BIWWEC 2024

Expert Insights

23 OCTOBER 2024

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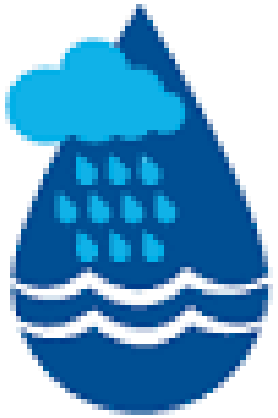
SINGAPORE WATER ASSOCIATION
VICE PRESIDENT (GENERAL AFFAIRS)

Singapore's Water Ecosystem

Diverse Water Sources

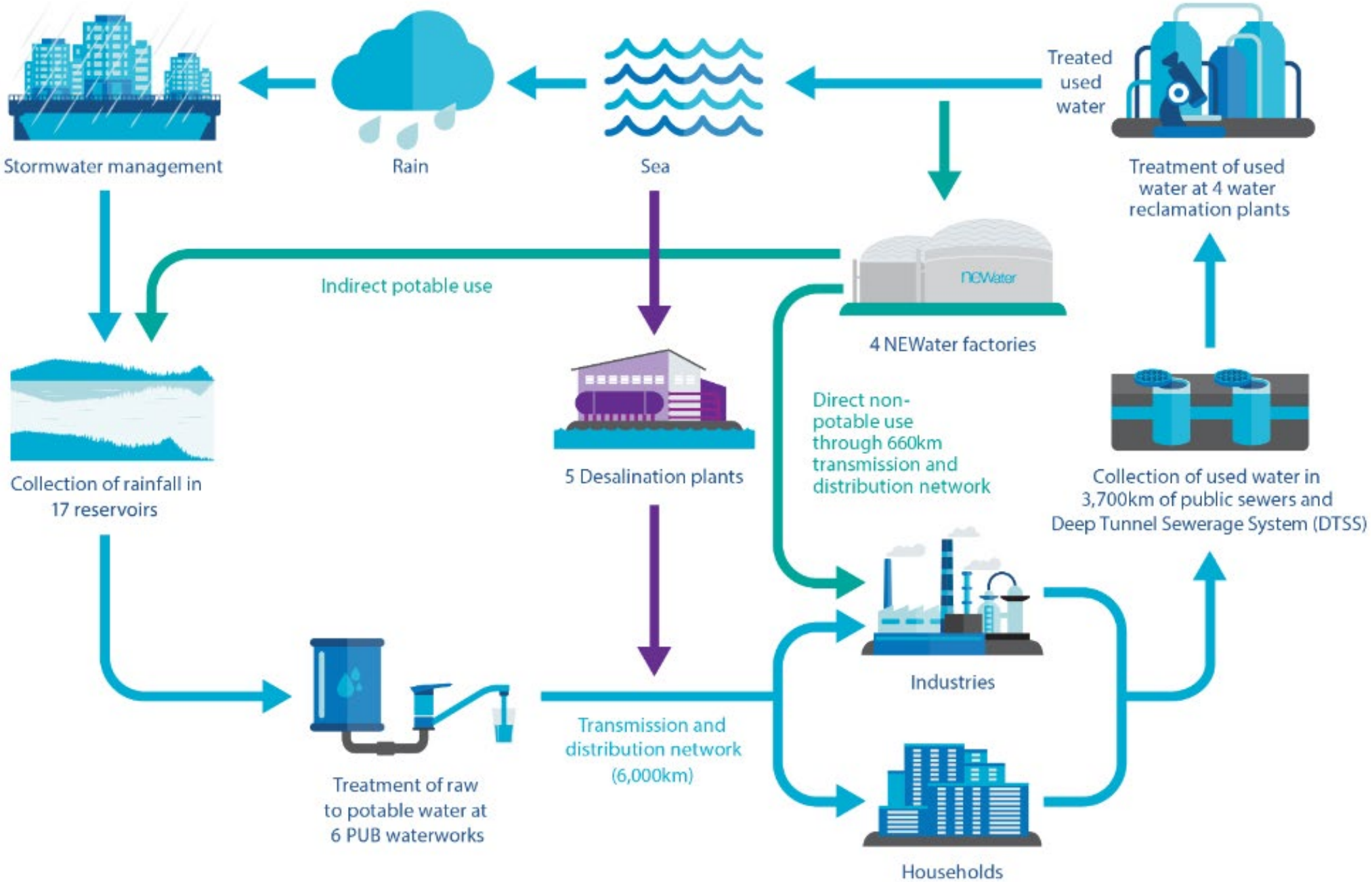


WATER FROM LOCAL CATCHMENT

IMPORTED WATER

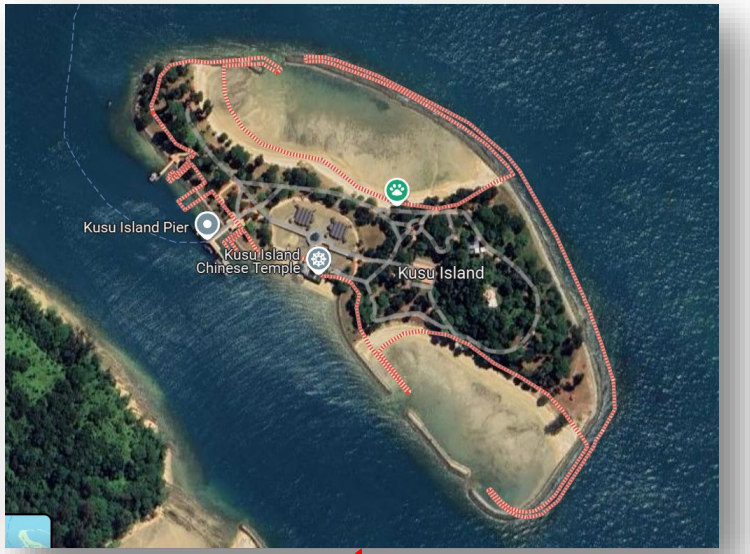
NEWATER

DESALINATED WATER


Stormwater management
Rain
Sea
Treated used water
Treatment of used water at 4 water reclamation plants
Indirect potable use
4 NEWater factories
Collection of rainfall in 17 reservoirs
5 Desalination plants
Direct non-potable use through 660km transmission and distribution network
Collection of used water in 3,700km of public sewers and Deep Tunnel Sewerage System (DTSS)
Industries
Transmission and distribution network (6,000km)
Treatment of raw to potable water at 6 PUB waterworks
Households

Source: PUB

Singapore's example of Decentralized System

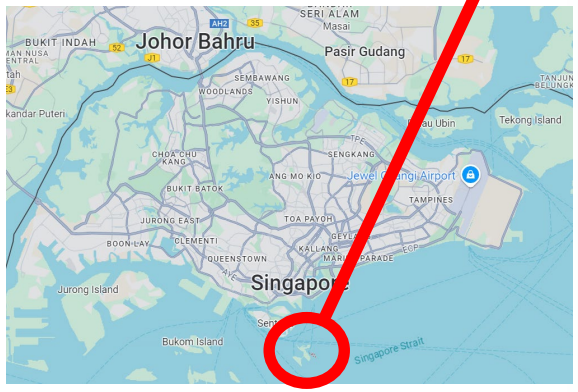


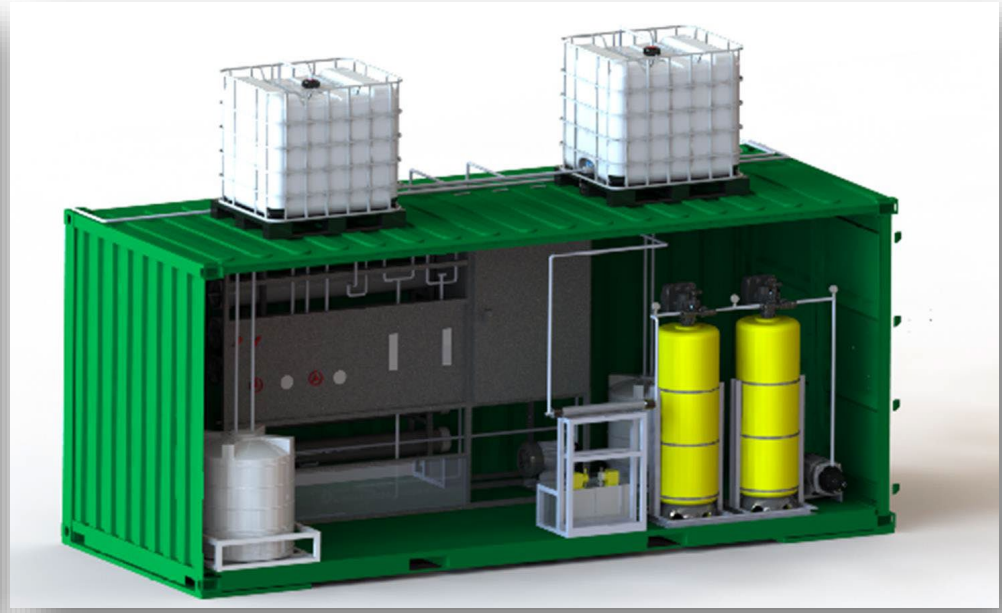
KUSU ISLAND

Self-reliant in using solar power to produce its own water and electricity

780 m2 of solar panels have a power output of **140 kWp**

20,000 L per day of desalinated water, enough for 140 people





WATER

Southeast Asia and the right to safe water

More than 100 million people live without access to safe water in Southeast Asia, Sam Geall writes about what can be done to improve that and to protect clean water sources

Collecting water from a lake, Minnanthu, Bagan, Myanmar [image via: Alamy]

SEA Total Population

695 mil

No Access to Safe Water

> 100 mil

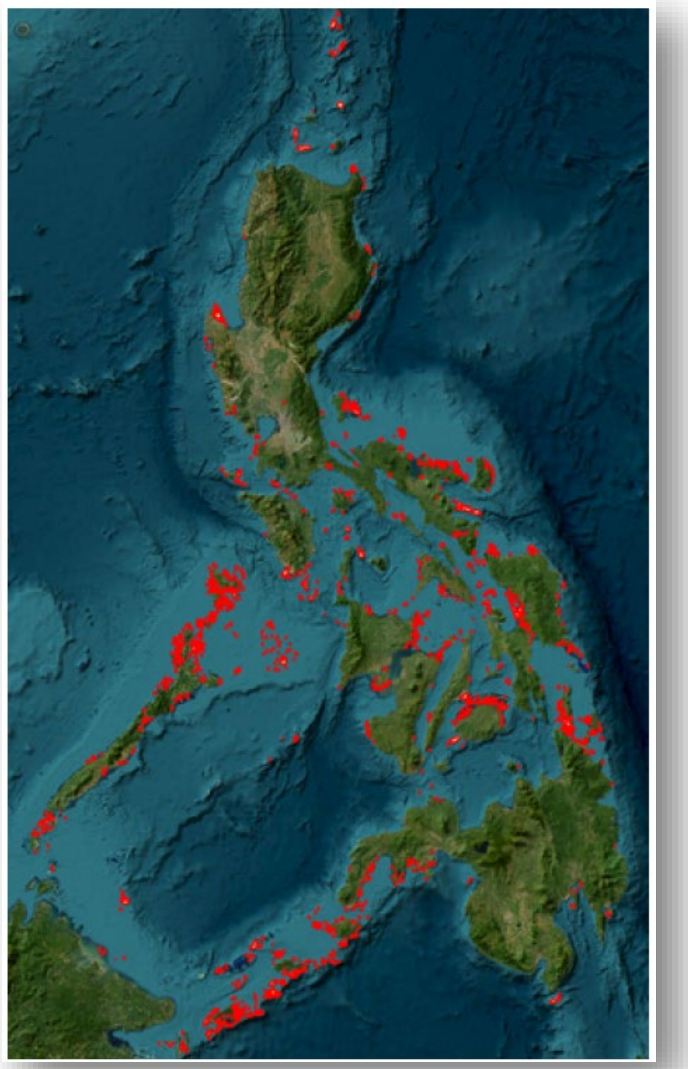
GDP Growth:

5-6% per annum

Challenges:

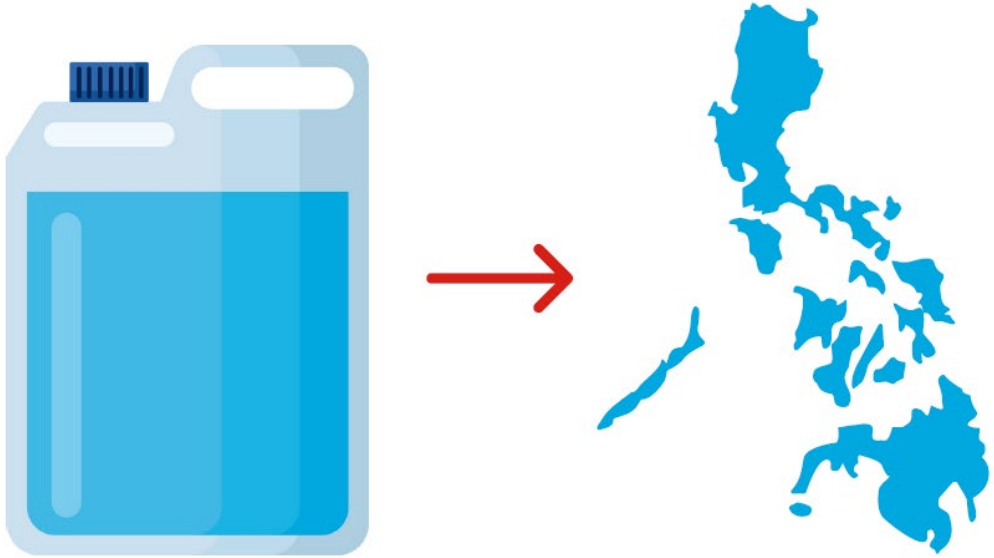
- Inequitable Access
- Inadequate Infrastructure
- Pollution
- Climate Change

Philippines

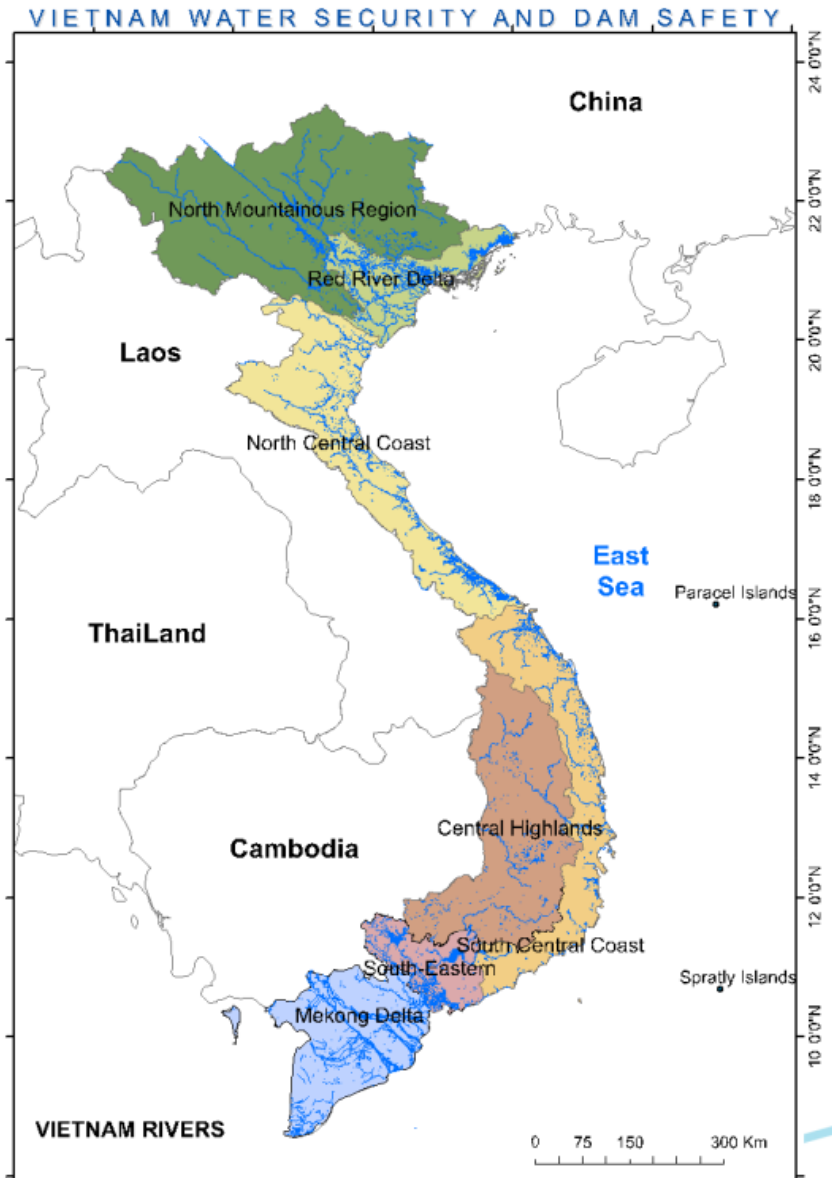


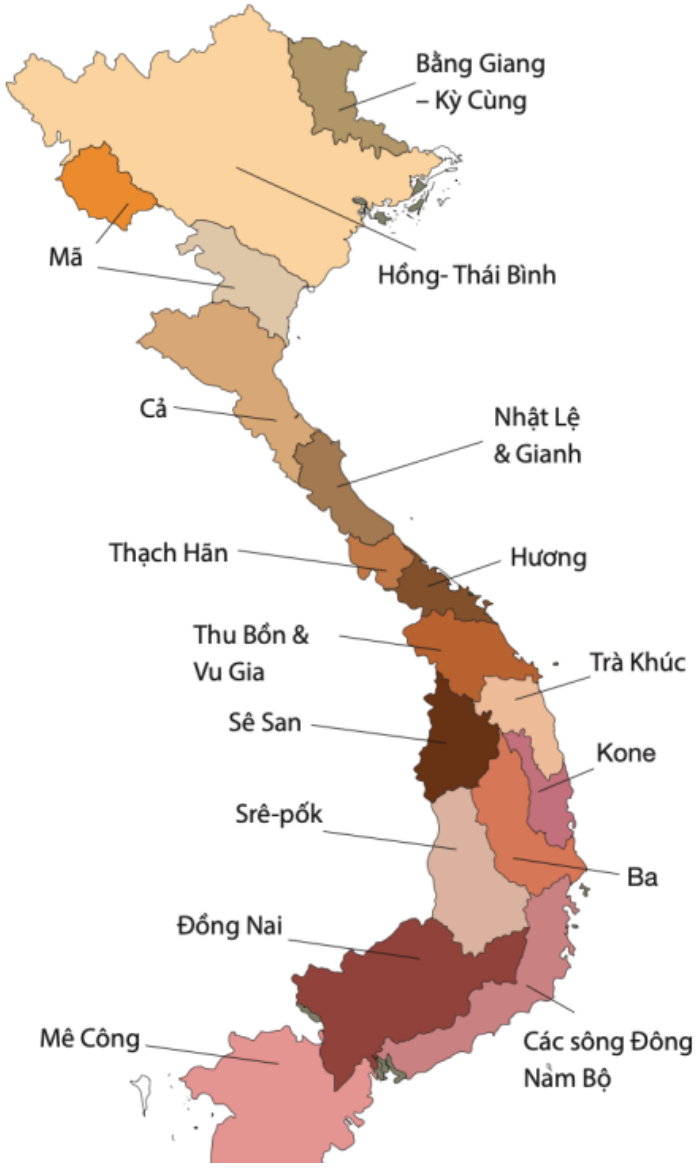
Small Island Barangays in the Philippines w/t potable water sources

The DENR-WRMO aims to to kickstart the provision of potable water to 40 million underserved Filipinos by providing 40 islands across the Philippines access to potable and affordable drinking water.

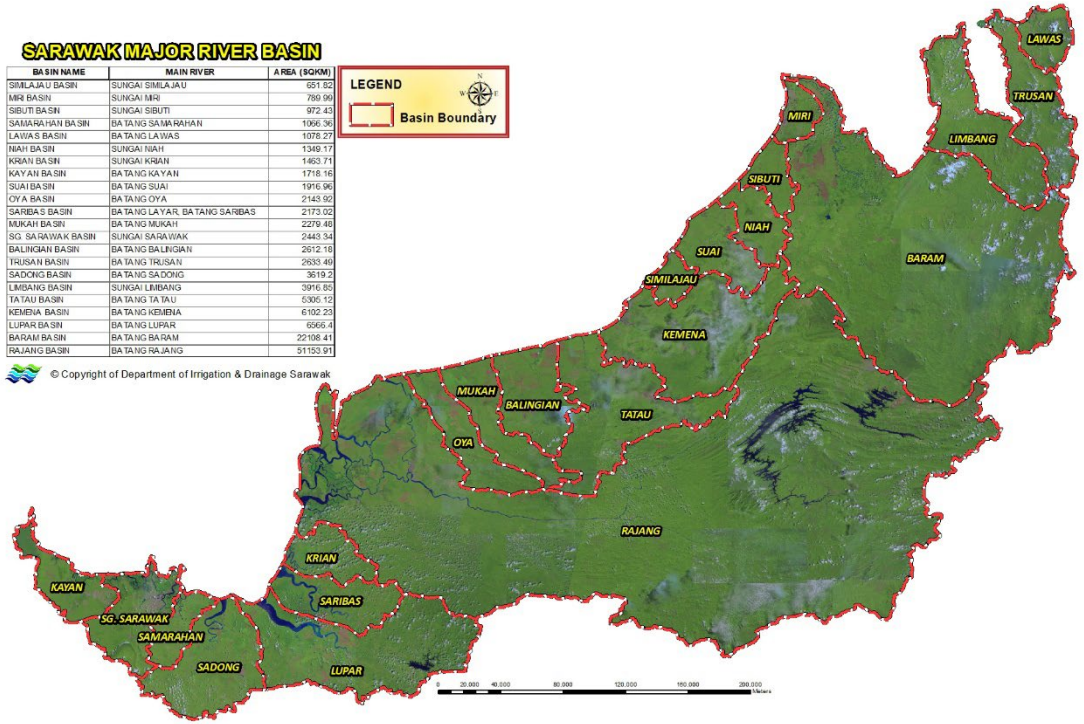


Vietnam





- A long costal area, with many islands
- 2 huge Delta: Hong river delta and Mekong river delta
- Highly vulnerable to nature hazards, such as: storm, flood, drought, salinity…
- Most of urban and delta areas have large-centered scale WTPs
- **30 million** people in rural area do not have access to potable water



Sarawak Rural Community

Water Supply:

- Abundant water resources: rivers, streams, waterfalls
- Used for domestic, agricultural, and industrial purposes

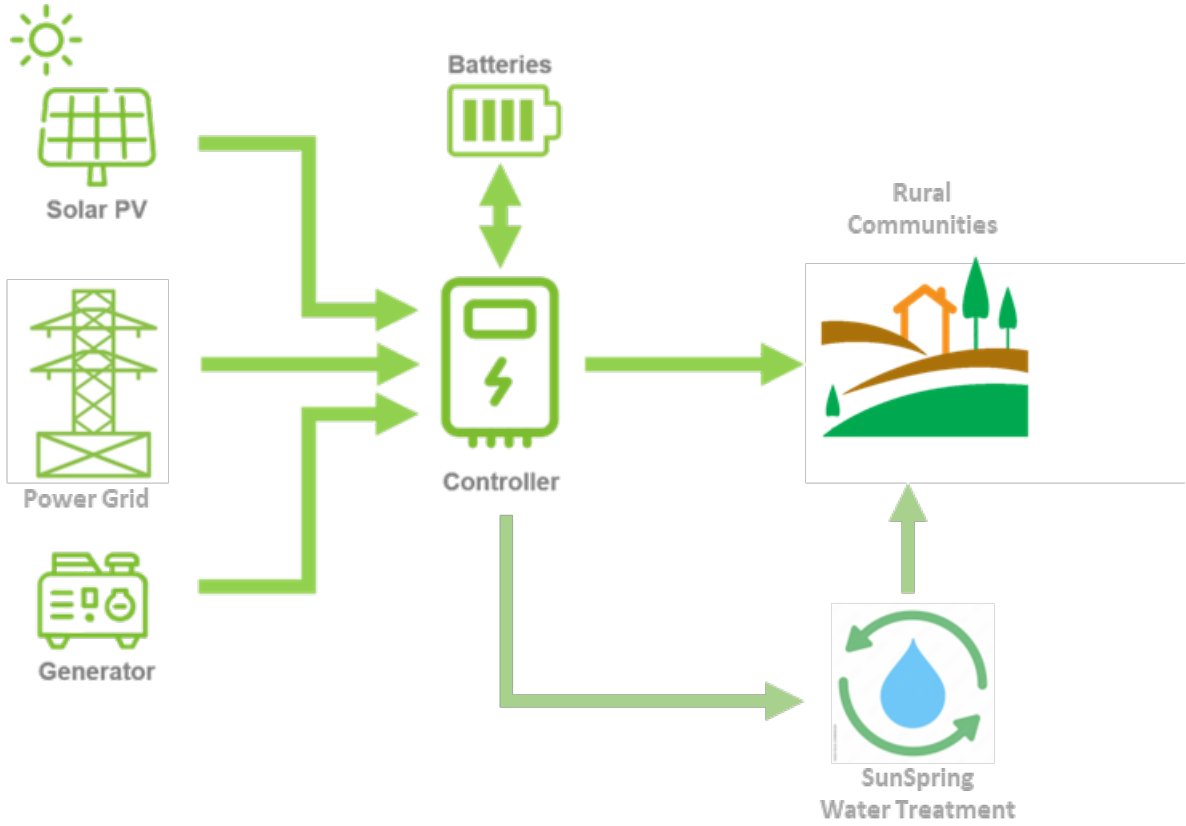
Challenges:

- Inequitable access to clean water
- Inadequate infrastructure, water pollution, and climate change impact
- **Rural and remote areas** face more difficulties

Micro-grid Solutions for Remote Villages

Micro-grid for remote villages by providing access to **clean water** and reliable & **clean electricity:**

- ❑Provide a **Simple, Reliable, Affordable** potable water supply system for rural area
- ❑Establish a **Reliable** and **Clean** energy
- ❑Promote environmental stewardship and sustainability
- ❑Encourage local community engagement and capacity building



Modular Water System

Fresh Water System
(50 ~ 500 people)

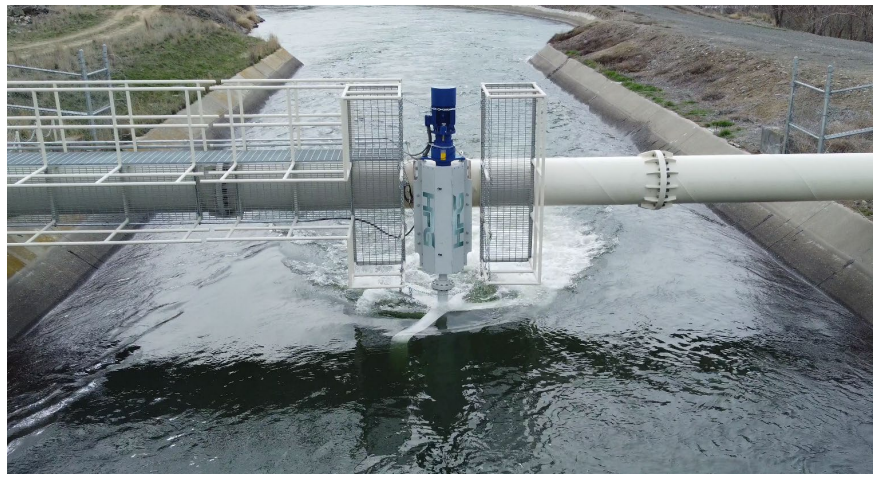
Desalination System
(5,000 ~ 10,000 people)

Renewable Energy Sources

Solar Power

Wind Power

Hydropower by
Screw Turbine



Hydropower by
Hydrokinetic Turbine

Thank you

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