

ECCA
SAFE DRINKING WATER PROGRAM
PROPOSAL
(JANUARY 2, 2023; revised APRIL 8, 2023)

Submitted by:

prachet.shrestha@gmail.com

Chairman, ECCA

Jwagal, Kopundol, Lalitpur, Nepal

BACKGROUND

ECCA has been conducting Safe Drinking Water Program in schools since many years. For water disinfection, two small scale technologies are being used:

1. Use of water filter fitted with ceramic candle
2. Disinfection by Chlorine solution (sodium hypochlorite)

1. Use of water filter fitted with ceramic candle

The stainless steel water filter body is used, though expensive than the plastic body, since stainless steel body is more durable. This water filter body is purchased from the local market. This stainless steel water filter body is fitted with ceramic candles developed by Netherlands based <https://www.basicwaterneeds.com/tulip-technology/>, which is manufactured in China. This candle has 3-layer system (Silver impregnated; Granular Activated Carbon; and outer ceramic (diatomaceous earth)) and hence can remove bacteria, turbidity and protozoa. It complies with WHO standards. Depending on the number of users, capacity of water filter body (13 liter, 18 liter, 24 liter, or 30 liter) is decided, in which 1, 2, 3 or 4 ceramic candles are fitted respectively.

2. Disinfection by Chlorine solution (sodium hypochlorite)

ECCA has been producing Chlorine solution (sodium hypochlorite, branded as WATASOL) locally by using the WATA device developed by Antenna Foundation, Switzerland through the electrolysis of common salt solution.

Chlorine solution is produced and provided through two approaches:

- Using large size WATA device at ECCA lab, filling in non-transparent bottles, and providing to the schools/students/teachers
- Providing Mini WATA device (which produces 500 ml of Chlorine solution in 3 hours, which is sufficient to disinfect 2000 liters water) to schools and training students (and a teacher) on chlorine solution production

With the start of the COVID-19 pandemic in Nepal, ECCA started to promote multiple benefits of WATASOL (as a sanitizing agent, in addition to being a drinking water disinfectant). When using WATASOL for multiple usage, the family would need more volume of WATASOL. Previously, during the Safe Drinking Water Program, only 60ml WATASOL bottle was provided to each family (which can disinfect 240 liters water), WATASOL for which was produced in the school itself from Mini WATA device. Now, only the school producing WATASOL by using mini WATA device would not be sufficient. So, ECCA started large volume production of WATASOL in its lab by using larger WATA device (which can produce 60 liter in 4.5 hours) obtained from Antenna Foundation.

Usage of WATASOL:

Use	Dilution ratio WATASOL : Water	Procedure
Drinking water disinfection	1 : 4000	3 drops in a liter of water, mix, wait for 30 minutes.
Hand washing	1 : 10	Rub hands for 30 seconds, allow to dry
Disinfection of floor and premises (house, hospital, latrine, ...)	1 : 6	Let react for 5 minutes and rinse with water
Disinfection of cooking utensils	1 : 10	Let react for 5 minutes and rinse with water
Washing of food and fresh vegetables	1 : 100	Soap for 5 minutes and rinse with potable water
Washing of laboratory equipment (pipettes, tubes, beakers, ...)	1 : 1	Let react for minimum 12 hours and rinse with water
Laundry	1 : 30	Soak clothes for 5 min, then rinse with water. Do not use for wool, silk, nylon.

OBJECTIVE

- To improve the hygienic environment by providing safe drinking water to schools and adjoining local communities

TARGET

- Number of schools: 5 (minimum)
- Number of students and teachers: 5 schools x 350 = 1750
- Number of other beneficiaries (family members, community surrounding the school): 3,000 x 5 schools = 15,000

The schools will be decided based upon the received requests and further discussion with the school management (to be sure that the schools are really committed to implement the project).

METHODOLOGY

The ECCA methodology involves five interfaces:

1. The expert-youth
2. The youth-to-youth
3. The youth-children
4. The children-to-children
5. The children-community



The trained youths train 20 school students (from class 6 to 9) to establish and manage child club. School students are also trained on safe drinking water. These trained students are then mobilized (through child club) to make aware other students / parents / surrounding community by organizing various awareness raising activities.

In addition to providing the technology, ECCA believes in educating the beneficiaries on the provided technology (and the reason for its use). Only thereafter, there will be behaviour change in the beneficiaries and the provided technology will be properly taken care of by them and used for a long time.

DURATION: 12 months

BUDGET: EUR 3,000 = NPR 405,000 (@ exchange rate 135)

S.No.	Description	Total (NPR)	Total (EUR)
A	Programme Personnel (Coordinator and Officer, part salary)	120,000.00	889.00
B	Accessories and reagents for WATASOL production, bottles for WATASOL filling, stickers of bottle	30,375.00	225.00
C	Field Implementation, Delivery of WATASOL to schools, Orientations, Various awareness raising and social promotion activities	108,000.00	800.00
D	Resource Materials (Develop and publish brochures, posters, booklets, flex boards, etc.)	13,500.00	100.00
E	Stainless Steel Water Filter (fitted with Tulip ceramic candles), Hand washing station construction	96,390.00	714.00
	Project Cost (A+B+C+D+E)	368,265.00	2,728.00
F	Institutional Overhead 10% (for utilities, account keeping, annual audit, government fees, etc.)	36,826.50	272.00
	Total Project Cost	405,091.50	3,000.00

ACTIVITIES

Education

- Focus on multiple uses of chlorine solution (for sanitizing, cleaning, drinking water disinfection, etc.)
- Water conservation and management
- Emphasize point of use (PoU) treatment
- Proper storage of treated drinking water
- Provide orientation to the school teachers and school students on uses of chlorine solution, personal hygiene (especially proper hand washing technique)
- Child club management training for the school based child club members for sustainable management of the club and systematic planning of various activities
- Awareness raising activities for all the school students
- Various competitions (drama, debate, essay, etc.) on various themes related to WASH (PoU concept, water pollution, water conservation, water borne diseases and its impact, etc.)