

Off-grid Solar Powered Zero Waste Arsenic Treatment Plant for Rural pure Water Supply in Bangladesh



Project Implemented By:

Technical Assistance & Designed By:



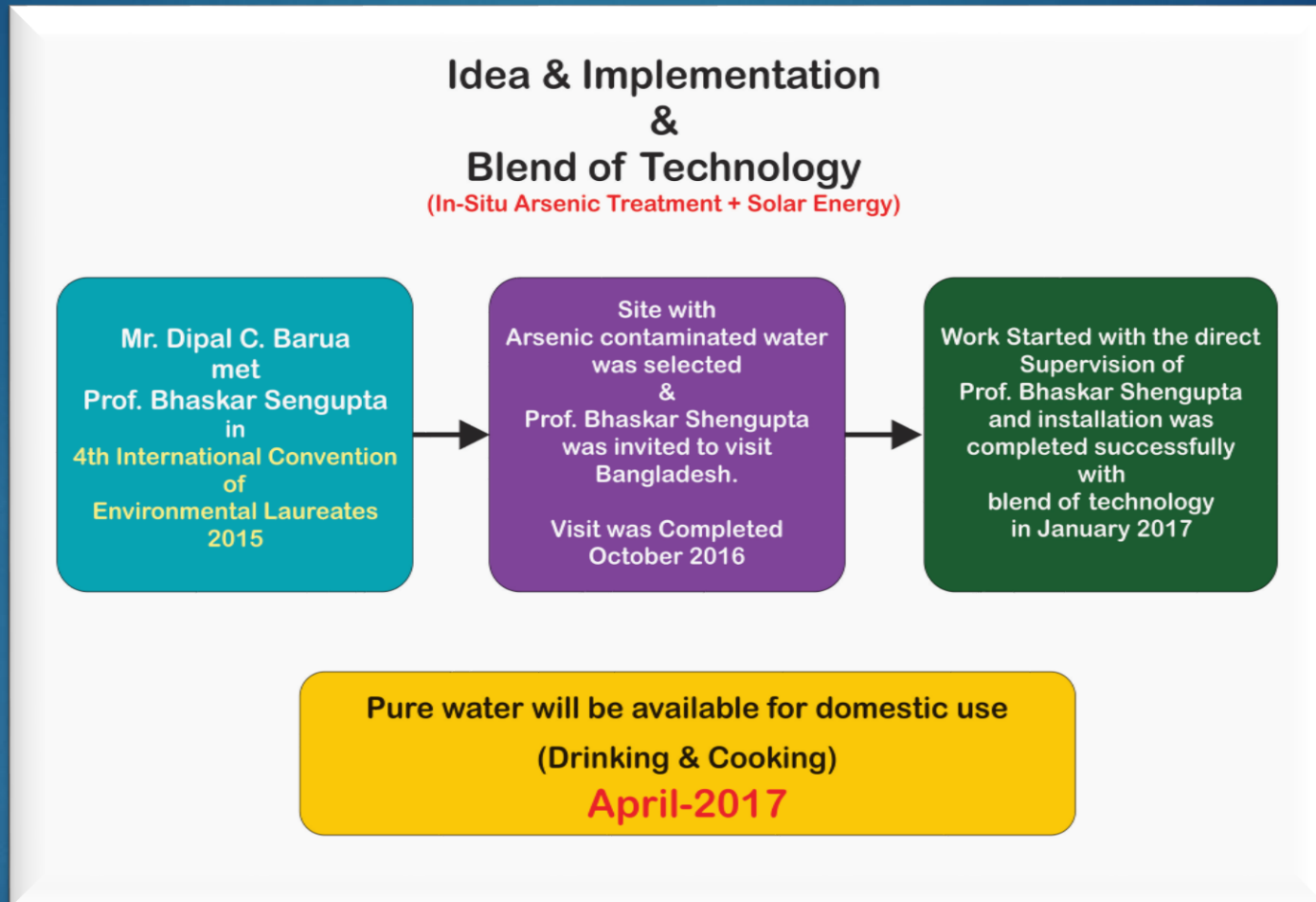
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Solar Power Activities : BGEF

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This project harnesses the solar power to drive a clean water treatment project to remove arsenic from ground water in Bangladesh.

Project Details

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In Bangladesh over 20 million people are directly affected by arsenic. Each year, estimated **43,000** people die from arsenic poisoning.

**Location : Hosnabad Government Primary School
Comilla, Bangladesh. (150 KM from Capital City Dhaka)**

The project will **ensure arsenic free pure water** among the rural school located at an off grid area of Bangladesh. Over 200 families live surrounding the project area.

Blend of Technology: Solar Energy + In Situ Technology

Benefits :

1. **Arsenicosis risk free (Health)**
2. **School Children and villagers around the project will have Arsenic free pure water for their daily use**
3. **Prevent disability caused by arsenic diseases and better working ability**
4. **Men and Women can have a better social life and better future**
5. **No carbon emission**
6. **The use of the pure water will create awareness**



**Direct Beneficiaries from the Solar
Powered Arsenic Treatment Plant**

Arsenic Treatment Plant Operation Process (SAR)

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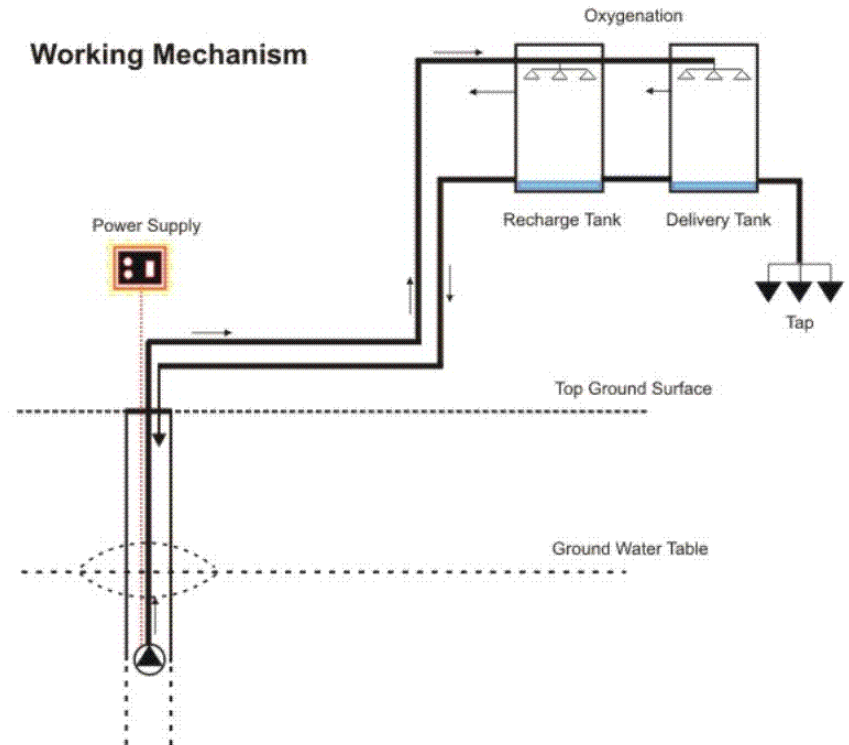
Ground Water is pumped up by a submersible pump.

This water is oxygenated by showerheads & stored in Recharge & Delivery tanks. No chemical oxidants used.

The oxygenated water from Recharge tank is recharged back into the aquifer to create an oxidation zone.

The oxidation zone supports growth of microbes that oxidizes As(III) to As(V) & also oxidizes Fe(II), thus preparing underground adsorption bed for As(V).

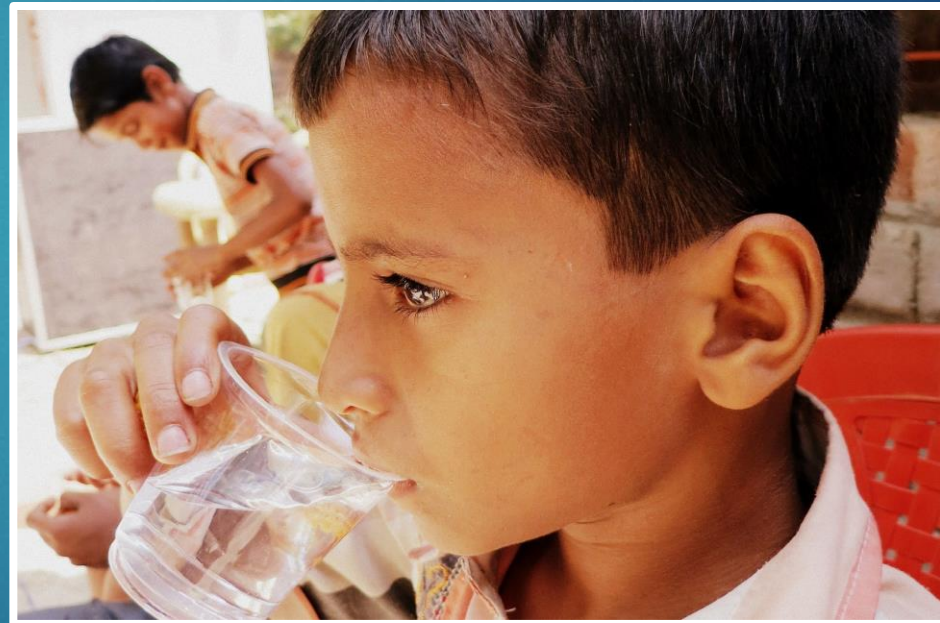
This treatment, when carried out for a few weeks, produces arsenic & iron free drinking water as per WHO guidelines.



Economics of the process

Cost of the Project: BDT 600,000 (Approx. : USD 8,000)

Water price expected output: Cost of 1 L of safe water from SAR plant will cost only **BDT 2.00 Approx.**
(USD = 0.03) [*Usual bottled water cost BDT 20 (USD=0.25)*]



The initial results within 15 days of operation of plant shows a decrease of arsenic from initial **0.293 ppm** to **0.03 ppm** (Bangladesh Std being 0.05 ppm)



Technology used with No carbon emission

Advantages

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- Solar panels ensure the green energy supply year round without interruption and pollution
- **Battery backup** for smooth water supply year round and to operate the process after dark
- No **disposable waste** will be produced in this Project.
- This innovative technology does not use **hazardous chemicals for water purification process**.
- **Low** operation and maintenance cost and water will be affordable to all
- **Automated system** reduces the cost of human employment and human error



If successful and fund availability there are opportunities to set this solar powered environment friendly Arsenic free Water purification plants in schools all over Bangladesh.



Thank you
For your Attention

