

The Costs and Benefits of Sanitation Services in East Asia

Results of the Economics of Sanitation Initiative

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Improving evidence to help sanitation decision makers make hard decisions



- Governments have a rough idea of the costs and benefits of investing in sanitation

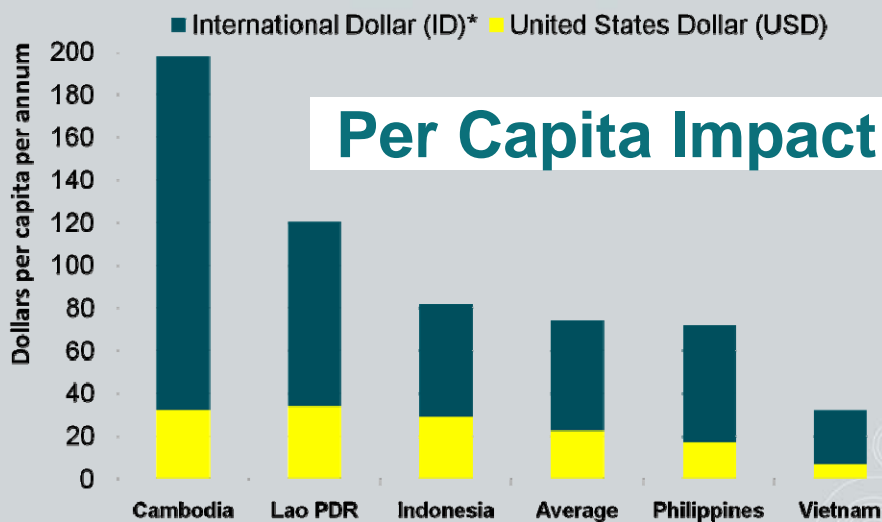
However, further clarity needed:

- Economic trade offs between competing investment options
- Comparative performance of new promising interventions
- What evidence convinces consumers to invest in sanitation (e.g. private and social cost-benefits)

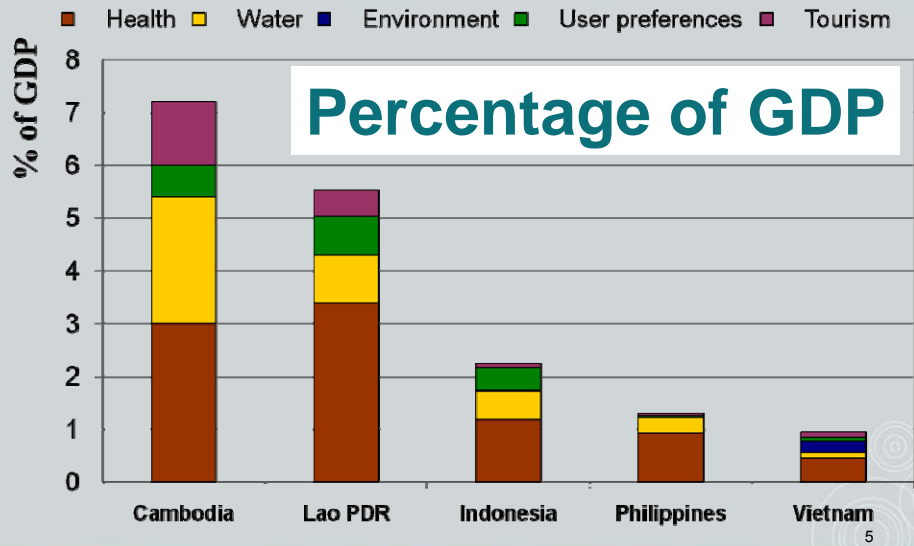
Key Message 1

Not investing in sanitation
has significant socio-
economic impacts

Impact per person is greatest in the lowest coverage countries



Poor sanitation has major and diverse impacts

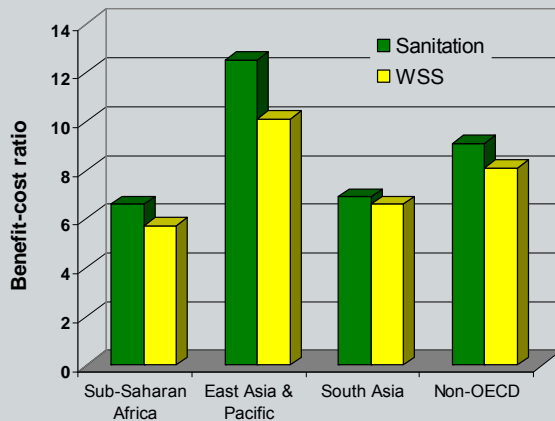


Source: Economic impacts of sanitation in Southeast Asia. WSP/World Bank. 2008.

Key Message 2

Investing in sanitation is an efficient use of society's resources

Sanitation is a good buy !



Including value of health (diarrhea) and access time gains only – the **return on investment is at least 6 times**

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Source: Global cost-benefit analysis of countries off-track to meet WSS MDGs. WHO. 2004.

Emerging evidence from 6 country field study supports investments in sanitation

Economics of Sanitation Initiative Phase 2: 6 countries

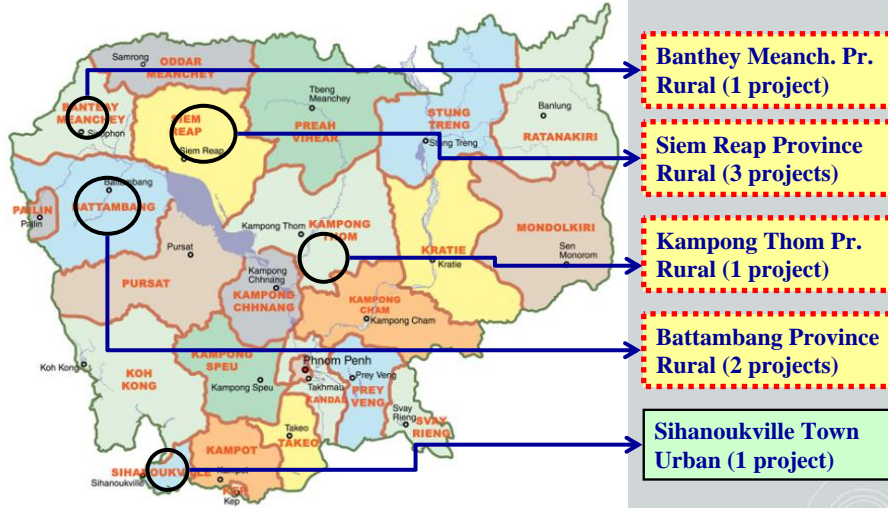
Preliminary results from: Cambodia, Indonesia, Philippines and Yunnan Province (China)



- **Benefit-cost ratios are all above 1, ranging from 2 to as high as 10**
- **Rate of return on spending is from 30% to over 200% per year, highest for rural areas**
- **In economic terms, key to focus on annualized life cycle cost**
- **In financial terms, start-up cost plays central role in investment decision**

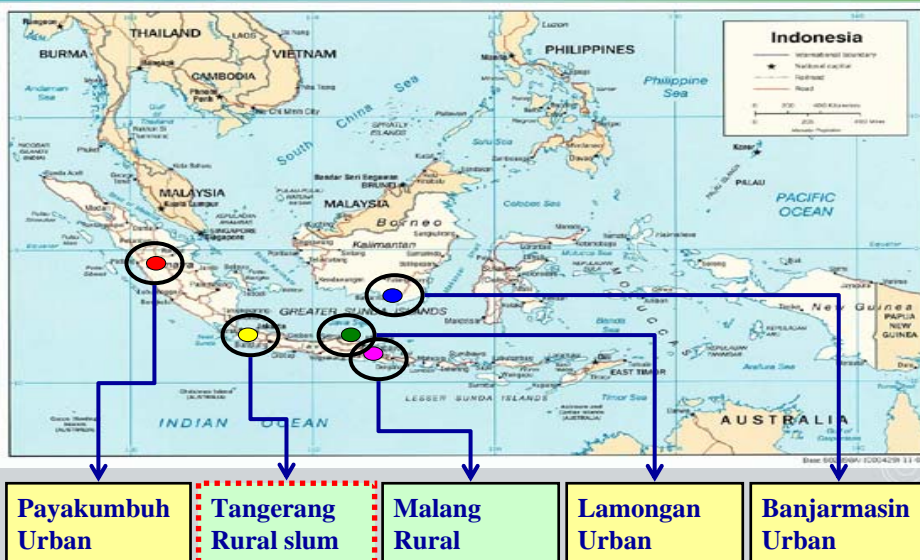
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Cambodia Field Sites



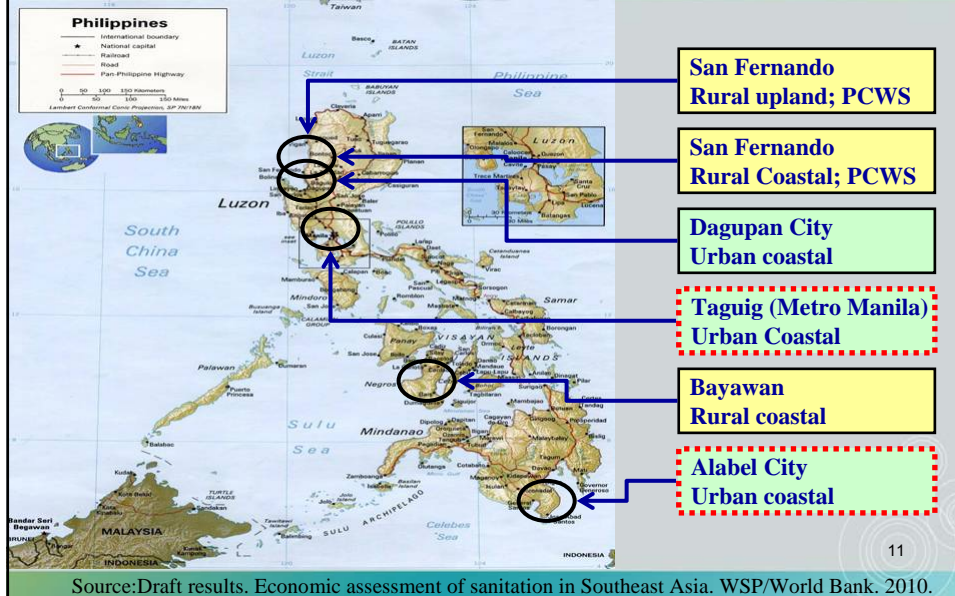
Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Indonesia Field Sites



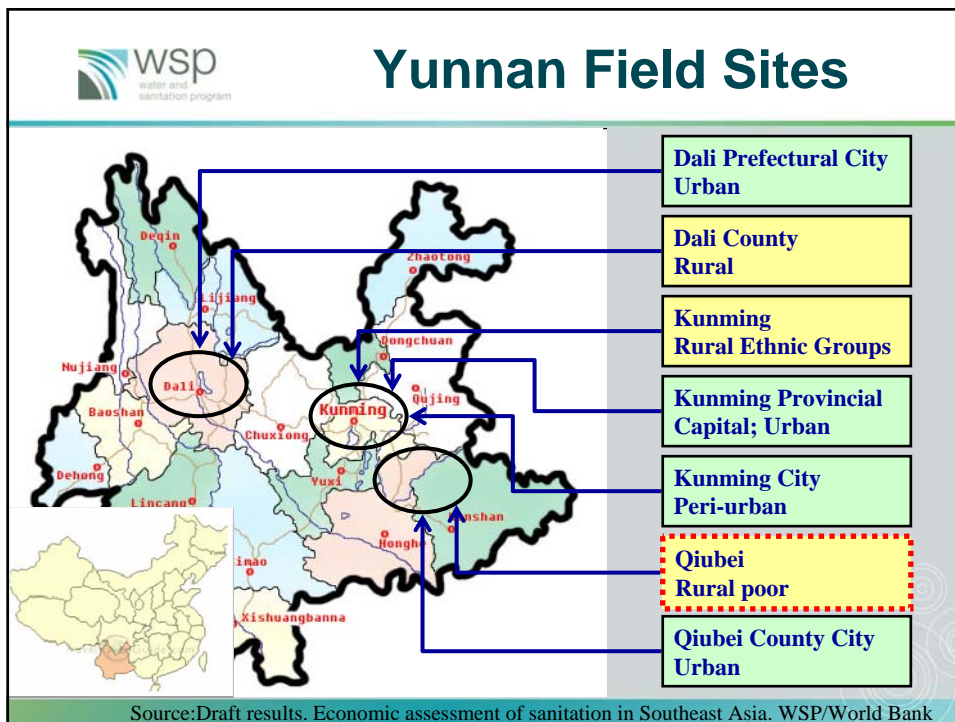
Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Philippines Field Sites



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

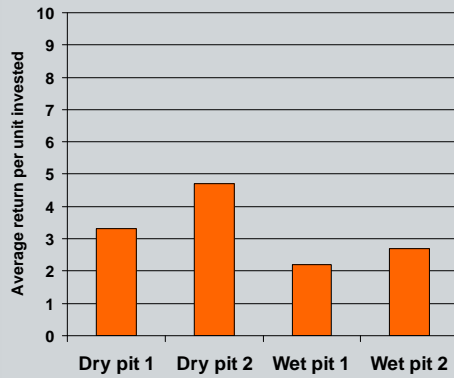
Yunnan Field Sites



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank.

Highly cost-beneficial latrine options in rural Cambodia

Benefit-cost ratio



Dry Pit 1



Dry Pit 2

Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Cambodia: from society's perspective, high return on investments

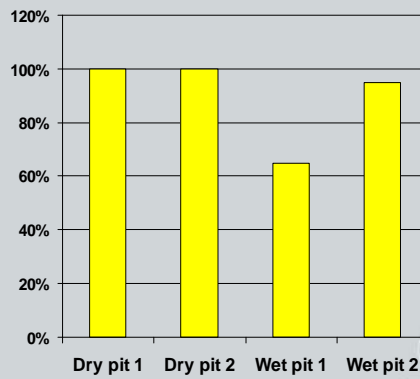


Wet Pit 1



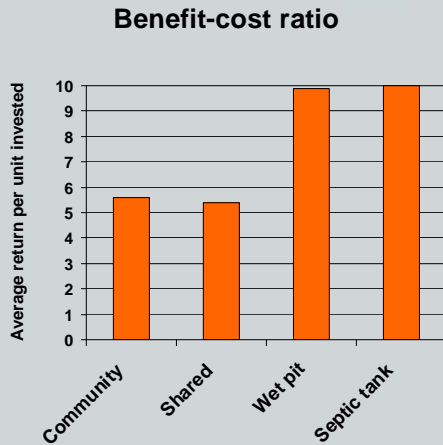
Wet Pit 2

Annual rate of return



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

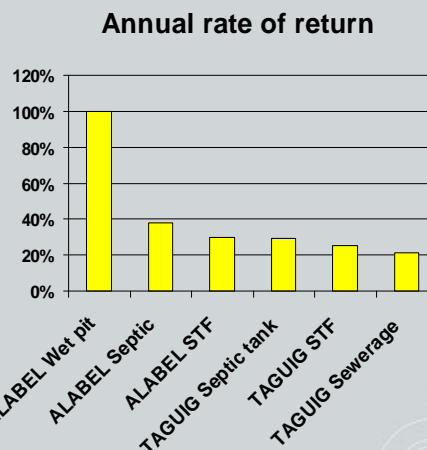
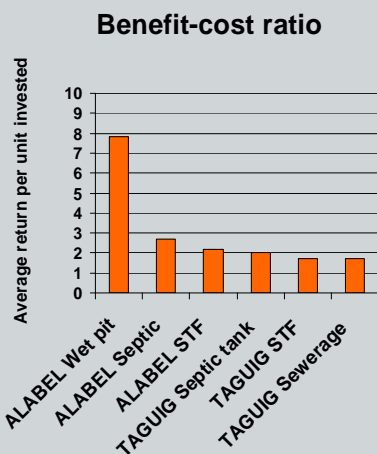
High benefits for slum populations in rural district of Indonesia



➤ Annual rate of return of all options > 100%

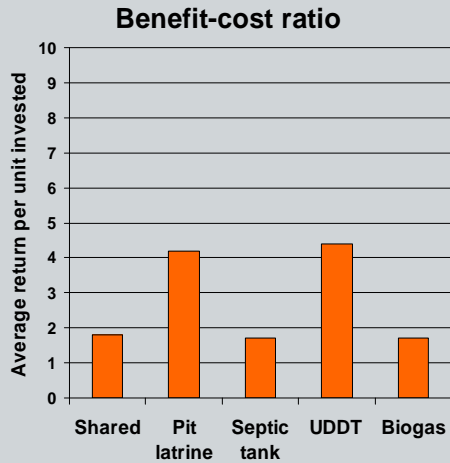
Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Moderate to high performance of urban options in the Philippines



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

In Yunnan, China, all rural options deliver dividends on investments



- Health baseline better than other countries
- Annual reuse value US\$45 UDDT and US\$75 biogas

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Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Key Message 3

Investments in WSS should be made based on an understanding of economic performance mixed with knowing what works on the ground

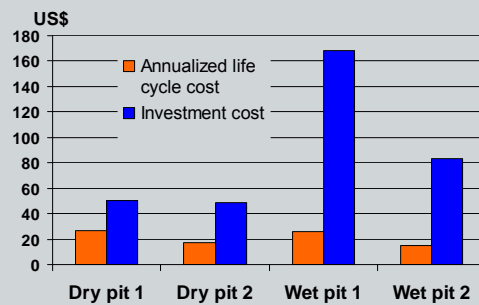
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Cambodia: differences in annual costs driving efficiency differences

- Investment cost and intervention life differences lead to different annualized life cycle costs



Household Cost



- Other factors determining choice and sustainability

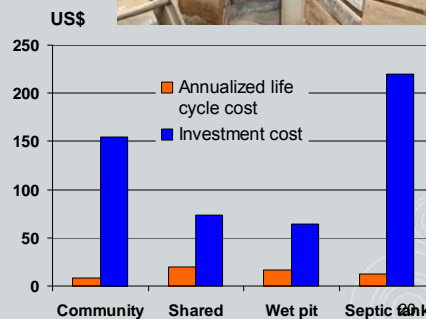
- Ownership of process
- Intangible benefits
- Affordability

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Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Efficiency versus feasibility in slum / densely populated Indonesia

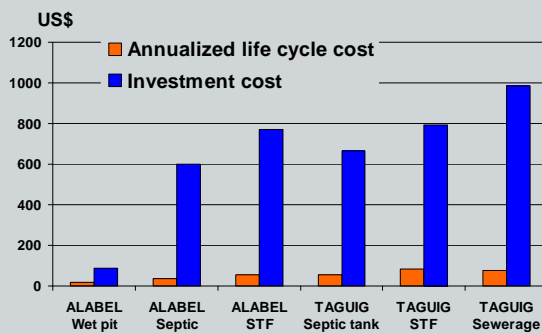
- Private options better?
 - Access time gains significant
 - Intangible gains
- Lack of land and low property ownership constraints private options
- Community toilets expensive – but often are only option



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Urban solutions in Philippines must be organized at scale

- High investment costs for wastewater treatment, but annualized life cycle costs reduce significantly
- Low capacity utilization of large-scale solutions leads to inefficient systems

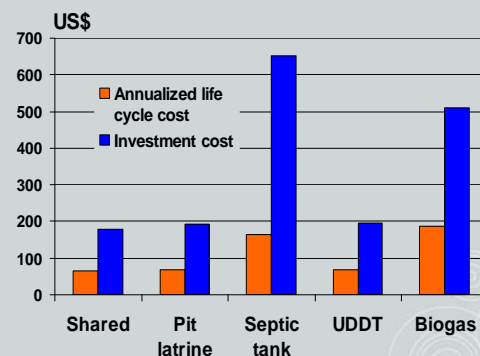


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Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

High rates of return for all options in China, especially low cost & reuse

- Private latrine similar cost to shared, as well as UDDT
- Practice of reuse common, even for pit latrine
- Septic tank for better-off households
- Not all environmental benefits quantified



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Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

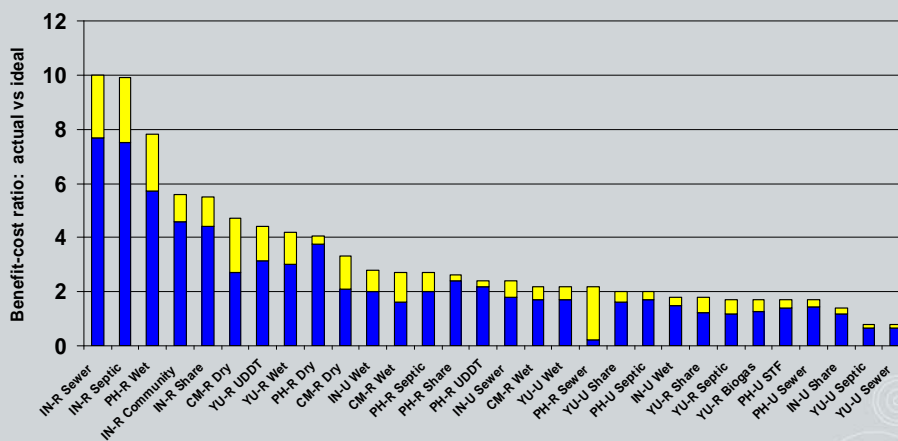
Achieving full economic benefits of sanitation constrained by “real world” issues

- Sanitation systems soon fall into disrepair and are not maintained or replaced due to high O&M costs
- Some family members or households may prefer less ‘efficient’ options (e.g. wet pits, OD)
- Low connection rates to wastewater treatment plants and low demand for pit / septage emptying services reduces economic performance



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Performance significantly affected when adjusted for program effectiveness



Source: Draft results. Economic assessment of sanitation in Southeast Asia. WSP/World Bank. 2010.

Reaping the benefits of WSS

Economic benefits of sanitation are confirmed

- Some options more 'efficient' than others
- Non-quantified aspects play a key role

Important to consider factors that reduce effectiveness, hence several measures are needed:

- Population sensitization & demand creation
- Supply management – affordable, well designed, constructed, utilized and maintained