

KEEPING YOUR DRINKING WATER SAFE

CONDUCTING A WATER AUDIT



Tool for Conducting a Water Audit

The Tool for Conducting a Water Audit is part of the Keeping Your Drinking Water Safe Community Toolkit developed by Live & Learn Environmental Education. The toolkit is designed to be used by Community Trainers, Health Officers, Community Workers, and Facilitators, to raise awareness about the need to keep water clean and promote responsible attitudes, behaviour and actions to ensure safe and lasting drinking water supplies.

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The **Keeping Your Drinking Water Safe Community Toolkit** contains:

- An Introductory Guide containing background information and annexes
- Tool for Conducting a Water Audit
- Tool for Conducting Sanitary Surveys
- Tool on Snapshots to Monitoring Water Sources
- Tool For Water Quality Monitoring Using The Hydrogen-Sulphide (H₂S) Paper-Strip Test
- Tool on Water Awareness and Education
- Tool for Water Management Actions
- Comic and Paper-strip test Instruction Flipchart

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Knowing More About Your Water

Water quality is as important as water supply. Water quality is affected by rainwater drain. Chemicals, oils, fats, paints, litter and fertilizers, all have the potential to pollute our waterways. By taking a moment to dispose of these substances safely, we can protect our waterways and the plants, animals and humans that depend on them.

A water audit is simply a series of questions and observations that are made to find out more about water, how it is used, and whether it is at risk of being contaminated. The main reason to do a water audit is to get a better understanding about water in order to carry out the right measures to make sure it is kept clean and healthy. This audit seeks to find out the following:

- How is water being used?
- What are the sources of water (where does the water come from)?
- Is the water at risk of being contaminated by disease causing germs?
- What activities are putting the water at risk of contamination?
- How is water being wasted, and how can more be saved?

The audit will allow you and the household to discover the answers to these questions. Then, with this new knowledge, households and communities can create an action plan to address the findings of the audit and to promote proper sanitation, hygiene, and health in their communities.

Method:

- 1) Draw a map of the community environment.
- 2) On this map mark areas where water is being used, for example you can mark areas such as taps, drains, gardens, water tanks etc. This map follows the movement of water i.e. drains, or absorbed into the soil etc.
- 3) Copy the Water Audit Survey Sheet to be used by the auditors to conduct the water audit with each household in the community.



Tips for conducting a Audit

Before you start

- Make sure that you introduce yourself properly if you don't know the people you are surveying, try to make them comfortable and build some rapport before starting
- Clearly state the purpose of the survey and give a brief overview. Allow the people to ask questions
- Explain that your conversation will be confidential
- Tell the people how long the survey will take, and make sure that it is a convenient time

Conducting the Audit

- Begin with some friendly general conversation to help the people feel at ease
- Ask the questions in order and try to keep the conversation to the topic of the question
- Be cautious about asking "why" because it can make people feel like you are passing judgment on them
- Beware of asking the questions in a way that could influence the householder's answers. For example, never ask "Don't you think that ..."? This is called a leading question
- Be sure that you have clearly understood the answer. If not, ask the person to repeat the answer. Always ask the householder to explain words and ideas that you do not fully understand. Do not assume that you know what the answer is because of your own knowledge and experience
- Avoid passing judgment, giving advice or your own opinion
- Avoid discussions that are not useful. Keep to the topic of the survey

Closing the Audit

- Ask the householders if there are any questions they would like to ask you
- Discuss the next steps
- Thank the participants for their time and trouble



WATER AUDIT SURVEY SHEET TO COPY

Community:

Date of Visit: Time of Visit:

Name of Household:

Name of Auditor:

Section 1: General Questions

1. How long have you lived here?
.....2. How many people live in this home?
.....

3.

Water Source (Where do you get your water from?)	What do you use it for?	Does it ever run out? (Explain)	Do you think it is safe to drink? (Explain)
Water Tank			
Well			
River			
Others (Please state)			

4. Do you ever boil your drinking water? Yes No Why? (If someone told you to boil water, please identify/state the name of the person and where they work?)
.....
.....

5.

How often do people in your house get sick with:	Often	Occasionally	Never
Diarrhoea			
Vomiting			
A disease that you think is linked to water (please explain)			



6. Why do you think they get sick?

.....

7. What do you think you could do to reduce the number of illnesses?

.....

General Comments:

.....

Section 2: Water Testing

1. Has your drinking water ever been tested? Yes No

If your answer is 'yes,' Questions 2-5; if you answered 'no', move to Question 6.

2. How was it tested? (By whom?)

.....

3. How often was your water tested?

.....

4. Were the results Good or Bad?

.....

5. If your results were bad, what steps/actions did you take?

.....

6. Do you think Water Testing is important? Why?

.....

General comments on Water Testing:

.....

Section 3: Rainwater Tanks

1. What kind of Rainwater Tank do you have? (please tick)

Aluminum Cement Fibre Glass

Other Please describe:



2. How often is your rainwater tank cleaned?

.....

3. Do you ever treat or clean the water in your rainwater tank? Yes No

4. How is the tank cleaned or treated? Who cleans it?

.....

.....

5.

Condition of Gutters (if present)	Please tick ✓	How often are the gutters cleaned?	Please tick ✓
Very good – very few leaves, no dirt or evidence of animals		Often (every 1 – 2 months)	
Good – few leaves, little dirt or evidence of animals		Occasionally (twice a year)	
Poor – many leaves, some dirt and/or evidence of animals		Rarely (once a year or less)	
		Never	

6. Do birds or other animals have access to the rooftop? Yes No

7. Are there trees over hanging the catchments (e.g. roof) of the water tank? Yes No

8. Is there an intake screen on the tank? Yes No

If you ticked 'yes', how often is it cleaned?

.....

9. Is there any uncovered opening on the rainwater tank? Yes No

General comments on Rainwater Tanks:

.....

.....

Section 4: Well Hygiene

1. What kind of well do you have?

Drilled (bore) Dug Open Sealed

Other, Please describe:

.....

.....



2. Do animals have access to the well?

Yes No

Please comment:

.....
.....

3. Is the water in the well treated?

Yes No

If yes, how?

.....
.....

How often and by whom?

.....

What types of toilets are 'nearby' in the community (include neighboring properties)	Approximate distance from well (meters)	Are these 'uphill,' 'downhill' or on 'flat ground'?
Pit Toilet		
*VIP Toilet		
Septic Tank		
Area where people defecate (e.g. in the bush or river)		
Other (please explain):		

*Ventilated Improved Pit Toilet

5. Describe the vegetation surrounding the well, that is, the plant cover, how close are the plants to the well, is it bushy, etc.

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

General comments on Wells:

.....
.....
.....**Section 5: Piped Water**

1. Do you have access to piped water via a tap?

Yes No

How many households share this tap?

.....



2. Is the area around the tap stand fenced

Yes No

Please describe the area

.....

.....

3. Does water accumulate near the tap stand

Yes No

If you answered 'yes', please describe the area.....

.....

.....

4.

What types of toilets are 'nearby' in the community (include neighboring properties)	Approximate distance from tap stand (meters)	Are these 'uphill,' 'downhill' or on 'flat ground'
Pit		
VIP Toilet		
Septic tank		
Area where people defecate (e.g. in the bush or river)		
Other (please explain):		

6. Please describe condition of the taps:.....

.....

.....

General comments on Piped Water:

.....

.....

.....

Section 6: RiverCare

1. How far is the house to the nearest creek or river?

.....

.....

2. How is the river used by people in the household? (You may tick more than one answer)

Drinking Washing clothes Cleaning dishes Fishing

Washing (cars) Disposing of waste water Dumping rubbish Toilet

Providing water for animals (e.g. pigs or cows) Other (Please describe)

.....

.....

.....



3. If the house is close to a river, rate the condition of the riverbanks:

Condition	Rating	Description
Excellent	4	Almost all native plants (no introduced weeds or gardens); almost all of the ground is covered by plants; good mix of trees, shrubs and smaller plants; no signs of disturbance; no access to animals
Good	3	Mostly native plants; good cover of plants, good mix of trees, shrubs and smaller plants; no signs of recent disturbance; little or restricted access of animals
Fair	2	Mixture of native plants and introduced plants; moderate cover of plants (some spaces); narrow corridor of plants (less than 5 m); evidence of recent site disturbance; little or restricted access of animals
Poor	1	Mostly introduced plants such as weeds, grasses and gardens; little cover by native shrubs or trees; lots of bare ground, extensive site disturbance; unrestricted access for animals

Rating Scale:

Left bank (facing downstream) – circle a number: 1 2 3 4

Right bank (facing downstream) – circle a number: 1 2 3 4

4. Comment on access of animals to the stream:

.....

.....

.....

5. Describe the condition and source of any drains running into the stream

.....

.....

.....

6. Where does your rubbish (solid waste) go? (You may tick more than one answer)

Community landfill site Hole near the house Bush River

Ocean Burned Other (Please describe)

.....

.....

.....



7. Where does the wastewater go?

Type of Waste Water	Where does it go?
Shower	
Toilet	
Washing (clothes)	
Washing (dishes)	
Other (Please explain)	

General comments on RiverCare:

.....

.....

.....

Section 7: Sanitary/ Home Hygiene

1. After using the toilet, people in my house wash their hands with soap:

Always Sometime Never

2. Is there any soap in the hand washbasin at present? Yes No

3. Do you store drinking water in your house? Yes No

If yes, please describe how it is kept (is it covered, what is it kept in, etc?):

.....

.....

.....

General comments on Sanitary/ Home Hygiene:

.....

.....

.....

Section 8: Water Conservation

1. Have you ever had a shortage of water? Yes No

(If 'yes' please explain)

.....

.....



2. What things do you do to save water?

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

3. Are you aware of any leaks (in your house/ community), and if so, where are they?

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

4. Comment on the condition of taps (are they dripping or leaking?)

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

5. Comment on the condition of flush toilets (are they leaking or running?)

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

6. If you report these leaks, who do you report them to?

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

7. Who is responsible for fixing leaks in your community / house?

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

8. Who pays for plumbing repairs?

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

9. Do you water plants or bath animals? (if so, how often do you water plants or bath animals?)

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

Comments on Water Conservation:

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

Section 9: Community Water Services

1. Who do you think is responsible for providing drinking water in your community?

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

2. Who do you think is responsible for protecting the quality of water?

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



3. Do you have a water committee in your community?

Yes

No

Not Sure

If yes, please describe the activities of the water committee

.....

.....

.....

4. Does the committee carry out water testing on a regular basis?

Yes

No

Not Sure

Are you involved?

.....

.....

.....

General comments on Community Water Services

.....

.....

.....

Overall and Additional Comments:

.....

.....

.....

Signature of Householder.....

Signature of Auditor.....



Conducting an Environmental Audit

The state of our water resources is linked to many other environmental, economic and social issues, such as poor waste disposal and littering, deforestation and soil erosion. It is important to review how communities use and manage other environmental resources, in order to assess how these actions affect or relate to community water issues. This review can be done through conducting an environmental audit.

An **environmental audit** is the process of:

- Assessing our actions and attitudes towards the environment.
- Monitoring and measuring the use of resources.

An environmental audit provides baseline data against which improvements in environmental management can be measured. An audit provides us with the first step to investigate solutions to environmental problems such as water pollution, waste and energy conservation. Problems and issues can be identified through an audit, which can then begin the problem solving process.

What Outcomes Can Be Expected?

An environmental audit is valuable for the community as it will assist members to identify problems in the community environment and more specifically help identify resources used. It provides the first step for individuals to investigate solutions to environmental problems such as waste, water and energy conservation. More importantly, an Environmental Audit can encourage community members to have a good look at their own attitudes towards the environment. Community outcomes can include the building of knowledge and skills to:

- Identify resources used in their daily routine.
- Record and interpret data about the use of these resources.
- Become more responsible in their use of these resources.
- Use teamwork to conserve these resources.
- Write, implement and evaluate a plan to use resources wisely.



Planning and Preparing for an Environmental Audit

Establish groups to carry out environmental activities, by following the example structure shown below. Once groups are established, some planning and preparation must be done, for example:

- *Identify desired goals and outcomes for the audit and management plan (e.g. to increase awareness, to change attitudes, to eliminate waste, to reduce electricity bills).*
- *Identify tasks and responsibilities and assign them to various action teams. It is common to assign action teams to particular issues (e.g. energy, water, materials, waste etc.) but you are free to assign responsibilities in the way that best suits your needs.*
- *Consider linking community environmental activities to existing International, National or Community events such as Arbor Week, Environment Week, World Water Day and so on.*
- *Assess resources available for environmental activities.*
- *Make contact with members of the community who are likely to have 'expert' knowledge about community resources.*
- *Publicize plans for environmental activities on notice boards or at community meetings.*

EXAMPLE STRUCTURE OF GROUP



Elect an **environmental committee** to initiate and oversee environmental activities, if one does not already exist.

Form **action teams** to carry out environmental activities. Action teams might include a range of representatives from community groups and other stakeholders.

Elect an **auditor** from each action team. Auditors will be responsible for collating data collected by their teams.

Hold regular **elections** for the environment committee. Whatever groups you decide to use, remember that they should include representatives from all areas of the community. The more people who contribute to environmental management, the more effective it will be, not only in collecting data, but bringing about real change and improvement.



Environmental Audit Actions

Below are some examples on how to conduct activities as part of an Environmental Audit.

ACTION 1: PLANT SURVEY

1. Divide a map of your community into areas and assign each area to an action team. Visit each area and identify all species of plants growing there. Use elders in your villages to help you identify plants and add this information to your map.
2. Find out which plants growing in your community are locally native and which are introduced species. Research the problems associated with introduced species of plants.
3. Identify areas around the community that have been cleared or that are lacking in trees and plants. Highlight these areas on your map.
4. Find a creek or waterway near your community. Look to see whether the riverbanks are well vegetated. If you find areas with little or no plant cover, note the effects on the banks and the water.
5. Identify local native plants suitable for your community. Consult elders, other community groups, nearby nurseries or other stakeholders for help.

ACTION 2: CONDUCTING A WASTE AUDIT

1. Brainstorm and compile a list of waste, litter-types, rubbish found in your community.
2. Divide a map of your community into areas and assign each area to an action team. Survey all areas and use your list to tally how much litter or rubbish of each type is present. Try this activity on different days of the week and see if results are different, if so, work out why.
3. Prepare a map showing the types and quantities of litter/rubbish found in different areas of the community. Use colour codes and symbols.
4. Using your map, identify 'hotspots' where litter/rubbish is most likely to cause environmental impacts. Consider quantities of litter/rubbish and the effects of these on other community resources such as water, soils and even human health.
5. Identify which members of the community use litter/ rubbish hotspots.
6. On your map, also identify compost areas and rubbish pits.
7. Identify which members of the community use these areas or practice composting. Is there a need for training in the community in practical waste management actions? If so, what can be done to address this?



8. Develop a survey form to find out attitudes to litter/ rubbish/ waste. Questions to ask may include:
- Why do people litter?
 - What harm does litter cause?
 - What could be done to reduce litter or waste?
 - What type of litter/ rubbish/ waste do people most dislike? Why?
- Use the form to interview a sample of residents. Be sure to include users of litter hotspots.
9. Compare the results from your litter survey with those from your water audit. Does litter have an impact on community water resources?
10. Where do you think most of the litter objects at the litter hotspots have come from originally?
11. Will more litter bins and recycling bins help to stop people from littering?
12. What else is needed?

WASTE REDUCTION AND RECYCLING

- Reduce paper use (reuse returnable handouts).
- Reuse paper.
- Collect and recycle paper from every household.
- Reuse or recycle cardboard boxes.
- Collect and return beverage containers.
- Collect and reuse cans and glass.
- Compost organic waste.
- Reduce plastic consumption.
- Identify recycling possibilities for plastics.
- Salvage reusable materials and supplies.
- Avoid or minimize the use of disposable dishes, cups, paper towels etc.
- Purchase recycled copy paper, computer paper and envelopes
- Buy environmentally friendly products.

Example Waste Survey

How many community rubbish bins are available in your community? Number _____

Are the bins full?	Yes	No
Are the bins clean?	Yes	No
Can the rubbish fall out of the bins?	Yes	No
Is the rubbish around the bin?	Yes	No
Are more bins needed? (if yes, what actions can you take)	Yes	No
Are there any recycling bins available?	Yes	No
Are there compost heaps around?		

What are the major types of rubbish in the community?

What can be done to reduce littering and waste?



EXAMPLE WASTE AUDIT SURVEY SHEET

Community:

Date of Visit: Time of Visit:

Name of Household:

Name of Auditor:

1. Do you have a proper rubbish bin?
If you answered 'no', what do you use as a rubbish bin?
2. What is the most common type of rubbish that you put in the rubbish bin?
.....
.....
3. Does your household practice 3Rs? Yes____ No____
4. Do you use compost? Yes____ No____
5. Do you purchase environmentally friendly products?
Explain.....
6. How many plastic bags would you use in a day? A week?
7. How do you dispose of plastic bags and plastic containers?
Burn Bury
Others Please explain:
8. Are you aware of the effects of burning plastics? Are you aware of the effects of poor waste disposal on the environment? On human health?
9. What type of household rubbish or waste do you notice in wells, rivers and creeks around the community? Are any of these toxic? (I.e. they have dangerous chemicals which may be harmful to the environment, or human health)
.....
.....
10. State some things you may be able to do to reduce waste
.....
.....



ACTION 3: ENERGY CONSERVATION

Energy is used to move people and goods, and to provide power for lighting, heating, cooling and cooking. Computers and telephones, and a range of other appliances, also require energy.

To conserve energy, alternative methods can be used. Use of skylight can be one option. The sun or the solar energy is another alternative source of energy. Solar energy is a renewable resource and does not have the side effects of fossil fuel burning. Water and wind can also be harnessed to generate energy and are also readily renewable. These alternative sources could meet some of our energy needs.

By using energy wisely, you can:

- *Conserve non-renewable resources for future generations*
- *Reduce greenhouse gases*
- *Save money on electricity costs*

EXAMPLE ENERGY AUDIT SURVEY SHEET

Community:

Date of Visit: Time of Visit:

Name of Household:

Name of Auditor:

1. How many switches do you have in your household?

1 _____, 2 _____, 3 _____, more than 3 _____

2. How many power points do you have?

1 _____, 2 _____, 3 _____, more than 3 _____

3. We use the light everyday. Yes _____ No _____

4. We use the light only when it becomes dark. Yes _____ No _____



5. Electrical Appliances in your household. Do you have a:

- refrigerator Yes _____ No _____
- electric kettle Yes _____ No _____
- microwave Yes _____ No _____
- washing machine Yes _____ No _____
- toaster Yes _____ No _____
- sandwich maker Yes _____ No _____
- coffee maker Yes _____ No _____
- computer Yes _____ No _____
- photocopier machine Yes _____ No _____
- fax machine Yes _____ No _____

6. How often do you use electrical items in your household?

- refrigerator per day per week
- electric kettle per day per week
- microwave per day per week
- washing machine per day per week
- toaster per day per week
- sandwich maker per day per week
- coffee maker per day per week
- computer per day per week
- photocopier machine per day per week
- fax machine per day per week

7. Have you got labels/ notice near switches to promote energy conservation?

Yes _____ No _____

8. What are the relationships between energy use and water resources?

9. State some of the ways you may be able to save energy in your household?

10. List some ways of conserving energy that be promoted in your community or included in your community plan?





United Nations Environment Programme



World Health Organization



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