Sustaining Sanitation Improvements in Asian Cities

David Robbins
## The Cost of Poor Sanitation

<table>
<thead>
<tr>
<th>Country</th>
<th>Annual Economic Impact (2005 data)</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>$450 million</td>
<td>7.2%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>$780 Million</td>
<td>1.3%</td>
</tr>
<tr>
<td>Philippines</td>
<td>$1.4 Billion</td>
<td>1.5%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>$6.3 Billion</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

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 are now: Limited Sanitation

Where we want to be: Improved sanitation

Sustaining the process over time is the key
The Process for Sustainable Sanitation

- Infrastructure
- Enabling Environment
- Promotions

- Awareness Raising
- Equipment & Systems
- Regulations & Incentives, user fees
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
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

OUR ONLINE COMMUNITY FOR WASTEWATER MANAGEMENT
Welcome to our wastewater community. This site is dedicated to 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.

www.watsanexp.ning.com
Thank You!

David Robbins

March 6-7, 2012