

# EBB Pilot Project in Mongolia

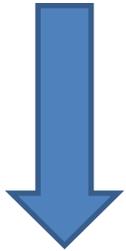
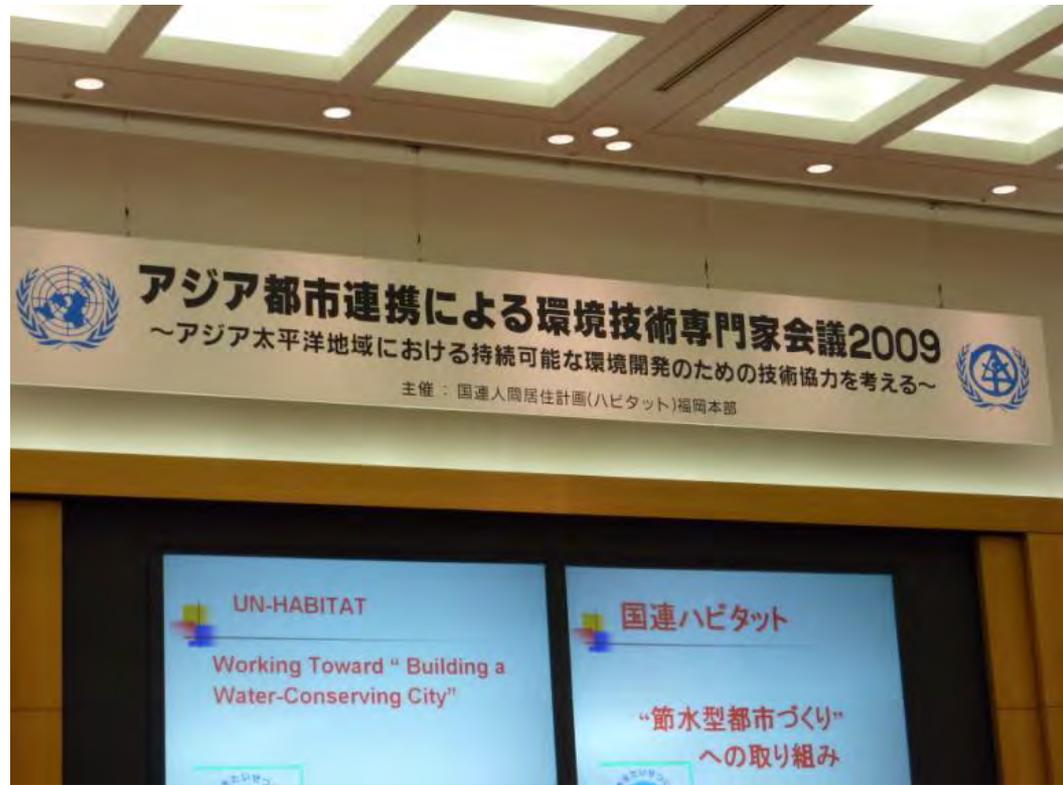


Development • Manufacturer

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169 Sakata Setaka-machi Miyama-city Fukuoka 835-0006 JAPAN Masayuki Koga Mr.

<OCT-29-2009>



Gave a presentation on  
Eco-Bio Block at EGM2009



After the meeting, immediately  
started discussion with Mr.  
Prevjab (president of USUG),  
and was requested to visit  
Ulaanbaatar.

<FEB-01-2010>

## Visit to Ulaanbaatar Water Authority (USUG)



# Discussion with the field managers of USUG in Ulaanbaatar



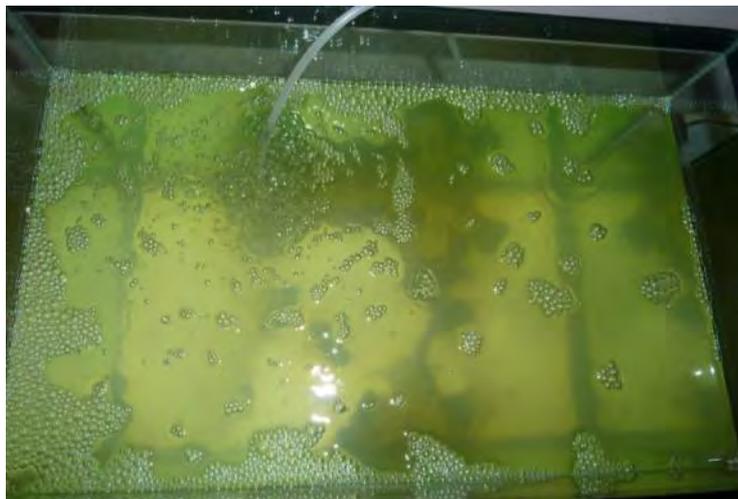
# Visit to sewage plant (FS) No.1



# Visit to sewage plant (FS) No.2



# EBB ; conducted water purification test (pilot testing) No.1



# EBB ; conducted water purification test (pilot testing) No.2



# Implementation of EBB (Target wastewater pond) No.1 <AUG-20-2010>



# Implementation of EBB (Target wastewater pond) No.2



# Implementation of EBB (Target wastewater pond) No.3



# EBB floating island for Mongolia. Component Details



Vinyl chloride  
VP25 3m

Vinyl chloride  
VU100L 4

Suspending Band  
VP25 6

Vinyl chloride  
VU100 4m

Suspending Band  
VU100 8

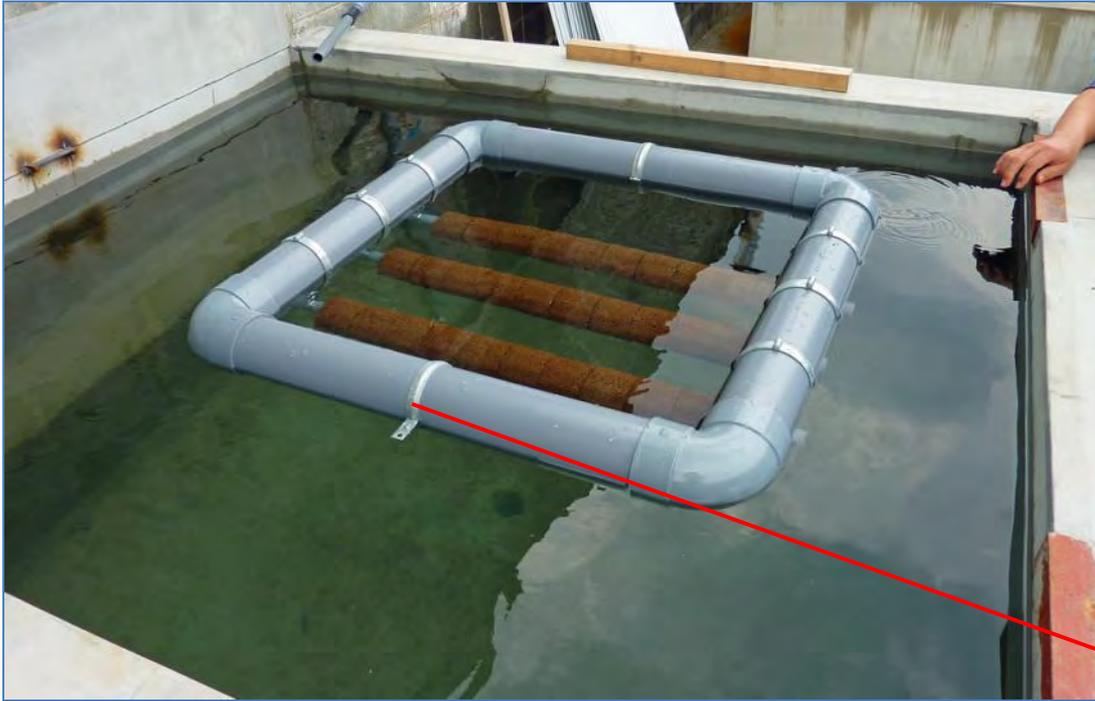
90° Torsion metal fittings 6

EBBoct 30



1,050mm

# EBB floating island for Mongolia. Buoyancy test



The distance from surface to top of the EBB

155mm

Remaining buoyancy ; 50%

Stopper

Fix the sinker block by rope



Buoyancy of the floating island

36kg

Under water eight of the floating island

18kg

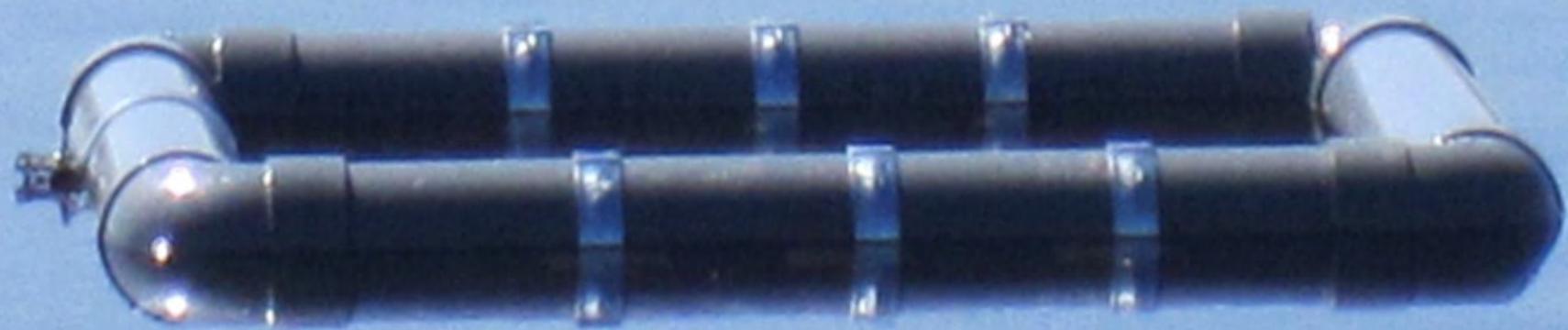
Remaining buoyancy 18kg













After about one month, water-quality was improved (Testing by USUG)  
Dates Compared: 2013.20.Aug and 2013.13.Sep



<Temperature : 25.6°C Water temperature : 13°C  
Humidity : 33%>

BOD 13.1mg/L → 3.4mg/L

COD 163.5mg/L → 81.5mg/L

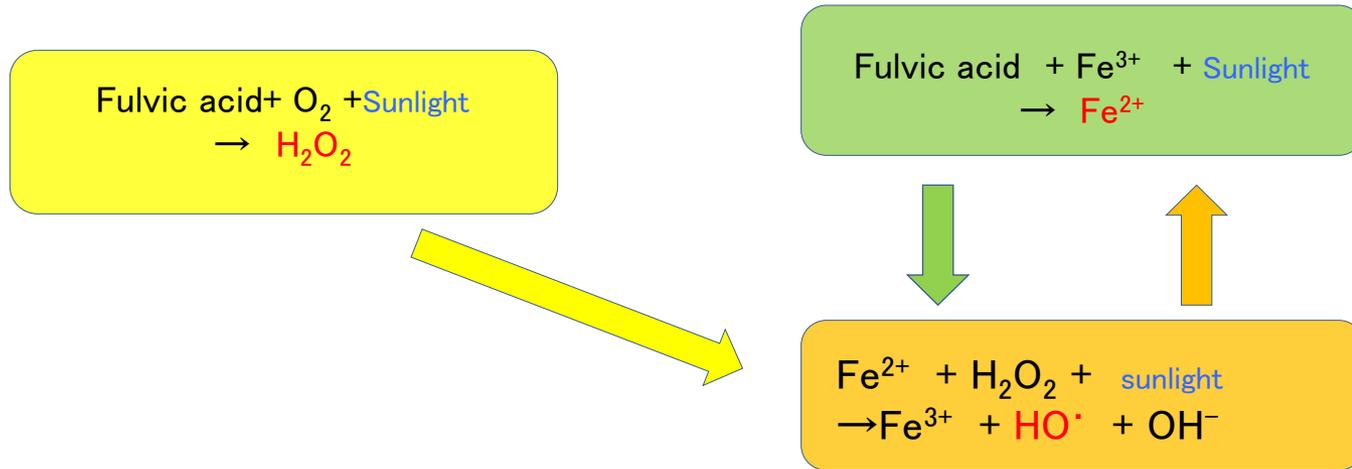
TSS 16.4mg/L → 7.8mg/L Average of 3 points

**Approximately  
50%  
Improvement**



How does Fulvic acid iron work?

# Mechanism of Fulvic acid iron



Sunlight fenton reaction

<Stage 1 >

When fulvic acid and dissolved oxygen are under sunlight, Hydrogen peroxide will be generated

<Stage 2 >

When Fenton reaction occurs between The Fe 2 + of the fulvic acid and Hydrogen peroxide, Hydroxyl radical will be generated. Fe 2 + will return to Fe 3 +

<Stage 3 >

Fe 3 + reduces to Fe 2 + through fulvic acid and sunlight energy.

Stage 1 to 3 work as a loop . The hydrogen peroxide generated in Stage 2 has a very strong oxidation function, which can oxidize organic compounds .

Accordingly ,the sludge will be decomposed and water be purified

# Improvement of wide area tideland sludge

(Converting tideland sludge to sand by applying sunlight fenton reaction using Fulvic acid iron)

Place : Imari-city, Saga (Imari bay) measuring by GPS

Density : Put the BAG includes Fulvic acid (7.5 kg) to 5 points(100m<sup>2</sup>).



厚12cm 約13kg

Product: EBB BAG

1 month later, the situation has been improved to walk.



2012.17.Oct ; Establish



2012.15.Dec ; measure

※Reduction of sludge ; about 10cm~20cm

A new technology has a cheap processing method which improves sludge area (about 900m<sup>2</sup>) with small Fulvic acid (37.5kg)

# Thank You for your attention



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