

*turning knowledge into practice*

# Sustaining Sanitation Improvements in Asian Cities

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# The Cost of Poor Sanitation

Country	Annual Economic Impact (2005 data)	% of GDP
Cambodia	\$450 million	7.2%
Vietnam	\$780 Million	1.3%
Philippines	\$1.4 Billion	1.5%
Indonesia	\$6.3 Billion	2.3%

The study considers economic losses due to:

- ***Heath and health care***
- ***Water resources***
- ***Environmental degradation***
- ***Lost tourism opportunities***

Source: *Economic Impacts of Sanitation in SE Asia, WSP, 2008*

# Uncontrolled Wastewater Discharges - Leading Cause of Poor Sanitation



*Food Manufacturing*



*Housing*



*Public Markets*



*Slaughterhouses*



*Institutions*



*Food Service*

*Some Wastewater Sources in our Cities*

*How can cities achieve better sanitation through wastewater treatment??*

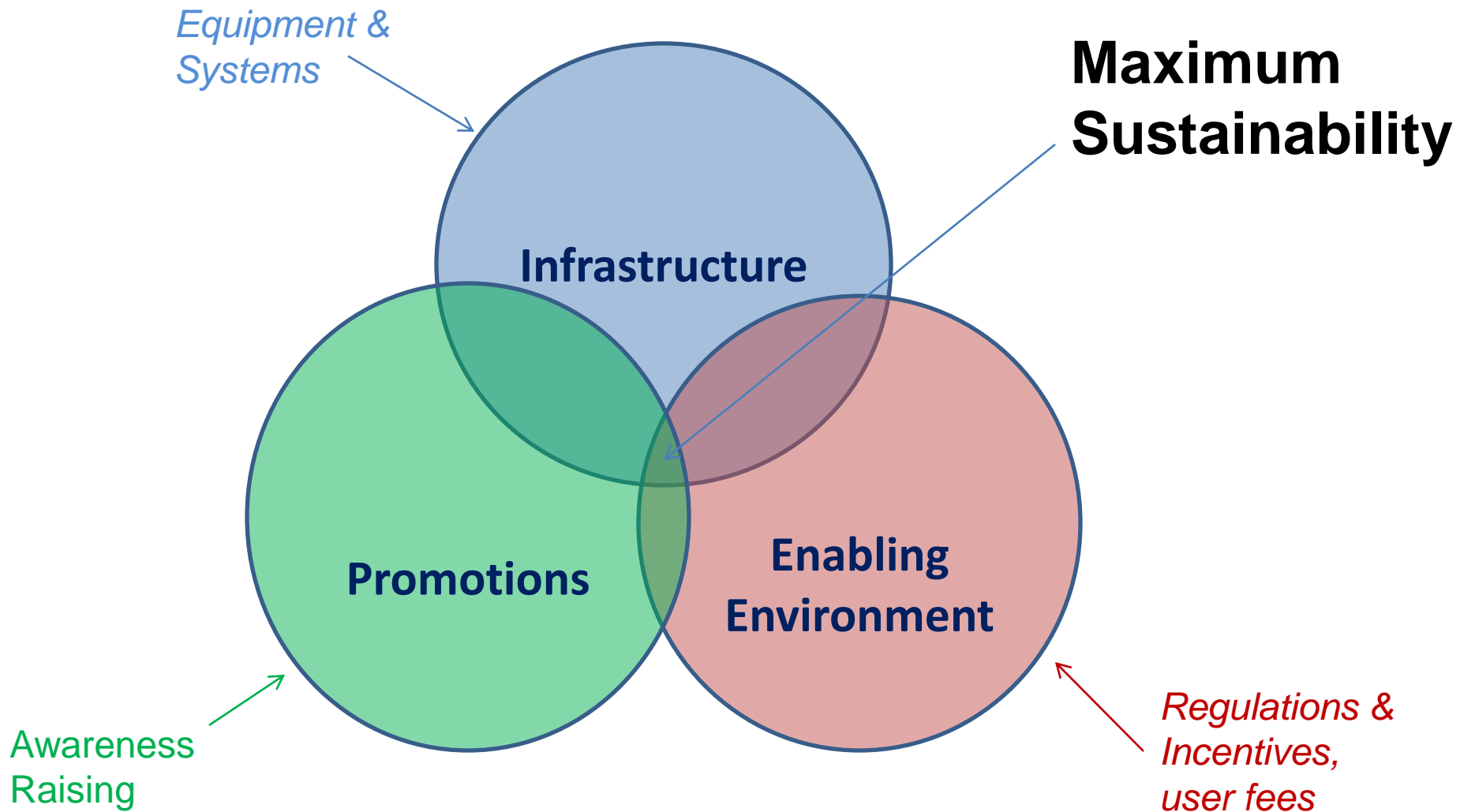
**Where we want to be: Improved sanitation**

**Where we are now: Limited Sanitation**



**Sustaining the process over time is the key**

# The Process for Sustainable Sanitation



# Awareness Raising & Promotions

## Rapid Technical Assessment



Identify:

- Technical needs
- Attitudes & practices
- Opportunities realized through wastewater treatment

## Stakeholder & TWG (Technical Working Group)



Consensus on nature of problem and opportunities:

- Is the problem real?
- Will we work together to fix it?

## Outreach and Promotions

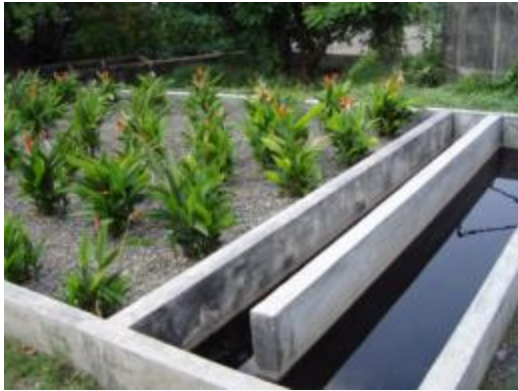


Evidence based and targeted

- Multi media
- Ongoing outreach
- Simple and direct

# Training & Capacity Building

## Technology Assessment



- Low cost
- Low energy
- Easy to operate
- Can be build with local materials and labor

## Tools and Information



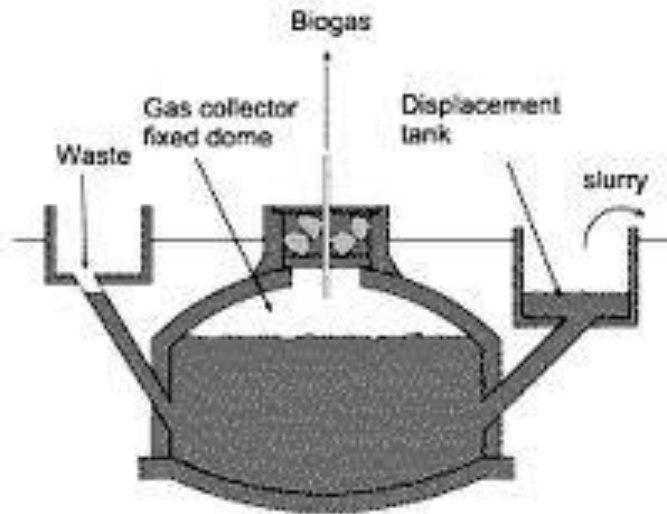
- Case studies
- Interactive toolkits
- Best practices
- Lessons learned

## Training and Certification



- Planning
- Design
- Installation
- Operation

# Sustainable Wastewater Technologies



*Bio digesters*



*Constructed Wetlands*



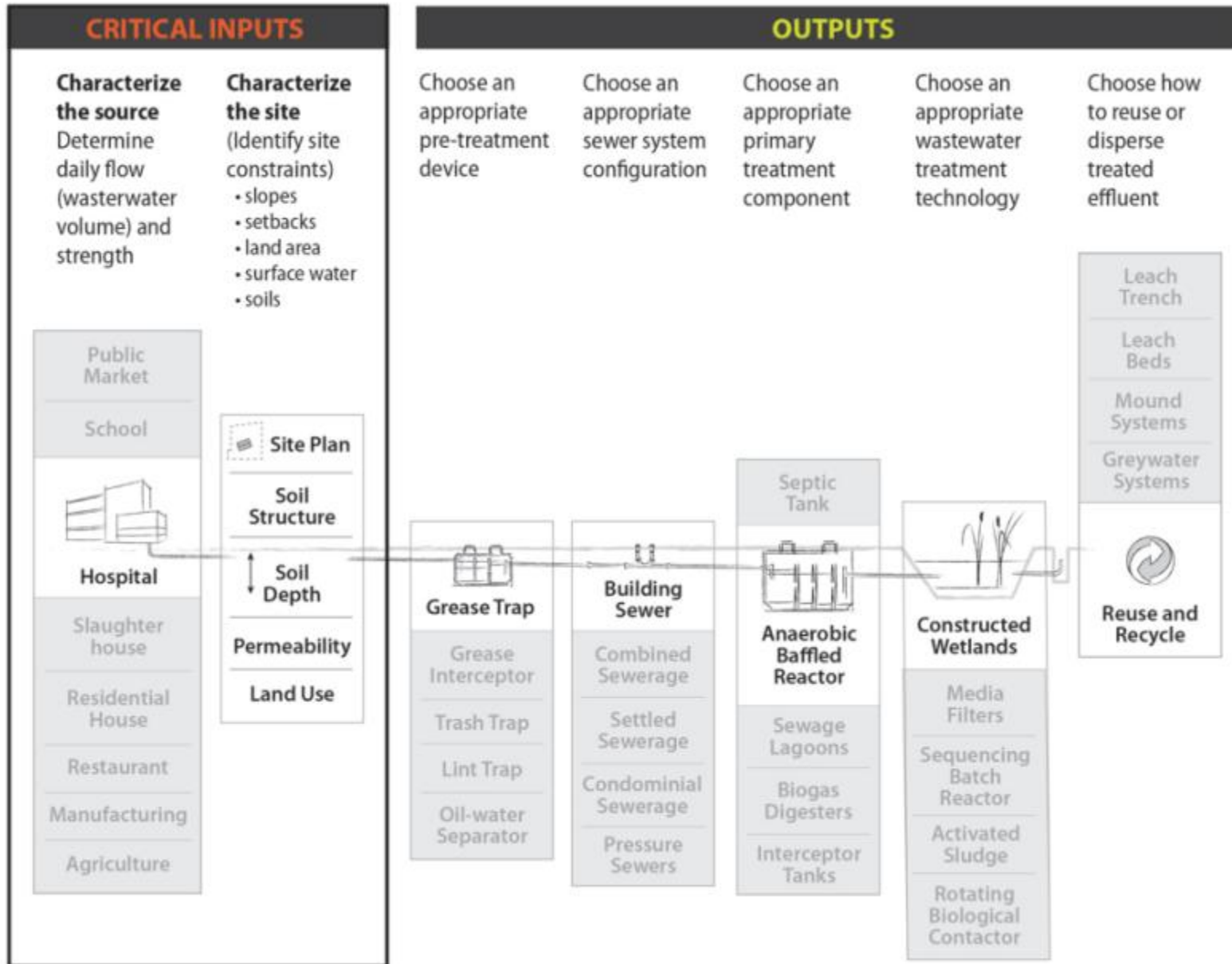
*Grease Interceptors*



*Cocopeat Bio filters*



# DEWATS Planning and Implementation Model



# The Value of Pilot Projects

## Public Market



### Advantages:

- High outreach potential
- Addresses major source of pollution

## Residential Housing



### Advantages:

- Common source of pollution
- Improves health
- Sets model for replication

## Commercial



### Advantages:

- Demonstrates waste recovery and recycling
- Engages private sector

# Enabling Environment

## Guidance Policies



Provides written procedures for all aspects of wastewater regulation:

- Clear
- Concise
- Accessible

## Roles and Responsibilities



Coordinates regulatory agencies to streamline review and approval process.

## Incentives



Economic incentives:

- Waste to energy – biofuels, methane
- fee reductions

Case Study –

# Alabang Public Market - Philippines



- Muntinlupa City conducted promotions campaign
- Market vendors agreed to pay 5 pesos (\$0.11) per stall per day
- System provides secondary treatment in full compliance
- Treated effluent used for toilet flushing and street cleaning
- User fee resulted in **full cost recovery** in 5 years

## ***Additional results:***

- Saved P25,000 (\$580) each month in water pumping
- Improved cleanliness and sanitation in the market

Case Study –

# Dumaguete Public Market - Philippines



- Built by BORDA in 2006 using constructed wetlands technology
- Initial funding by City Government
- Public restroom fee pays for entire O&M budget

## ***Additional results:***

- Dramatically improved beach front sanitation at “The Boulevard” public area
- Provided a great demonstration of how wastewater treatment can be low cost and aesthetically pleasing at the same time.

*Case Study –*

# Dumaguete Septage Facility- Philippines



- Joint program between City Government and Water District
- Small monthly fee added to water bill covers full cost recovery
- In first 2 years, desludged half of 25,000 residential septic tanks

## ***Additional results:***

- User fees represent cost savings to customers
- Program provided jobs and economic development
- Neighboring municipalities are utilizing system on a cost for service basis

# Self Help – Tools for Local Governments

**WASTEWATER SOLUTIONS FOR DEVELOPMENT**  
Decentralizing wastewater treatment for simplicity and sustainability

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**OUR ONLINE COMMUNITY FOR WASTEWATER MANAGEMENT** Edit

DAVID ROBBINS

Welcome to our wastewater community. This site is dedicated individuals, groups, or institutions interested in improving the quality of life and health of their communities through wastewater treatment. The tools and information contained here are provided to help you plan, build and operate low cost wastewater systems.

Use this website to

- Learn how to apply this technology to your sanitation improvement projects;
- Download tools, review case studies or search our wastewater library;
- Ask an expert questions related to your wastewater project;
- Participate in our forums and share your knowledge and experiences;
- Upload your case studies so we may all benefit from your lessons learned.

Our site is evolving so tell us what you think through the feedback link. Thank you for your participation.

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# Thank You!

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