

# **Sustainable Drinking Water for Village Schools:**

**Village Empowerment Project to Promote  
Sustainable Community Development through  
Innovative Integration of Science and Technology**



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# Phase 2

Consortium group of project partners  
focussed on various sectors, all  
contributing to sustainable community-  
based efforts to improve quality of life in  
Cambodia and Indonesia





## Phase 2

**Parent Program:**  
Facility/Programme  
for Capacity Building  
Development for  
Poverty Reduction  
through South-South  
and Triangular  
Cooperation in Science  
and Technology

## Implementing Partners:

- Canaan Global Leadership Center, Wonju
- Asia Pacific Women's Information Network Center, Sookmyung Women's Univ., Seoul
- Institute for Health and Society, Hanyang Univ., Seoul





## Phase 2: Improved Water Quality

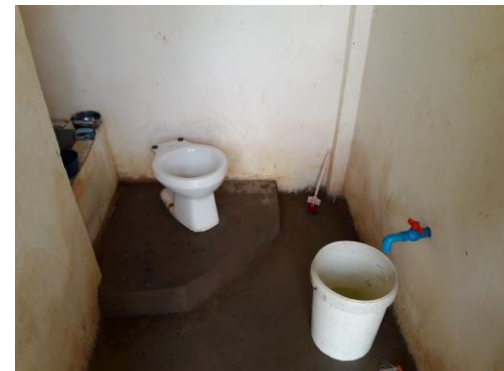
Sustainable and improved water quality for village schools in Cambodia and Indonesia

- Gaps with improved sanitation between rural and urban populations
- Divide between rural and urban areas less so with access to improved drinking water (UNICEF/WHO 2015)
- 2014 Environmental Performance Index (EPI) Cambodia and Indonesia vulnerable in **water and sanitation**. Ranked 157 and 128, respectively, among 178 countries



# Phase 2: Improved Water Quality

- Initial survey of well and rainwater (n=7) at rural schools in Kampong Cham and neighboring areas
- All collected samples **positive** for enterococci (fecal indicator organism)
- More than half exceeded USEPA guidelines for surface waters (35 CFU/100 ml)





## Phase 2: Improved Water Quality

**Planned Tasks:** Sustainable and improved water quality for village schools in Cambodia and Indonesia

- Develop training workshops for water quality analysis with Ministry of Environment and other partners.
- Installation of sustainable water treatment systems, including training on maintenance
- Long term water survey for installed systems
- Expand training and treatment systems to other communities (training of trainers)
- Disseminate water quality data to local and national stakeholders





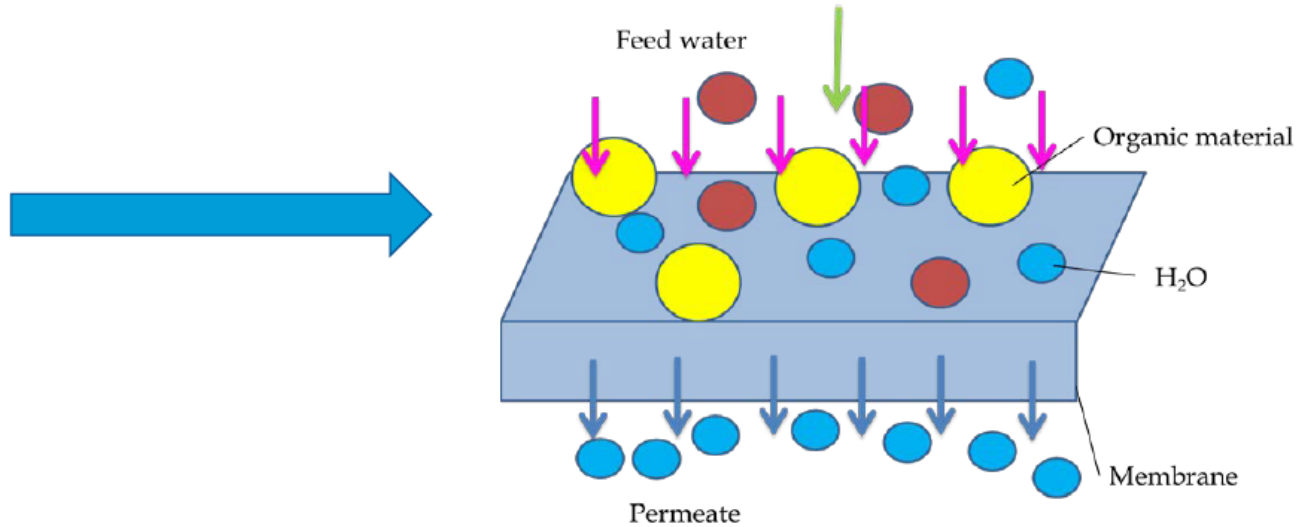
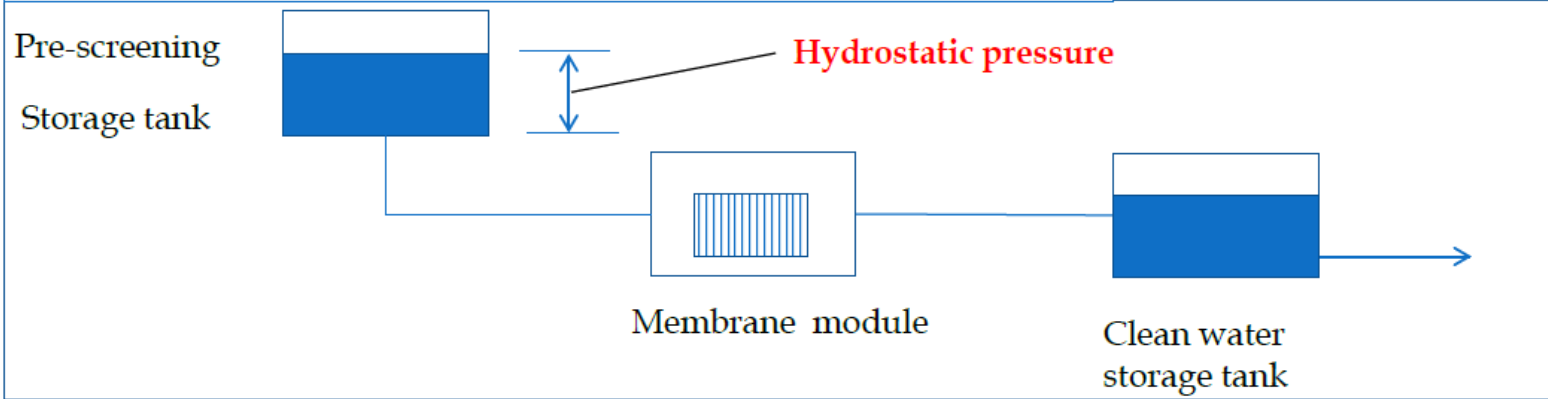
# Phase 2: Healthy School Project

## Planned Tasks: Support the Development of Healthy Schools in Cambodia and Indonesia

- Support efforts of Institute for Health and Society, Hanyang University
- Establish governance for healthy school projects
- Conduct a school need's assessment, including water quality surveys
- Working in partnership with Srei Santhor Education Office



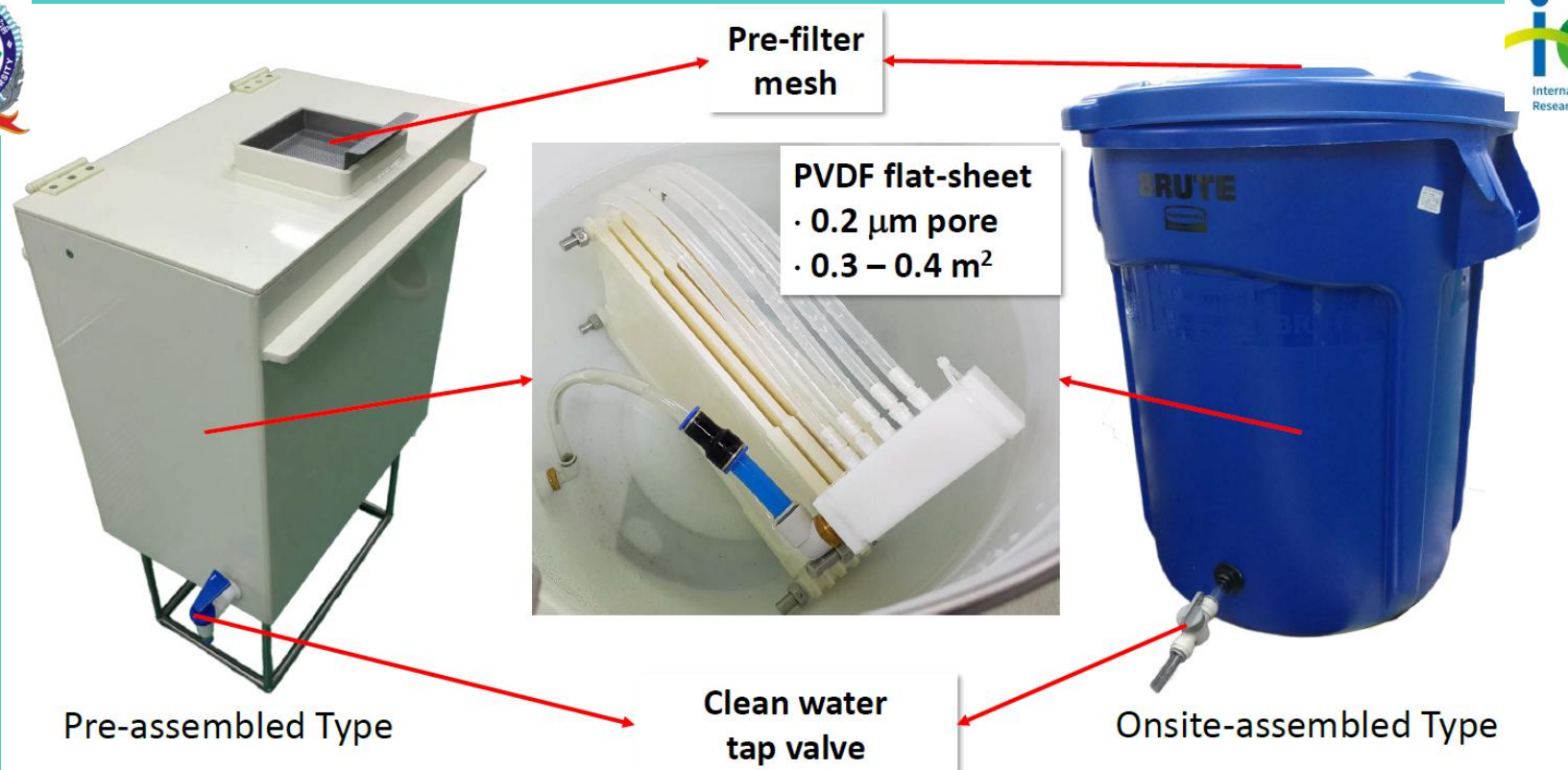
# Concept of Gravity Driven Membrane (GDM)



Developed by GIST:

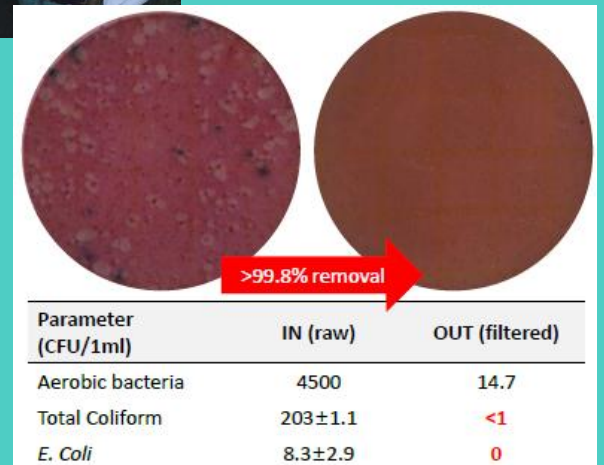
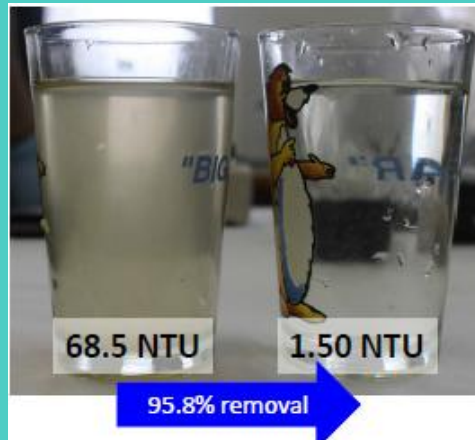
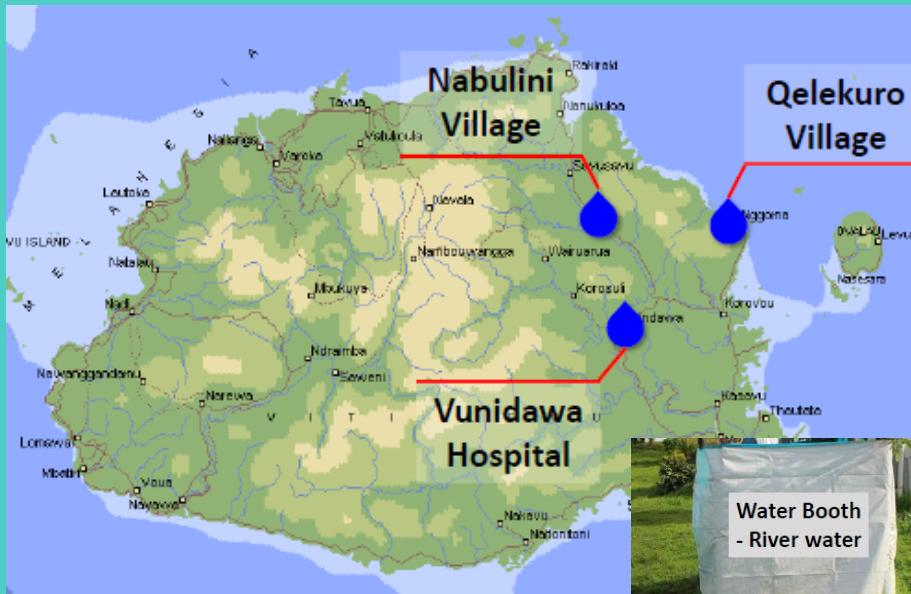
Kyoung-Woong Kim, Sang-ho Lee,  
Yunho Lee, and Yuri Lee





## Gravity Driven Membrane (GDM) System

- Compact, easy operation, no external energy supply needed, with a Long lifetime (up to 10 years)
- Little to no maintenance needed (back-washing)
- Very effective bacteria and protozoa removal
- Current GDM systems produce 15-40 L/hour





## Phase 2: Outputs

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- Increased technical capacity for water quality monitoring (training of trainers)
- Improved water quality in village schools
- Better health among students by promoting healthy school programs and improved access to safe water
- Educational development of university students (thesis work)
- Phase 2 focused on utilizing sustainable technology and capacity building of local/provincial residents





# Thank You



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