TRAINING OF TRAINERS

BUILDING EDUCATOR CAPACITY FOR WATER STEWARDSHIP

Organized under Australia-Pakistan Water Security Initiative (APWASI) 2025

Contents

About the Training Handbook

This training handbook has been thoughtfully designed as a comprehensive resource for educators seeking to deepen their expertise in promoting water conservation, environmental stewardship, and sustainable practices within schools. The structure of the handbook follows a clear, sequential approach that guides facilitators from foundational concepts to practical implementation and assessment.

Beginning with an overview of Education for Sustainable Development (ESD) and its alignment with Sustainable Development Goal 6 (Clean Water and Sanitation), the handbook first establishes the global and national context for water issues. This provides educators with a solid grounding in both the scientific and social dimensions of water conservation, which is essential for effective teaching and advocacy.

Importantly, this handbook has been developed as part of the Australia–Pakistan Water Security Initiative (APWASI), a project aimed at promoting the adoption of the Water Sensitive Cities (WSC) approach in Pakistan. By embedding WSC principles into school learning, the manual enables educators to transform schools into models of sustainable water management. It highlights practical ways to integrate rainwater harvesting, greywater reuse, eco-friendly landscaping, and groundwater recharge within school settings. In this way, schools serve as microcosms of water-sensitive cities, demonstrating resilience, efficiency, and environmental responsibility while educating students through lived experiences.

Subsequent sections transition into practical methodologies and participatory teaching strategies which can be rolled out with students. The handbook presents a variety of interactive session plans, group discussions, and hands-on activities, ensuring that water-related knowledge is not only communicated but also experienced and applied through real-world tasks. These activity-based approaches include guided water audits, rainwater harvesting projects, and awareness campaigns—each designed to empower students by involving them directly in conservation efforts while aligning with the WSC framework.

Supporting materials are provided to make the handbook an immediately useful tool for trainers. The content is organized for ease of adaptation, allowing educators to tailor lessons to diverse learning needs and local contexts. The handbook offers strategies to create participatory learning environments that foster collaboration, critical thinking, and a sense of shared responsibility among students, teachers, and the wider school community.

Ultimately, this resource functions as both a teaching guide and a toolkit for sustainable change, offering practical steps to be conscious of water issues and demonstrating how small, daily actions by each student can contribute to localized transformation. By bridging theory with hands-on practice and embedding the WSC approach within school environments, the handbook aims to nurture a generation of informed, proactive citizens dedicated to the stewardship of our planet's most vital resource—water.

By fostering a culture of behavioral change, the handbook seeks to inspire students to become proactive water stewards both within and beyond the school environment. Through activities that encourage self-reflection, peer collaboration, and personal accountability, students are guided to recognize the impact of their daily choices on water resources. The training emphasizes the power of habit formation, motivating students to adopt water-sensitive practices—such as mindful usage, reporting leaks, and spreading awareness—until these behaviors become an integral part of their routines. In doing so, the handbook not only cultivates knowledge but also builds a lasting commitment to conservation, enabling schools to contribute meaningfully to the vision of water-sensitive cities where communities and ecosystems thrive together.

Overview of Australia-Pakistan Water Security Initiative

The Australia–Pakistan Water Security Initiative (APWASI) was launched as a four-year (2021–2025) project funded by Australian Aid. The initiative seeks to introduce Australian best practices on Water Sensitive Cities (WSCs) to the Pakistani context, adapting innovative approaches to address local water challenges.

The vision of APWASI is threefold:

1. Improving access to safe water and sanitation services for two disadvantaged communities in Islamabad and Rawalpindi.
2. Enhancing community resilience to climate change and other water-related shocks; and
3. Building capacity of key stakeholders on urban water management, while sensitizing communities about responsible water use and conservation.

Through these efforts, APWASI aims to demonstrate how integrated and sustainable water management approaches can be applied in Pakistan's urban settings. Schools, as critical community institutions, are central to this vision. By incorporating the WSC approach into education, the project seeks to cultivate a culture of water stewardship among students and educators, ensuring long-term behavioral change and local ownership of water-sensitive practices.

Understanding the Water Sensitive Cities (WSC) Approach

The Water Sensitive Cities (WSC) approach is a nature-based solution that emphasizes the holistic management of the entire water cycle to make cities more livable, resilient, sustainable, and productive. Instead of relying only on conventional infrastructure, the WSC model encourages the adoption of sustainable urban water practices.

At its core, the WSC approach is built around the principle of inclusive development, where community participation is central. It recognizes that long-term change can only be achieved when people are directly involved in identifying their water challenges and in shaping solutions.

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Community Engagement under Australia-Pakistan Water Security Initiative (APWASI)

Aligned with this philosophy, the Australia–Pakistan Water Security Initiative (APWASI) is a people-centered and community-powered project. It places a special emphasis on ensuring the rights and inclusion of all community members, particularly women and children, who are often most affected by water scarcity and management issues. APWASI's community engagement strategy focuses on education, empowerment, and collective action, helping communities not only understand their local water challenges but also actively participate in designing and implementing sustainable solutions.

Within schools, this means that students, teachers, and administrators are not just passive learners, but active contributors to creating water-sensitive campuses. By involving young people in hands-on projects and decision-making, the WSC approach helps build a generation that is informed, responsible, and ready to carry forward the vision of water-sensitive cities in Pakistan.

1. Building a Learning Environment

Session Objectives

The session is designed to enable participants to clearly articulate their individual learning objectives and expectations from the training, ensuring these are acknowledged and incorporated into the overall process. It also aims to create a collaborative and inclusive learning environment where every participant feels valued and heard. In addition, the session will provide an overview of the training agenda, equipping participants with the necessary context to participate effectively throughout the program.

Session Outline

Welcome
Begin with a warm welcome to set a positive and open tone for the training. Introduce the purpose of the workshop and highlight how the sessions will contribute to promoting water conservation and the Water Sensitive Cities (WSC) approach within schools.

"Who Am I?"
This activity is designed to help participants get to know one another while reflecting on their personal role in making the training a success. It emphasizes collaboration and shared responsibility, key themes of the handbook.

- **Methodology**: PowerPoint presentation, open discussion, and brainstorming
- **Materials**: Presentation slides, flash/chart cards (pink, blue, and green) for each participant, markers, flip chart, and whiteboard
- **Estimated Time**: 30 minutes

Instructions for Facilitator

a. Forming the Circles:

Ask participants to form two circles: an outer circle and an inner circle, with each participant facing a peer. Explain that this activity will allow everyone to interact with multiple peers in a structured yet dynamic way.

b. Guided Introductions:

Share a set of guiding questions. Each participant will have one minute to respond to a peer, followed by the peer's one-minute response. After one round, the outer circle will rotate so participants face a new partner.

c. Guiding Questions:

- What is your name?
- Which school do you teach at, and for how many years?
- What are your expectations from this training?
- What can you contribute to making this training a success?

d. Group Reflection:

- After several rotations, invite participants to share highlights from their conversations with the larger group.
- Collect participants' expectations on pink flash/chart cards, their contributions on blue flash/chart cards, and any additional reflections on green flash/chart cards.
- Display these cards on the flip chart or whiteboard to create a visual map of shared goals and contributions that will remain visible throughout the training.

Facilitator Notes

- Emphasize the importance of mutual learning: each participant is both a learner and a contributor.
- Encourage openness, respect, and active listening during peer conversations.

1.1 Warm-Up Activity: Understanding Our Water Consumption

Session Objective

To engage participants in reflecting on their personal water use and connect these experiences to the global challenge of water scarcity, while highlighting the importance of adopting water-sensitive behaviors in everyday life.

Methodology

- Interactive exercise (paired discussion and plenary sharing).
- Presentation with guiding questions and global water facts.
- Facilitated reflection linking personal habits to water-sensitive practices.

Materials/Preparations:

- Presentation slides with questions and key facts
- Whiteboard/flip chart to note participants' responses

Estimated Time: 30 minutes

Instructions for Facilitator

Pair Discussion

Ask participants to turn to the person sitting beside them. Together, they will estimate the amount of water they used in the past 24 hours. If they cannot come up with a number, encourage them to list specific activities that require water (e.g., bathing, cooking, laundry, dishwashing, toilet flushes, gardening).

Plenary Reflection

- Bring the group back together and ask questions such as:
- How many of you took a bath/shower last night?
- How many of you took a bath/shower this morning?
- Did anyone need to collect or fetch the water they used?
- Did you stop to think about the convenience of having water readily available?
- Remind participants of often-overlooked water uses such as food preparation, leaky taps, or irrigation.

Link to Global Context

Share the fact that:

In 2024, 2.2 billion people still lacked safely managed drinking water; 3.4 billion people lacked safely managed sanitation, and 1.7 billion lacked basic hygiene services at home. At the current speed, the world will not achieve sustainable water management until at least 2049.[1]

Emphasize that while many of us take water for granted, millions around the world must constantly think about finding, collecting, conserving, or even purchasing it — and often it still isn't clean or safe.

[1] https://www.un.org/sustainabledevelopment/water-and-sanitation/

Key Definitions for Participants

Water Scarcity: A condition where there is insufficient water to meet normal needs. Scarcity may be absolute (life-threatening), seasonal, temporary, or cyclical. Communities with higher consumption often feel "scarcity" more intensely, even for short periods.

Water Stress: The visible symptoms of scarcity, such as conflict among users, competition for water, reduced reliability of supply, food insecurity, or harvest failures.

Facilitator Notes

- Conclude by linking the discussion to the Water Sensitive Cities (WSC) approach. Explain that WSC is about rethinking how water is valued and managed at every level — from individuals in their homes to schools, communities, and entire cities.
- Emphasize that small, mindful changes in personal behavior (e.g., fixing leaks, reducing shower time, reusing water where possible) are part of the same philosophy that underpins larger-scale solutions like rain gardens, permeable pavements, and rainwater harvesting.
- Reinforce that this training is about equipping teachers to inspire students to adopt these water-sensitive behaviors, turning schools into living examples of conservation and resilience.

2. Contextual Reference to Water Crisis

Session Objectives

This session will enable teachers to understand Pakistan's key water challenges, including scarcity, quality concerns, and the impacts of climate change, while linking these issues to the targets of SDG 6 (Clean Water and Sanitation).

- **Methodology**: Presentation, handouts and group discussion.
- **Kickoff Preparations**: Power Point Presentation and handout.
- **Estimated Time**: 30 minutes

Instructions: The session will be held in a lecture style but engaging participants to discuss various areas and topics given below.

2.1 Water Issues of Pakistan

Water-related challenges are among the most pressing issues faced by Pakistan today. Once considered a water-abundant country, Pakistan has now shifted into a state of water stress. While significant progress has been made in expanding access to improved water sources and sanitation facilities, around 27.2 million people still lack access to safe drinking water, and 52.7 million remain without adequate sanitation services. The health impacts are profound: each year, an estimated 39,000 children under the age of five die from diarrhea linked to unsafe water and poor sanitation. As demand for already scarce water resources continues to grow, the risks to public health and overall well-being from inadequate or unsafe water supplies will only intensify.[2]

The growing water scarcity in Pakistan can be attributed to several interconnected factors. Rapid population growth continues to place immense pressure on the country's limited water resources, while also intensifying challenges related to food security and sustainable livelihoods. Another major concern is inadequate water storage; the lack of sufficient reservoirs means that large volumes of water are lost during periods of flooding, leaving the country vulnerable to both water shortages and damage to infrastructure and agriculture. Inefficiencies in the irrigation system further compound the issue, as poor management and outdated practices result in significant wastage of water before it reaches the fields or households where it is most needed. At the same time, unregulated and excessive extraction of groundwater has led to alarming depletion of underground reserves, threatening

[2]https://files.acquia.undp.org/public/migration/pk/553334d9b60c67a75df68de0f287e9349f5a73edf42e2c971fa8f708af5dd08b.pdf

long-term availability for drinking, agriculture, and industry. Together, these factors highlight the urgent need for better planning, sustainable management, and conservation measures to address Pakistan's escalating water crisis.

2.2 Sustainable Development Goal 6

The United Nations Sustainable Development Goals, SDG 6—Clean Water and Sanitation for All—emphasizes the urgent need to ensure sustainable water management and equitable access for every individual. This goal is directly relevant to Pakistan's current water challenges and provides the guiding framework for building resilience in urban areas.

The key targets of SDG 6 align closely with the vision of APWASI and the WSC approach:

- Universal Access: Expanding safe and affordable drinking water for all, which APWASI supports by improving water and sanitation access in underserved communities.
- Water Quality: Reducing pollution and promoting efficient water use, reinforced by WSC strategies like grey water reuse, stormwater management, and eco-friendly urban design.
- Integrated Water Resources Management: Encouraging holistic water governance across levels, which APWASI advances through collaboration among government, schools, NGOs, and communities.
- Protect and Restore Ecosystems: Safeguarding rivers, wetlands, and green spaces, which is central to the WSC vision of cities where natural systems and human communities thrive together.

By linking local action with these global targets, schools, educators, and communities engaged through APWASI can serve as catalysts for water-sensitive behavior change, ensuring Pakistan moves closer to achieving SDG 6 in a practical and inclusive way.

2.3 United Nations Educational, Scientific and Cultural Organization's (UNESCO) ESD Principles to Promote Action Towards SDG 6

UNESCO's Education for Sustainable Development (ESD) principles provide a strong foundation for educators to prepare learners to actively contribute to SDG 6: Clean Water and Sanitation for All. ESD emphasizes not only building knowledge, but also shaping values, attitudes, and behaviors that empower students to make informed, responsible choices for a sustainable future. Within the context of this handbook, these principles highlight the central role of educators in training students to connect water conservation with broader sustainability goals and to take meaningful action in their schools and communities.

Key principles, adapted to support the objectives of this training, include:

- Integrating sustainability into teaching and school culture: Educators are encouraged to weave water-sensitive practices and sustainability themes into lessons, extracurricular activities, and daily routines.
- Developing relevant and action-oriented learning outcomes: Teachers guide students to acquire the skills, knowledge, and values needed to understand water issues and adopt conservation practices.
- Employing participatory and experiential methods: Educators engage students in hands-on activities such as water audits, awareness campaigns, and school-based projects that inspire behavior change.
- Strengthening institutional commitment: Teachers play a key role in motivating schools to model sustainable practices like rainwater harvesting, wastewater reuse, and eco-friendly landscaping.
- Fostering partnerships and collaboration: By linking students with communities, governments, and initiatives like APWASI, educators expand learning beyond the classroom.
- Promoting lifelong water stewardship: Through their guidance, educators instill in learners' habits and values that extend beyond school and nurture sustainable lifestyles throughout life.

By applying these principles, educators become facilitators of change, equipping students with the capacity to act as water stewards and future champions of Water Sensitive Cities.

2.4 Role of Educators

In the context of water scarcity and the urgent need for sustainable solutions, teachers hold a pivotal role in advancing Education for Sustainable Development (ESD), particularly in relation to SDG 6: Clean Water and Sanitation for All. By reorienting curricula towards sustainability, educators can explicitly link academic content with broader themes of environmental stewardship, helping students to understand both the urgency of responsible water use and their own role in protecting this vital resource.

Teachers are not just transmitters of knowledge; they are mentors, facilitators, and role models who inspire learners to take real-world action. Their influence extends beyond the classroom into homes and communities, making them central actors in promoting water-sensitive behaviors.

2.4.1 Explaining to Students the Context of Water Issues in Pakistan

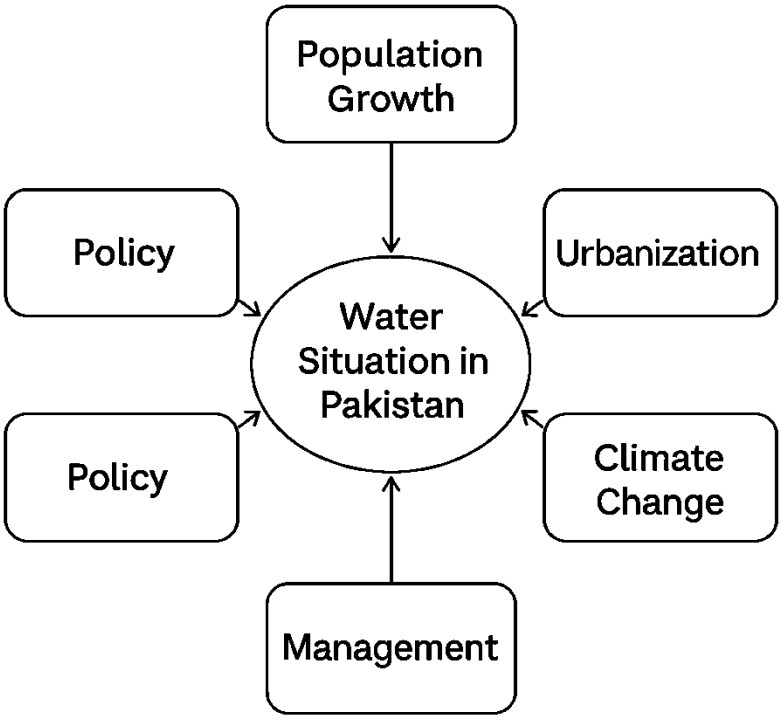
Educators should begin by building awareness among students of the water challenges facing Pakistan, such as population growth, groundwater depletion, pollution, and climate change impacts like droughts and floods. This helps learners understand why conservation matters and how these issues directly affect their health, environment, and future livelihoods. Using simple statistics, real-life examples, and storytelling can make the issue relatable to young audiences.

Instructions: Give the following questions to the group of five/six participants each and ask them to reflect and present their discussion on a flip chart.

Questions for Group Work

Question No. 1: Which are the factors in your opinion that has the most significant impact on Pakistan's water crisis, and why**?**

Question No. 2: How are these different factors—population growth, urbanization, climate change, management, pollution, and policy—connected in worsening the overall water situation?



2.4.2 Introducing the Water Sensitive Cities (WSC) Vision

To broaden perspectives, teachers can explain Water Sensitive Cities, introducing the four pillars of sustainable urban development:

- Livable – cities designed for healthy, safe communities.
- Resilient – cities that can adapt to shocks like floods or droughts.
- Sustainable – cities that use resources efficiently and responsibly.
- Productive – cities that support economic growth while conserving resources.

A visioning exercise following the explanation allows students to reflect on what a water-sensitive school or neighborhood might look like, encouraging creativity and critical thinking.

2.4.3 Facilitating Practical Learning Activities

Teachers can bridge theory with action by guiding students through hands-on experiences that reinforce conservation values:

- Conducting water audits in schools to measure usage and identify areas for saving.
- Organizing awareness campaigns through posters, plays, or digital media projects.
- Encouraging family involvement so students practice water-saving habits at home, extending impact beyond the school.
- Promoting friendly competitions between classes or groups on water-saving pledges or innovations.
- Integrating cross-curricular links (e.g., math for calculating water saved, science for exploring ecosystems, arts for creative campaigns).

2.4.4 Guiding Students Towards Action

Most importantly, educators should help students translate knowledge into meaningful, practical steps. This may include:

- Developing student-led projects such as rainwater harvesting models or school gardens.
- Encouraging peer-to-peer learning, where students teach others about conservation practices.
- Recognizing and celebrating student efforts to reinforce positive behaviors.

By combining contextual understanding with interactive learning and real-world practice, educators not only raise awareness but also empower students to become water stewards in their schools, homes, and communities. Through their guidance, learners begin to see themselves as active contributors to the broader vision of Water Sensitive Cities—places where people and nature thrive together through responsible water use and sustainable living.

Handout: Water Clubs and Experiential Learning for SDG 6

Environmental education in water conservation, as promoted through the Australia–Pakistan Water Security Initiative (APWASI), goes far beyond textbooks—it is about enabling students to understand the interconnections between people, nature, and resources while contributing to the vision of Water Sensitive Cities (WSC). Within this framework, teachers serve as mentors, facilitators, and catalysts for change. They are tasked with equipping learners with the knowledge, skills, and values needed to respond to real-world challenges of water scarcity and to advance SDG 6: Clean Water and Sanitation for All.

Embedding sustainability into classroom practice under the WSC approach requires innovative pedagogy—inquiry-based learning, collaborative projects, and problem-solving activities that connect theory with practice and build future-ready citizens. Schools can act as living laboratories where sustainability is modeled and practiced.

One practical model is the establishment of Water Clubs. These clubs provide experiential platforms where students engage in activities such as water audits, rainwater harvesting, greywater recycling, and community awareness campaigns. Such hands-on participation makes conservation tangible and fosters behavioral change. Complementary classroom discussions and group projects help students analyze water issues from scientific, social, and ethical perspectives, deepening their understanding of water as a shared resource.

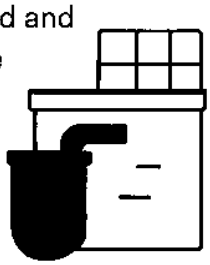
By encouraging students to identify local water challenges and design practical solutions—such as tracking daily usage, piloting rainwater capture systems, or running “Save Every Drop” campaigns—teachers cultivate a sense of ownership, responsibility, and pride. In doing so, they prepare students not only to act as proactive water stewards within their schools and homes but also as contributors to the broader transformation towards water-sensitive, resilient, and sustainable cities.

Visualization Sheet: Imagining a Water Sensitive City

A Water Sensitive City (WSC) is a healthy, resilient, and sustainable place where people and nature thrive together. Here is what is looks like and how you can play your part:

1. Catch and Use Every Drop

Rainwater is collected and reused. You can save water at home and school by reducing waste.



2. Protect Nature

Wetlands, rivers, and green spaces keep water clean and support life. Plant treas and keep local water bodies pollution-free.

3. Be Water-Wise

Communities conserve water and avoid pollution.
Turn off taps. fix leaks, and never pour chemicals into drains

4. Plan with Water in Mind

Streets, parks, and homes are designed to save water and prevent floods, Join eco-clubs and community projects to support this.

5. Go Green

Permeable pavemants, green roots, and urban forests store and filter water
Care for green spaces in your area.

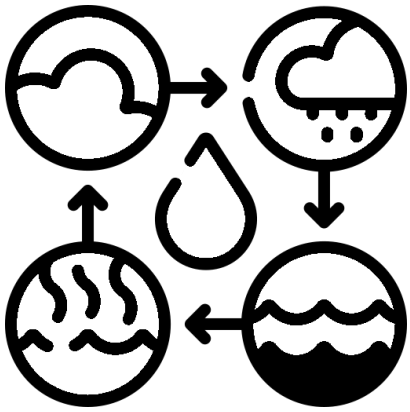
6. Be Climate-Ready

Cities adapt to floods and droughts. Learn about climate change and share water-saving ideas.

3. Understanding the Water Cycle

Objective:

To enable teachers to effectively explain the water cycle and its critical role in sustaining ecosystems. The session emphasizes interactive and experiential methods that help students connect each stage of the cycle to biodiversity and recognize the impact of human activities on this natural process.



Methodology:

- PowerPoint presentation, video demonstration, and handout.

Preparation Required:

- Water cycle diagram
- Finalized presentation slides
- Session handout

Estimated Time: 30 minutes

Session Flow:

1. **Introduction:** Begin with a visual diagram of the water cycle. Explain the main stages (evaporation, condensation, precipitation, infiltration, runoff, and transpiration). Encourage participants to share everyday examples that connect to each stage, fostering a link between scientific concepts and lived experiences.
2. **Video and Explanation:** Show a short video illustrating the water cycle. Follow this with a guided explanation that highlights the continuous nature of the cycle, its role in climate regulation, and its interdependence with ecosystems.
3. **Discussion:** Facilitate a conversation on how the water cycle interacts with the atmosphere, lithosphere, hydrosphere, and biosphere, and explore the human impacts (such as deforestation, pollution, and over-extraction of water) that disrupt this balance.

Key Message for Teachers:

The water cycle, or hydrologic cycle, is a continuous biogeochemical process vital for maintaining life on Earth. It not only circulates water across the planet in different states (liquid, solid, and gas) but also sustains biodiversity and regulates climate. Teaching it through relatable examples and interactive tools allows students to see themselves as part of this cycle and recognize their role in conserving water resources.

Handout: Understanding the Water Cycle

The water cycle is the continuous process by which water moves through the Earth's atmosphere, land, and oceans. It is powered mainly by solar energy and gravity, which together ensures the circulation of water across the planet. The Sun heats the Earth's surface, causing water to evaporate from oceans, rivers, lakes, and soil into the atmosphere. This energy also drives winds and weather patterns that distribute moisture across regions. Gravity, on the other hand, pulls precipitation back to the Earth's surface, directs the flow of rivers and streams, and allows water to infiltrate underground. These forces not only sustain the water cycle but also regulate global climate systems, influence precipitation patterns, and help maintain the balance of ecosystems.

Key Processes of the Water Cycle

The water cycle involves several interconnected processes that move water between different states and environments:

- Evaporation: Heat from the sun converts liquid water into water vapor, mainly from oceans but also from rivers, lakes, and soil.
- Advection: Water vapor is carried through the atmosphere, transporting moisture from oceans to land.
- Transpiration: Plants absorb water through their roots and release it into the air as water vapor through small leaf openings (stomata).
- Sublimation: Ice and snow can change directly into water vapor without melting first, usually in high mountains and polar regions.
- Deposition: Water vapor can change directly into ice without becoming liquid, forming frost and ice crystals in very cold environments.
- Condensation: Cooling water vapor changes back into tiny liquid droplets, creating clouds and fog, which prepare for rainfall.
- Precipitation: Water droplets in clouds combine and fall back to Earth as rain, snow, sleet, or hail.

Why It Matters

The water cycle is essential for sustaining life, regulating the Earth's temperature, and maintaining ecosystems. By understanding its processes and the forces behind it, we can better appreciate how human activities—such as deforestation, pollution, and over-extraction of water—impact this delicate balance.

4. Practical Water Conservation Techniques for Schools

Session Objective

This session aims to provide teachers with practical, hands-on activities that can be easily incorporated into school life. Through group activities, demonstrations, and monitoring exercises, students will learn the value of water conservation, develop problem-solving skills, and become agents of change in their schools and communities.

Activity 1: Conservation – "Doing Your Part"

Methodology:

Group brainstorming and teamwork exercise.

Kickoff Preparations:

- PowerPoint slides introducing activity rules
- Handout with instructions and examples

Estimated Time: 1 hour

Instructions for Teachers:

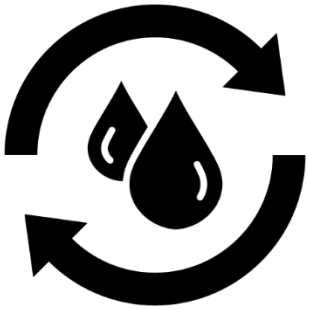
1. Divide participants into 2–3 groups depending on class size.
2. Distribute materials: paper and pencils to each group.
3. Assign roles: each group appoints a *secretary* to record ideas.
4. Brainstorm: groups list as many water-saving ideas as possible for home, school, community, and the globe (5–8 minutes).
5. Present ideas: each secretary presents their group's ideas. Duplicate ideas are skipped—only unique ideas count.
6. Declare winner: the group with the most unique ideas wins.

Sample Ideas Students Might Share:

- Turning off taps while brushing teeth
- Fixing leaking pipes
- Collecting rainwater for school gardens
- Installing water-efficient taps
- Awareness posters in classrooms
- Greywater reused for plants

Handout: Greywater Reuse

Greywater is the relatively clean wastewater that comes from sinks, handwashing, showers, and laundry. It is different from black water, which is sewage from toilets, and is much safer to reuse. Instead of letting greywater flow directly into drains, it can be collected, filtered in simple ways, and reused for different purposes.



Reusing greywater is important because it reduces pressure on freshwater sources like groundwater and city water supplies. It provides an additional source of water for non-drinking needs such as gardening, toilet flushing, or cleaning. Recycling greywater also prevents unnecessary wastage, reduces the burden on drainage and sewage systems, and encourages people to think about water as a valuable resource. For students, it is an excellent way to learn about sustainability and everyday conservation practices.

Schools can play a key role in demonstrating how greywater can be reused. For example, water from handwashing stations or wash basins can be directed into school gardens after passing through a simple filter made from sand, gravel, or cloth. Greywater can also be used to water plants, clean outdoor areas, or flush toilets, provided it is handled carefully. It should never be mixed with sewage water or used for drinking. Teachers can involve students by showing them how these systems work and by encouraging safe handling practices.

Activity 2: Demonstration – Rainwater Harvesting

Objective:

To show students a practical technique of collecting and reusing rainwater on school premises.

Steps for Implementation:

1. Identify a Collection Area: rooftops, sheds, or any sloped surface.
2. Install Gutters and Downpipes: collect flowing rainwater.
3. Filter the Water: use a gravel–sand–charcoal filter to remove debris.
4. Store the Water: keep water in a clean storage tank or underground reservoir.
5. Use the Water: for watering gardens, cleaning outdoor spaces, or flushing toilets.
6. Maintain the System: clean filters, tanks, and gutters regularly.

Handout: Rainwater Harvesting

Rainwater harvesting is the practice of collecting and storing rainwater from rooftops or other surfaces for later use. Instead of allowing rainwater to flow away and go to waste, it is captured and reused for different purposes. This technique is important because it reduces pressure on groundwater and municipal water supplies while providing a free, sustainable source of water. Harvested rainwater can be used for watering gardens, cleaning outdoor areas, and flushing toilets, making it a practical solution for schools and communities. Additionally, it helps reduce flooding and waterlogging in schoolyards during heavy rains. Beyond these practical benefits, rainwater harvesting also serves as an educational tool, teaching students about sustainability, resourcefulness, and the importance of conserving natural resources.

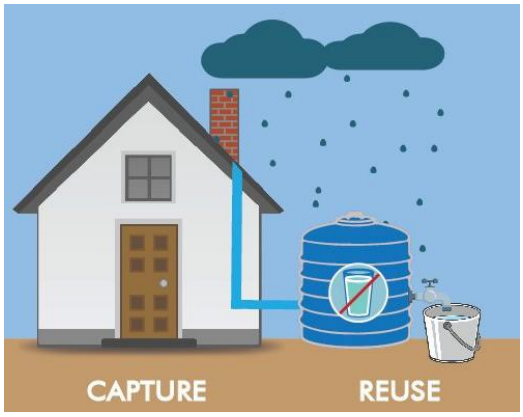


Figure 1: Rainwater Harvesting Illustration - credits WWF-Pakistan

Activity 3: Build Your Own Water Filter

Objective:

To understand how recharge pits clean water naturally, students can build a simple water filtration model using the same materials—sand, gravel, and stones—that are used in real recharge systems.

Materials Needed:

- A plastic bottle (cut in half)
- Gravel or small stones
- Clean sand
- Cotton or cloth (to act as the base layer)
- Dirty water (made by mixing soil, small leaves, etc.)

Steps:

1. Place the cotton or cloth at the bottom of the bottle (wide end facing up).
2. Add a layer of small stones or gravel.
3. Add a layer of sand on top of the gravel.
4. Slowly pour dirty water through the filter.
5. Observe how the water comes out cleaner at the bottom.

Handout: Groundwater Recharge

Groundwater is the water stored beneath the earth's surface in soil and rock layers called aquifers. It is an important hidden source of fresh water that supplies wells, hand pumps, and sometimes even city water systems. However, in many places, groundwater is being extracted faster than it is naturally replenished, leading to falling water tables and drying wells. To address this challenge, we need to support groundwater recharge—the process of allowing rainwater to soak back into the soil and refill underground reserves.

Rainwater can be directed into specially prepared pits, trenches, or recharge wells filled with sand and gravel, which filter the water and let it seep underground. This way, schools and communities not only store rainwater but also help nature restore its underground water balance.

The importance of groundwater recharge goes beyond storage. It helps maintain a stable water table, ensures that wells and hand pumps continue to work. For schools, installing simple recharge pits in playgrounds or gardens can become both a practical solution and an educational tool for students to learn how nature's systems work.

Activity 4: Measuring Water Usage

Objective:

To make students aware of how much water they use daily and to identify areas of wastage.

Estimated Time: 10–15 minutes

Preparations:

- Measuring jugs, containers, stopwatches
- A simple lesson plan handout

Instructions for Teachers:

1. Demonstrate how to measure water flow at taps using containers and a stopwatch.
2. Select water points to monitor (drinking taps, garden hoses, washroom taps).
3. Assign student teams to collect usage daily or weekly.
4. Chart the data in class and compare results over time.

Water Usage Measurement Toolkit

This toolkit helps teachers engage students in measuring, recording, and reducing water usage at school and at home. It supports Education for Sustainable Development (ESD) and SDG 6 – Clean Water & Sanitation by fostering hands-on learning, awareness, and positive behavior change.

Teacher Guidelines

- Explain to students that measuring water use makes consumption visible and helps identify waste.
- Demonstrate simple tools such as containers, measuring jugs, or a stopwatch.
- Select key water points to monitor: drinking taps, washroom taps, or garden hoses.
- Assign small monitoring groups with specific water points and schedules (daily or weekly).
- Review the recorded data together and discuss where water is being wasted.
- Encourage students to set achievable targets (e.g., reduce wastage by 10% in one month).
- Share progress publicly in class or assemblies to celebrate achievements.

Recording Table

Date	Water Point	Measurement Method	Liters used	Notes (e.g. wastage spotted)
	Drinking tap	Measuring jug		
	Washroom tap	Stopwatch + jug		
	Garden tap/hose	Stopwatch		

Student Log Sheet

Name: _____ Class: _____ Date: _____

Time of Day	Activity (e.g., washing hands)	Liters Used	How Could We Use Less?

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