

Part 3

Work in Human Services



Human Services are about serving people and interacting with them in different ways. Projects on Work in Human Services will help you learn how to work with people. You can take up projects related to taking care of your health and that of your family and others, you can make interesting videos and audio clips on various topics, or take up making a budget for your family, applying *Mehndi* on people's hands, or developing a comic book; it is up to you to imagine all that you can do with your peers.

Two examples of projects are given in this section, which are Water Audit for Water Management and Creating Advertisements. You must take up only one project. You can either choose one of these projects or you can design a project of your own choice with the help of your teacher.

Project 5

Water Audit for Water Management



0885CH05

A water audit is a systematic process through which data about water usage and wastage within a building or household is examined. This project is about collecting and analysing data using different tools for water audit.

As part of the project, you will be able to:

Collect data for tracking water use and wastage

Analyse data to estimate water use

Apply simple strategies to reduce water use and wastage

Use data to predict future needs for water



Figure 5.1: Carrying out a water audit in the community

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Have you ever wondered how the meteorological department predicts the arrival of the monsoon or warns us about upcoming cyclones, rainfall, heat waves, and snowstorms? They make these predictions based on past data, assuming that similar trends will continue.

Data is any information collected for a specific purpose in the form of facts, figures, photographs, videos, and so on (Figures 5.1 and 5.2). After collection, the data is organised so that we can interpret it and draw conclusions. For example, suppose we have data about temperature, humidity, and rainfall over a period of time. In that case, we can predict the chances of rain, given specific conditions of temperature and humidity.

Imagine a village where farmers usually grow crops that need water. However, if past data on temperature and humidity show that a particular summer will be hotter and the rains will arrive late, the weather forecast can help them plan better. Instead of planting the usual crops, they can either delay sowing or choose crops that need less water. This way, they can avoid losses and better use their resources.

In today's age of information technology, data is considered an essential asset since it provides crucial information to make informed decisions.

Data helps us in everyday life, for example, by estimating travel time or finding an allergy to some food in our diet. It enables government departments to plan water release schedules from dams, or prepare for traffic control during significant events.

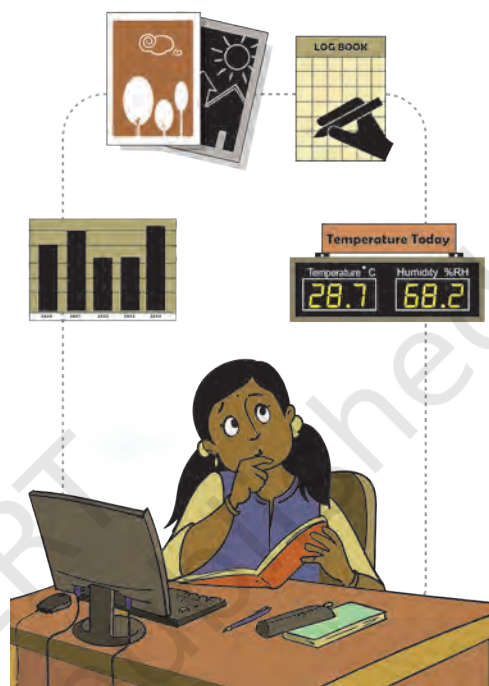


Figure 5.2: Data is information in many forms collected for a specific purpose



In this project, you will collect data on water usage in your locality. You will conduct a water audit by systematically examining its uses and identifying sources of wastage. The data collected on water usage will be used to estimate water usage in different scenarios.

To get accurate results, the data collected has to be correct and authentic (e.g., if you are collecting data on red cars passing a traffic signal in one hour, then a car of any other colour will not be included), reliable (e.g., even if two people are collecting data on red cars, they must come up with the same data), and obtained by experiment or from a source that can be trusted (e.g., before data collection, observers decide the colour will be considered red). This process will also prepare you to analyse different kinds of data.

Managing Water as a Source: A Major Challenge

India has only four per cent of the world's freshwater but nearly eighteen per cent of the world's population. At the same time, water is not available equally everywhere in the country; some places face floods, while others experience droughts.

Droughts are often seen as natural disasters, but in reality, they are primarily caused by human activities, such as deforestation, poor agricultural practices, and over-extraction of groundwater. They are also due to mismanagement and misuse of water at the micro (household) and macro (district/state) levels.

Did you know that leaving a tap running for five minutes can waste 45 litres of water? Are we using water carefully, or are some of us using it irresponsibly and wasting others' share? Some people struggle to get water, depending on water tankers or walking long distances to fill a single bucket. At the same time, thousands of litres are wasted due to leaks and careless use.



The good news is that there are various people's initiatives for water conservation, such as rainwater harvesting, recycling water, restoration of water bodies, and so on. Several government efforts have also been initiated, including the *Jal Jeevan Mission* and *Jal Shakti Abhiyan*, to provide access to and conserve water through people's participation.



What will I be able to do?

By the end of this project, you will be able to:

- Measure and calculate water availability, usage and wastage.
- Collect data on total water availability and trends in water consumption.
- Analyse and compare data related to water usage.
- Identify and implement practical ways to reduce water wastage.



What will I need?

To do this project, you will need the following:

- A notebook and pen
- Measuring jar (to be replaced by an equivalent like a one litre bottle)
- Basic plumbing tools – wrench, spanner, pipes
- Bucket, mug
- Consumables for plumbing
- Stopwatch or timer (mobile app can be used)
- Survey form for asking questions (can be written or printed)
- Calculator (mobile calculator app can be used)
- Computer and connectivity for online research, data calculations and analysis; and use of digital spreadsheets and programming languages.





How do I keep myself and others safe?

- **Handling Tools:** Use all tools, especially plumbing tools, carefully. Follow all safety precautions as prescribed for the use of tools.
- **Outdoor Safety:** Always take permission before entering someone's home or property for the survey. Be careful around slippery areas or water sources. Stay hydrated and avoid working in extreme heat.
- **Internet Safety:** Ask your teachers for help while using the Internet. Be careful not to upload or download anything; do not share your or anyone's personal information anywhere. Use data only from reliable sources, like Government Departments, websites and National Research Institutes.



What do I need to know before I start?

To carry out a water audit, you need to know the water consumption in your community. For this, you need data. You will collect primary data related to water consumption in the community and secondary data related to the availability and supply of water.

Primary and Secondary Data

Data that is collected first-hand is called primary data. It can be collected through surveys, experiments, interviews, observations and any method that involves direct collection of data. For example, the data you collect during your science experiments or while surveying the community for projects.

Secondary data is the data that is obtained from other reliable sources. For example, population data from government websites, water bodies in the region from government reports, area of a village from a government office, etc.



Once collected, you will need to tabulate the data. To do this, you can use tools, such as computer spreadsheets, to enter the data.

Before you start, you need to prepare for collecting water-related data. You need to decide about methods and units of water measurement.

Activity 1: Water measurement methods

You have learned in Science about units of measurement of liquids. Water is measured in millilitres (mL) for small quantities, but litres (L) are more suitable for household use, and cubic metres (m^3) for larger quantities, like municipal supply or water storage (Figure 5.3). One cubic metre of water equals 1,000 litres.

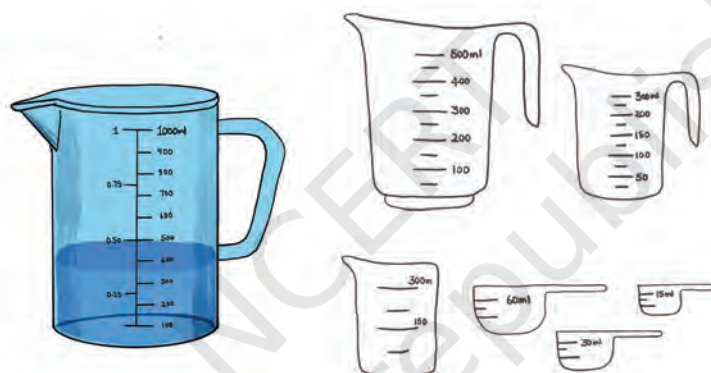
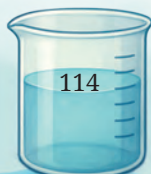


Figure 5.3: Graduated cylinders and cups for measuring water

Operating manuals of machines, such as washing machines and reverse osmosis (RO) water purifiers, provide you specifications of the amount of water they use of machines using water (e.g., washing machines and RO machines) indicate the amount of water consumed during their functioning. However, the challenge is to estimate the amount consumed while bathing, washing utensils, and so on.

Using tools like a graduated cylinder each time for recording observations is not convenient. Hence, we need to use common utensils (e.g., bottles, glass, etc.) to measure water usage in daily life. Generally, the amount of water in litres is printed on plastic buckets or cans. If not, the amount of water stored in utensils in



your home or school can be measured using any other utensil for which the storage capacity in litres is known (e.g., a 1 L bottle). This will help you collect data from people, for example, how many buckets of water they consume to wash clothes.

Calculate the water flow rate (measured in L/minute) for taps and showers. To measure the water flow from the tap, let it flow into a bucket for a minute. Measure the amount of water collected in the bucket.

Now, you can measure the amount of water consumed by noting how long a person keeps the tap running (when the tap is 'ON') while washing utensils. You can calculate the water consumed using the flow per minute you measured.

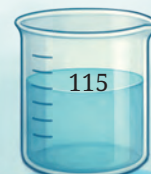
$$\text{Amount of water used} = \text{Water flow rate of the tap} \\ (\text{L per minute}) \times \text{Time tap is kept 'ON'}$$

Fill in the blanks for water usage in your home (Figure 5.4). You may substitute any object with a similar one that is not used in your home.

Utensil			
Capacity/ Water flow	____ L	____ L	____ L
Water usage/ containing material			
Capacity/Water flow	____ L	____ L per minute (capacity of flush tank)	____ L per minute (water flow)

Figure 5.4: Collect data on water usage

Applying this method, you can calculate the capacity and flow of any utensil or water tap/shower/water pipe in the house.



Water storage capacity in the society

You can calculate the capacity of the big water tanks (Figure 5.5) in the locality by using the dimensions marked on them, calculating the volume and then converting it into litres. You can also talk to the water supply officer of your area to find out the quantity of water supplied to the society.



Figure 5.5: Water tanks store water and taps supply it to the community

Reflect on your learnings

1. What is the water storage capacity of the water tank in your locality?

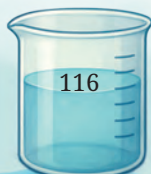
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2. How much water is supplied daily to your locality? (You can get this information from the local municipal corporation, *Gram Panchayat* office or water supply authority.)

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.....
.....

3. How many people use this water? (You need to know the population of the locality; you can get this information from the local municipal corporation, *Gram Panchayat* office or water supply authority.)

.....
.....
.....



Sources of Water

Water received from rains comes to us through natural as well as manmade water sources – rivers, wells, borewell, tanks, etc. (Figure 5.6). It gets stored in big and small dams. Water from dams or storage tanks comes to us through canals, pipelines, etc. Knowing where your water comes to you and how much population is dependent on this water is necessary for your audit.



Figure 5.6: Mapping water sources in a locality

Activity 2: Interview with an official of the water supply department

Usually, the water supply to our homes is managed through the *Gram Panchayat* office, Municipal Corporations, water supply department, ward office, and similar bodies. You can visit these offices to understand the water supply system of your locality. It is essential to prepare a list of questions before the visit. Some questions are given; please add or remove questions if you wish.

1. What is the source of water for our locality?

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.....
.....

2. How much water does each household receive per day? What is the amount of water allotted per day per person?

.....
.....
.....

3. Do you face any challenge in supplying sufficient water to all? What are those challenges?

.....
.....
.....



4. How does rainwater contribute to water availability in your area? What efforts have been made to store rainwater for later use?

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.....

5. Are there any seasonal changes in water availability in the locality?

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.....

6. Any suggestions for water management by individuals?

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.....

7. Create a simple neighborhood map showing water sources, like wells, tanks, or water delivery points. Ask the official for help if needed.



By learning these basics, you will be better prepared to conduct the water audit and take action. These activities will also help you understand the water situation around you more clearly.

Activity 3: Estimating average consumption in a household

It may not be possible for you to collect data from each household in the locality. Therefore, you can select a few houses.

You can plan to collect data from a minimum of ten families. If five students are working together, this will give a total data from 50 families.

It will be convenient to record the data in your notebook. After returning to school, prepare a table in a spreadsheet on the computer. You can apply formulae in the spreadsheet. This will help you analyse data and present it in different forms, like graphs and pie charts. If you do not have a computer, you can make tables to enter data in your notebook, and use a calculator.



Did you know?



Figure 5.7: (a) Washing machine

(a) Washing machine consumes approximately 70 L per cycle. You can check online from the website of the manufacturer.

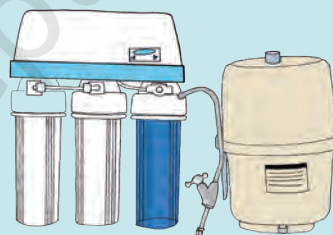


Figure 5.7: (b) RO filter specifications indicate the amount of water used

(b) RO water filter wastes approximately 3 L of water per every 1 L of treated water.

Table 5.1 contains a sample of a form you can use to collect data from the field. You can change it to suit your purpose or use it as it is.

Table 5.1: Form to collect data on water usage from a family

Name of the family	
Number of people in the family	
How much water is stored in the house in a day (e.g., one tank of 1000 L capacity, one earthen pot of 5 L capacity, one copper vessel of 15 L)?	
How much water does the family consume per day for washing clothes (e.g., water used in a washing machine, number of buckets used)?	
How much water does the family consume per day for washing utensils (e.g., water flow of the tap and average time spent on washing utensils, buckets used)?	
How much water does the family consume for drinking and cooking (e.g., amount of water stored in bottles and average number of bottles used)?	
How much water does the family consume for bathing (e.g., buckets used the water flow of tap or shower and time used for bathing)?	
Do they face any water shortage? How do they manage in case of water shortage?	
Do they have any machines/appliance that consume water? How much water is consumed by each of these appliances (e.g., washing machine/RO filter)? <i>Note: Not to be repeated if covered in questions related to washing clothes and drinking water.</i>	
Any other use of water (e.g., for washing vehicles, in the garden)?	
Do they have any other source of water (e.g., well/borewell/purchased water)?	
What do they do with the water if the stored water is not consumed on the same day? Do they recycle it or throw it away?	



Do they receive a water bill? If yes, how much is it generally?	
Is there any other observation concerning water availability and usage?	

The family will give you the estimates. You need to calculate the amount of water used in terms of the capacity of buckets, mugs, bottles, and so on. You will also need to calculate water flow from taps, showers, and water pipes in case of water usage for gardening for each home you visit.

If a person uses water from an overhead tank, you need to talk to them and estimate water usage based on their lifestyle. For example, taking a bath twice on a daily basis or washing two buckets of clothes daily.

Once you have collected the data, you must tabulate it in a spreadsheet or notebook. You can decide the categories for data based on water consumption for activities, like washing clothes, RO water use, car washing, and so on, based on your observations, information gathered and logical reasoning.

The accuracy of your analysis will depend on the primary data. Hence, it is necessary to maintain the ‘integrity’ of the data; it should be as accurate, reliable and consistent as possible. You may have collected some data that is not in the form of numbers. This cannot be used for the calculations. Tables 5.2 and 5.3 show examples of using formulae in Excel to analyse the data.

Table 5.2: Using formula in Excel to analyse data

SUM ✕ ✓ <i>fx</i> =SUM(C2:F2)						
	A	B	C	D	E	F
	Sr. No	Family name	Number of members	Bathing (in Liters)	Cooking and Drinking (in Liters)	Washing utensils and clothes (in Liters)
1						
2	1	Goyal	6	15	6	20
3	2	Mishra				
4	3	Ray				
5	4	Singh				
6	5	Pathan				
7	6	Kaif				
8	7	Dutt				

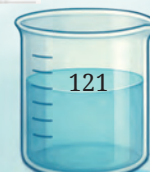


Table 5.3: Using formula in Excel to analyse data

SUM							=SUM(C2:F2)		
	A	B	C	D	E	F	G	H	I
	Sr. No	Family name	Number of members	Bathing (in Liters)	Cooking and Drinking (in Liters)	Washing utensils and clothes (in Liters)	Total (in Liters)		
2	1	Goyal	6	15	6	20	=SUM(C2:F2)		
3	2	Mishra	5	15	6	18	SUM(number1, [number2], ...)		
4	3	Ray	4	14	5	15	38		
5	4	Singh	5	16	5	16	42		
6	5	Pathan	3	14	4	12	33		
7	6	Kaif	4	14	5	16	39		

Can you find out the average consumption per person from your data?

Hint: When you divide values in the G column from those in the C column, Excel will answer you automatically.

To add the total, you can use formulae like “= Sum(A1:A5)” in MS Excel. Explore other formulae by searching online or asking your teacher. You can add, subtract, divide, and multiply using formulae to save time. However, a calculator is as effective!

All the data is to be recorded in litres only.

- Find out the average consumption per person from your data. You can use the formulae in a spreadsheet.

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.....

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- Are there any families that are consuming more water than average? If yes, what is the reason?

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.....

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Activity 4: Rainwater availability in your district/town/village/ward (secondary data collection)

When you obtain data from other sources, it is called secondary data. As mentioned earlier, you must use the information from a reliable source – a government website or report, or officials working in the Municipal Corporation/*Gram Panchayat* or water supply office. You must also reference the site or document. This activity will help you learn how to estimate the rainwater available in a geographical area using secondary data.

Use Table 5.4 to record the findings of your survey (it contains an example).

Table 5.4: Recording data to estimate rainwater availability

Examples	About your district/town/village/ward	Reference/source of information	What does the data tells us?
Population: District/Town / Village/Ward For example, Pune District: 9,429,408			Number of people dependent on water sources
Area of District/Town: For example, Pune District: 15,643 square km			Area that will receive rainfall
Rainfall of the district in the year For Pune District rainfall in 2023: 446 mm ~ 0.446m			Rainwater availability
Total water availability: Area in $\text{m}^2 \times \text{Rainfall in m}$ ($1 \text{ m}^3 = 1000 \text{ L}$; $1 \text{ km}^2 = 1000000 \text{ m}^2$) Total water availability in Pune District: $15643 \times 10^6 \times 0.446 = 6977 \times 10^6 \text{ m}^3 = 6977 \times 10^6 \times 1000 \text{ L}$	Calculation:		Water received in the district through rainfall



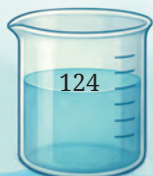
Generally, 70% of total rainwater is required for agriculture (including farm animals), 20% for industry and 10% for domestic consumption. On the basis of this, rainwater available for consumption your district. For example, rainwater available for domestic use in Pune District=$6977 \times 10^6 \times 1000 \times 0.1 = 697.7 \times 10^6 \text{ L} \times 1000$ Per capita rainwater availability = $697.7 \times 10^6 \times 1000 / 9,429,408 = 73,991 \text{ L}$ Per day rainwater availability per person = 202 L/day	Calculation:		Rainwater available for different purposes
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The above information will help you understand rainwater availability, usage and scarcity in your geography.

Calculating water availability based on a district's geography and rainfall may not give you an accurate picture. All rainwater flows into rivers. The entire population, from the origin of the river up to the point where the river meets the sea, depends on river water. Some of these areas have high rainfall, and some have less rainfall. However, the water in the river basin belongs to the entire population.

Activity 5: Compare and analyse the data

The data speaks for itself. What did your data say? Table 5.5 will help you compare the average consumption versus the prescribed consumption. You may recall that you estimated average consumption in Activity 3.





Suppose you want to refer to secondary data. The person who is listening to you, or reading a report you have written, must know where the data is from so that they can refer to it. They would also like to be assured that the data is reliable. Since data keeps on changing (e.g., population numbers change, climatic parameters change), you must mention the year the data was reported. In which case, for example, you will say/write as follows:

The Government of India, through the *Jal Jeevan Mission*, aims to provide 55 L of tap water per day for rural populations. This secondary data has been obtained from a release of the Press Information Bureau of India dated 14 Aug 2024, which is available on the website: <https://pib.gov.in/PressNoteDetails.aspx?NoteId=152025&ModuleId=3®=3&lang=1>

If you are giving information from a book or report, then you must mention the name of the book or title of the report, and who has published it and in which year (this information is available in the first few pages of the book/report).

Now, try to obtain data from similar reliable sources. You can search the library, newspaper reports, magazines and publications to get the data. Alternatively, use online search with following key words:

- Rainfall + Year + *name of district*
- Population + *name of the district* + census
- Water availability per person + *name of the district*
- Ministry of Statistics + Govt of India + Water
- NITI Aayog + water report

Table 5.5: Record of average consumption versus prescribed consumption

Average consumption per person per day (primary data)	Water available per person per day as per secondary data (calculations done by you)	Prescribed usage per person by <i>Jal Jeevan Mission</i> *
		55 L per day for rural areas and 135 L per day for urban areas.

**This is the prescribed usage in 2025; you can look up the prescribed consumption on the Ministry of Jal Shakti website.*



Water availability can be increased in the following ways:
i) planting trees; ii) reducing pollution to increase rainfall;
iii) reducing wastage of water; iv) recycling water and
v) water conservation methods like rainwater harvesting.

Activity 6: Identify wastage points and amount of wastewater

This activity involves inspecting areas where water is wasted, such as leaking taps or overflowing tanks. You can focus on areas that need immediate attention by identifying wastage points. Often, water leaks require minor repairs to fix them.

Inspect common areas where water gets wasted, such as taps in your school or home, pipelines, or overhead tanks. Look for signs, like dripping taps (Figure 5.8), wet patches under pipes, or overflowing tanks. Record your findings in a notebook. Note down the location and type of problem. You can record the wastage of water by using a bucket and a stopwatch.

1. Start the stopwatch when water starts to waste.
2. Stop it when the wastage ends.
3. Note the time duration.
4. Repeat the process. You can calculate the volume also.

Now, share your observations. You can take simple steps to reduce wastage (Figure 5.9).



Figure 5.8: Recording wastage of water due to a dripping tap



Start with easy solutions, like tightening the tap and changing the washer. You can invite a local plumber to learn about the tap mechanism and tools like plumber tape and wrench. You will have to turn the water mains off before you start work.



1. Using a spanner, take off the tap's cover to remove the handle. You will probably find this under the hot or cold sign.

2. Undo the screw and remove the handle. If the tap has a metal cover, unscrew it by hand, or use a wrench or tap spanner.



3. Unscrew the tap bonnet, and completely remove the headgear. You should see a large body washer, o-ring and jumper valve. The jumper valve should fall out.

4. Replace the body washer, the o-ring and the jumper valve with new parts. Apply a tap lubricant to the spindle and valve for better sealing and smoother tap operation.



5. Refit the bonnet and spindle. Be careful not to over-tighten the nuts.

6. Put the tap back together, turn it off, and turn the water back on. Now, check the tap to make sure it is no longer leaking. Now, you can step back and admire the proper job done, knowing you are not wasting a drop.

Figure 5.9: Steps to fix a leaking tap

Reduce the use of water

Most of us have a habit of opening the tap at full throttle. You can restrict the water flow per minute by using aerators or flow caps available in the market. You can also simply open the tap partially when using water (Figure 5.10).

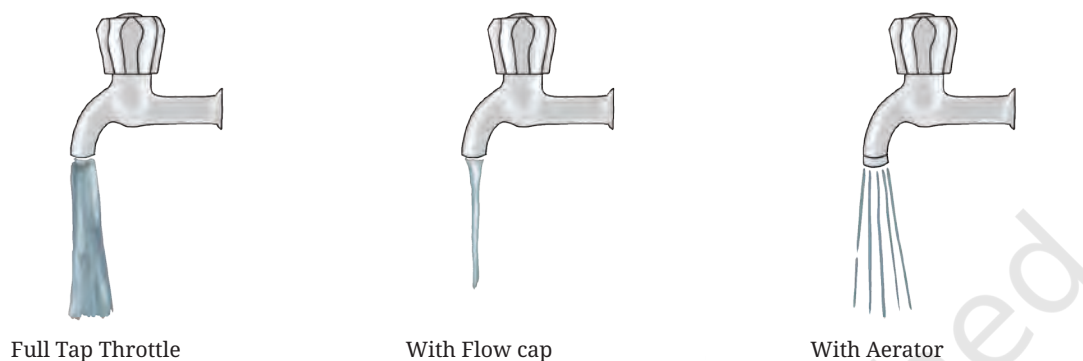


Figure 5.10: Comparison of water flow with and without flow cap and aerator

Groundwater recharge

You have learnt about groundwater in Science. As you know, well water and borewell water are essential water sources. One advantage of storing water underground is that evaporation losses are minimal.

Unfortunately, due to uncontrolled groundwater extraction, water levels are depleting alarmingly. While many efforts are being made through various water conservation programmes, there are efforts that communities can make to help rainwater percolate into the ground. You can participate as volunteers in programmes around you.

The basic principles of water conservation and an example of how they can be applied are:

- 1. To hold the water in the field:** This can be done by making contour bunds on the ground (Figure 5.11). Contours are lines connecting points at equal elevation. Bunds, made up of earth to prevent water from running off the slope, on contour lines hold the water at the same level. This also helps in reducing soil erosion.



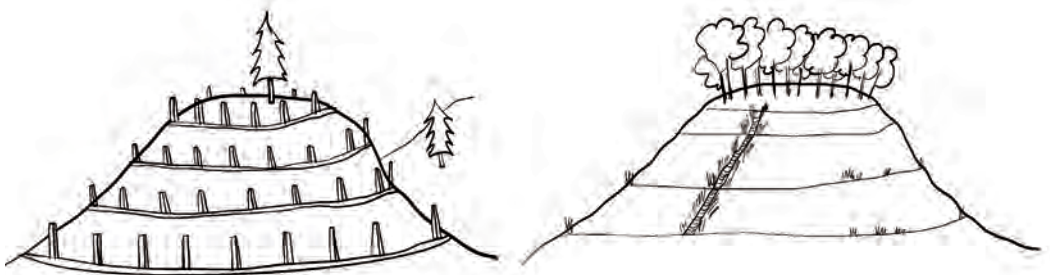


Figure 5.11: Contour lines hold the water at the same level

2. **To reduce the speed of runoff water from the field:** A small check dam can be built on the water stream (Figure 5.12).



Figure 5.12: Check dam on a water stream used for irrigating fields

3. **To let the water percolate inside the ground:** This can be done by making a percolation tank, dam, borewell recharge, etc. (Figure 5.13).



Figure 5.13: Percolation tank for groundwater recharge

Activity 7: Reusing water

When we use water for cleaning, bathing, and other activities, it gets contaminated with dirt, oil particles, and other impurities. It is possible to reuse the water by removing impurities. When water flows through the river, weeds like hyacinth absorb minerals that are mixed into water; oxygen mixed in water decomposes organic matter; and sunlight kills harmful bacteria. Through these natural processes, river water becomes clean when it flows.

Wastewater generated from domestic sources, such as from sinks, baths, washing machines, and kitchens, is called greywater. Instead of letting this water go to waste, it can be reused for some purposes, such as irrigation, cleaning, or even groundwater recharge. As part of our efforts to reuse water, you can try any of the following greywater recycling systems:

1. **Wastewater from washing vegetables or cooking is used to water plants:** Runoff water from a hand pump or a washing sink (to ensure the water is not too soapy) can be used to water the kitchen garden (Figure 5.14).



Figure 5.14: Using left over water for watering plants



Grey water can be used for flushing toilets.

You can search online with the following keywords:

- DIY + grey water system + Indian toilet
- DIY + grey water system + toilet flush



2. Installing a reed bed grey water system at your school, or visiting a grey water recycling system:

You can make a reed bed system for wastewater from your school (Figure 5.15 and 5.16). This follows a natural filtration mechanism. Grey water is collected in a tank to settle the suspended particles. This is called the sedimentation tank. Water from the sedimentation tank passes through the roots of plants, like *Canna indica*, *Colocasia*, and many other local water loving-plants, which absorb the organic pollutants and heavy metals (Figure 5.16).



Figure 5.15: Reed bed setup

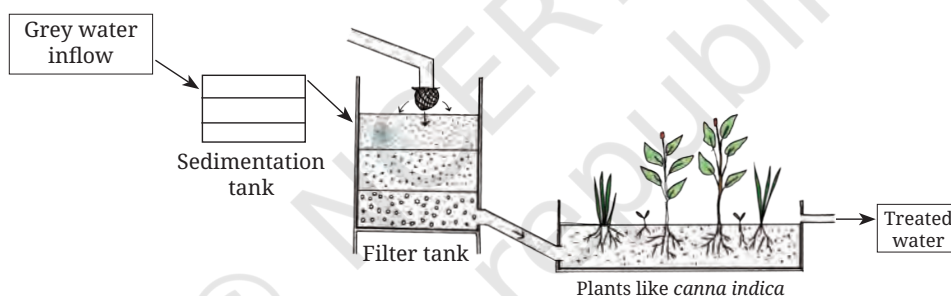


Figure 5.16: Reed bed system for reusing wastewater



You can search on the Internet using the keywords:

- 'DIY + grey water system'
- 'Grey water system treatment + design'

Reflect on your learnings

On the basis of the water-saving activities (reducing consumption/ reusing water) carried out in school, answer the following questions:

1. What initiative have you taken to reduce water usage?
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.....
2. Write down details of the activity you carried out.
.....
.....
3. Amount of water saved per day (estimated).
.....
.....

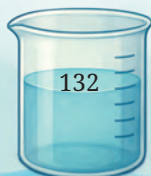
Activity 8: Estimate future water requirement

You have used primary data to estimate average consumption of water. You have used secondary data to learn about water availability in your locality. You are now ready to estimate future water requirements in different scenarios. Respond to the questions in Table 5.6 and 5.7.

1. What is the increase in the demand for water if a housing society of 100 homes is constructed near your village? You can estimate four people per family.

Table 5.6: Record of data on increased demand in scenario 1

S. No.	Number of families	Total number of members in the family	Average consumption per family	Total increase in consumption	Increase in overall consumption in your locality
1.					



2. What will be their water requirement if a college hostel has one thousand students?

Table 5.7: Record of data on increased demand in scenario 2

S. No.	Number of additional consumers of water	Average consumption per person	Total increase in consumption	Increase in overall consumption in your locality
1.				



What did I learn from others?

Identify what you learned during field trips, online and offline interactions with experts, family and friends, community members, and other sources.

1. Name any one thing that you found surprising where use of water is concerned.
2. Write any three things you learnt that will help you save water in your life.



What did I do and how long did it take?

It is important to understand how much time is required for an activity to be completed.

Calculate the approximate number of hours you spent on each activity. Mark them on the timeline below. If you did more than the activities suggested in the book, please add the number and time taken.





What else can I do?

After finishing your project, here's what you can do next:

1. You can use computer programming to write a programme to help users estimate water requirements and consumption patterns.
2. You can write a letter to government officials informing them of your findings and suggestions, like promoting grey water for the garden, fixing leakage taps, or recharging the borewell near the hand pump or rainwater harvesting.
3. As you did a water audit, you can also carry out a grocery, food waste in the kitchen or electricity audit.
4. Study about a solar water tank that stores hot water heated by solar thermal collectors. Also, study how it is being used for residential and commercial purposes.



Think and Answer

1. Did you enjoy doing this project?
2. What did you like, and what would you do differently next time?
3. Using a map, trace the path of the river closest to your locality. Look at the adjoining districts the river path passes through in your state. Identify those dependent on the river. Which areas are drought-prone or have surplus rain? Are there any dams on the river? How do you think the river impacts people's lives?
4. Examples of jobs related to the work you did are environmental scientist, environmental engineer, industry professional, social worker, auditor, etc. What other jobs are related to the project? Look around, speak to people, and write your answer.

