

# EPS

Public Seminar/  
Workshop

*"An opportunity to  
experience the benefits of  
rural EPS implementation  
from the perspective of local  
people"*  
12 & 13 March 2019  
@ JICA ICT Centre, US

**Fijian EPS  
project for rural  
people started  
from Jan. 2013.**



Day 1 09:30~17:00 Public Seminar (Inc. refreshments & lunch)

Main F

Day 2 09:00~18:00  
Workshop

Study  
18:30~



\*\* Pre-registration is required at Da  
For further details, please contact  
or telephone: +679 330 2522



ECOLOGICAL PURIFICATION SYSTEM

17:30-18:30  
Wrap-up



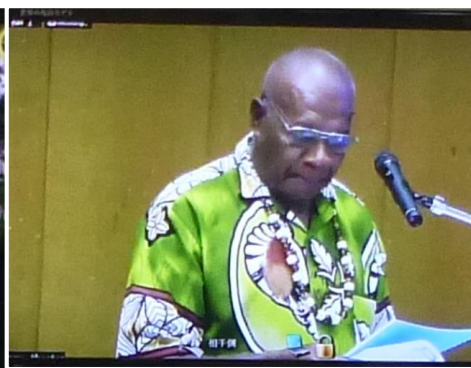
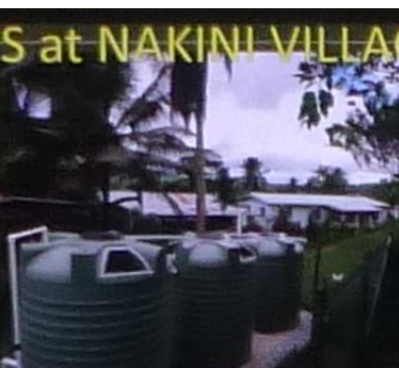
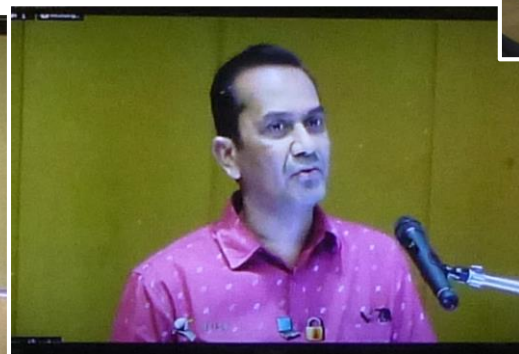
We are happy.



Fijian people made EPS plants by themselves.

2019/ 8/23/1









2011.8.



He confirmed the performance by his model in Fiji.



2012.9.

He explained EPS to PM at an event in Sep. 2012.



2013.1.

New plans for cleaner water

Fijian EPS project opened for rural people in Jan. 2013.

*EPS was settled between the existing distribution pipes of non-treated water supply.*

*A public tap system of water supply for germ free safe water was proposed.*



Water source

Receiving tank

Sediment heavy muddy matter



Turbidity Reduction

Up-flow Roughing Filter (Gravel tank)

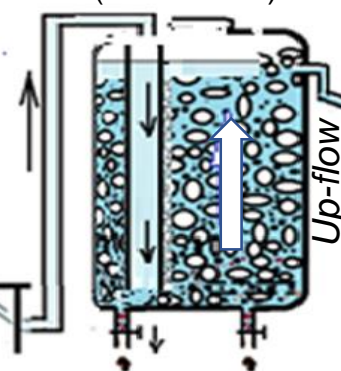


Gravel tank

Sand tank

Storage tank

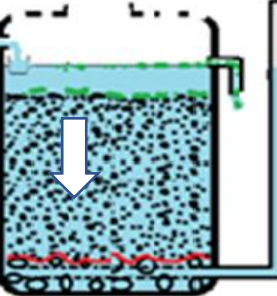
EPS Sand tank (natural down flow)



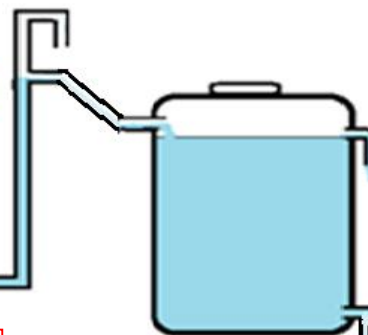
Trap and reduce muddy matter by gravel tank

Up-flow

Down flow



Complete purification by sand tank



Store the germ free, safe and delicious drinking water



Public tap

Fijian project provides 6 liters /person/day for drink and cook.

Tap in village



Existing system in village

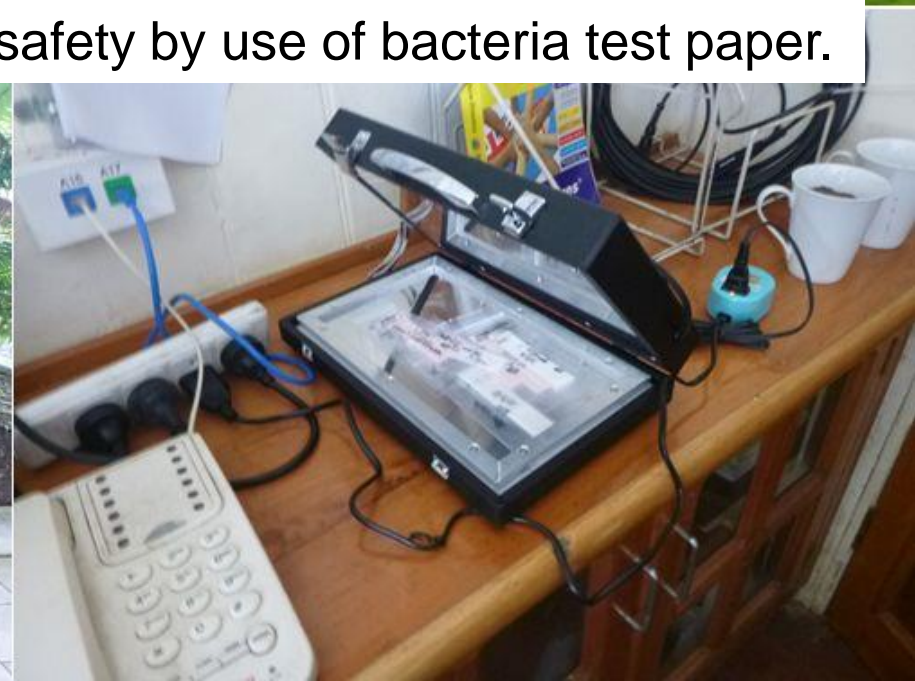
EPS (Ecological Purification System) for germ free drinking water



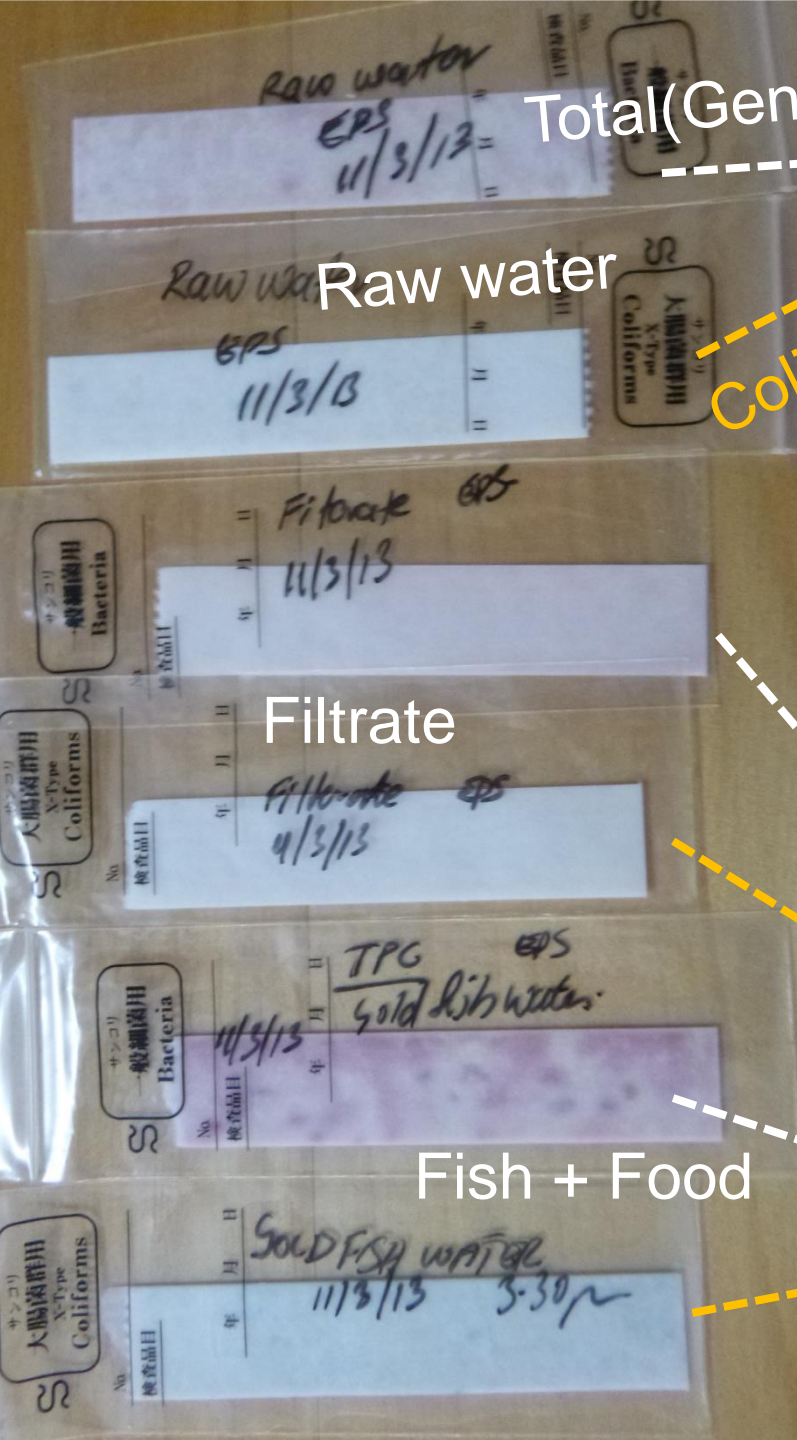
model and bacterial test



We can check the safety by use of bacteria test paper.







Total (General) bacteria

Raw water

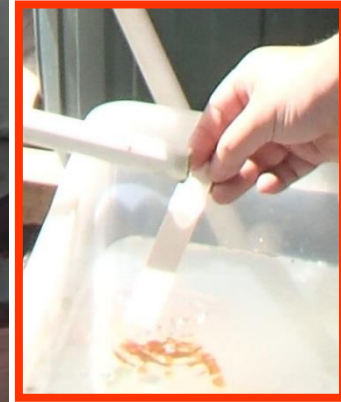
Filtrate

Fish + Food

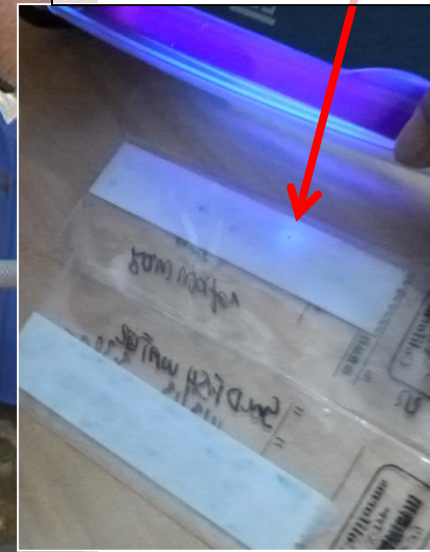
Coliform bacteria

Fish  
Food

Bacteria test  
By Sun-coli paper



Fecal coliform  
Luminescence  
under UV light

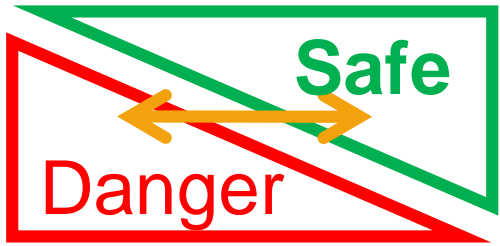




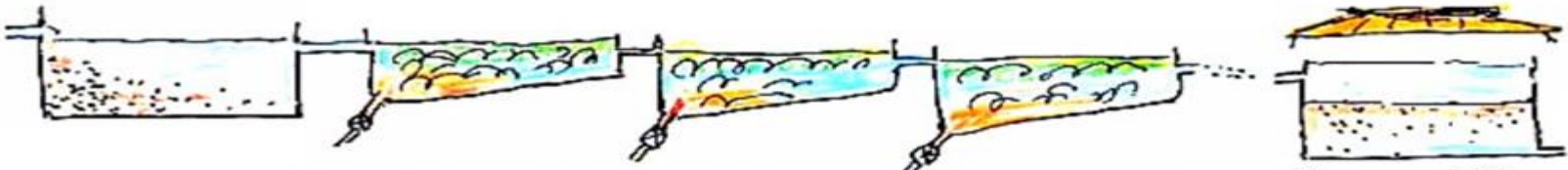
Underground water contains iron and manganese in Jakarta plain. Well water was clear. But the brown colloidal particle was formed soon. They could make clear water using cascade aeration system without any chemical reagent.



Mr. Yagi from Yamaha Motor company visited to my laboratory of Shinshu University. He asked me to a possibility to apply slow sand filter to Indonesian people as an activity of CSR of Yamaha motor company.



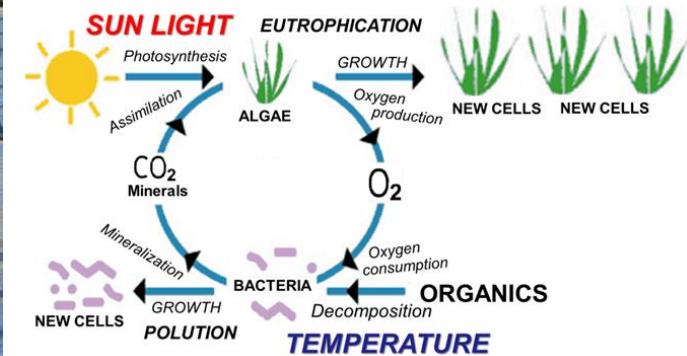
Acceptable Risk



Safe drinking water



*Application of EPS to make clear safe water at Kalawang village as a pilot plant was constructed by Yamaha Motor company.*



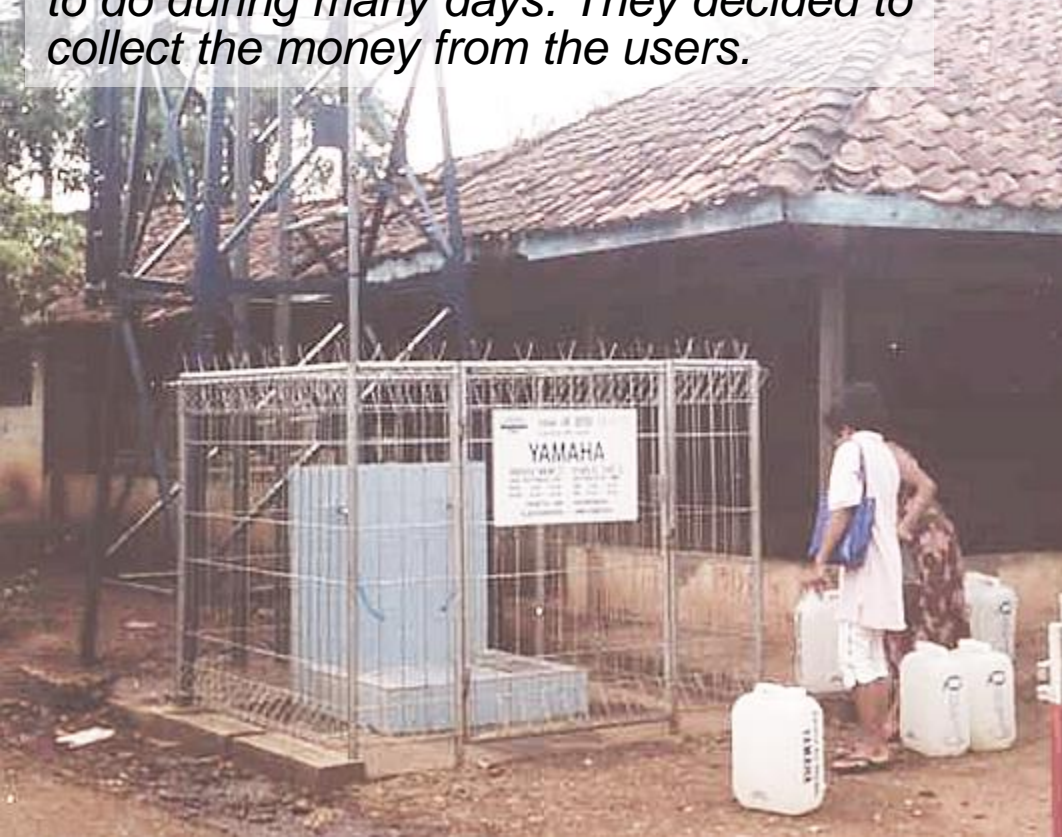
*Collector of silt and colloid particles is small animals.*



16.6 liter/min  
1,000 liter/h  
24 m3/day

*Free tap is very risky.  
It makes empty of  
the tank.*

*After the test of performance of this pilot  
plant, villagers had to maintain the plant  
by themselves. Villagers discussed how  
to do during many days. They decided to  
collect the money from the users.*



*Tap control is key. Lady collects the  
money for the amount of water.*





Two bottles of 20liters per 1 family. This water is used for drinking and cooking only. This water is not used for bath and washing hands. Diarrhea and eye sickness are disappeared. →Health village →sanitary sense and its level are distributed among the villagers. →This acts to protect against sickness.







In Bangladesh, surface water is contaminated by germ bacteria.



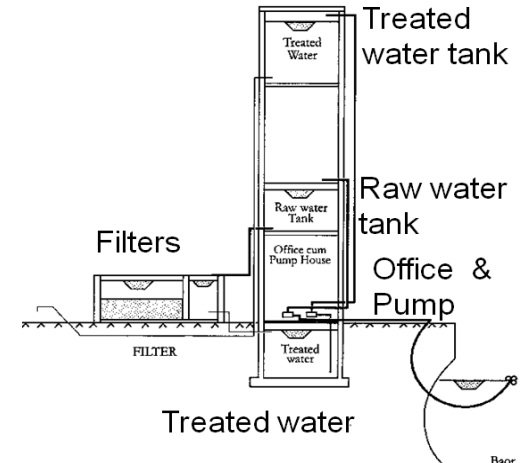
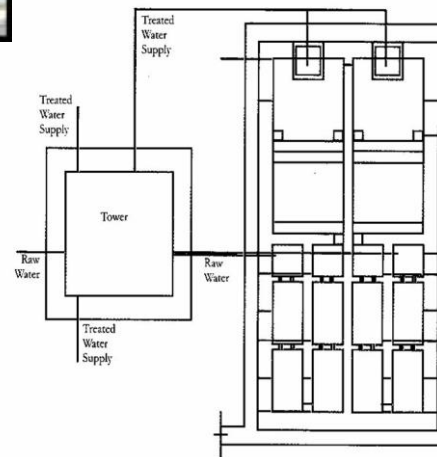
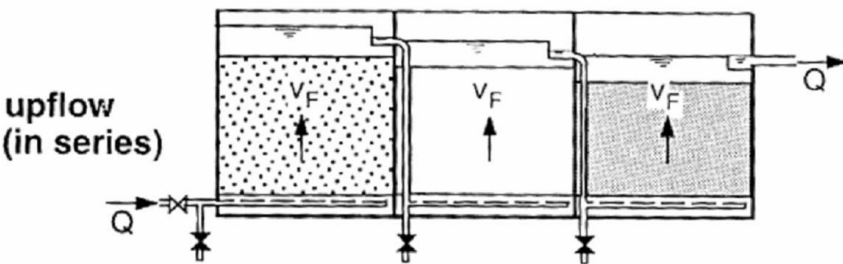
*Underground water contaminated with arsenate.*



*Underground water must be oxidized.*



# Bangladesh: water source is surface water of an eutrophic oxbow lake



I recommended URF is the best way to make safe and delicious system for this country. Key is food chain under aerobic condition. URF is easy to maintenance to remove trapped particle among the gravel chamber.



SSF treatment was completed and was established in cold whether in Europe. In the warm tropical region, the biological activity is more active than in cold region. This point is important for the ecological purification system. Faster flow rate is necessary to keep aerobic condition.

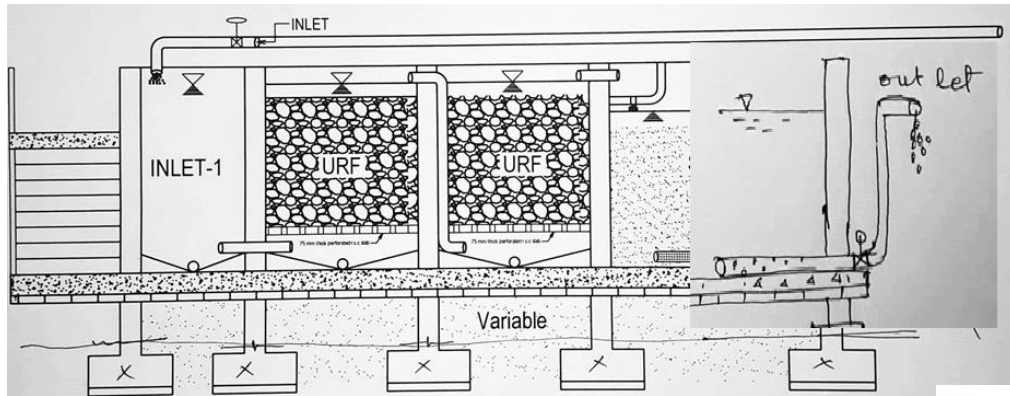
I advised how to make safe water by suitable use of SSF to Asia Arsenic Network (AAN: Japanese NGO). They invited me to Miyazaki, Japan, and Jessor in Bangladesh.

I explained the mechanism of SSF to Kawahara San, the leader of this AAN group in Bangladesh.

He said ***“This is not SSF. You have to rename this system.”*** We discussed and we decided the new name of **Ecological Purification System** instead of **SSF** in Bangladesh in 2003.







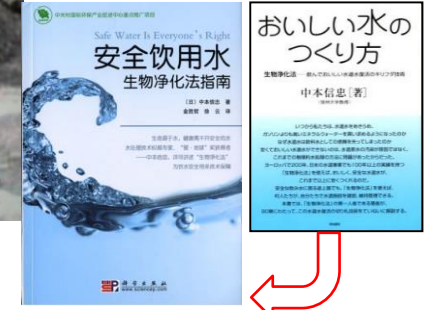
Mizan san sent me photos in last week. They made new EPS in Sylet, Bangladesh by themselves, by UNICEF fund.







Mr. Jinshengzhe, translator of Chinese version, made several water plant in China in 2008 after the great earthquake.

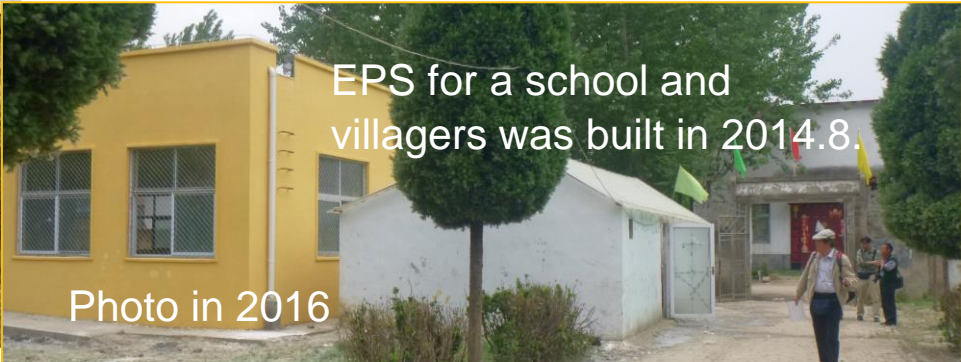
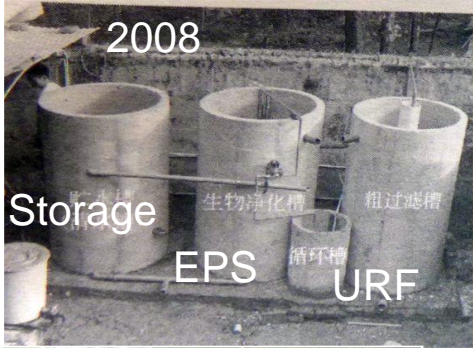


This is 30 tons per day.  
Sedimentation, up-flow roughing filter, SSF

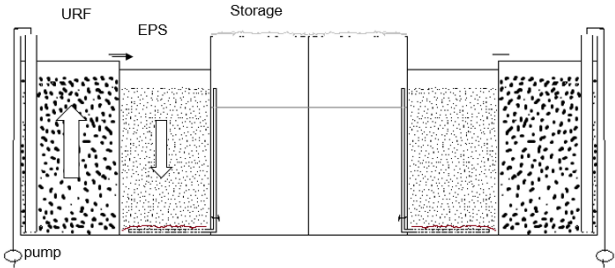




China: Mr Huo Daishan and his sons built EPS to made safe drinking water. (helped by Mr Jin sheng zhe )



70-80 t/d, 4,600 villagers  
(246 students) 16 liter/person/d  
Filter(2 m x 4 m) x 2 set of filters  
(URF+EPS)



6 t/d, 500 persons.  
12 liter/person/d

Public tap  
system for  
villagers



Supply to  
owner's  
kitchen.



Mr. Huo and his sons made 40 EPS by themselves.



OISCA Tokyo: Mr. Kizuki Fumio san  
polluted water (Kanda river in Tokyo) →  
gravel → gravel → small sand → safe water

Sri Lank: three Up flow roughing filters → sand filter  
→ safe drinking water (300 liters / day).  
This water is the demand of safe drinking and  
cooking water for 5-6 families.



*Wise use of natural  
phenomena.  
We can easily get safe  
drinking water by  
ourselves.*



# OISCA International

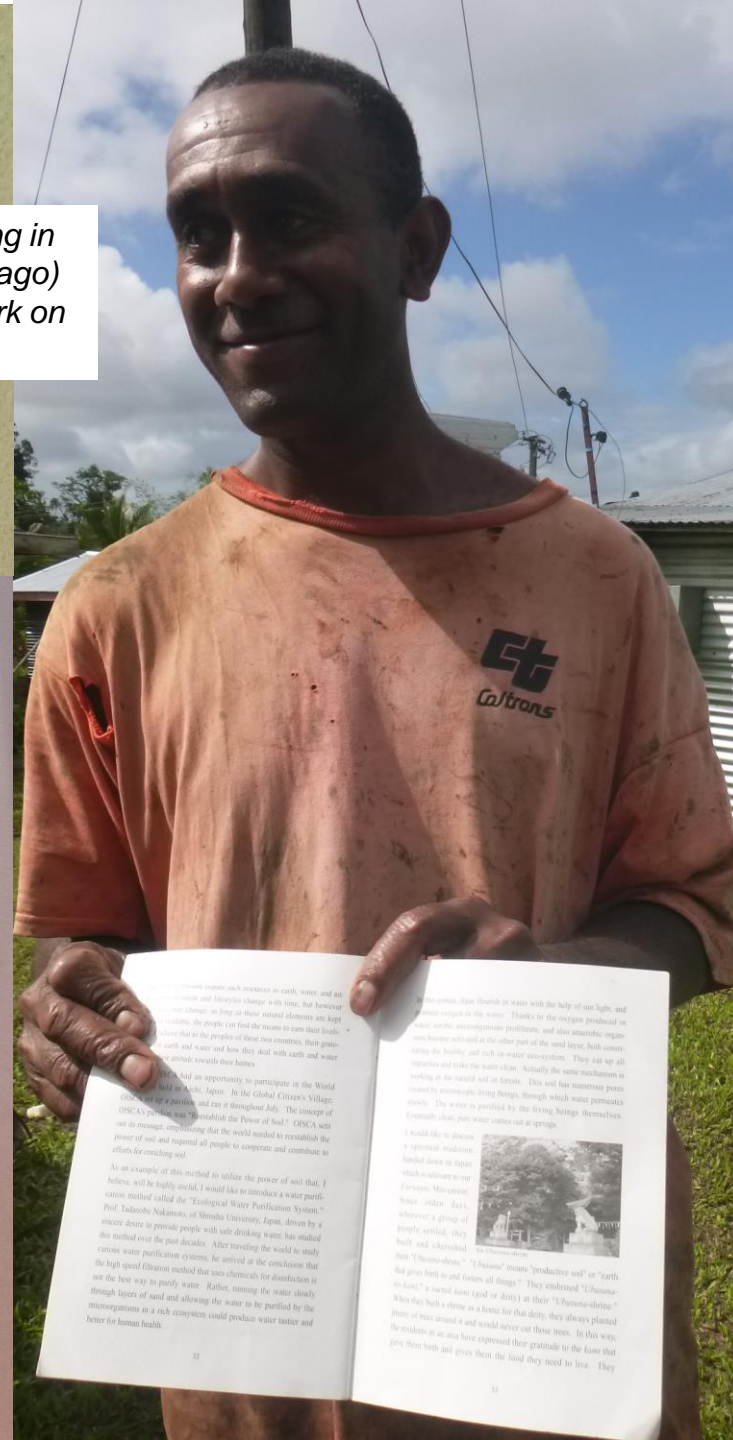
*Niko-San participated OISCA training in Fukuoka, Japan, in 2007 (10 years ago) during 1 year. He remember my work on Ecological Purification System.*

**Yoshiko Y. Nakano**

September 2006

As an example of this method to utilize the power of soil that, I believe, will be highly useful, I would like to introduce a water purification method called the "Ecological Water Purification System." Prof. Tadanobu Nakamoto, of Shinshu University, Japan, driven by a sincere desire to provide people with safe drinking water, has studied this method over the past decades. After traveling the world to study various water purification systems, he arrived at the conclusion that the high speed filtration method that uses chemicals for disinfection is not the best way to purify water. Rather, running the water slowly through layers of sand and allowing the water to be purified by the microorganisms in a rich ecosystem could produce water tastier and better for human health.

2017/ 6/20





# Use of natural slope, drinking water could be made by EPS, Bolivia, 2008

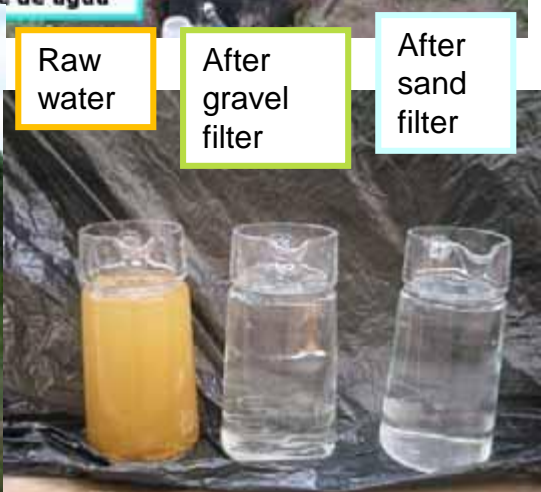
Pump for groundwater and source water tank      3 gravel filters



Use of natural slope, pour in sand filter



Filtered water tank

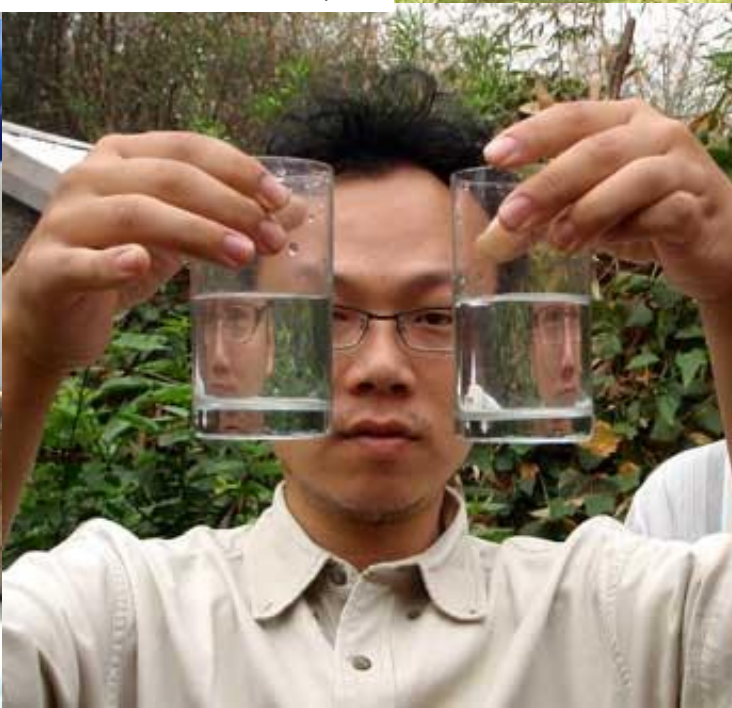


After 4 days, filtered water became clear. After one month, the water became drinkable water, in which coli-form bacteria form was not detected.





ApamNapat Art Project (Mr. Sohei Iwata managed near Korcata in 2008).







People love a new technology.  
People imagine new world.



People trust natural spring water.

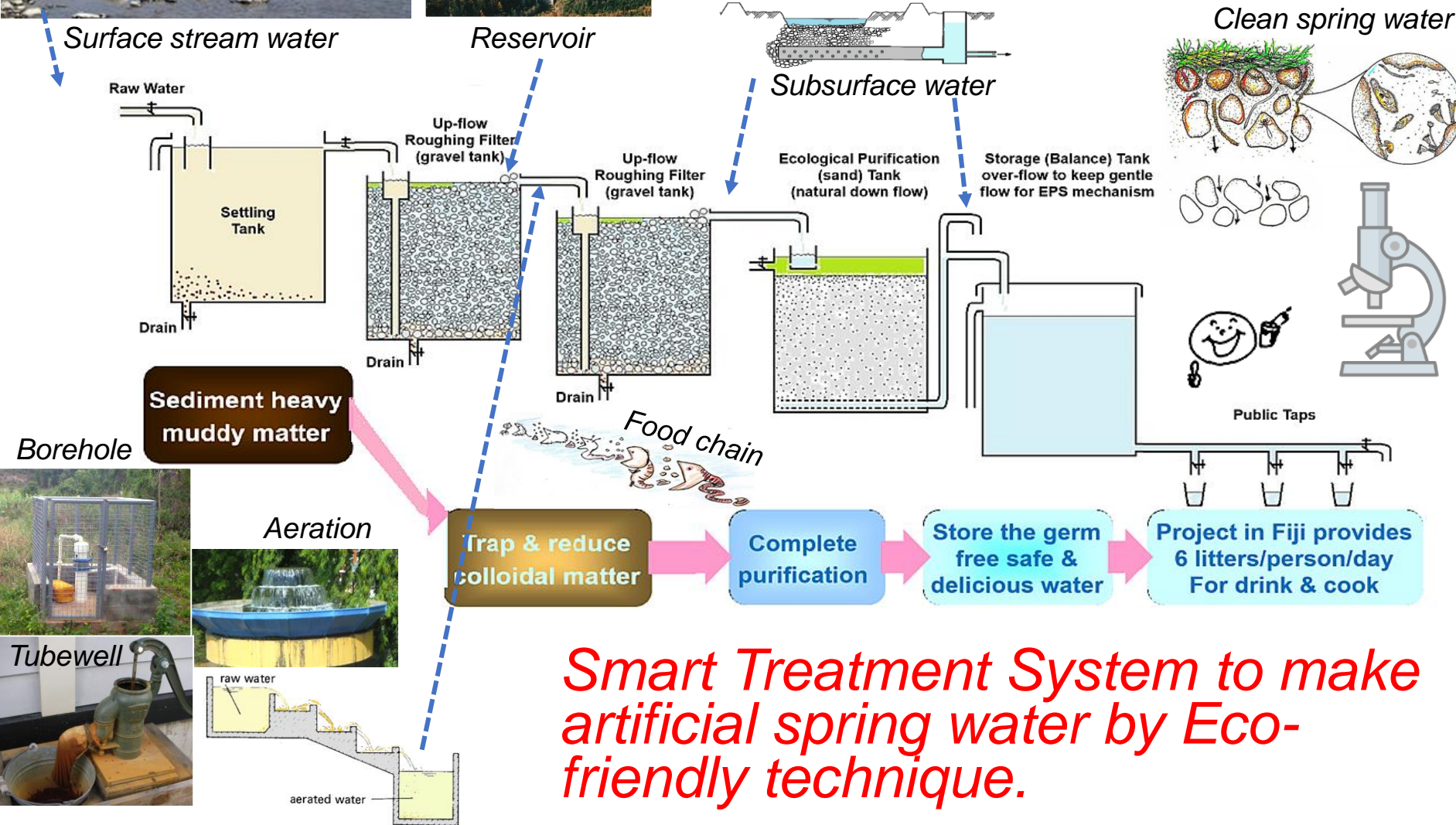
**Don't believe the commercial technology.**

**EPS is our technology.  
This is free for the people.**

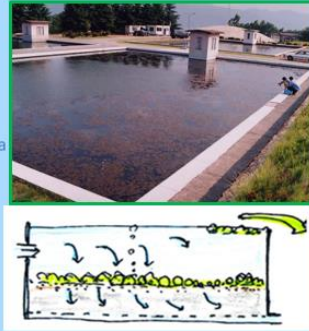


This water is purified  
by natural Ecological  
Purification System.









1984.4.~



From 2006,  
JICA training  
in Okinawa



Sodeyama

Ishigaki

Miyakojima  
宮古島

Okinawa

Ishigaki  
石垣  
Taketomi  
竹富町

Nago  
名護  
Naha  
那覇

Fijian people made a big  
effort for the people.

2011.8.

Super clean  
delicious water



Ueda

Japan

Sendai  
仙台

Nagoya  
名古屋  
Tokyo  
東京

Someya,  
Ueda,  
Nagano

Taipei  
台北

Taiwan



# EPS

## Public Seminar/ Workshop

*"An approach to  
securing the safe water"*

Reviewing Fiji's successful EPS implementation at Rural Area  
and future perspective of implementation in PICs

12 & 13 March 2019

@ Japan-Pacific ICT Centre, USP Laucala Campus



Day 1 09:30~17:00 Public Seminar (inc. refreshments & lunch)

Main Presenter - Dr Nobutada NAKAMOTO\*

JICA Expert, EPS advisor for Rural Water Supply  
Professor Emeritus of Shinshu University, Japan  
\* Live lecture from JICA HQ, Tokyo Japan

Day 2 09:00~18:30 Workshop & Study Tour (inc. lunch)\*\*

Workshop - Demonstration of EPS Construction

By Mr Makoto YANO, Okinawa Blue Water, Japan

Study Tour - EPS Site Visit to NAKINI Village

18:30~20:00 - Evening Reception (Cocktail Party)



\*\* Pre-registration is required at Day 1 (close at 11:30) due to limited space.

For further details, please contact JICA Fiji Office by email: [jicafj-recept@jica.go.jp](mailto:jicafj-recept@jica.go.jp)  
or telephone: +679 330 2522



EPS technology  
is open for every  
person.

**Chemical Free :**  
Gentle for small  
organisms

*Smart Treatment  
System to make  
artificial spring  
water by Eco-  
friendly technique.*

## Ecological Purification System for Safe Drinking Water

- Application of Natural Process -  
Eco-friendly technique to make artificial spring water

NAKAMOTO Nobutada, Dr. Science  
Prof. Emeritus of Shinshu University, Japan



August 2018

*We hope the people in the world may in near future will  
have access to the high quality and delicious taste water.*

*This EPS technology is not a commercial technology.  
You can make this EPS by yourselves. EPS is our technology.*

[http://www.cwsc.or.jp/files/member\\_lmtd/doc25.pdf](http://www.cwsc.or.jp/files/member_lmtd/doc25.pdf)



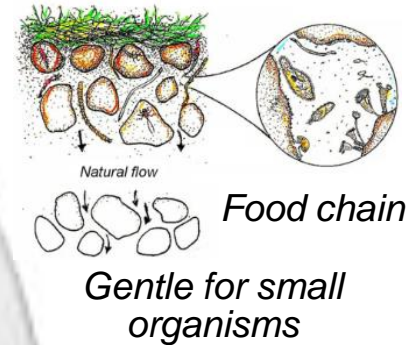
# EPS from Japan to the World

*Wise Use of Natural Phenomena for Human Life.  
Safe and Delicious Water by EPS, Our Technology.*

*Slow Sand Filter*



*Ecological Purification System*



## Remember Three Steps

1. Knowing is NOT enough, we must APPLY it to something useful.
2. Willingness is NOT enough, we must PUT it into the PLAN and ACTION.
3. Putting the PLAN into action is NOT enough, we must ACCOMPLISH the goals.



*Trust Our Sense !*

*Super clean delicious water*

