Water Conservation Toolkit

A guide to what water conservation is, why it's important, community solutions, and group project ideas

GLOBAL CLIMATE Pledge

Table of Contents

What is Water Conservation?

What is Water Conservation?

- Water conservation is using water efficiently in order to avoid freshwater waste
- It is sustainably and responsibly managing your consumption while simultaneously combating the degradation of water

Source

What is the difference between water conservation and water efficiency?

Water Conservation

- Water conservation involves policies, programs, and user practices that decrease the total amount of water used

Water Efficiency

- Saving water by utilizing water-saving technologies

Source

Water is a finite resource

- Finite = Limited
- Although water is naturally recycled through the water cycle, the global supply may not always meet our population's needs
- Things such as population growth, droughts, floods, and contamination contribute to this

Source

2 categories of water consumption for humans

System Users

- Households
- Industries
- Agriculture

System Operators

- Municipalities
- State
- Privately owned suppliers
- Local governments

Source

2 categories of water practices

Engineering Practice

- This is typically making hardware like plumbing and various fixtures water conservative
- Regulatory measures

Behavioral Practice

- This is changing your water usage habits
- Market-oriented measures

Source

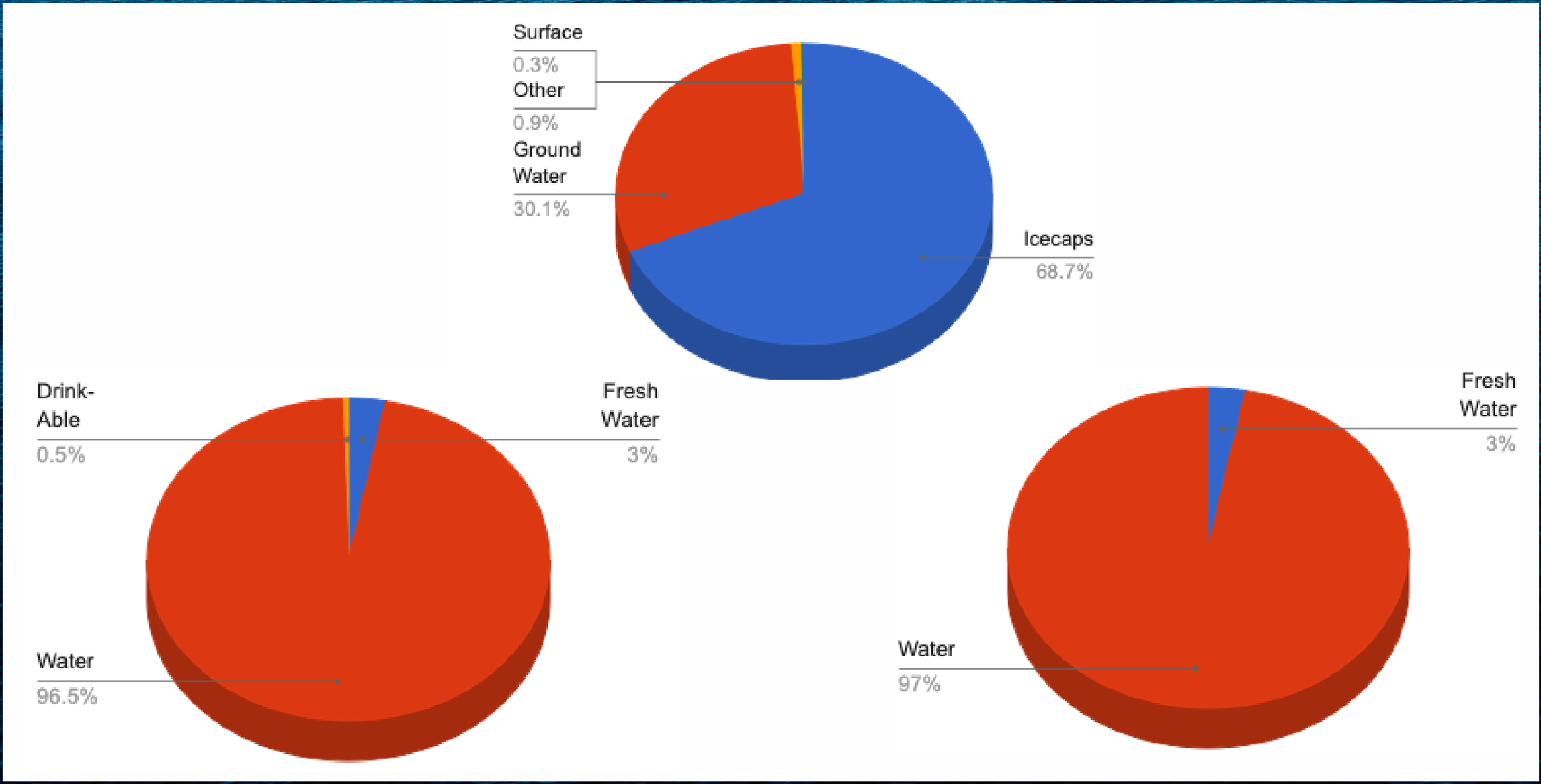
Why is Water Conservation Important?

Why is water conservation important?

- 70% of the earth is made up of water
- However, only 3% of that is fresh water with 0.5% usable for human consumption
- The remaining 2.5% of that freshwater is in ice caps, glaciers, atmosphere, soil, or polluted
- Desalinating saltwater is very costly and requires a lot of energy consumption

Source 1
Source 2

Why is water conservation important?



Source

Why conserve?

- Low water supply = higher prices which can lead to political upheaval, low food supply, health hazards, etc.
- Ever-increasing population rates require much more water
- It is crucial to conserve this valuable resource!

Source

What Industries Use the Most Water?

Agricultural

- The agricultural industry uses 70% of global freshwater
- It's estimated that agricultural production will need to expand by approximately 70% by 2050
- We need a water approach that builds resilient water services and sustains water resources, while also managing risks related to broader social/economic water-related impacts

Source

What industries use the most water?

Garments and Textiles

- Fun fact: 1 cotton t-shirt = 2,700 liters of water used!
- The fashion industry consumes around 79 billion cubic metres of water per year

Schools

- Average U.S. school uses 22,284 gallons of water per day

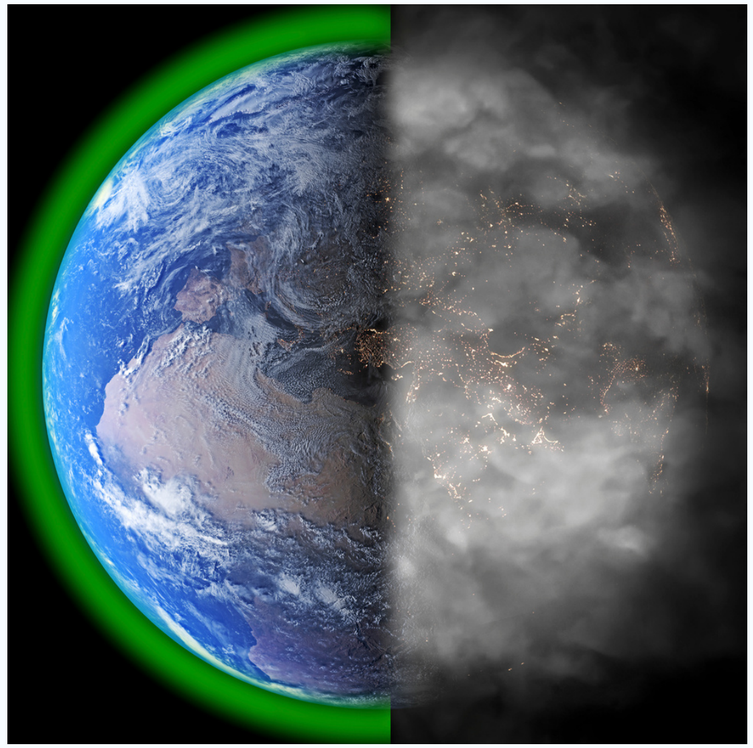
Source 1
Source 2

What's Being Done to Address This?

GLOBAL CLIMATE Pledge

Where we went wrong...

- We have overdrawn ground aquifers
- We have severely polluted oceans, lakes, rivers, estuaries, & more



- We have disrupted and overallocated river flow regimes
- We have done this to satisfy short-term economic goals

Source

What are the different ways water is conserved?

- Effective engineering water-saving technologies
- Water reclamation, water recycling, water reuse
- Water conservation policies and acts
- Desalinating our water supply
- Nonprofits, for-profits, clubs, organizations, and groups rallying for change
- Municipal, state, and federal legislative changes

Source

Water Laws Worldwide

UN Sustainable Development Goal 6:

- Increase water-use efficiency, ensure sustainable withdrawals and supply, reduce water scarcity
- Protect and restore water-related ecosystems
- Expand international cooperation and support to developing countries in water harvesting, efficiency, treatment, reuse, etc.

Source 1
Source 2
Source 3

Germany's Federal Water Act

- Lays down basic provisions related to water resources management
- Bans on discharges & use of water are subject to official authorization

India's National Water Policy

- NWP revised officially in 2012
- Water framework law makes sure water is managed by the state under public trust doctrine
- Emphasis on water saving in irrigation use, equitable water pricing, conservation of water bodies, etc.

Water Laws Worldwide

South Africa Water Service Act

- This act of legislation of 1997 provides a framework and financial assistance to water service institutions
- Abolish rights previously granted to landowners (who were exclusively white) to ground water on their property & make central govt. the public trustee of the nation's water resources

Thailand Water Resources Act

- Makes provision for the efficient administration of water resources in respect of the use, development, management, and conservation of water

Ecuador Water Conservation (FONAG)

- Conserves the Metropolitan District of Quito that supplies the population
- Water fund that invests in integrated water management
- monitor information on climate, hydrology, & watershed management

Source 1
Source 2
Source 3

‘How To,’ Methods, and Solutions

GLOBAL CLIMATE Pledge

Residential Solutions

- Pressure-reducing valves reduce leaking and can save up to 33% of water normally consumed
- Faucet aerators break flowing water into fine droplets and can reduce water volume by as much as 60%
- Low-flush toilets reduce the volume of wastewater produced

Source

Landscape Solutions

- Drought tolerant plants save not only water but labor and fertilizer as well
- Incorporating native plants suited for dry climate conditions helps minimize the spread of exotic plant species that disrupt local ecosystems
- Xeriscaping minimizes irrigation by using soil analysis, appropriate maintenance, and designing of suitable plants to conserve water and prevent pollution

Source

Agricultural Solutions

- Tools like the chisel plow help to aerate highly compacted soils
- Furrow diking creates small dams to prevent uncontrolled runoff and levels land to distribute water equally
- Irrigation scheduling helps farmers maintain yields with less water

Source

Industrial and Commercial Solutions

Cooling water recirculation

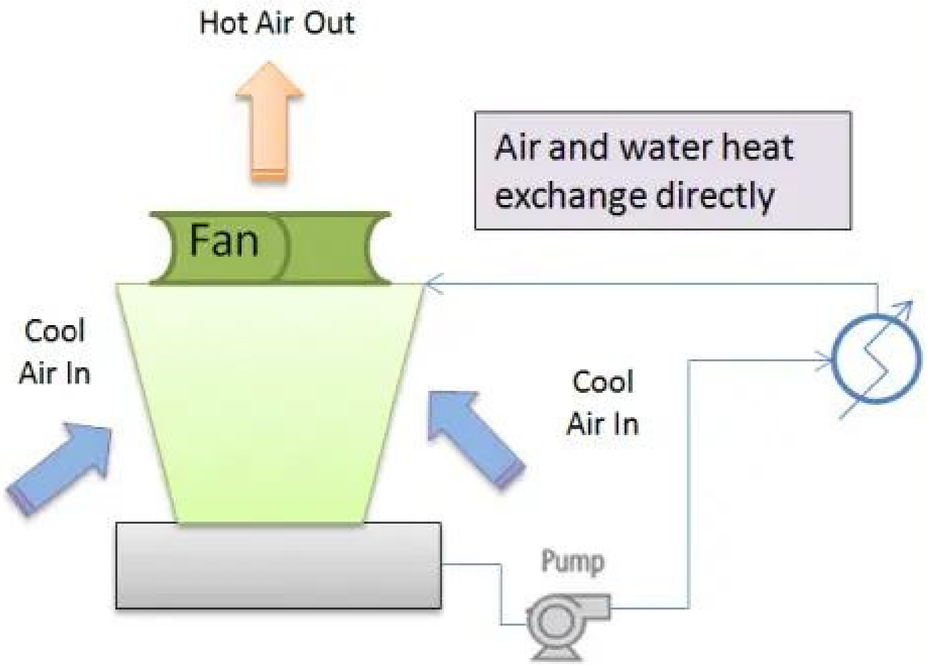
- This water recycling strategy reduces water consumption, minimizes waste generation, decreases chemical treatments required, and lowers operating costs

- It rejects heat to the atmosphere by convective and evaporative heat transfer

- Water cascades through cooling tower as it comes into contact with air and the remaining heat waste is transferred to the cooler air by convection

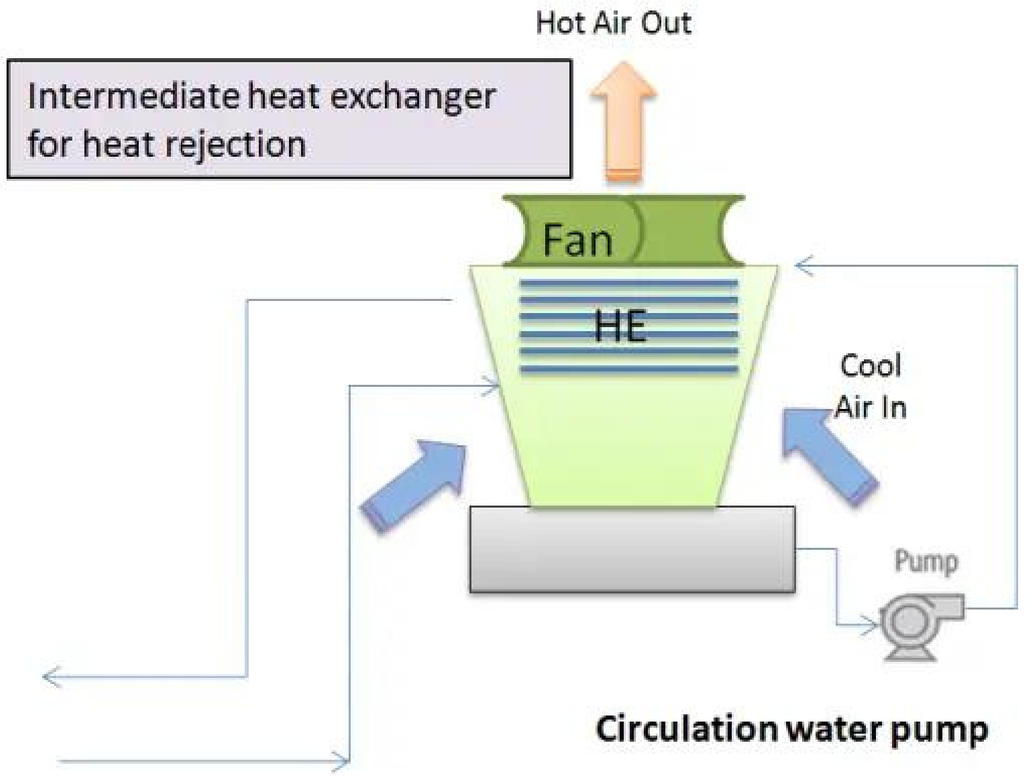
Source

Cooling Tower



Open Loop

EnergyPurse
LETS CONSERVE ENERGY...



Closed loop

Source

Industrial and Commercial Solutions

Washwater Recycling

- This is a method of saving used water to wash vehicles, outdoor premises, industrial equipment, or parts with deionized washwater
- Possible to use a blend of washwater and raw water which would contribute to water saving
- Wash water treatment is contained and cleaned to a “gray” water state and then recycled

Source

Water Supply Utilities Practices

1. Metering
2. Leak detection
3. Well capping
4. Repairing water lines
5. Retrofitting programs
6. Drought management

Source

Goverment Solutions

- Governments usually have the power to set water quality standards, issue water permits, and ensure a reliable water supply

- Governments usually have the ability to make huge changes in controlling water consumption rates

- If you are able, do research and vote into office those who believe in conserving water!

Source

Community & Group Solutions

GLOBAL CLIMATE Pledge

Community & Group Solutions: Educational Awareness

- Educational Awareness is one of the most useful ways to start conserving
- Educate others in your community about water practices, methods, and tips so that they may spread awareness to others as well
- Create an awareness chain!

Source

Community & Group Solutions: Public Education Programs

- Developing public education programs can help inform the general population about what they as a group can do to conserve their water use

Programs should cover:

- How water is delivered and how wastewater is disposed of
- The costs of water and water supply services
- Why water conservation is important

Source

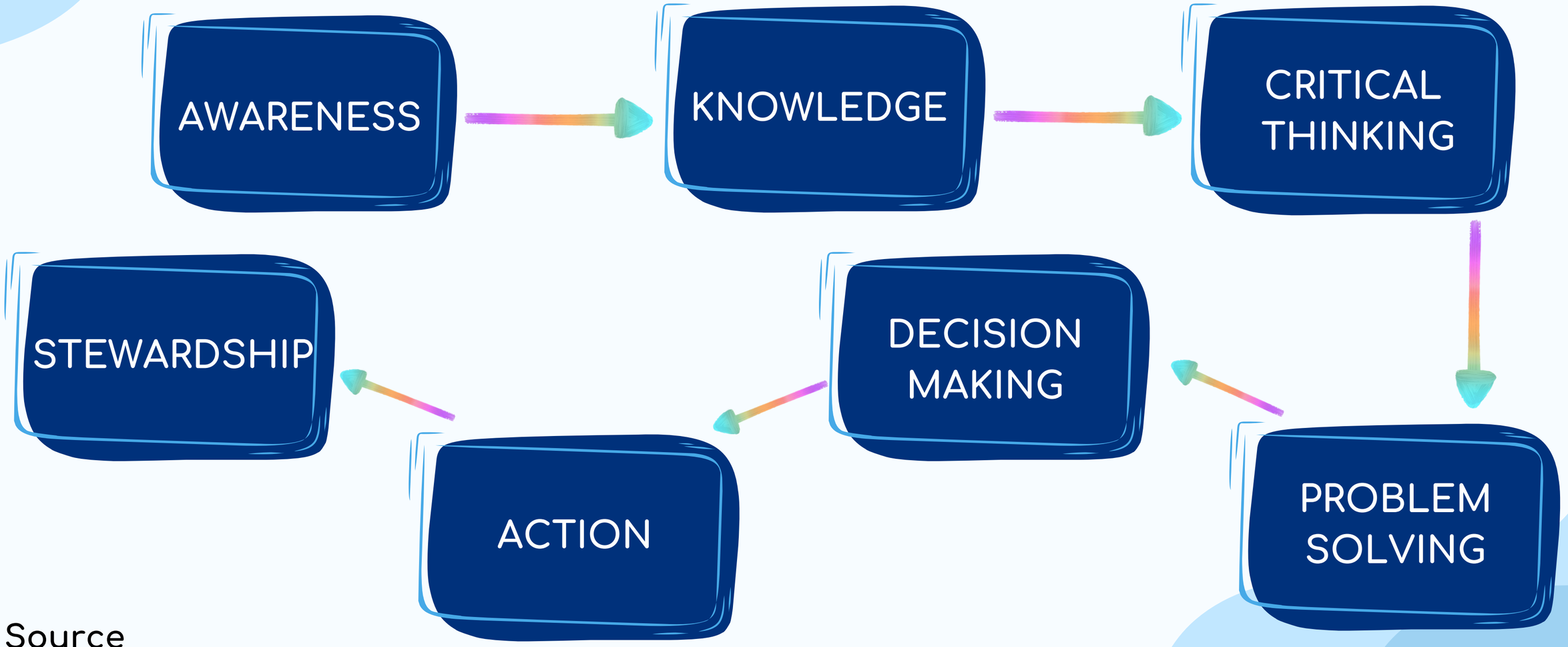
Community & Group Solutions: Public Education Programs

Programs can be generalized or specifically targeted to reach a user group

1. Schoolchildren
2. Domestic users (housekeepers)
3. Farmers
4. Water intensive industry leaders
5. Manufacturing facilities
6. Restaurants

Source

Ideology behind education programs



Source

Community & Group Solutions Case Study: Project WET

- Project WET Foundation and Ecolab have partnered to create the Clean and Conserve Education Program
- It's very accessible via the internet, reaching 7 million people in 72 countries
- Education materials such as an activity book, science project guide, flier, online training, children's story book, and more

Source

Community & Group Solutions: Set up a Water Action Plan

- For schools, clubs, groups, nonprofits, facilities, neighborhoods & more

- A long-term and sustainable water action plan is a consistent and inclusive way of saving water that brings communities together

- Understand group water footprint → Set up guidelines for the best ways to conserve water → Share knowledge and build community engagement

Source

Community & Group Solutions Case Study: Fort Collins Water Action Plan

- Fort Collins (U.S.) had success with its 40-year-old Utilities' Water Conservation Plan
- On track to reduce water use to 130 gallons, per capita, per day by the year 2030

The program...

1. Promotes and supports greater outdoor water efficiency
2. Encourages greater integration of water efficiency into land use planning and building codes
3. Expands commercial and industrial strategies
4. Increases community water literacy

Source

Community & Group Solutions: Avoid funding "Water Grabbers"

- Wealthy corporations are buying farmland and the freshwater perks that come with it
- Sometimes these companies deny local people access to this water, pollute, and exhaust the supply
- This negatively impacts local communities' accessibility to drinkable water

Source

Community & Group Solutions: Work with Grant Programs

- Working with grant programs helps fund conservation projects to reduce freshwater usage
- It also encourages local governments to pass water-saving ordinances

Source

More Ideas!

- Spread awareness on social medial platforms
- River, stream, or lake litter clean up
- Complete water leak surveys around your community
- Create educational posters to put up around your neighborhood
- Rally and protest with your community

Tips and Tricks

GLOBAL CLIMATE Pledge

Easy Tips and Tricks

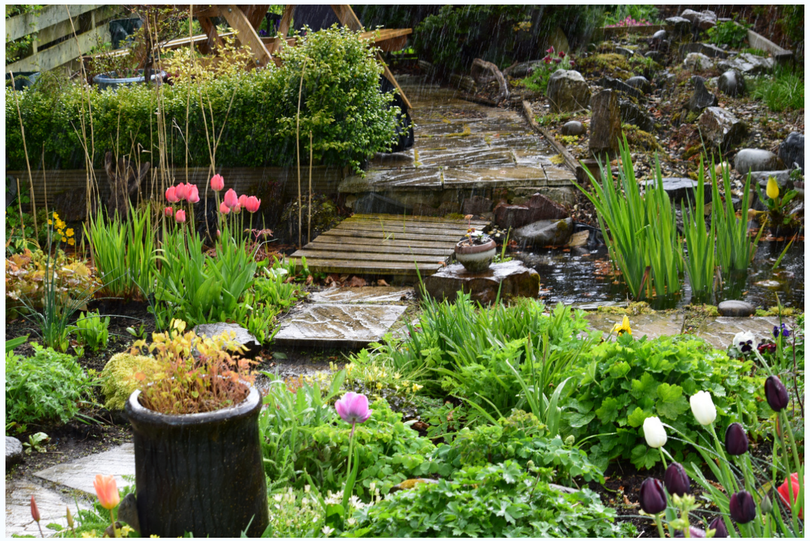
- Harvest, store, and reuse your rainwater
- When brushing teeth or doing dishes, turn the sink off in intervals
- Consider investing in a smaller dishwasher versus handwashing dishes
- Avoid watering plants in the middle of the day to avoid heat
- Avoid eating a lot of water-intensive food crops, dairy, or meat products
- Always do a full load of laundry

Source

Project Ideas

Design a Rain Garden

- Installing a rain garden in your community is an eco-friendly landscape design that helps to reduce stormwater runoff and pollution
- They conserve water, reducing the need for irrigation
- It promotes collaboration and awareness of water conservation



Source

How to: Design a Rain Garden

1. Choose a natural low spot where water collects after it rains
2. Evaluate your soil: clay or sandy?
    a. Water should drain down within at least 12 hours after rainfall to keep plants healthy
3. Dig a shallow basin 6-8 inches deep that slopes slightly inward
4. Place topsoil or compost on the top layer
5. Select and plant native species

Source

Calculate your Water Footprint

- Step 1: Work together with your friends, family, & community to complete the online Water Footprint Calculator
- Step 2: Review the results with your group and share the tips for reducing various water uses
- Step 3: Develop a list of goals for reducing water use and take action!

Source

Conduct a Water Audit

- Conducting a water audit, also known as a water assessment, is an important step for organizations that want to take water management conservation seriously

- This is designed to analyze the ways your group currently uses water and what can be done to eliminate water waste and lower your facility's water bill

Source

How to: Conduct a Water Audit

1. Take inventory of your water use
2. Track your water meters
3. Establish practices to monitor and maintain your water usage
4. Set goals to improve your water usage

Source

Rain Water Catchment & Filtration System

- Rainwater catchment and filtration systems help to conserve and provide communities with access to clean drinking water

- Catching rainwater from surfaces can be used to supply irrigation needs, potable use, stormwater management uses, & household drinking needs

Source

Rainwater Harvesting Catchment in South Asia

- According to Hindu mythology, water harvesting dates back to the 3rd century B.C.

- Ancient technologies include split bamboo pipes, catchments basins, construction of dug-cum-embankments, and harvesting tanks called tankas and kundis

Source

How to: Create a Rainwater Catchment System

1. Place something as simple as a rain barrel under a catchment system (usually a roof)
2. Rain is gravity-fed into a downspout connected to the barrel
3. Filter with a sheet metal box with a screen
4. Set up as many barrels needed for your group or household as a sustainable way to reuse rainwater!

Source

Case Study: Gravity Water

- Nonprofit organization that turns rainwater into safe drinking water for schools in need
- Fundraise to purchase a unit or have your group build a rainwater harvest and catch system modeled after Gravity Water

Support projects in Vietnam, Costa Rica, Indonesia, Nepal, & Puerto Rico

Just $8 provides a child with access to a permanent source of safe drinking water!

Source

Case Study: Panam Keni

- India has perfected the art of water conservation and management over thousands of years
- The Kuruma tribe uses a special type of well, called the Panam Keni, to store water
- Wooden cylinders are then immersed in groundwater springs located in fields and forests

Source

Case Study: Leak Detection Technology
ASTERRA

- Without breaking ground, ASTERRA uses artificial intelligence to detect leaks and assess pipes

- Groups can invest/raise money for this type of satellite-based data for municipalities, industrial buildings, organizations, etc

Source

Get Involved

GLOBAL CLIMATE Pledge

A Career in Water Conservation

Various industries include federal, state, and local governments, utilities, construction, agriculture, nonprofit, charities, and more

Scientists may find new sources of water or find ways to use water more efficiently.

Construction/Water operations workers implement water-saving devices and procedures.

Outreach workers ensure that communities and landscaped areas use water efficiently, and they educate people about water conservation.

Engineers design and develop new products and procedures for saving water.

Agriculture and grounds maintenance workers help reduce the use of water for farming and landscaping.

Source

Rotary Water Projects

Water-based project in need of donations ('22-'23)

- Clean Water in Kenya Schools (Internationally Parterened with the City of Fort Collins!)
- Water Body Rejuvenation in India
- Bhangre Jhayaure Water Project in Nepal
- Water for San Carlos Amaguaña in Equador
- El Salvador Potable Water
- Philippines Potable Water System
- Antigua and Barbuda Desalinating Water

Source

Organizations Aiding Water Conservation

1. World Water Council
2. Pacific Institute
3. Clean Water Action
4. Water Aid
5. Water.org
6. Columbia Water Center
7. Charity: Water
8. Gravity Water
9. Mission Blue
10. H20 Open Doors

Source

Sign the Pledge!

GLOBAL CLIMATE Pledge

Take the Pledge

Sign the Pledge

Use the QR code or go to www.globalclimatepledge.com to sign the pledge

Share the Pledge

Our pledge helps people move from awareness to action.

Encouraging others to sign establishes a larger community of people who support each other and can make a substantial difference in our environment

Organizational Pledge QR

Individual Pledge QR

Contact Us!

U.S. Green Chamber of Commerce National Headquarters 249 S. Highway 101 #420 Solana Beach, CA 92075

https://usgreenchamber.com/

https://www.globalclimatepledge.com/

Free templates for all your presentation needs

For PowerPoint and Google Slides

100% free for personal or commercial use

Ready to use, professional and customizable

Blow your audience away with attractive visuals