness raising groups, including:

- Identify areas which need to change behaviors and specific goals which can be achieved.
- Provide necessary educational and promotional materials.
- Train village water safety planning group (and other stakeholders) on use of materials and skills to implement behavior change practices.
- Seek support from health centers or health posts and village health volunteers.
- Seek support from teachers, students who are interested in supporting community outreach activities.
- Find influential individuals and institutions in the community, such as religious leaders, monks, priests, and generous people to support the campaign.
- Request training and support from development partners such as NGOs with extensive experience related to educational methods, outreach and change of behaviors on water and sanitation issues.

- Find a volunteer in the community who is willing to be a role model in sharing experience or helping motivate other families in his or her community.

The working group of rural water safety plan resilient to climate should be supported to avoid using the wrong or less effective methods. Changing behaviors is usually a challenge where people need help analyzing their situation and deciding for themselves that changing their behaviors is what they want to do (not because others tell them to do). This is why the working group of rural water safety plan resilient to climate must seek the support and participation of others in awareness-raising campaigns, which usually changing behaviors is harder to change than expected and takes more time.

Some effective awareness-raising approaches (change behaviors) for rural water safety plan resilient to climate in other countries include:

- Organize incentive programs (e.g. competitions and rewards for well-performing families).
- Provide educational materials to schools, health centers or health posts and pagodas.
- Organize a campaign to clean up the village environment.
- Organize a public meeting to discuss possible water safety along with other important events.
- Educate children, in turn they can educate other children in schools and in their community.
- Organize evening entertainment with songs related to water safety, play drama, and play a video or comedy performance.

The Ministry of Rural Development has developed documents and education and dissemination materials, and national strategies on behavioral change which the village and commune water safety planning groups can obtain from the Provincial Department of Rural Development for use during the campaign. Similarly, working group of rural water safety plan resilient to climate can innovate as many methods and solutions as possible. The most important thing is to document what is possible and what is not possible as part of the learning process.

Finally, Commune Administration, Provincial Department of Rural Development, and development partners should assist the village water safety planning group in recording and sharing their experience of raising awareness (both good and bad) with other villages (or communities) which is part of the learning process. In this way, the village water safety plan group will **"learn on their own"** and can continue improvement.

3.5 Step 5 – Monitoring and follow-up of the progress and communication of the results

3.5.1 Introduction

Monitoring and follow-up of the progress have been included since the beginning of rural water safety plan resilient to climate. The main purpose of the monitoring and follow-up of the progress are to provide feedback to the working group of rural water safety plan resilient to climate on how far they have progressed and whether they will be able to reach their set targets (or beyond) or not.

The other main purpose of monitoring and follow-up of the progress is to enable the working group of rural water safety plan resilient to climate to liaise with the community, the government and relevant or supported development partners.

For this rural water safety plan resilient to climate, monitoring and follow-up will provide two answers:

- Has the rural water safety plan resilient to climate been properly implemented?
- Has the rural water safety plan resilient to climate achieved the desired results?

Monitoring and follow-up require indicators, means of measurement, and methods of recording results. Effective monitoring and follow-up programs include the following:

- **What** to monitor and follow up?
- **Where** to monitor and follow up?
- **Who** to monitor and follow up?
- **When** and **how often** to monitor and follow up?
- **How** to record and communicate the results? And **how** to solve the problems found?

3.5.2 Methods of monitoring and follow-up

The improvement plan of rural water safety plan resilient to climate is key to monitoring and follow-up. For each component of the improvement plan, the working group of rural water safety plan resilient to climate must have activities, timeline, and responsible persons. The three main components of the improvement plan which need to be monitored and followed up include:

- Physical activities
- Changing behaviors and raising awareness
- Working process and structure

The chairperson of the working group of rural water safety plan resilient to climate or the person in charge must have regular observations (on-site inspections) on the progress of the improvement plan. For example, determining whether the well fences have been built, household water collection practices, and water treatment methods are better.

Commune administration and Provincial Department of Rural Development must provide regular inspections (including water quality testing and sanitation monitoring and follow-up) to ensure whether the goals of rural water safety plan resilient to climate are achievable.

3.5.3 Communication of the results

Data from monitoring and follow-up of rural water safety plans resilient to climate is documented and must be carefully kept at the village and commune levels. In order to be effective, monitoring and follow-up reports (data or any summary report) must be distributed to Commune Council and the Provincial Department of Rural Development during monthly or quarterly meetings and at separate meetings on rural water safety plan resilient to climate. Primary school principals and chiefs of health centers or health posts are important members because their institutions

generally have their own water supply infrastructure (e.g. wells or water supply systems and other storage containers/devices) and keeping safe water supply working in these two institutions is very important.

Meeting on rural water safety plan at the commune level may be the best way to ensure information sharing. The commune water safety plan group must hold one or more meetings each year with the village water safety plan group (or a joint meeting) to discuss the results of any progress, challenges or obstacles which the group is facing. Scheduling meetings at the commune level may help promote regular follow-up of data collection at the village level. The Provincial Department of Rural Development should be invited to these meetings, either quarterly (or at least semester).

The village / commune water safety plan group must provide information on the progress to community members through village / commune meetings and should provide adequate time for questions and answers. The village / commune water safety plan group may set reasonable time for this meeting which is maybe a semester meeting. Informal discussions and meetings with community members and other institutions in the community may be more frequent.

3.6 Step 6 – Reviewing and updating of improvement plan

Regular monitoring and follow-up of rural water safety plan resilient to climate and the experience of implementation of the working group of rural water safety plan resilient to climate are important because communities and the environment always change. Population growth or migration, land use, and changing of living conditions during disasters or other disasters, changing in WASH technologies, changing in procedures and policies of local administrations, and other circumstances may affect the situation of water safety in the area.

Besides, a review of rural water safety plan resilient to climate is crucial in raising awareness, coordinating with development partners and stakeholders, and mobilizing resources.

A schedule of village and commune water safety plans is developed for a regular review based on local conditions and requirements. Also, the working group of rural water safety plan resilient to climate must conduct occasional **"circumstances"** inspections as follows:

- **Urgent review -** Village and commune water safety planning groups must meet immediately if any changes or problems occur (e.g. a small piped water supply system does not work in the community, school, health center, or health post) which requires immediate improvement.
- **Annual review** - Schedule time in advance, especially before preparing a commune investment plan for an appropriate time of the year. Annual monitoring and follow-up are assessed for successes and challenges and lessons learned from previous year's activities. The Rural Water Safety Plan Resilient to Climate is revised and updated as found and re-approved at the meeting of the working group of rural water safety plan resilient to climate.
- **Practical review –** Village and commune water safety plan groups may monitor the progress for the commune council meetings during a visit of delegation from the Ministry of Rural Development or a development partner or for other reasons. Such monitoring may also be possible for resource mobilization (e.g. budget proposal or for commune / district investment process).

Modification to the rural water safety plan resilient to climate is made annually in accordance with the monitoring and follow-up schedule. However, this schedule must follow local requirements. In

"Step 6", the monitoring and follow-up and revision process should follow Step 5. Therefore, if there is a delay in the progress, the annual monitoring and follow-up should focus on identifying problems and challenges and finding appropriate solutions to accelerate the progress of rural water safety plan resilient to climate.

An update and re-approval of the completion of the sixth step cycle of the rural water safety plan resilient to climate is shown in **Figure 2**.

The next step can be faster, such as focusing on the second round of the cycle of rural water safety plan resilient to climate, which will focus on:

- Update the composition of the working group of rural water safety plan resilient to climate, if necessary (**Step 1**)
- Include changes in water use in the village (or commune) and revise the map (**Step 2**)
- Home monitoring visit and water quality test (**Step 3**)
- Revise the implementation plan based on the new information and achievements, challenges, and experience from the previous year (**Step 4**)
- Take previous experience, new information and other information from the above steps, continue the campaign to raise awareness of rural water safety plan resilient to climate, revision and expansion of activities.

4. Verification and recognition

The rural water supply, sanitation and hygiene sector at the local level (village and commune) will achieve good results because of having clear target, re-verification process, and recognition to ensure transparency and incentives for communities and families. For rural water safety plan resilient to climate, it is recommended that measurements and recognition be based on the following outputs:

- Community drinking water sources are free of bacteria / contaminants and chemicals that cause health effects.
- Water collection, water storage, and drinking water do not have any recontamination of bacteria / contaminants.
- Drinking water quality is in accordance with the guidelines on rural drinking water quality. It uses the right and effective water treatment methods if necessary.
- Community has a clean environment (liquid and solid waste are managed properly)
- Water sources are resilient to disasters and climate change.

In addition, village or commune in rural area will receive an equitable and sustainable improved water supply when rural water safety plan resilient to climate is implemented. The final expectation of the rural water safety plan resilient to climate is ***"All people have access to improved water supply services"***, i.e. drinking water is safe including water sources resilient to disasters and climate change. It is essential to identify steps and goals for measurement with a system that recognizes the progress toward the ultimate goal. Therefore, this guideline also introduces **05 levels of recognition** to help monitor and follow up and measure the progress of the implementation of village and commune water safety plans as follows:

Level 1 (Transparent Glass)

- The process of rural water safety plan resilient to climate has started and the village or commune water safety plan group has been established (**Step 1**).

- Mapping and description of water sources and rural water supply systems are completed (**Step 2**).
- Hazard assessment with defining measures completed (**Step 3**).
- Community awareness raising campaign has begun (**Step 4**).

Level 2 (Blue Glass)

- Rural water safety plan resilient to climate Step 4 (**Improvement Plan**) is completed with the planning document submitted to the Commune Council (**for village plans**) or the district administration (**for commune plan**).
- Commune council (**or district administration**) recognizes and supports the improvement plan.
- Commune or district and other supporters allocate funds to the villages or commune to carry out the improvement work and awareness campaign on safe water.

Level 3 (Silver Glass)
- Achieved the first and second level results above.
- Village or commune document the plan to achieve 100% inclusive and sustainable improved water supply.
- Progress continues at the village or commune level and step 5 (monitoring and follow-up and communication of results) is working well.

Level 4 (Golden Glass)
- Achieved the above level 3 results
- Progress continues and step 6 (review and update rural water safety plan resilient to climate) has been gradually implemented.
- Progress continues towards achieving improved water supply to all people in the village or commune.

Level 5 (Diamond Glass)
- Achieved the above level 4 results.
- Achieved 100% improved water supply to all people in the village or commune.
- Rural water safety plan resilient to climate has been reviewed and updated, and the monitoring and follow-up process (and awareness raising campaign) is still being actively implemented.

The process of verifying and evaluating the implementation of village or commune water safety plan should be prepared and implemented by the district officials in charge of water supply, sanitation and hygiene with technical support from the Provincial Department of Rural Development.

If the verification and evaluation of the implementation of the village or commune water safety plan achieves the fifth level result (**Diamond Glass**), the district level can inform the village or commune to prepare and conduct another level of verification using the protocol for verification and confirm validation of safe water community to declare a **Safe Water Community**.

Recognition of the achievement of a **"Safe Water Community"** must be made public through local celebration of recognition and national and social media to encourage the implementation of this rural water safety plan resilient to climate. Signs or banners recognizing the **"Safe Water Community"** should be placed at the village or commune level.

5. Budget for Rural Water Safety Plan Resilient to Climate

The process of a rural water safety plan resilient to climate is an analytical and planning tool. To do this, it requires the time of the working group members of the commune and province to support, monitor and build capacity. Also, this process requires some financial resources for training, production and distribution of educational and dissemination materials, meetings and refreshments, office supplies, and other expenses. Without these basic budget resources, village or commune cannot develop a rural water safety plan resilient to climate sustainably.

The rural water safety plan resilient to climate has been identified as a priority in the second phase of the National Action Plan (2019-2023) on rural water supply, sanitation and hygiene, targeting 500 communes by 2023. Each commune has an average of 10 villages, and each village will have its own rural water safety plan resilient to climate. Therefore, about 5,000 villages will have to develop a rural water safety plan resilient to climate by 2023 and continue to do so in all the villages.

The amount of budget needed to develop a rural water safety plan resilient to climate for 100 communes (approximately 1,000 villages) has not been estimated. About US$ 1,000 has been assumed in the second phase of the National Action Plan (2019-2023) for developing the rural water safety plan resilient to climate in each commune. This figure comes from the informal discussions on the implementation of a pilot rural water safety plan resilient to climate in Prey Veng and Kampong Speu provinces. Estimation of this figure may be lower or higher than actual need, depending on the situation and geographical location of the village / commune.

To ensure adequate funding resources for the implementation of rural water safety plan resilient to climate, officials of the Provincial Department of Rural Development, district administration officials and Commune Councils must incorporate rural water safety plan resilient to climate into the budgets of the departments, districts, and commune investment plans respectively.

The process of National Action Plan (NAP) and Provincial Action Plans (PAPs) must be coordinated by the Royal Government and Development Partners. The pilot project on rural water safety plan resilient to climate has found that the local and provincial administrations (e.g. Commune Council, Provincial Department of Rural Development) can encourage private sector participation in financing drinking water safety at community, school and health center or health post. Provincial Department of Rural Development, District Administration, Commune Administration, and other public institutions (e.g. school and health center) may play an important role in seeking support for more investment in rural water supply, sanitation and hygiene sector and facilitate investment from other financing sources. Potential resources for supporting rural water safety plan resilient to climate include:

- Provincial departments (for health centers or health posts and schools)
- Provincial Rural Water Supply, Sanitation and Hygiene Working Group (PWG)
- Provincial Department of Rural Development (PDRD)
- District Administration (District Investment Program Section)
- Commune Council (Commune Investment Program)
- Resources in the community (e.g. pagodas, family contributions, etc.)
- Development partner organizations (e.g. local and international organizations)

There is currently no **"Plan"** or universal plan to ensure adequate funding resources for water safety promotion work at the local level. National budget resources for rural water supply, sanitation and hygiene have mostly focused on infrastructure.

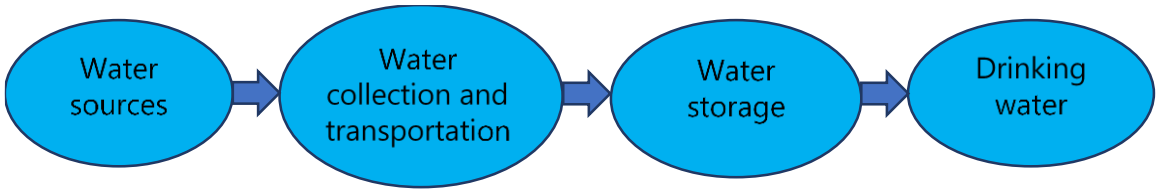
In conclusion, this guideline recommends for the mobilization of the budget resources in the implementation of rural water safety plan resilient to climate from the beginning and from all levels

(province to village). The working group of rural water safety plan resilient to climate with the support of the Provincial Department of Rural Development must plan to mobilize resources at every opportunity as possible. This includes strong support from the Provincial Department of Rural Development in mobilizing and allocating national resources and resources from development partners to the areas and the people most in need, as well as assisting district and commune in mobilizing resources. The Office of Economic and Community Development of District Administration and Commune Administration (Focal Points for Rural Water Supply, Sanitation and Hygiene) play a key role in resource mobilization efforts.

6. Appendices

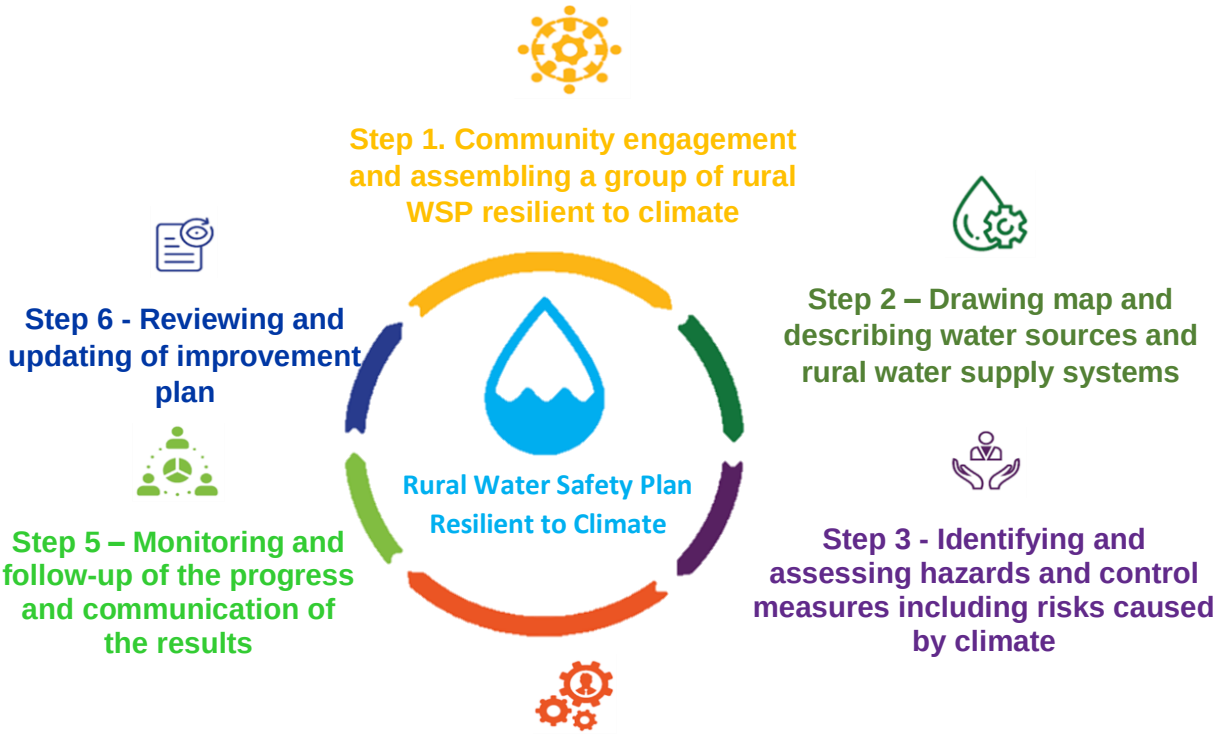
Appendix A: Sample of Commune Water Safety Plan Book

Rural water safety plan resilient to climate



Commune	
District	
Province	
No. of village	
No. of school	
No. of pagoda	
No. of health center or health post	
No. of household	
No. of population	
Date of planning	
Duration of planning	

Six Steps of Rural Water Safety Plan Resilient to Climate



Step 1 – Community engagement and assembling a group of rural WSP resilient to climate

Members of the working group of rural water safety plan resilient to climate sign the table after understanding all the steps of the water safety plan resilient to climate and its responsibilities for rural water safety plan resilient to climate.

Table 1.1 Working group of rural water safety plan resilient to climate

S/N	Name of member of working group of rural water safety plan resilient to climate	Role & task	Role and task of member of working group of rural water safety plan resilient to climate	Phone number	Signature of receiving task

Date:00/00/2023
Chief of Commune

Tasks of working group of rural water safety plan resilient to climate:

- Complete a table of the working group of rural water safety plan resilient to climate.
- Map a commune showing water sources and find out information related to water use, including issues related to disasters and climate change.
- Identify potential hazards to water from water sources to drinking water, including potential problems caused by disasters and climate change.
- Plan to prioritize and lead activities to improve all water supply systems in the community.
- Plan and lead activities to raise village awareness to households about proper practices of storing safe water for drinking.
- Plan and lead monitoring of the progress of rural water safety plan resilient to climate, including community and household water quality monitoring and follow-up and information sharing.
- Prepare and develop a work plan for a field visit of the Provincial Department of Rural Development or local authorities and other relevant partners to monitor whether the implementation of the water safety plan is appropriate and effective.
- Conduct a meeting to review the progress of rural water safety plan resilient to climate and discuss whether the implementation is in line with the proposed plan. Update or revise (if necessary) to help improve performance and achieve the goals.
- Prepare a budget plan and mobilize or request budget allocation (commune, district and province) for rural water supply, sanitation and hygiene.

Members of the working group of rural water safety plan resilient to climate agree on a regular meeting for every _____ month(s).
(Meetings should be held at least four times a year of rural water safety plan resilient to climate for its functioning)

Key Questions for Discussion at Meeting of Working Group of Rural Water Safety Plan Resilient to Climate

- ☐ Has the meeting schedule of the working group of rural water safety plan resilient to climate been followed?
- ☐ Has the commune planned and mobilized budget for rural water, sanitation and hygiene?
- ☐ Is the map showing the water use correct? Should there been any improvements?
- ☐ Has the water use at the commune level monitored (e.g. pond or station producing a 20-lier bottled water)?
- ☐ Should other hazards be included into the rural water safety plan resilient to climate?
- ☐ Has the improvement plan been implemented based on the timeframe?
- ☐ Have awareness-raising activities been implemented as planned?
- ☐ Are there any other improvement plans?
- ☐ Is there regular village monitoring and follow-up of the implementation of rural water safety plan resilient to climate? If not, why not?
- ☐ Challenges and Solutions

Table 1.2. The following is used for staff to record the meeting time

Date of meeting of working group of rural water safety plan resilient to climate	Signature of chairperson of working group of rural water safety plan resilient to climate

Step 2 – Drawing map and describing water sources and rural water supply systems

Table 2.1: Summary of Data in the Commune

1. Commune	
2. Village	
3. No. of migrants	
4. Type of house	
5. Geography (lowland, highland, and vulnerability by …	
6. Road accessible/ from village (road for vehicle)	
7. No. of population Total	
Men	
Women	
Children	
8. Total households	
No. of female-headed household	
No. of poor household	Poor 1: …… Poor 2: ……...
9. Type of ethnic	
10. Main occupation	
11. Percentage of literacy	Male (%) ……
	Female (%) ……
12. Main income	
13. No. of school Pre-school	
Primary school	
Secondary school	
High school	
14. No. of health facility Clinic	
Health center	
Health post	
15. No. of Village Development Committee	
16. No. of WASH committee	

Map of water sources and rural water supply systems

Table. 2.2 Summary of commune water sources and rural water supply systems (Sheet 1)

Type of main water source	No. of water source	No. of water source to be improved	Water source status				Available water resources			Percentage or No. of population using water	Ownership (community, public or private)
			Construction quality	Maintenance status	Surrounding environment	Local pollution threats	Distance to water source (in hour or meter)	Year round	Seasonal (month)		
1. Spring water											
2. Unprotected well											
3. Hand dug well with protection											
4. Community hand pump well											
5. Private well											
6. Rain water											
7. Stream											
8. River											
9. Lake											
10. Pond											
11. Water supply system (community)											
12. Water supply system (private)											
13. Bottled drinking water station (20 liters)											
14. Private water station											

Table. 2.3 Summary of commune water source and rural water supply data (Sheet2)

Type of main water source	Regular household consumption						Water use quantity			Water quality	
	Drink	Cook	Wash	Laundry	Cattle	Gardening	Adequate	Shortage at any time of the year (month)	Shortage throughout the year	Clean water	Unclean water
1. Spring water											
2. Unprotected well											
3. Hand dug well with protection											
4. Community hand pump well											
5. Private well											
6. Rain water											
7. Stream											
8. River											
9. Lake											
10. Pond											
11. Water supply system (community)											
12. Water supply system (private)											
13. Bottled drinking water station (20 liters)											
14. Private water station											

Table 2.4 Commune Piped Water Supply System

Date:

1. No. of household will receive service		
2. Water source for the system (answer can be more than one)		- ☐ Pond (No.: …….pond), Storage capacity …….. m^3 - ☐ Well (No.: ….. well, water yield … m^3 - ☐ River - ☐ Other (specify) ……..
3. Quantity of Water source	Throughout the year	
	Part of the year (month of water shortage)	
Component of the system:		
4. Water pumping capacity		No. of pumping machine …. (No. of machine for reserve….) Capacity ……. m^3/hour
5. Water reservoir		☐ Volume of (groundwater) reservoir …… m^3 ☐ Volume of water tower …… m^3
6. Water treatment system (treatment method: using a flocculation tank, sedimentation tank, treatment tank, way to kill bacteria/germs)		
7. Production capacity		…… m^3/hour
8. Length of water supply system (in commune)		…….. kilometer
9. No. of public water supply point (in commune)		
10. No. of household connecting to piped water system (in commune)		……... household (s)
11. System maintenance status		
12. System ownership: community (name, contact number)		Mr.//Mrs.: …… Tel. number: ……
Private operator (name, contact number, license status)		Mr.//Mrs.: …… Tel. number: …… License status: ……
Other		Connection fee: …… Riels Water usage fee: …….. Riels Connection coverage in commune: - No. of village with connection: …….. village(s) - No. of villages that plan to expand connection in the next 5 years: …… villages

Current water status (upstream water status)

This section is based on the findings of the second step of the rural water safety plan resilient to climate. It provides a summary of water sources and water supply and infrastructure in the commune and community water use.

Step 3 - Identifying and assessing hazards and control measures including risks caused by climate

Table 3.1. Disasters

1. Hazard identification		
1.1	Climate hazard	☐ Flood (☐ River flood or ☐ Flash flood) ☐ Drought (☐ Climate change or ☐ Water resource dried) ☐ Chemical pollution hazard (name or type of toxic substance: ……) ☐ Soil erosions ☐ Never have had a disaster
2. Flood assessment (if no flood, skip)		
2.1	How often has flood occurred?	☐ Every year ☐ Always (every 2 to 5 years) ☐ Occasionally (5 to 10 years) ☐ Rarely (more than 10 years)
2.2	What was the level of flooding	☐ Low ☐ Medium ☐ High
2.3	Which parts of the commune have always been affected by floods?	☐ Whole commune (60% to 100%) ☐ Part of the commune (30% to 60%) ☐ Part of the commune (below 30%) Please specify: ..... (e.g. the number of flooded villages was 3 out of 10, about 30%)
2.4	Has there been a source of water contaminated by the flood?	☐ Have ☐ None
2.5	What water sources have been affected by floods?	☐ Well ☐ Pond ☐ Bottled water / small bottled water ☐ Other (specify).....
2.6	What water sources were used during the floods?	☐ Well ☐ Water sold by cart or truck ☐ Bottled water / small bottled water ☐ Other (specify).....
2.7	Have there been any toilets damaged by the flood?	☐ Have ☐ None
2.8	Has there been any other place for defecation? (Please specify)	
3. Drought assessment (if no drought, skip)		
3.1	How often have droughts been occurred?	☐ Every year ☐ Always (every 2 to 5 years) ☐ Occasionally (5 to 10 years) ☐ Rarely (more than 10 years)

3.2	How long has the drought last?	☐ From 0 to 1 month ☐ From 1 to 2 months ☐ From 2 months up
3.3	What water sources have been affected by the drought?	☐ Well ☐ Pond ☐ Bottled water / small bottled water ☐ Other (specify).....
3.4	What water sources have been used during the drought?	☐ Well ☐ Water sold by cart or truck ☐ Bottled water / small bottled water ☐ Other (specify).....
4. Hazards due to chemical pollution (if not, skip)		
4.1	What was the level of danger due to chemical pollution?	☐ Low ☐ Medium ☐ High
4.2	Which parts of the commune have been affected?	☐ Whole commune (60% to 100%) ☐ Part of the commune (30% to 60%) ☐ Part of the commune (below 30%) Please specify: .....
4.3	What water sources have been affected by this danger?	☐ Well ☐ Pond ☐ Bottled water / small bottled water ☐ Other (specify).....
4.4	What water sources have been used during this danger?	☐ Well ☐ Water for sale by cart or car ☐ Bottled water / small bottled water ☐ Other (specify).....
5. Hazards due to soil erosion (if not, skip)		
5.1	How often has this danger happened?	☐ Every year ☐ Always (every 2 to 5 years) ☐ Occasionally (5 to 10 years) ☐ Rarely (more than 10 years)
5.2	Which parts of the commune have been affected?	☐ Whole commune (60% to 100%) ☐ Part of the commune (30% to 60%) ☐ Part of the commune (below 30%) Please specify: .....
5.3	What water sources have been affected by this danger?	☐ Well ☐ Pond ☐ Bottled water / small bottled water ☐ Other (specify) .....
5.4	What water sources have been used during this danger?	☐ Well ☐ Water for sold by cart or truck ☐ Bottled water / small bottled water ☐ Other (specify) .....
	Other information on commune's vulnerability related to the climate / hazards. (Completed by the facilitator team)	

IV	Past climate data		
IV.1	Drought period		day/year
IV.2	Lowest rainfall level		mm/year
IV.3	Drought vulnerability level		

IV.4	Flood vulnerability level				
IV.5	Frequency of drought				
IV.6	Frequency of flood				
IV.7	Quantity of evaporation			mm/year	

V	Future climate data		
V.1	Variation in rainfall quantity		%
V.2	Changes in drought duration		day/year
V.3	Variation of evaporation		%
V.4	Drought duration		day/year
V.5	Rainfall quantity		mm/year
V.6	Quantity of evaporation		mm/year
V.7	Level of drought		
V.8	Level of rainfall quantity		

Disaster risk assessment

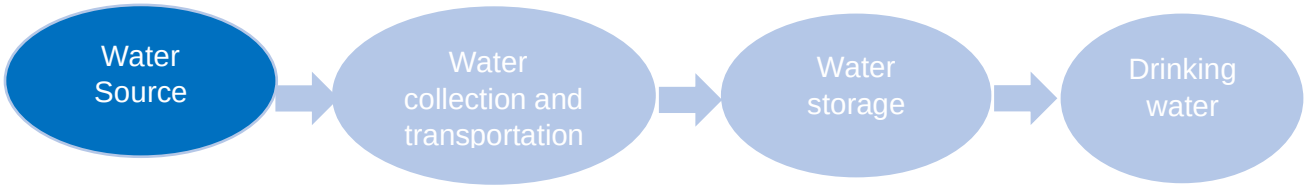
Detailed information related to disaster risk assessment is provided in Appendix 1

Table 3.2 Disaster risk assessment, identification, and scoring/rating and improvement measures

Disaster					Impact				Vulnerability				Risk			Improvement measures
Natural disaster	Scoring	Rating	Current reliability	Future reliability	Effect	Scoring	Rating	Scoring of reliability	Vulnerability	Scoring	Rating	Scoring of reliability	Scoring	High risk	Rating	

B. Potential hazards to drinking water

Based on the discussions and field monitoring at the site, please record the potential hazards in each section of water use in the commune. After discussing these hazards, identify safe water storage measures.



Type of water source (mark all water sources in the village):

- ☐ Hand dug well
- ☐ Hand pump well
- ☐ Pond
- ☐ Bottled water (20 liters)
- ☐ Rainwater
- ☐ Community small-scale piped water supply system
- ☐ Other

Table 3.2 Hazardous status, assessment and improvement measures of **water sources**

Water source (e.g. 1. One community water pond of village A (10x20x3) m^3 serving 20 families)	**Hazardous status** The pond is dried in the dry season which cannot meet requirements	**Improvement measures** (e.g. 1. Enlarge the pond and explain people on how to use water properly with saving)	**Priority level** 1 = High 2 = Medium 3 = Low

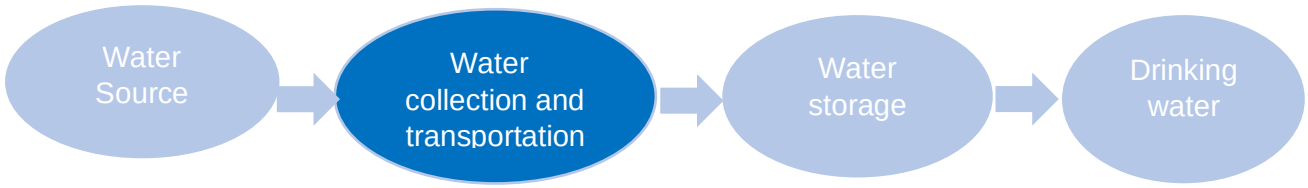


Table 3.3 Hazard status, assessment and improvement measures of **water collection / transportation**

Water collection / transportation *(e.g. 1. Number of households in the village A buy water tanker for use)*	☒**Hazardous status** *(e.g. 1. Water tanker carries unclean water and stored improper water)*	☑**Improvement measures** *(e.g. 1. Educate the water tanker sellers to clean the tank)*	**Priority level** 1 = High 2 = Medium 3 = Low

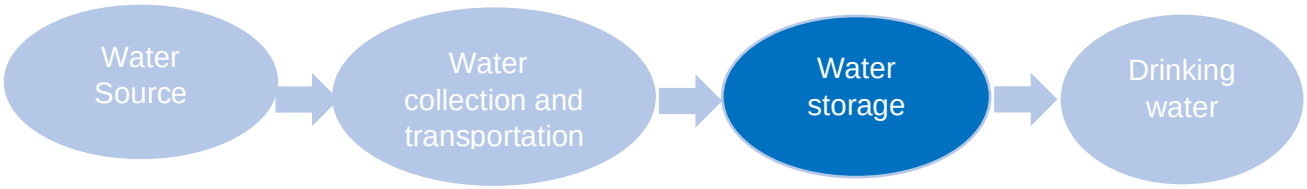


Table 3.4 Hazard status, assessment and improvement measures **of water storage**

Water storage *(e.g. 1. 10% of 125 households in the village A store water improperly)*	☒**Hazardous status** *(e.g. 1. 10% of the households have water jars or basins without lids and bottom support and place in unsanitary locations)*	☑**Improvement measures** *(e.g. 1. Educate those people on how to store water properly)*	**Priority level** 1 = High 2 = Medium 3 = Low

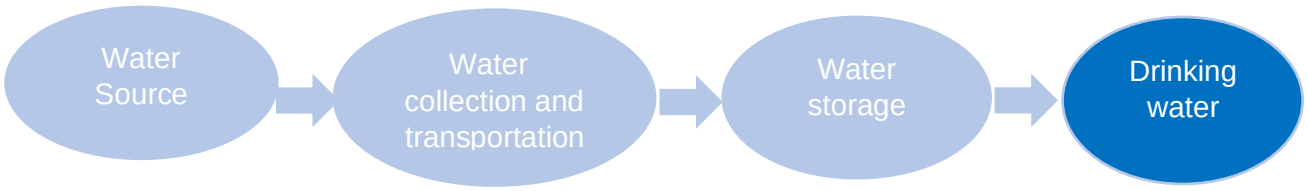


Table 3.5 Hazardous status, assessment and improvement measures / practices related to **drinking water**

Drinking water / practices related to drinking water *(e.g. 1. 10% of 125 households in village A drink unclean water and 20% in the same village store drinking water and drinking water equipment improperly)*	☒**Hazardous status** *(e.g. 1. 10% of 125 households in the village A drink raw water without treatment and 20% in the same village keep the glass unsafe and unhygienic)*	☑**Improvement measures** *(e.g. 1. Educate those households to treat water by boiling or filtering and cleaning regularly and store kettles and glasses properly)*	**Priority level** 1 = High 2 = Medium 3 = Low

Step 4 - Developing and implementing improvement plan of rural water supply systems resilient to climate and awareness raising campaign

Some of the hazards identified in Step 3 require the commune working group to take improvement actions (e.g. repairing the fence around the pond or relocating the toilet away from the flood affected area). **Record the commune / village level improvement plan on this table** and classify the activities according to the level of hazards and available resources (1. High priority 2. Medium priority 3. Low priority).

The working group of rural water safety plan resilient to climate can help make improvements through various activities (e.g. awareness raising campaigns and monitoring and follow-up of gradual improvement).

Table 4.1 Improvement plan

S/N	**What should be done in the commune to improve water for use?** *(e.g. 1. Connect piped water supply to 10 poor households - 10 connections in village A)*	**Name of person in charge of this work** *(e.g. 1. Commune water safety plan group)*	**What materials and resources are needed?** *(e.g. 1. Budget 2.8 million Riels: 1 connection = 280,000 Riels, commune budget source)*	**When to do?** (e.g. July 2021)	**Priority level** 1 = High 2 = Medium 3 = Low	**Check results**

Awareness raising

They must have a specific plan for raising awareness. Every awareness campaign should include water safety education in the event of a flood or an emergency.

Examples of awareness-raising activities include:

- Safe water use in the village and households
- Distribute educational materials to schools, health centers or health posts, and pagoda
- Environmental cleanup events / campaigns around water sources
- Discuss safe water in public meetings including in annual special events

Table 4.2 Awareness raising

S/N	**Awareness raising** *(e.g. 1. Educate on water source protection, use of hygienic water equipment, proper water treatment and safe storage and drinking glasses)*	**Methodology** *(e.g. 1. Conduct household education and meeting in the villages and schools, with distribution and use of books)*	**Duration** *(e.g. Every quarter)*	**Responsible person** *(e.g. Commune water safety planning group)*
1				
2				
3				

Step 5 – Monitoring and follow-up of the progress and communication of the results

In this step, monitoring and follow-up should be at different levels:

1. The working group of rural water safety plan resilient to climate must monitor the commune's overall water use, including the improvement plan.
2. Members of the working group of rural water safety plan resilient to climate must conduct monitoring at the village, school with principals, health center or health post with health center officials and through commune level meeting with commune water safety plan group or by local monitoring.
3. The Provincial Department of Rural Development or other local authorities must occasionally conduct monitoring to inspect the commune implementing rural water safety plan resilient to climate.

Table 5.1. Subsequent monitoring at the commune level by the working group of rural water safety plan resilient to climate

S/N	**Type of water source** *(e.g. Pond flooded, bottled water station)*	**Inspection** *(e.g. Fence, regular cleaning)*	**Responsible person**	**Time**
1				
2				
3				
4				
5				
6				
7				

Table 5.2 Continuous monitoring of villages, schools and health centers or health posts on a quarterly basis by working group of rural water safety plan resilient to climate

S/N	Name of member of working group of rural water safety plan resilient to climate	Methodology	No. of meetings to discuss implementation of rural water safety plan resilient to climate	No. of places monitored	Date
1					
2					
3					
4					
5					
6					
7					
8					

Rural Water Safety Plan Resilient to Climate to Be Monitored by PDRD or Relevant Authorities

This section is for determining the follow-up monitoring plan on rural water safety plan resilient to climate by PDRD or local authorities.

S/N	Date	Name of person who conducts monitoring	Institution	Monitoring (e.g. meetings, implementation of plan, site monitoring and follow-up, awareness raising ...)	Result	Challenge	Solution
1							
2							
3							
4							
5							
6							

Appendix B: Identification and assessment of risks caused by disaster

The table below shows data from risk identification during developing of rural water safety plan resilient to climate using the excel table provided.

A. Disaster hazard identification

A. 1. Instructions on use of disaster hazard identification table (Table A.2)

Disaster hazard identification	Scoring disaster	Confidence score
1) Select the hazard in Table A.2	1) Select the first criteria from Table A2	1) Select the level of confidence (high, medium and low)
2) Write down the disaster in details for the criteria	2) Select the notes of the first criteria from Table A.2	Exit from the table in current box
3) Write ideas/comments	3) Select the second criteria from Table A.2	2) Select the level of confidence (high, medium and low)
e.g. Names of villages affected by the disaster	4) Select the notes of the second criteria	Exit from the table in future box
	5) Score and check score 1 (low), 2 (medium) or 3 (high)	3) Write ideas/comments on reasons for confidence scoring

A.2 Disaster hazard identification

Disaster hazard identification						
Disaster	Frequency	Duration	Intensity	Scope of impact	When	Comment

Disaster scoring						
Disaster	Criteria 1	Note 1	Criteria 2	Note 2	Score	Rating

Confidence in analysis		
Present	Future	Comment

B. Impact identification

Impact identification			Scoring			Confidence level	
Disaster	Type	Impact	Score	Rating	Comment	Score	Comment

C. Vulnerability

Vulnerability analysis table			Vulnerability scoring table			Confidence	
Element	Type	Question of resilience	Note	Score	Rating	Score	Comment

D. Risk resilience

Risk resilience analysis table			Resilience analysis		
Key element	**Type**	**Question of resilience**	**Resilience analysis**	**Score**	**Rating**

B. Survey form for hygiene around water use

General Information

Commune name: ..... Village name .....

Name of school / health center / health post: .....

Name of person to be interviewed: .....

Date: .....

Interviewed by: .....

Part 1: Water source

Questionnaire

Now, where do you get water from?

- ☐ Community pond
- ☐ Pond or river
- ☐ Unprotected hand dug well
- ☐ Protected hand dug well
- ☐ Hand pump well
- ☐ Common water tap (from water distribution system)
- ☐ Household water tap (water supply system)
- ☐ Other

Community Pond

Check the water source and study the situation through the following questions:

S/N	Sanitation observation	True	False
1	No fence around the pond, insufficient or poor condition		
2	Animal can enter the pond		
3	There are latrines closer than 15-25 m and are located higher than the pond		
4	There are various sources of pollution (e.g. animal manure, garbage, waterholes and the use of chemical fertilizers and pesticides) closer than 15-25 m from the pond		
5	Signs of rotting plants		

Other observation records:

Hand dug well

Check the water source and study the situation through the following questions:

S/N	Sanitation observation	True	False
1	There are latrines closer than 15-25 m and are located higher than the well		
2	There are various sources of pollution (e.g. animal manure, garbage, waterholes and the use of chemical fertilizers and pesticides) closer than 15-25 m from the well		
3	Well rings above the ground (well head) are broken or does not have		
4	Well rings between 0-3 m down are not properly sealed		
5	No drainage or malfunction causing blockages and there are waterholes 2 meters from the well		
6	Apron is smaller than 1 meter		
7	Apron is cracked causing water to flow into the well		
8	No apron or completely broken		
9	Uncovered well		
10	No fence around the well or broken		
11	String and water bucket to carry water are placed on the unclean places		

Other observation records:

Afridev hand pump well

Check the water source and study the situation through the following questions:

S/N	Sanitation observation	True	False
1	There are latrines closer than 15-25 m and are located higher than the well		
2	There are various sources of pollution (e.g. animal manure, garbage, waterholes and the use of chemical fertilizers and pesticides) closer than 15-25 m from the well		
3	No drainage or malfunction causing blockages and there are waterholes 2 meters from well		
4	Apron is smaller than 1 meter		
5	Apron is cracked causing water to flow into the well		
6	No apron or completely broken		
7	Loose hand pump legs causing water to flow into the well		
8	No fence around the well or broken		

Other observation records:

Rainwater collection system

Check the water source and study the situation through the following questions:

S/N	Sanitation observation	True	False
1	Dirty roof (bird faeces, garbage, leaves ...)		
2	Rainwater collection gutter does not have a system to release the first rain out, is dirty or clogged		
3	Rainwater collection tanks / jars and dirty taps are dirty (e.g. mud, faeces or other leaves)		
4	Rainwater collection tanks / jars do not have covers		
5	Rainwater collection tanks / jars are cracked or broken		
6	Does not have tap to turn-on/turn-off or broken		

Other observation records:

Part 2: Water collection and storage

Check situation of water collection through the following questions:

Please show the equipment used to take water from the water source.

☐ Use a bucket ☐ Use a pump ☐ Other ……

Water bucket

S/N	Sanitation observation	True	False
1	Water bucket uses for any other purposes besides taking water		
2	Bucket has no lid		
3	Bucket inside and outside are not clean		
4	Bucket is placed on the unsafe location which can cause infection		
5	Bucket has been a house painting or pesticide container		

Other observation records:

Water storage container / Jar

Check situation of water collection through the following questions:

S/N	Sanitation observation	True	False
1	Water container/jar uses for any other purposes besides storing water		
2	There is a dirty source (mud, animal, litter) around the container / jar		
3	Container / jar has no lid or bottom support		
4	Container / jar has no tap		
5	Waterproof or damaged tap		
6	There is no cement slab/floor under the tap, dirty or damaged		
7	Any part of container / jar is leaked or damaged		
8	The inside container / jar is not clean (sediment, faeces, particles)		
9	Equipment to take water for drinking is kept unhygienic (outside, on the ground)		

Other observation records:

Part 3: Drinking water

Water for drinking

Ask household about drinking water

1. Do you drink raw water or treated water?

☐ Boil water regularly ☐ Occasionally boil water ☐ If necessary, occasionally ☐ Never

2. If the water is treated, what method do you use?

Method	
☐ Boil water ☐ Buy 20 liters of bottled water ☐ Filter (.....) ☐ Filter with a single cloth ☐ Using chemicals (.....) ☐ Put water into the bottle and dry in the sun (SODIS) ☐ Other ……..	

Other observation records:

Water treatment equipment

S/N	Sanitation observation	True	False	Don't know
Boil water				
1	Kettle / pot used to boil water and store water for drinking (no separate storage and dipping glass / bowl for drinking water)			
2	Use a glass with handle for drinking water			
3	Kettle / pot has no lid			
4	Keep kettles / pots in an unclean place where dust, insects and debris can enter			
5	Kettle / pot without water or left for a long time			
Filter water				
6	Water filter container has no tap			
7	Water filter container is leaked, cracked, damaged or in a fragile condition			
8	Water filter container is dried or no longer use			
9	Keep a filter in an unclean place where dust, insects and debris can enter			
10	For ceramic filter - unwashed container For bio-sand filter - never wash, do not cover lid, use out of water			

Other observation records:

Drinking water equipment

S/N	Sanitation observation	True	False	Don't know
1	Water container is used for any other purposes besides drinking water			
2	Keep the water container in a place where dust, insects and debris can enter			
3	Water container has no lid			
4	Water container has no tap or is leaked or damaged (e.g. using equipment with handle)			
5	Water container is leaked, damaged or in a damaged condition			
6	Water container inside is unclean (sediment, insects or debris)			
7	Water container has been a pesticide container			

Other observation records:

Drinking water equipment – glass / bowl

S/N	Sanitation observation	True	False
1	Drinking water equipment is placed together with other kitchen equipment		
2	Drinking water equipment is unclean		
3	Drinking water equipment is stored in an unclean place or directly on the floor		
4	Drinking water equipment is placed upside down directly on the floor		
5	Animal can assess near the drinking water equipment		

Other observation records: