

# Water Supply Situation and Initiatives in Palau

Palau Public Utilities Corporation  
(PPUC)



## Water supply



Water Source - Surface water,  
Groundwater

## 17 water treatment plants

13 in Babeldaob and 1 Koror- Airai.

### 3 in Kayangel, Peleliu and Angaur.

3 were upgraded and rehabilitated - Ibobang, Mengellang and Ollei.



## Koror- Airai Water Treatment

### KAWTP Water Treatment Plant - Process Overview

**Treatment Process:** Conventional water treatment system

**Raw Water Intake:** Subsurface concrete wet well

#### Chemical Treatment:

- Aluminum sulfate (alum) for coagulation
- Soda ash for pH adjustment
- Powdered activated carbon (PAC) for taste and odor control

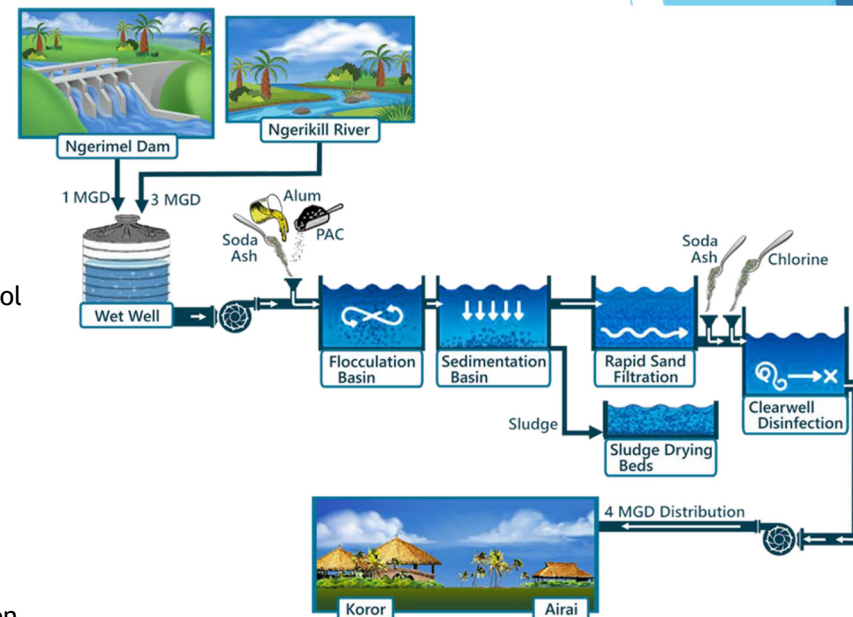
#### Process Sequence:

- Coagulation & flocculation
- Sedimentation
- Rapid sand filtration
- Disinfection and distribution

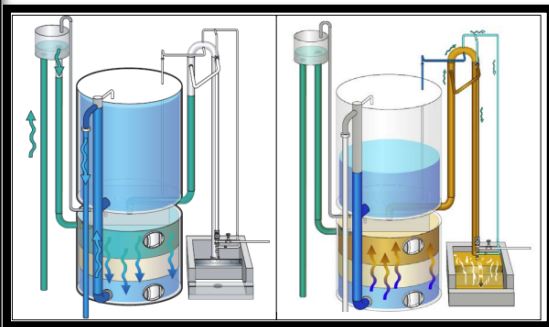
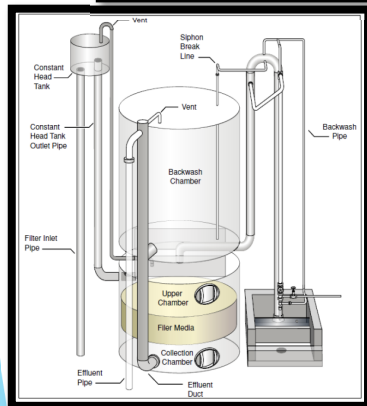
#### Chemical Handling:

- Chemicals supplied in 50-lb bags
- Mixed on-site via hoppers and mixing tanks

**Final Stage:** Treated water stored in clear well prior to distribution



# Outlying States Water System



## Outlying States Water Treatment Plant - Process Overview

### Direct Filtration

#### Uses Automatic Valveless Gravity Filters (AVGF)

- Designed for continuous operation with minimal instrumentation
- No routine operator intervention or external controls required
- Automatic backwashing triggered by head loss through filter media
- Performance monitored through regular operator inspections

### Disinfection

- Chlorine injection/granular or tablets used for disinfection of filtered water
- Systems were originally installed to ensure microbiological safety
- Disinfected water is supplied directly to the distribution system

## Outlying States Water System – New Upgrade



### New Add-On Ultrafiltration Units - Outlying States

**Locations:** Ibobang, Mengellang, Ollei

**Contractor:** SM Flow

**Technology:** Ultrafiltration (UF)  
Membrane Systems

**Purpose:** Improve water quality







# PPUC WATER OPERATIONS

- ▶ **Service Area:** Nationwide (urban & rural), Republic of Palau
- ▶ Service areas include Koror, Airai, and Outlying states
- ▶ **Population in Service Area:** ~17,700
- ▶ **Population Served with Water:** ~17,500
- ▶ **Active Water Connections:** ~5,400
- ▶ **Average Supply:** 24 hours/day
- ▶ **Annual Water Production:** ~1.04 billion gallons
- ▶ **Annual Water Billed:** ~594 million gallons
- ▶ **Non-Revenue Water (NRW):** ~43-50%
- ▶ **Length of Water Network:** ~322 km
- ▶ **Wastewater Population Served:** ~14,000
- ▶ **Annual Revenue Collected:** ~USD 5.5 million

# Key Challenges

- ▶ Aging Infrastructure
- ▶ High Non-Revenue Water
- ▶ Supply Chain Constraints
- ▶ Limited Redundancy
- ▶ Climate and Source Water Impacts
- ▶ Limited Monitoring and Automation
- ▶ Funding Sustainability Constraints







# Future Plans & Needed Support

- ▶ • Reduce NRW by strengthening leak detection & pipe replacement
- ▶ • Gradual system modernization & remote monitoring
- ▶ • Strengthen operator capacity & data use
- ▶ • Needed support: NRW expertise, SCADA, technologies, Data collection and Management
- ▶ • Partnership opportunities



THANK YOU  
Questions?

