



An initiative of Utthan

Water for All



People's Learning Centre for WATSAN, Bhavnagar

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Introduction

Utthan was initiated in 1981, in one of the most marginalized blocks of coastal area of Ahmedabad district in Gujarat. The mission of Utthan has been to initiate sustainable processes of empowerment amongst the most vulnerable communities specially the women, to bring about desirable changes in the society, leading to equality, non-discrimination, non violence and peace and access to community's rights over their resources and livelihood security. Utthan's approach and strategies have been that of organizing, mobilizing the vulnerable communities around their major issues, help build women's and people's institutions at various levels, capacity building, demonstrating gender sensitive alternatives, networking, partnership building and advocacy.

Utthan has been involved in addressing access to safe drinking water and sanitation - one of the major issues faced by women and the marginalised communities, by establishing and advocating for people centred gender sensitive watsan systems. The issue is about equity (access, inclusion of women, vulnerable section in decision making), sustainability (ecological, resources, management/good governance) reliability and security (quality, quantity, services), and affordability .

People's Learning Centre - WATSAN

Over three decades, Utthan has gained valuable experiences and learning from its work within the water and sanitation sector, working with communities and advocating at various levels on the issues of water and sanitation. Efforts of Utthan with groups and networks such as Pravah, Jaldisha, Jalbiradari, WASH, Gender Water Alliance, Global Water Partnership, and several others have led to acceptance of decentralized watsan approach by the international, national and state government.

Within Millennium Development Goal of ensuring environmental sustainability, one critical target to be achieved by 2015 is to reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation. Based on this target, numerous water and sanitation programs were implemented at the national and the international level. Within this, it was imperative that the communities first understand their water and sanitation needs, make an informed choice and enhance their reach to access water and sanitation facilities. To achieve this, there was an urgent need to create awareness and capacity build communities to access water and sanitation facilities. To achieve this changed approach, it is important that the Governments formulate appropriate policies and programs and provide requisite resources and institutional mechanisms.

PLC-WATSAN aims to partner and bring about this change. However, reality is far from desirable. Rhetoric has to be translated genuinely to actual results on ground both in urban and rural areas. Utthan, hence established a People's Learning Centre for watsan in 2006-07, with an objective of consolidating learning of its own and that of other partners for knowledge generation and

A true devotee is the one who saves water.

dissemination, by facilitating learning and capacity building at scale, demonstrating new ideas and viable alternatives for promotion at scale and for policy implications.

Vision

Establishment of institutional processes at various levels that would be enabling communities to be aware of their rights and ensuring implementation of sustainable, equitable, safe water and sanitation systems, catering to the vulnerable sections of the society,

Goal

To create a people centred platform / forum wherein the communities along with various other people responsible are able to enhance their mutual learning, increase their capacities as service providers and are able to access rights over resources for implementation and sustainability of the watsan system.

About this booklet

We all are aware of this statement Water is Life. But one has to understand the real meaning of this statement. If one does it, it would not only help one person but society at large. As perhaps all are aware that the human body is made up of 80% water. Hence, the foundation of our existence is water. Water provides the requisite elements to our body. This helps our body to tune into /adjust to the environment. Further, numerous human activities are also water dependent. If one also focuses upon the economic activities, then water plays an important role in the creation of wealth. Some of the important economic activities could be agriculture, industries big and small or animal husbandry. Hence "water is life".

But in the present context instead of saying "Water of Life" it should be "Clean and potable water is life". The reason for making this statement is that we all, together, have not cared for this invaluable resource and that all kinds of human activities have led to polluting and contaminating water.

This booklet is an effort at giving a simple understanding of water sources, sources of pollutions or contamination and simple things one can do to keep water safe for healthy being. We do hope awareness and consciousness created by this reading would make many people behave more responsibly towards protecting this source.

The quantum of potable water is limited. That's why it is important to protect and maintain the village water sources. If we are able to keep the water pot of our home clean, then keeping the "village water pot" that is hand pumps, wells, ponds, underground tanks or check dams clean and safe is our collective responsibility. This message needs to reach every one which is also one of our responsibilities.

Pravin Bhikadiya and PLC watsan team

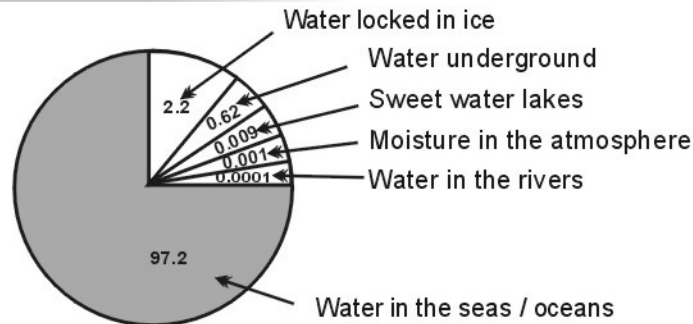


You be a Christian, Parsi, Muslim or a Hindu what satisfies all is a droplet of water

Water Sources

Nature has created two major water sources one from the sky / clouds and the other is the stored groundwater. But if this water is not utilized prudently, then this very water -that is life, may become contaminated and harm our lives.

Quantum of Water on Earth



Water Pollution

The water given to us by nature needs to be conserved and protected. This is everyone's moral duty. But is the water available to us today, clean, safe and not contaminated? This is a serious question that requires all of us to wear our thinking caps. Nature gives us clean, pure water that is devoid of any impurities or odour. But when outside pollutants mix with water, the quality of the water is affected. Such water leads to illnesses because it is contaminated. This quality of water is impacted by the various activities such as industries, waste water from homes, lack of hygiene, animal care, agriculture various allowing elements to reach the water bodies leading to its contamination and illnesses. Numerous gases too get mixed with water causing an odour. As well, minerals, toxics, chemicals, and other waste get mixed with water that leads to pollution of water.

Reasons for Water Pollution / Contamination

- Human faeces (because of open defecation) and poor hygienic habits
- Pesticides (excess use and seepage from farms)
- Industrial waste water and industrial waste
- Solid waste (because of littering and creation of garbage dumps)
- Salinity ingress, fluoride, nitrate from the rocks

Because of water, life is an oasis else its all sand-a desert.

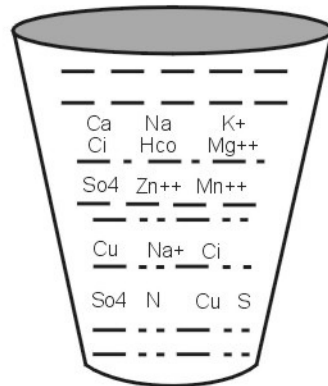


As stated if one does not protect our water we are bound to fall ill.
Pollutants in Water

There are two types of pollutants in water.

Organic Pollutants

- Bacteria
- Algae
- Soil



Chemical Pollutants

- Fluoride
- Sulphate
- Chloride
- Total Dissolved Solids (TDS)
- Magnesium
- Nitrate
- Carbonic Acid Gas
- Nitrogen
- Arsenic.

Only 1% of the water is potable and can be used by humans. If from this very 1%, each human being uses 200 litres of water every day, then 500 crores of people around the world can use this water for 40 thousand years.



Life will ebb without water, but will flourish with water.

Water Sources available to us :

1. Rain water
2. Surface water found in rivers, streams, ponds, weirs/dams, shallow pits in riverbeds
3. Underground water found in wells, tube wells and bore wells


Rain Water

In many places, the rain water is directly gathered in large tanks/ ponds or in individual household tanks that can collect roof water. This traditional practice has been a trend to access clean water. Such water is used for collective and individual purposes.

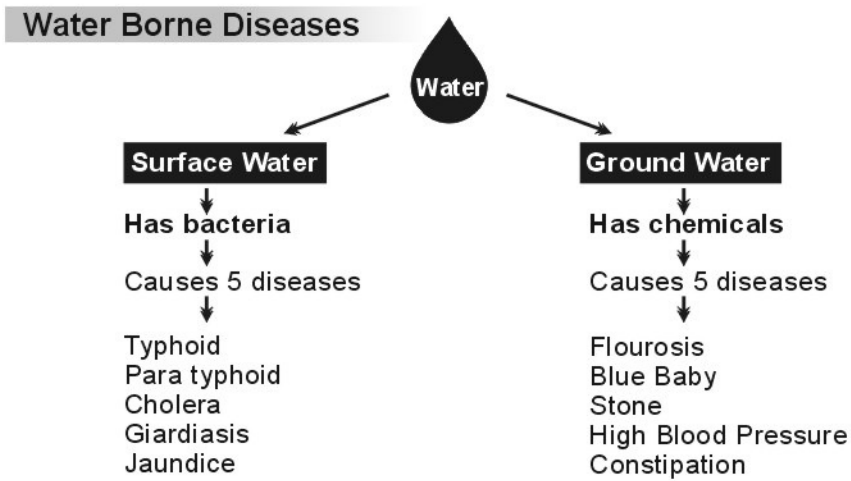
Surface Water

The rain water flows through rivers, streams, weirs/dams as well gets collected into ponds

- **River Water:** This is flowing water and many communities depend on the river waters as their main source of water.
- **Weirs/Dams :** The river water is always flowing. But to harvest such water, a wall is erected across the river to store such waters. Such waters are then used for irrigating agricultural lands and used for domestic purposes.
- **Ponds:** In villages where there is water scarcity, large pits are dug. Rain water gets collected here. Such harvested water is then used for drinking and other activities.
- **Ground Water:** Where there is water shortage and storing surface water is not possible, then hand pumps are used to draw ground water or there are wells and step wells.
- **Roof water tanks :** This is a traditional way of harvesting and storing rain water from the roof top of a house or any other surface, into a tank which could be either underground or above the surface.

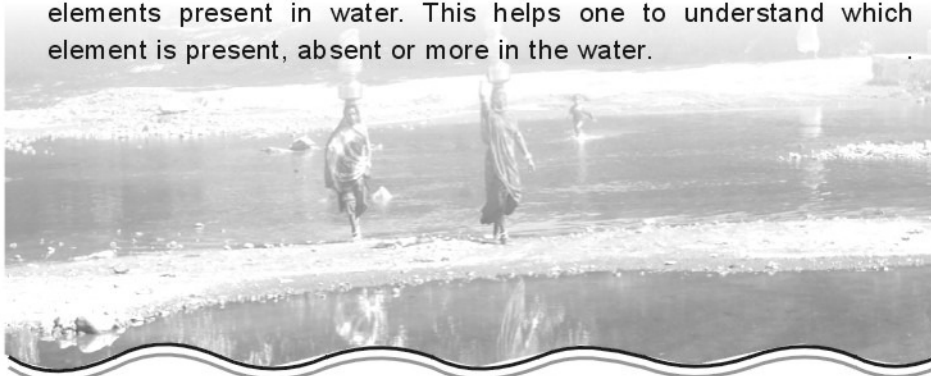


Better quality of water means better for life.



Water Testing and its Importance

Many a times, because of various types of activities, contaminants get mixed with water either at the source or during distribution. Contaminated water is always harmful which when used continuously, affects the immune system of the humans. Invariably this leads to hosting numerous diseases. Hence cleaner the water, the better our health. Hence before using any water, it is important that it is tested for its qualities. This will help determine the potability of the water. Before testing water, it is important to understand the various elements present in water. This helps one to understand which element is present, absent or more in the water.



Never thought about water, so let us think for the next generation.

Water testing its possible and necessary !



- Nature has given the best gift to humans water. And this very water plays a critical role in sustaining life. Water is important for drinking, to prepare food and complete numerous other daily chores.
- Science has defined water as H₂O (2 atoms of hydrogen and one of oxygen). If there is even 1% reduction of water from human body, we feel thirsty. If there is excess loss of water, that state is called dehydration. If there is delay in seeking treatment in such a condition, then such a person could even die.
- Water and health are the two sides of the same coin. According to World Health Organization (WHO) lack of water or contaminated water can cause numerous diseases. In most of the developing nations, 80% of the disease burden is water borne because contaminated water is used for drinking purposes. Therefore water quality testing is very important.
- It is also important to test surface water sources especially that of rivers and ponds. The tests are important to know the water quality and its potability.



Water means alive me and you else we vanish in the blue.

Taking a Water Sample

- Use a clean clear plastic or a glass bottle to collect samples.
- While taking a water sample, always take 2 litres of water.
- Place a sticker on the sample (bottle) that has the details of the source of the sample.
- While collecting a sample from a pipeline, allow some water from the tap to flow first, and then take the sample.
- For drinking water, collect the sample from the source.
- Always test water before and after the monsoons.
- Before collecting the water sample in the bottles, see that one's hand is not dipped in that water before collecting it.
- Send this water to the laboratory or use the testing kit.

Drinking Water Quality

There are international and national standards to ascertain the drinking water quality. Knowledge of these standards is helpful to understand how contaminated water hampers our health. Hence our body systems can accept a certain level of quality. The higher the quality of the water, the better is the health. Therefore, it is important that clean safe water is available so that it helps enhance / maintain our capacity to work and maintain our health.

While setting these standards, the health of the humans is at their core. While setting these standards, the following aspects are important which include the water source, nation's economic capacity, standard of living and appropriate equipments to test water. In India, the water quality standards fall under "I S 10500 1991". :



Costly water will change the world's values.

Physical Chemical Standards
IS 10500-1991 first research publication

Sr No	Substance or Characteristic	Desirable Limit	Permissible Limit	Health and other negative impacts
1	Colour	5 hazen units	25 hazen units	Consumer acceptance decreases
2	Odour	Unobjectionable	-	Consumer acceptance decreases
3	Turbidity	5 NTU	10 NTU	Consumer acceptance decreases
4	Dissolved solids	500 mg / litre	2000 mg / litre	Beyond this palatability decreases and may cause gastro intestinal irritation
5	ph level	6.5 - 8.5	-	Beyond this range water will affect the mucous membrane and/or water supply system
6	Total Hardness	300	600	Encrustation in water supply structure and adverse effects on domestic use
7	Calcium	75 mg / litre	200 mg / litre	Encrustation in water supply structure and adverse effects on domestic use
8	Chloride	250 mg / litre	1000 mg / litre	Beyond this limit, taste, corrosion and palatability are affected
9	Sulphate	200 mg / litre	400 mg / litre	Beyond this causes gastro intestinal irritation when magnesium or sodium are present
10	Nitrate	45 mg / litre	No Relaxation	Beyond this methaemoglobinemia takes place
11	Fluoride	1.0 mg / litre	1.5 mg / litre	Fluoride may be kept as low as possible. High fluoride may cause fluorosis
12	Alkalinity	200 mg / litre	600 mg / litre	Beyond this limit taste becomes unpleasant
13	E-coli	-	-	Causes diarrhoea, cholera, typhoid, dysentery

Drink and help others drink clean water else the doctor is the king.

Remember

- Water available naturally is clean and safe. But with contamination, such water cannot be used as it can cause diseases.
- In the surface waters of rivers, ponds and dams, the dissolved minerals are less, but the presence of turbidity and E-coli cannot be ruled out.
- It is not advisable to straight away consume water collected from rivers, ponds and dams.
- In the ground water, the level of dissolved minerals is high. However, chances are that such waters from wells, hand pumps and bore wells may not have the presence of turbidity or E- coli.
- Water collected from wells, hand pumps and bore wells if stored properly can be consumed straight away.
- Waters from wells, hand pumps and bore wells can get contaminated when proper care is not taken while transporting water through pipelines, storing it in large elevated storage reservoirs or the water pots at home. Such contaminated water then becomes the cause of diseases.
- It is expensive to make saline water sweet. In such circumstances, it is important to get potable water and hence alternatives of water sources have to be thought in saline areas. However, a little saline water can be used for bathing washing vessels, clothes, mopping or in the toilets. This will help save potable water.
- To purify water and make it contaminant free, it either needs to be boiled, or one could use a chlorine tablet or fill the water in a clear glass / plastic bottle and keep it in the sun for three four hours in the afternoon. Such water should be used for drinking purposes only. This process can be followed twice a day if required.
- Using cloth or ready to use sieves does not make water contaminant free; it will at the most deal with turbidity. Scientifically designed slow sand filter would be very effective to remove turbidity and also reduce bacterial contamination.
- By using ladles to retrieve water and covering the water pots after use will help do away with hands contaminating the drinking water. It also does not allow the mosquitoes to breed if water storages are always kept covered.

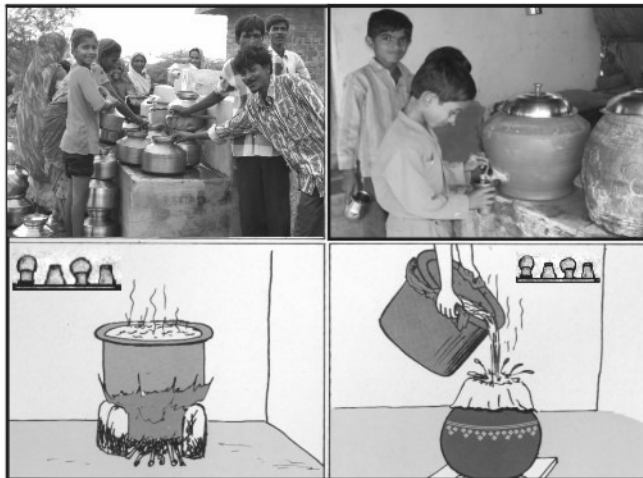


Costly water will change the world's values.

Measurement of using Bleaching Powder and Chlorine Solutions

Sr No	Quantity of Water in litres	Bleaching Powder (32%-35%) requisite measurement in grams	Chlorine Solution (4%-6% requisite measurement in mili litres
1	1000	5	25 (1/4 th tea cup)
2	5000	25	125 (1.25 tea cups)
3	10,000	50	250 (2.5 tea cups)
4	25,000	125	625 (exact)
5	50,000	250	1250 (exact)
6	100,000	500	2500 (exact)

- If one uses a chlorine tablet, then it needs to be crushed and put in a water pot. This water can be used / consumed after half an hour.
- If one feels that one has added extra chlorine, then keep the water pot uncovered for half an hour to allow the chlorine to evaporate.
- For more information please seek help from the Health Workers or the Aanganwadi Workers in the village.



Drink and help others drink clean water else the doctor is the king.

Song: Mansukhbhai Nariya

Conserving water is a service to the Nation

I cannot find water conserved anywhere
I have doubts if I will be able to find water

Between the two banks the rivers seem desert like
The silent rivers no more echo the sound of flowing waters

The water that the rains give
Today we lack the strength to conserve it

There is water to drink today
No one has inkling about tomorrow

Sitting down dejected
These are moments of death

Conserving water is a service to the Nation
This service is beyond religion



Cover the pot, use the ladle always.

Song: Mansukhbhai Nariya

Grandpa my in laws should not be from such a village
That village which does not have a check dam
That village which does not have any ground water
How will I check his valour with no water
Where drought stares while masculinity merely sits still
How can i travel these difficulties?
Where there is no oneness or cooperation
Grandpa my in laws should not be from such a village

This village that does not care and protect its water
Grandpa tell me how will they care and protect me
Desert separated people of this village
They will keep me thirsty all through my life
Where there are no tears
Grandpa my in laws should not be from such a village

The village boundaries cries as the river is dry oh Grandpa
Whose tears too seem to have ebbed
And where even tears are not part
What fortunes exists here
Where even people are not keen
Grandpa my in laws should not be from such a village

All the rain drops are stolen by the sea
That will make all waters salty
And if every trip for water means empty pots
It's a difficult proposition
Where there are no green trees
Grandpa my in laws should not be from such a village



Chlorinate water make it safe.

Notes



Clean water and a clean village makes happy communities always.





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