

# Introduction of 'Johkasou'

## Contribute to African Clean City



# Example of Pollution in Water Bodies



**To prevent these environmental pollution Daiki Axis is in the Africa !**

# Daiki Axis Introduction



私たちは半世紀に渡り「水と暮らし」をテーマに快適生活の創造と環境保全を行ってきました。こ水からは、水だけに留まらず、「環境としての自然」と「資源としての自然」の両面を持つかけがえない地球と快適な住環境の調和を取りながら、ダイキアキシスは、未来へ向かって進化し続けます。

- ◆ 60 years experience water treatment company
- ◆ Having four Johkasou factories in Japan, and one factory in Indonesia.
- ◆ Two more new factories will be established in China and India in 2018.
- ◆ Entered into the African market in 2017.
- ◆ Having an official distributor in Kenya.
- ◆ Attended the TICAD Ministerial Meeting Side Event, African Clean Cities Platform held in Mozambique in August 2017.

# Septic Tanks in Kenya



**Apartments 30m<sup>3</sup>/d**

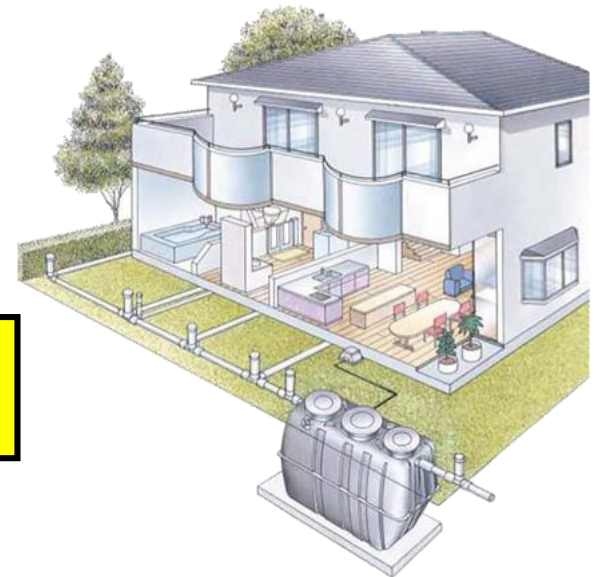


**Individual House 5m<sup>3</sup>/d**

**These Septic Tanks are not appropriate water treatment system**

# What is Johkasou ?

- ◆ Johkasou is decentralized onsite domestic wastewater treatment system.
- ◆ Developed and improved by Japanese government and companies from 1960s.
- ◆ To produce Johkasou in Japan, manufactures must get government certification.
- ◆ Designed for treating both black and gray water discharged from facilities.
- ◆ Anaerobic & aerobic system enable low running cost and small foot print.
- ◆ Johkasou treated water and sludge are easy to reuse.
- ◆ Very low initial cost compare than centralized system.



**Johkasou** was developed to solve water pollution caused during the rapid economic growth of the 1960s.

# Small scale Daiki Axis Johkasou (Capsule Type)

Example of Capsule Type: 1 ~ 15m<sup>3</sup>L/day

Type	Inflow Capacity (m <sup>3</sup> /day)	Length(m)		
		W	L	H
BA1	1	0.75	1.86	1.30
BA2	2	0,96	3.00	1.30
BA5	5	1.70	2.80	1.98
BA10	10	2.20	3.60	1.98
BA15	15	2.20	4.85	2.28

Main material : FRP

Technology : Anaerobic & Aerobic (MBBR)

Designed in Japan

Manufactured in Indonesia



BA4 : Capsule Type Johkasou

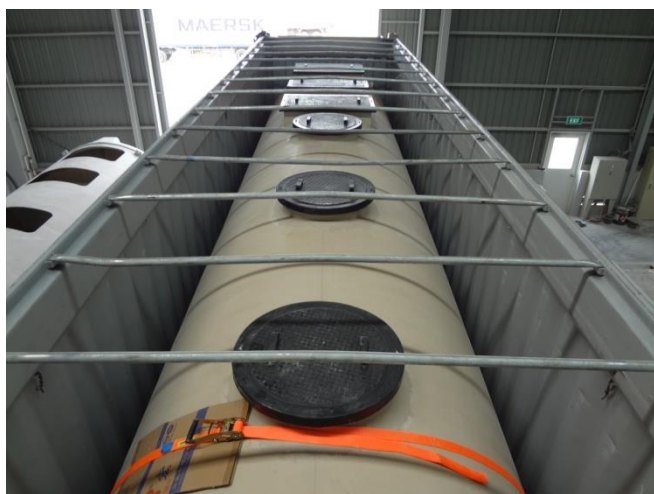
**Effluent treated water quality is BOD less than 20mg/L**

# Large scale Daiki Axis Johkasou (Cylinder Type)

Example of Cylinder Type:20~50m<sup>3</sup>/day

Type	Inflow Capacity (m <sup>3</sup> /day)	Length(m)		
		W	L	H
BAE20	20	Φ2.17	5.32	2.30
BAE50	50	Φ2.17	10.67	2.30
BAE80	80	Φ2.17	8.81	2.30
		Φ2.17	8.63	2.30
BAE100	100	Φ2.17	10.94	2.30
		Φ2.17	10.70	2.30

\*BAE80,BAE100 (more than BAE 50 needs two tanks)



BAE20 : Cylinder Type Johkasou

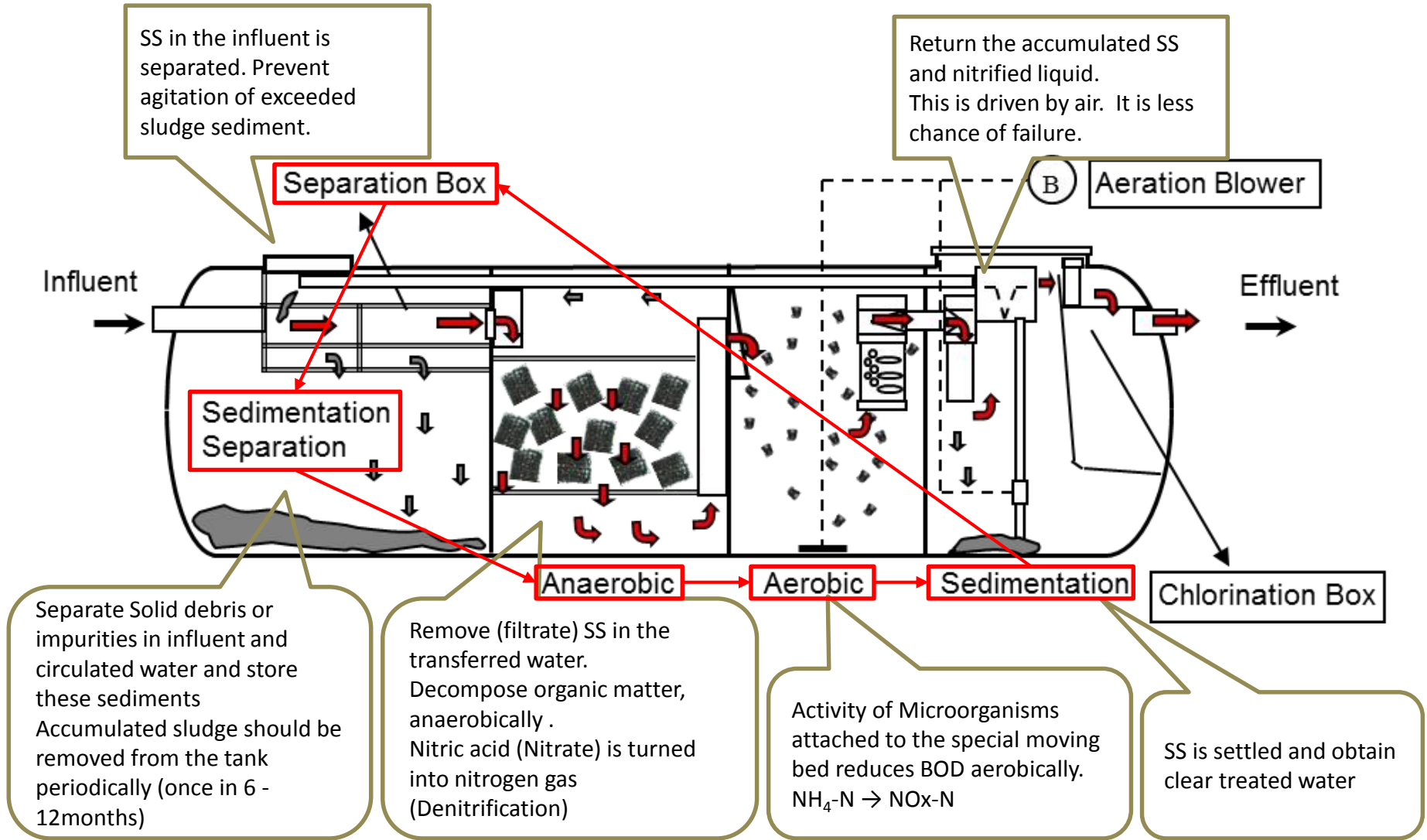
BAE is BOD removal type

- Effluent BOD <20mg/L

- BOD removal rate is 90% or more

# Structure & Function

- Johkasou is packaged system, and completely different from Septic tank !!





# Indonesia Factory

- Produce in Automation factory, always we can provide high quality product!!

## Factory in Indonesia and Factories in Japan are:

- Same Production Process
- Using Same Production Equipment



## Product in Indonesia:

- **High Quality Product**
- **Local Cost**



Cylindrical Molding Machine



Automatic Opener



Automatic Molding Machine



Indonesia Factory Appearance



In the Factory



Work Landscape

# Kenya Project Example



**Nairobi Apartment Project 60m<sup>3</sup>/d**

# Kenya Project Example



Johkasou introduction at the installation site

# Kenya Project Example



Small scale Johkasou installation\_1m3/day

# Kenya Project Example



Small scale Johkasou installation\_1m3/day

# Kenya Project Example

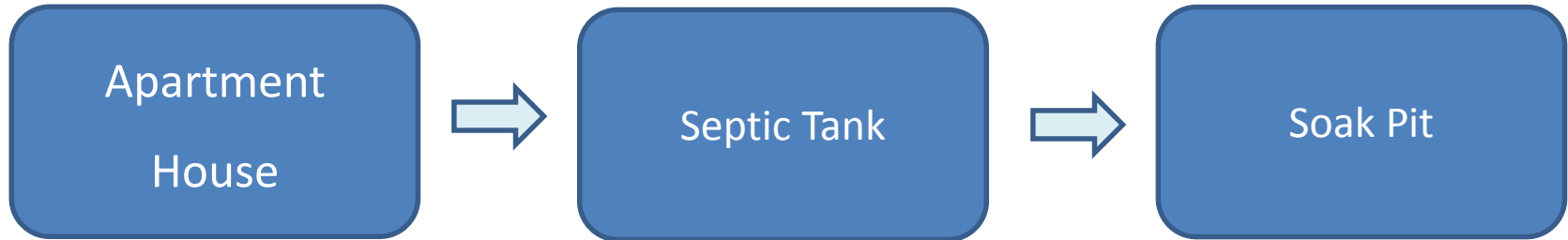


Training for Kenyan plumbers at installation site

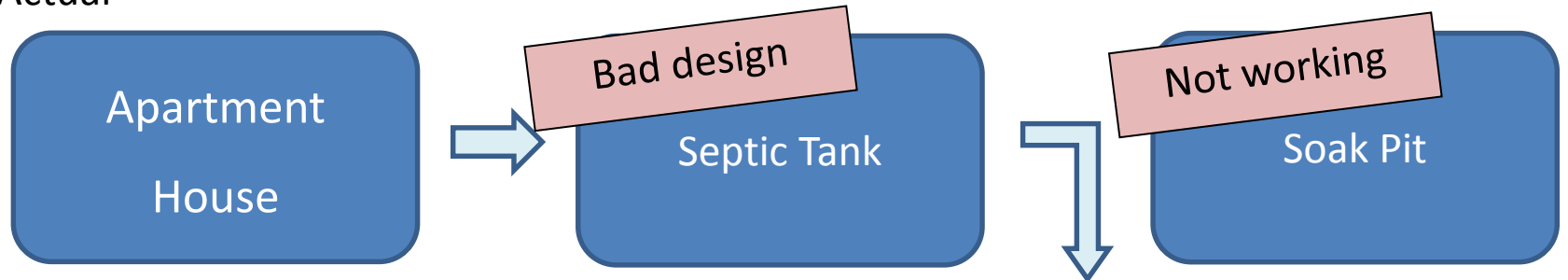
# Kenya Project with our Local Partner

- Kenyan Domestic Water Treatment Situation

- Design



- Actual



**Need to remove liquid & solid from the septic tank,  
and sent to pond or lagoon.**

\*Soak Pit: As wastewater (greywater or blackwater after primary treatment) percolates through the soil from the soak pit, small particles are filtered out by the soil matrix and organics are digested by microorganisms.

- **Septic Tank & Soak Pit System**

- ✓ **If soak pit is not working because of some problems...**

- Need to remove wastewater (liquid & solid waste) weekly or monthly.

- **Johkasou**

- ✓ **Johkasou treated water is very clean (BOD less than 20mg/L)**

- Treated water can be reused and discharged directly.

- ✓ **Removing solid waste is once in 6 month**

- Johkasou can separate solid waste & liquid waste, and store solid waste for 6 month.

**Johkasou can reduce amount of waste (liquid & solid)**



# Kenya Project with our Local Partner

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## Plan

1

**Johkasou (import from Indonesia)**

2

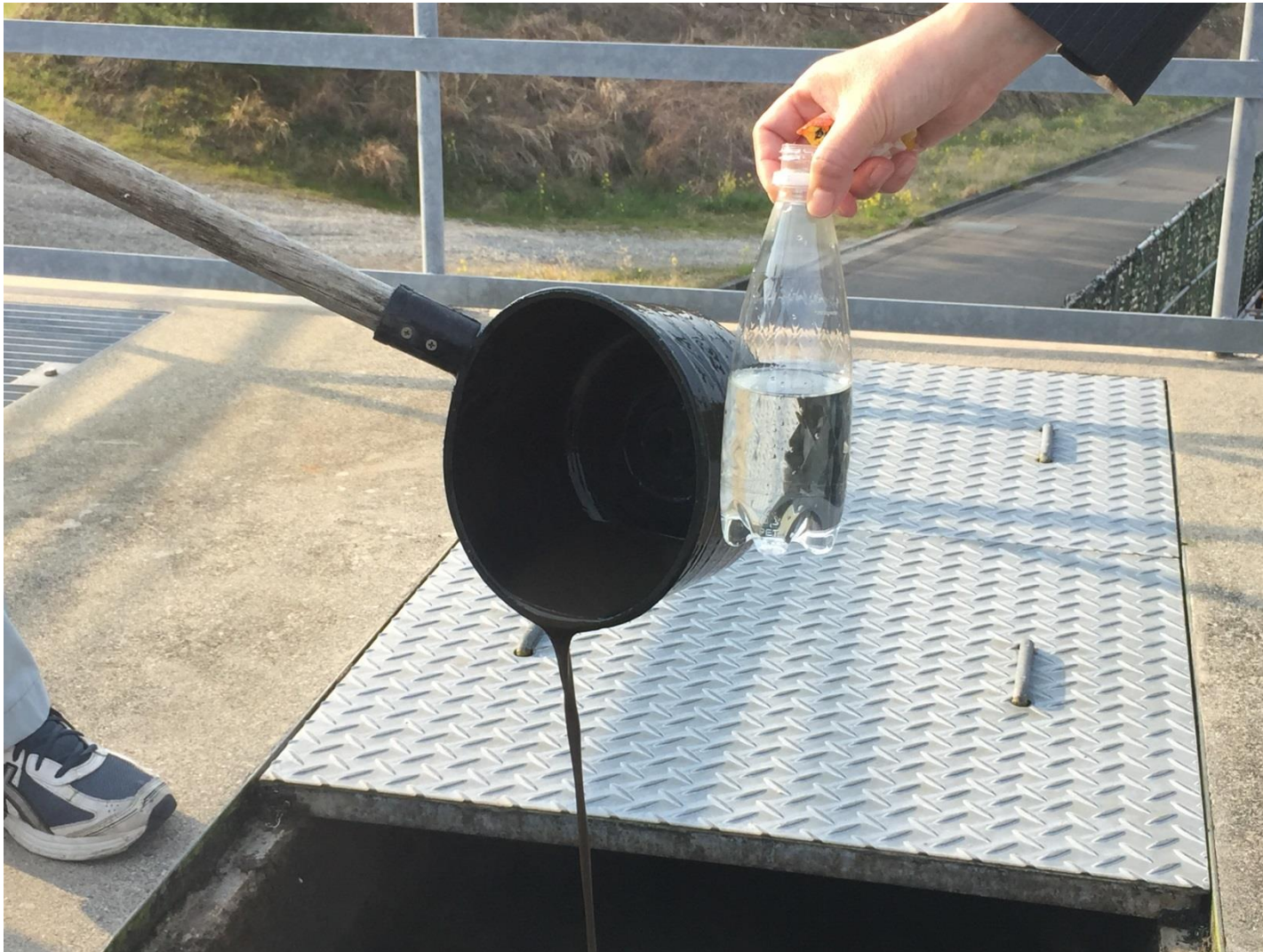
**Johkasou (manufacturing in Kenya)**

3

**Sludge (solid waste) Treatment**

**Daiki Axis will expand knowledge and technology of water treatment and waste management by installing Johkasou in African countries with the cooperation of local governments, partners, Ministry of the Environment, Japan and JICA.**

# Treated Water Quality



**Thank you!!**