



Universal Sanitation in East Asia

Mission Possible?



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This joint publication has been prepared¹ as a background document and thought-piece for the first East Asia Ministerial Conference on Sanitation and Hygiene (EASan), which will be held in Beppu City, Japan on November 30 and December 1, 2007. EASan will precede the first summit meeting of the Asia Pacific Water Forum (APWF), which will be attended by 49 Heads of State in the same venue on 03–04 December. The outcomes of EASan will be presented to the Heads of State attending the APWF summit during a session on the launching of the 2008 International Year of Sanitation.

The joint publication examines the sanitation challenges faced by the nine EASan focus countries (Cambodia, People's Republic of China, Indonesia, Lao PDR, Mongolia, Myanmar, the Philippines, Timor-L'Este, and Vietnam); highlights lessons learned in the six additional EASan participant countries (Brunei Darussalam, Japan, Republic of Korea, Malaysia, Singapore, and Thailand); and supplies supplementary learning from other developing country contexts.

Summary

On November 30 and December 1, 2007, ministers and leaders from 15 East Asian countries will meet in Beppu City, Japan, to discuss how the region can accelerate progress in sanitation. East Asia has achieved much in the last decade, and the time is now right for concerted efforts to better the lives of all East Asians.

Awareness is a key ingredient in improving the chances that this can happen. There is a need to understand the nature, magnitude, and urgency of the sanitation challenge; to recognize that inadequate sanitation not only pushes already disadvantaged sections of society into deeper illness, poverty, and indignity but also limits the region's economic growth and human development. Inaction comes at a large economic and social cost.

Governments can accelerate progress towards universal sanitation

This joint publication, in common with the EASan Conference and the forthcoming events of the International Year of Sanitation in 2008, aims to illuminate the costs of inadequate sanitation, the untapped benefits of improved sanitation, and the immediate actions that need to be taken. It is hoped that this increased visibility, awareness, and knowledge will help to trigger and assist concerted efforts to increase political priority, stimulate household demand, and improve the supply of effective sanitation services. Despite steady progress in extending sanitation services, the numbers are a stark reminder of the magnitude and importance of the sanitation challenge in East Asia:



¹ The author is Andy Robinson (email: andyroxhat@yahoo.co.uk), an independent consultant tasked with preparing the joint WSP-WHO-UNICEF publication for the EASan conference.

800 million people in East Asia lack adequate sanitation

- 800 million people remain without sanitation—almost half the population.
- Diarrheal disease causes 190,000 deaths each year.

Without sanitation and hygiene, everyone's health and well-being is at risk

Human feces are the primary source of diarrheal disease—without improved sanitation facilities to contain and dispose safely of human waste, the health of everyone living nearby is at risk. Improved sanitation and hygiene reduce diarrhea, cholera, pneumonia, worms, malnutrition, and many other preventable illnesses. Without improved sanitation and hygiene, people suffer many afflictions: ill health, missed educational opportunities, wasted time, lost income, inconvenience, indignity, and environmental degradation.

Sanitation and hygiene rarely receive the priority they deserve

People are often unaware of the invisible costs of their sanitation deficit thus, demand for sanitation facilities is low. Faced with competing priorities, low private demand for sanitation, and invisible costs, it is no surprise that politicians and governments rarely give sanitation or hygiene improvement the priority they deserve. This low political priority neglects evidence of the substantial economic impacts caused by inadequate sanitation and hygiene, or of the significant benefits to economic growth and poverty reduction that would be generated by large-scale sanitation and hygiene improvements.

Investing in sanitation and hygiene will generate significant economic benefits

In East Asia, US\$8 billion per year is needed to achieve universal access to safe water supply and basic sanitation

by 2015. Set against economic impacts of inadequate sanitation estimated at US\$40 billion per year, every dollar spent on improving sanitation and hygiene is likely to buy many times that amount in economic benefits.

Reaching the sanitation MDG is unlikely to benefit those worst-affected

East Asia has made steady progress towards its Millennium Development Goal (MDG) for sanitation². Nevertheless, success in meeting the 2015 sanitation MDG will still leave 630 million people—one third of the projected population of the nine EASan focus countries—unserved by improved sanitation. The 630 million people left without sanitation are likely to include the worst-affected people in the worst-hit areas, which suggests that the bulk of the disease burden and wider costs of inadequate sanitation are likely to remain even after the sanitation MDG is reached—unless urgent efforts are made to adapt, target, and extend interventions towards those currently worst-affected.

Mission possible: universal sanitation is achievable

It can be done. Several countries in the region have already achieved universal sanitation and several others are very close. Workable and affordable solutions are available for all of the barriers, problems and challenges discussed here—the required technologies, approaches, and skilled personnel are ready. However, first the Governments of East Asia need to recognize the urgency and importance of the challenge; to identify and address the key issues in their countries; and, most critically, to act in concert with each other, and with their many national stakeholders, to accelerate progress towards universal sanitation in East Asia.

The United Nation's Children's Fund—East Asia Regional Office (UNICEF-EARO), the Water and Sanitation Program for East Asia and the Pacific (WSP-EAP), and World Health Organization (WHO)—the joint conveners of the East Asia Ministerial Conference on Sanitation and Hygiene (EASan)—hold firm in the conviction that the universal sanitation mission is possible: that, through single-minded commitment and determination, the Governments of East Asia can exceed their sanitation MDGs, and lead their countries together towards universal sanitation.

² Millennium Development Goal Target 10: To halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.

Dirty realities

Do you use an improved sanitation facility?

In this publication, **sanitation** is defined as the **safe management of human excreta**, and **universal sanitation** as **everyone using improved sanitation facilities all the time**.

The indicator of progress for the sanitation MDG is the percentage of people *using improved sanitation facilities*. An improved sanitation facility should *prevent human contact with human excreta*. The WHO-UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) categorizes improved sanitation facilities as follows³:

- Flush or pour-flush to a) latrine pit; b) septic tank; or c) piped sewer system.
- Ventilated improved pit (VIP) latrine.
- Pit latrine with slab (dry toilet with a raised, easy-to-clean squatting slab or platform).

- Composting toilet (dry toilet designed and maintained to produce inoffensive compost).

Unimproved sanitation facilities (which don't count towards the sanitation MDG) include:

- Shared or public sanitation facilities.
- Flush or pour-flush to street, yard, plot, open sewer, ditch, drain or other unsafe location.
- Pit latrine without slab (an open pit with no squatting slab, platform or seat).
- Bucket (open vessel that is periodically removed for emptying and treatment).
- Hanging toilet or hanging latrine (defecation platform over the sea, river, or other water body).
- No facility (open defecation).

In East Asia today:

190,000
deaths each
year from
diarrheal
disease



³ WHO-UNICEF. 2006. *Meeting the MDG Drinking Water and Sanitation Target: The Urban and Rural Challenge of the Decade*.

Dirty realities

Sanitation should be universal—no one should suffer the indignity and deprivation associated with the need to defecate in public. The dirty reality is that millions of people in East Asia face this daily injustice, and that many more millions—their neighbors and their neighbor's children—have to suffer the unpleasant outcomes. The dirty reality is that unsafe excreta disposal and hygiene behavior by some translate into staggering health risks, economic losses, and environmental hazards for all. How does this happen in East Asia, one of the fastest developing regions in the world?

Sanitation is not a technical challenge

We know how to build toilets and sewer networks; and we know that basic sanitation technologies aren't expensive. And everyone agrees that something needs to be done: indeed, most governments, donors, and development agencies have spent years developing and implementing policies and programs designed to increase sanitation coverage and improve environmental health. Yet the problems persist.

Open defecation and unsafe sanitation go unnoticed and unremarked

Open defecation often takes place under cover of darkness, or wherever affords the best privacy; while unsafe latrines, inadequate septic tanks, and sewer networks dump untreated human waste and sewage through unseen pipes into public ditches, drains and water bodies. When people encounter unhygienic behavior or visible pollution, most tend to look away and think of other things. And the more profound and long-term impacts of inadequate sanitation and hygiene are less visible still.

Invisible costs result in low demand for sanitation services

It's hard to comprehend the severity and extent of the ill health, missed educational opportunities, wasted time, lost income, inconvenience, indignity, and environmental degradation that are the invisible costs of inadequate sanitation. Those burdened most by these opportunity costs are often marginalized, poor, and without voice, so others are rarely troubled by

In East Asia today, most diarrheal deaths are of children under age five!

stories or pictures of their plight. To make matters worse, those facing the problems of inadequate sanitation are rarely aware of either the origin of their ills, or the true costs of their deficit. Thus the demand for sanitation goods and services is often low.

The unserved are reluctant to invest scarce resources in sanitation facilities

Those without sanitation are hard to convince of the need to change their behavior and invest scarce resources in sanitation facilities. There are few low-cost options in congested urban settings; entrenched habits of open defecation in rural areas; and often a mismatch between what people want, what providers offer, and what is workable.

Governments do not give sanitation or hygiene their deserved priority

Faced with competing priorities, low demand for sanitation, and invisible costs, it is no surprise that politicians and governments rarely give sanitation or hygiene their deserved priority. Evidence of this low priority is found in central and local government budgets, which assign little to sanitation or hygiene improvement; in resource allocations, which provide little manpower or assistance to sanitation agencies and programs; and in policies and regulations, which rarely recognize the extent, severity, and complexity of the sanitation challenge.

Sanitation is vital for human health

What happens after defecation?

In a typical East Asian community (population 10,000), about 50% of the population are likely to have sustainable access to improved sanitation. If another 10% have access to shared sanitation facilities; and a further 10% use sanitation facilities with unsafe disposal systems; then perhaps 30% are likely to practice open defecation.

On average, each person produces about 0.15kg of feces per day. Therefore, a simple calculation reveals that 3,000 people practicing open defecation will result in about 450kg of feces being deposited in and around

the community every day. This is 3.15 tonnes per week, or about 100 full dump truck loads each year. And even those using improved sanitation facilities may be contributing to local pollution if, as in most cases, pathogen-rich sewage and septage from sewer networks and septic tanks is disposed of untreated into drains and water bodies.

Where does it all go? Nobody collects it, nobody disposes of it, and nobody treats it... so it ends up in the soil, in the water, in the air (as dust), and so on. *Little wonder that there is so much diarrheal disease!*



Sanitation is vital for human health

Human feces are the primary source of diarrheal pathogens⁴. Without sanitation facilities to safely contain and dispose of human feces, the health of everyone living nearby is put at risk. Water supply benefits are reduced when inadequate sanitation leads to fecal contamination of unprotected water sources, distribution systems, and storage vessels. Food hygiene is compromised when contaminated water is used in the kitchen, and when those preparing food do not wash their hands after defecation or after handling infant excreta. Once human excreta are in the local environment, there are many different transmission routes: in soil and water, and onwards through other vectors (flies, animals, hands, clothes, toys) to the food, drink, and mouths of everyone nearby.



Human feces is the primary source of diarrheal disease

Diarrheal disease is one of the biggest child killers in East Asia

The combined effects of poor sanitation, inadequate water supply, and poor personal hygiene are responsible for 88%⁵ of childhood deaths from diarrhea. In East Asia alone, some 190,000 children die from diarrheal disease every year⁶, making it one of the biggest child killers in the region. And diarrheal disease is just one of the wide range of infectious and parasitic diseases caused by inadequate sanitation⁷.

Worm infections impair children's development

Worm infections—including roundworm, hookworm and whipworm—afflict about one third of the world's population. When children in developing countries stop breast-feeding, many are then continuously infected and re-infected with worms for the rest of their lives. People become infected with worms through contact with infected fecal material in local soils and foods, usually due to inadequate sanitation and hygiene. The carriers are rarely aware of these parasites, but suffer chronic impacts and deficiencies in all aspects of their development: health, nutrition, cognitive development, educational access and achievement.

Diarrheal disease can lead to impaired growth and cognitive development

By reducing food consumption and nutrient adsorption, diarrhea and worm infections have secondary effects: they weaken children and make them more susceptible to malnutrition and opportunistic infections like pneumonia, measles and malaria. These are serious illnesses with debilitating long-term effects among which are impaired physical growth and cognitive development, reduced resistance to infection, and chronic gastro-intestinal disorders.

Diarrheal disease can be substantially reduced by improved sanitation

Improved sanitation can reduce diarrheal disease by more than a third⁸, and can significantly reduce the health impacts of other disorders responsible for so much death and disease in East Asia. The health benefits provide a compelling argument for investment in improved sanitation—the economic arguments are no less convincing.

⁴ Keusch, et al. 2006. *Diarrheal Diseases*. Chapter 19 in Jamison, et al (eds.) *Disease Control Priorities in Developing Countries*. 2nd Edition. Oxford University Press and the World Bank.

⁵ World Health Report (2002).

⁶ WHO Country Profiles of Environmental Burden of Disease (2007).

⁷ Cholera, dysentery, hepatitis, salmonellosis, shigellosis, trachoma, typhoid, and various worms.

⁸ Esrey, et al (1991) assessed the median reduction in diarrheal disease from sanitation improvements (based on five rigorous impact studies) as 36 percent; Fewtrell, et al (2005) found that sanitation improvements in developing countries reduce diarrheal disease (in all ages) by 13-47 percent.

Sanitation is good for economic growth and poverty reduction

Economics of Sanitation

The health impact of inadequate sanitation leads to a number of financial and economic costs:

- Direct costs of treating sanitation-related illnesses (treatment, medicine, hospital stays, transport).
- Lost income through reduced or lost productivity (due to illness, premature death, or time spent caring for others e.g. children).
- Government cost of providing health services to treat sanitation-related illness.

But inadequate sanitation is also felt in other ways, leading to additional adverse impacts:

- Productive time lost due to the absence of sanitation facilities, or the use of distant, inadequate, or inconvenient sanitation facilities.
- Increased water treatment costs because of fecal contamination of water resources (e.g. cost and time to produce safe drinking water or water fit for industrial use).

- Pollution of water bodies lowering resource usability and productivity (e.g. lower yield and quality in commercial fish production).
- Health problems from unsafe use of wastewater, excreta and greywater in agriculture (e.g. irrigation of crops with contaminated water)⁹.
- Reduced income from tourism (due to tourists being discouraged by degraded environments and the high risk of contracting infectious and parasitic diseases).
- Loss of productive land and clean-up costs in polluted areas.

Some of these adverse effects are difficult to quantify or value:

- Lower quality of life (pain and suffering from sanitation-related disease, social welfare losses, and environmental impacts).
- Home treatment of sanitation-related illness.
- Health problems caused by weakened resistance to other diseases and conditions.
- Educational impairment.

Adapted from: Hutton et al (2007) Economic Impacts of Sanitation in Southeast Asia



⁹ WHO. 2006. *Guidelines for the Safe Use of Wastewater, Excreta and Greywater*.

Sanitation is good for economic growth and poverty reduction

The cost of inaction is enormous. Without improved sanitation, people endure preventable health costs; waste time; lose productivity; and face mounting coping costs. When combined with the longer-term effects of inadequate sanitation on water resources, tourism, and the environment, these preventable costs and adverse outcomes result in a huge negative impact on economic growth and poverty reduction (see page 8, Economics of Sanitation).

Inadequate sanitation and hygiene cost US\$30 per person per year

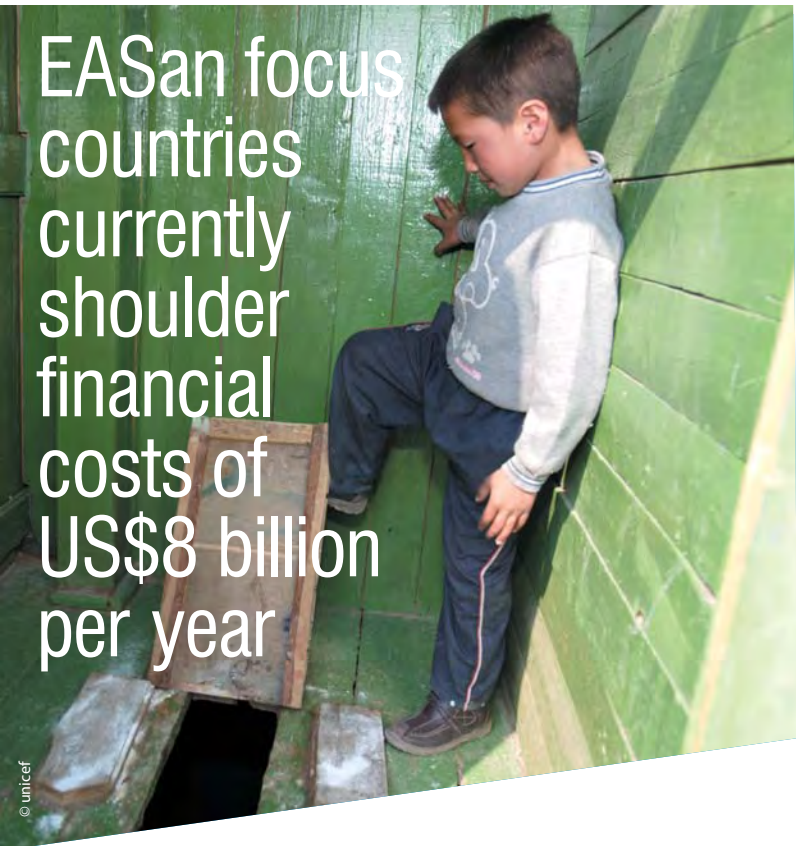
The recent Economics of Sanitation Initiative¹⁰ (ESI) estimated that the financial losses due to poor sanitation and hygiene in four East Asian countries (Cambodia, Indonesia, the Philippines, and Vietnam) amount to nearly

US\$2 billion per year. The wider economic and welfare impacts were valued at US\$9 billion per year, which is equivalent to 2% of Gross Domestic Product (GDP), or about US\$22 per person per year for each of the four hundred million inhabitants of these four countries.

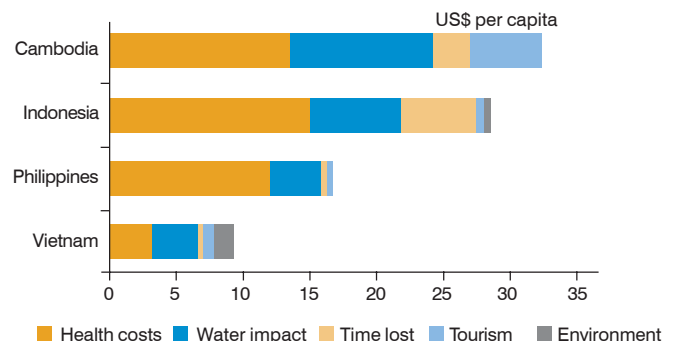
As a result of the variable conditions and contexts across the region; the difficulties in making accurate determinations of large-scale impacts of inadequate sanitation and hygiene; and the challenges implicit in attributing monetary values to these variable impacts; there is considerable uncertainty associated with the economic data, and significant variations in the different country estimates. Nevertheless, if the estimated impacts in these four countries are roughly representative of the wider economic losses caused by inadequate sanitation and hygiene across East Asia, then the nine EASan focus countries currently shoulder financial costs of US\$8 billion per year, and adverse economic impacts approaching US\$40 billion per year.

Investing in sanitation and hygiene will generate significant economic benefits

In East Asia, the annual investment needed to reach universal access to both safe water supply and basic sanitation by 2015 has been estimated at around US\$8 billion¹¹. Whilst the proportion of the financial costs and economic impacts that will be mitigated by this level of annual investment will be dependent on the level of service and hygiene behavior generated, it is clear that every dollar spent on sanitation and hygiene improvements will generate economic benefits that far exceed the investments, leading to significant impacts on economic growth and poverty alleviation.



Economic impacts of inadequate sanitation



Source: Hutton et al (2007) Economic costs of sanitation in Southeast Asia

¹⁰ Hutton, et al. 2007. *Economic Impacts of Sanitation in Southeast Asia*. The World Bank.
¹¹ Hutton and Haller. 2004. *Evaluation of the Costs and Benefits of Water and Sanitation Improvement at the Global Level*. Geneva: WHO.

Sanitation contributes to social development

The intangible impacts of inadequate sanitation concern hard-to-measure social issues such as lack of privacy, low status, harassment, inconvenience, and discomfort. Sanitation users, particularly women and girls, often consider these social factors more important than the health or economic gains associated with improved sanitation. Whilst some of these problems sound less important than the health hazards associated with inadequate sanitation, their impacts on self-respect and social capital are significant.

Women's demand for sanitation is often suppressed

Women consistently attach higher value to sanitation facilities than do men, perhaps because of their greater responsibility for children's health and domestic cleanliness, and the higher value they place on privacy, safety and convenience. But their weak voice in decision-making means that this stronger demand is rarely visible in household or community priorities, activities, and expenditures.

Inadequate school sanitation blamed for missed educational opportunities

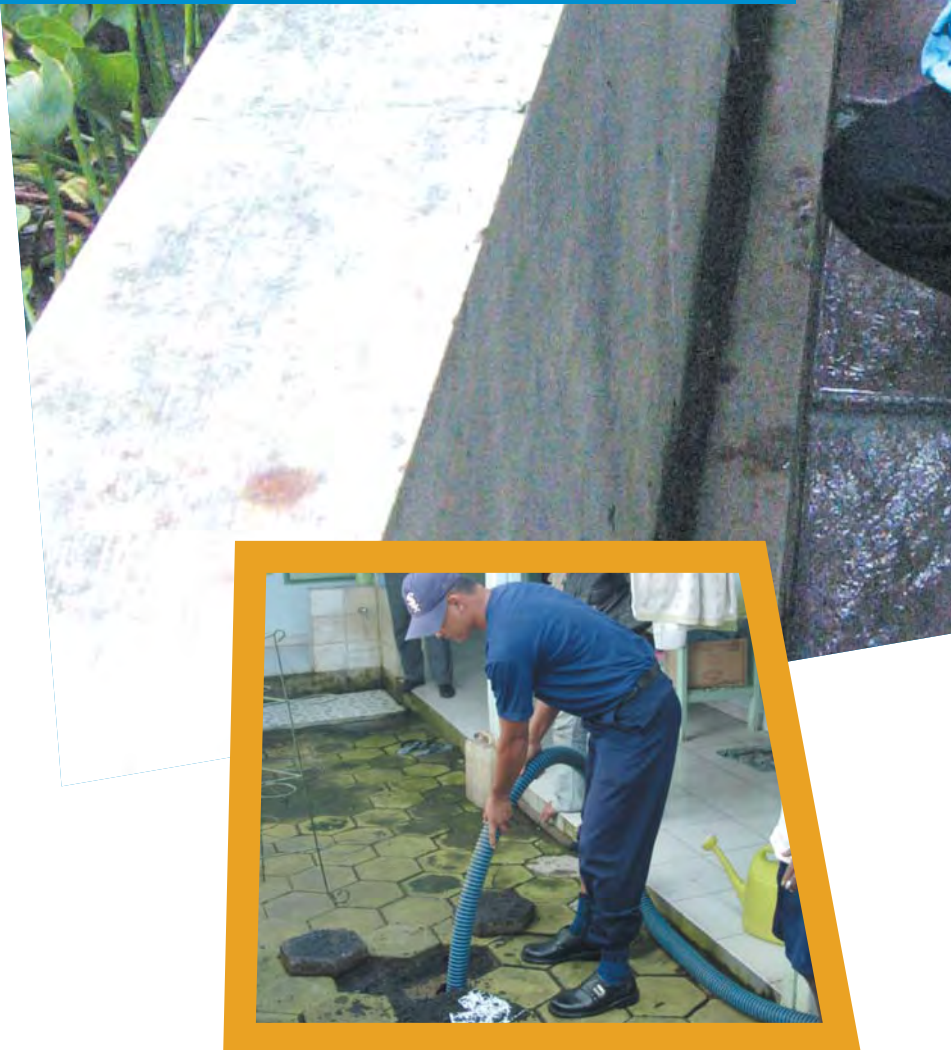
A related issue is the availability of sanitation facilities in schools. A lack of clean and private sanitation and washing facilities in schools discourages children, especially girls who have reached puberty and are concerned about privacy, from attending school. These missed educational opportunities have a profound effect on human development.

Sanitation helps the environment

The cost of cleaning up: Shanghai, People's Republic of China

Suzhou Creek served as a convenient outlet for Shanghai's sewage for many years. Faced with mounting pollution and environmental hazards, Shanghai City decided to clean up the creek. The most difficult task proved to be reducing and managing the sewage dumped daily into the river and its adjoining canals. In the end, the bill for the clean up exceeded US\$1 billion, and the city was forced to close down or relocate polluting factories that could not treat their own waste. City officials now acknowledge that the clean up costs were many times higher than the investment that would have prevented the pollution in the first place.

Source: ADB water for all. <http://www.adb.org/>





Shanghai's clean up costs were many times higher than the investment

Every year more than 200 million tonnes of human waste—and vast quantities of waste water and solid waste—go uncollected and untreated around the world, fouling the environment and exposing millions of people to disease and squalor. Improved disposal of human waste protects the quality of drinking water sources; while safe use of waste for agriculture¹² generates an environmental as well as economic gain.

¹² WHO. 2006. *Guidelines for the Safe Use of Wastewater, Excreta and Greywater*.

¹³ WHO. 2001. *Macroeconomics and Health: Investing in Health for Economic Development*.

¹⁴ Esrey, et al. 1985. *Interventions for the Control of Diarrheal Diseases among Young Children: Improving Water Supplies and Excreta Disposal Facilities*. Bulletin of WHO 63:757–772.

Sanitation affects children's development and our future

Children bear the brunt of sanitation-related impacts: their health, nutrition, growth, education, self-respect, and life opportunities suffer as a result of inadequate sanitation, causing an *inter-generational effect*. Without improved sanitation, many of the current generation of children in East Asia are unlikely to develop to their full potential. Countries that don't take urgent action to redress sanitation deficiencies will find their future development and prosperity impaired.

Inadequate sanitation impairs long-term economic growth

The WHO commission on macroeconomics and health¹³ found that, given the same starting income (GDP per capita), developing countries with low infant mortality had five to nine times higher economic growth over the following 25 years. Whilst many factors influence infant and child mortality, impact studies suggest that sustainable access to improved sanitation facilities is one of the more significant factors—it can reduce child mortality by up to 55 percent¹⁴. Therefore, sanitation improvements are likely to have a dramatic impact on long-term economic development, particularly in countries that currently have low sanitation coverage and high infant mortality.

Sustainable access to improved sanitation can reduce child mortality by up to 55 percent

Hygiene—don't forget to wash your hands with soap!

The sanitation MDG focuses attention on the sanitation gap: the huge number of people without improved sanitation. It is a worthy goal, but the focus on sanitation facilities tends to obscure the importance of long-term behavior change and hygiene improvement.

Sanitation investments produce substantially lower benefits if hygiene behavior is neglected. If people don't wash their hands with soap after defecation and after handling infant feces, or if those who care for children fail to dispose safely of infant feces and diapers, then—even if everyone uses improved water and sanitation facilities—they, their families, and their neighbors, are at risk from the bacteria, viruses, and parasites transmitted by unwashed hands and uncontained infant feces.

Handwashing with soap reduces diarrheal disease and respiratory infections

The simple act of washing hands with soap can reduce diarrheal disease by almost half¹⁵ and lower the risk of acute respiratory infections¹⁶, thus tackling two of the biggest threats to young children in East Asia. But handwashing rates are low in developing countries—less than one in three people wash their hands at critical times¹⁷ (after defecation, after handling children's feces, before handling food), while a recent study in Vietnam found that half of those that wash their hands don't use soap¹⁸.



Many East Asians are aware that they should wash hands with soap at critical times

¹⁵ Curtis and Cairncross (2003) review of impact studies found that handwashing with soap can reduce diarrhea risk by 42–47 percent.

¹⁶ Luby, et al (2005) found that handwashing with soap reduced the incidence of pneumonia among children under five in Pakistan by 45–50 percent.

¹⁷ Scott, et al. 2003. *Protecting Children from Diarrhea and Acute Respiratory Infections: The Role of Handwashing Promotion in Water and Sanitation Programs*. WHO regional health forum.

¹⁸ Indochina Research. 2007. *Vietnam National Handwashing Initiative: Consumer Research Results Presentation*. Water and Sanitation Program, Powerpoint presentation, Processed.

High cost-effectiveness of hygiene promotion

A recent study of global health issues completed a comprehensive analysis of the cost-effectiveness of a huge range of disease control interventions in developing countries. The focus was on reducing the global burden of disease, and on setting priorities for health services. The study concluded that **hygiene promotion was the single most cost-effective intervention examined** at US\$3.35 per Disability Adjusted Life Year (DALY) averted¹⁹.

When compared against the cost of other highly effective disease control interventions, it becomes clear just how important hygiene improvement will be to any future large-scale reductions in disease burden and hygiene-related economic losses:

- \$3/DALY: Hygiene promotion (diarrheal disease reduction).
- \$7–11/DALY: Insecticide-treated bed nets (malaria reduction).
- \$11/DALY: Sanitation promotion (diarrheal disease reduction).
- \$23/DALY: Promotion of oral rehydration therapy (diarrheal disease reduction).
- \$94–223/DALY: Water Supply improvements (diarrheal disease reduction).
- \$1,000+/DALY: Cholera or rotavirus immunization (diarrheal disease reduction).

Source: Jamison et al, eds. (2006) *Disease Control Priorities in Developing Countries*, 2nd Edition



Hygiene—don't forget to wash your hands with soap!

Many East Asians are aware that they should wash hands with soap at critical times, protect drinking water, and bathe regularly²⁰. Sadly, this awareness is rarely reflected in their hygiene behavior. The reasons for this irrational behavior are the subject of much debate, but many households face practical constraints to hygiene improvement (inadequate water supply, lack of sanitation facility, shortage of funds) and have insufficient incentive, or understanding of the consequences, to improve age-old habits.

A range of promotional approaches and programs are needed to generate sustained hygiene improvement. Hygiene promotion interventions need to identify and target key local hygiene behaviors and drivers of change, and monitor and evaluate the cost-effectiveness of their efforts. In a world of competing messages and priorities, only well-designed and cost-effective promotional activities are likely to lead to large-scale and sustained behavior change—local governments and health extension workers have an important role in this process; as do public-private partnerships to promote handwashing through high-impact marketing campaigns; and school-based hygiene promotion.

Schools are important places for the promotion of hygiene improvement—UNICEF reports 75–80% increases in student handwashing rates in the school-based hygiene programs that it supports in China. When school-based hygiene programs are coordinated effectively with wider community development programs, children can become 'agents of change' that pass on health and hygiene information to other family and community members, leading to long-term benefits for the entire community.

¹⁹ DALY is a measure of years lost to premature death and years lived with disability.

²⁰ Hetler. 1999. *Water supply and sanitation for low income communities project: Community hygiene education assessment*. WSLIC-2 Project, Processed.

The scale of the sanitation challenge

How is sustainable access to improved sanitation assessed?

International data provide an imperfect guide to the state of sanitation provision. Debates over the harmonization and improvement of surveys; over the effectiveness of surveys in capturing sanitation outcomes; and over political obligations to portray good progress, limit our understanding of regional or national progress. More efforts are needed to improve national data on access to sanitation, as it is only through accurate information that we can fully understand the nature and scale of the challenge.

In 1990, most of the EASan focus countries lacked reliable survey data on sustainable access to sanitation. As a result, some early estimates of sanitation coverage and related MDG targets were misleading. Nationally representative household surveys are now the most common method of regularly assessing sanitation coverage, thus significant efforts have been made to clarify, improve, and harmonize the sanitation categories and definitions used. Most EASan countries are now beginning to develop an improved knowledge and understanding of both previous and current levels of sustainable access to improved sanitation, and of how these access levels compare with those of their neighbors.

The current set of WHO-UNICEF Joint Monitoring Programme (JMP) coverage estimates, updated in

mid-2006, presents sanitation access data up to 2004. The JMP uses a standard methodology to identify nationally representative surveys that meet JMP criteria, then calibrates this data and, finally, estimates sanitation coverage levels from the best-fit line through the adjusted survey data points for urban and rural sanitation respectively.

A JMP update report based on 2006 data will be published in early 2008. In order to provide the most accurate and up-to-date picture of regional progress, revised sanitation coverage estimates were prepared specially for this publication. New household survey data were incorporated into the national coverage estimates of five countries (Cambodia, China, Lao PDR, Mongolia and Vietnam) and 2006 estimates were extrapolated for three countries that had datapoints within the last three years (Indonesia, Myanmar, and the Philippines). The remaining EASan focus country (Timor-L'Este) has produced no recent survey data, thus the coverage estimates were not updated. Whilst the update prepared for this EASan publication follows the JMP methodology, the 2006 sanitation coverage estimates have not been checked or approved by the JMP, thus cannot be considered as official figures and should be used only for the purposes of the EASan conference.

More efforts
are needed to
improve
national data
on access to
sanitation

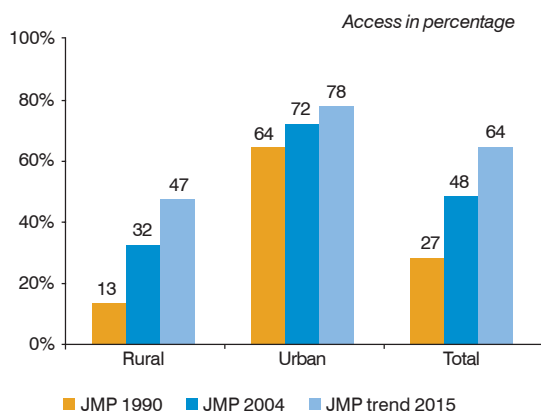


The scale of the sanitation challenge

The JMP story: one in two people without sanitation

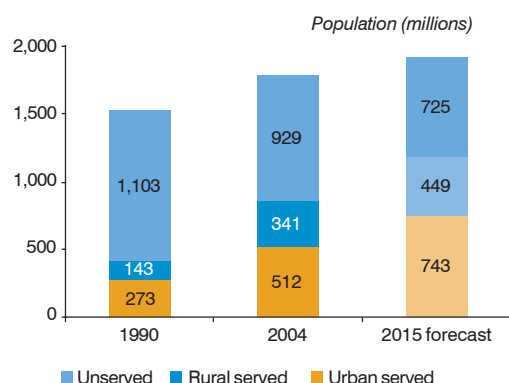
Total sanitation coverage in the EASan focus countries has improved dramatically, from 27% in 1990 up to 48% in 2004. An additional 440 million people have gained access to sanitation in only fourteen years—that is 30 million people a year. However, about half the population of the nine EASan focus countries still lacks access to improved sanitation.

Trends in access to improved sanitation 1990–2015



Source: WHO-UNICEF JMP website <http://www.wssinfo.org>

EASan focus countries: Trends in access to improved sanitation



Source: WHO-UNICEF JMP website <http://www.wssinfo.org>

Progress report: updated sanitation coverage estimates

The People's Republic of China holds almost three-quarters of the population of the nine EASan focus countries, thus its sanitation progress has a significant influence on regional forecasts. Since 1999, there have been no nationally representative surveys that comply with JMP criteria, thus the JMP coverage estimates (see page 14) do not capture recent sanitation progress in China.

Better sanitation progress than previously assumed in China

Time series data from the China Health and Nutrition Survey (CHNS)—a rigorous household survey sampled from nine provinces²¹—suggest that China's rural sanitation coverage in 1990 was actually 22%, some 15% higher than previously thought. Whilst the same data indicates that urban sanitation coverage was slightly lower than assumed, total sanitation coverage appears to have reached 53% in 2006, which implies that an additional 330 million people have gained sustainable access to improved sanitation in China since 1990. As a result of the higher coverage estimates for 1990, China's MDG target increases, as does the overall MDG target for the region.

East Asia is on track for its sanitation MDG

Due to substantial progress over the last fifteen years, East Asia is one of the few world regions that could meet its 2015 sanitation MDG. The updated coverage estimates prepared for EASan set the MDG target at 67% access to improved sanitation by 2015. In order to meet this 2015 target, another 280 million people in the nine EASan focus countries need to gain access over the next nine years. Current trends suggest that around 320 million people will have gained access to improved sanitation by 2015, bringing sanitation coverage in the EASan focus countries up to 68%, which is beyond the collective EASan MDG target.

²¹ The China Health and Nutrition Survey is an ongoing international collaborative project between the Carolina Population Center at the University of North Carolina at Chapel Hill, the National Institute of Nutrition and Food Safety, and the Chinese Center for Disease Control and Prevention. Despite sampling households across nine provinces, it is not considered nationally representative and, thus, has not been utilized in preparing JMP coverage estimates.

Progress report: updated sanitation coverage estimates

People's Republic of China: increased access to rural sanitation?

A 2004 World Bank case study notes that rural sanitation in China was lagging far behind that in urban areas until the mid-1990s, but that rural sanitation has since been an integral part of the national health strategy. Provincial and county governments now oversee plans for meeting targets set by government; and resources have been invested in developing and marketing improved sanitation facilities designed for rural areas. Uptake has been impressive, with some reports suggesting that *rural sanitation coverage may have doubled in five years*.

Adapted from: Human Development Report (2006)



Almost 800 million are currently unserved by improved sanitation

Positive indicators of increased sanitation profile and activity in East Asia, and of steady progress towards the 2015 sanitation MDG, should not obscure the realities:

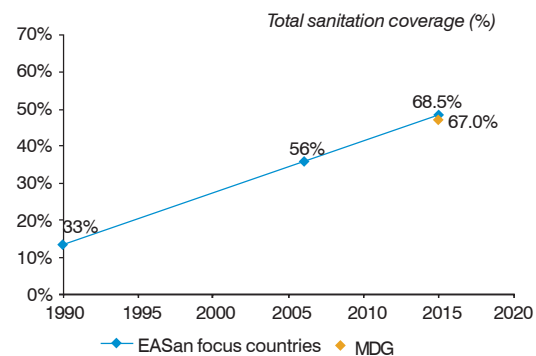
- 790 million people are currently unserved by improved sanitation—substantial efforts are required in order to continue progress towards universal sanitation.
- Meeting the 2015 sanitation MDG will still leave 630 million people—one third of the projected EASan population—unserved by improved sanitation.

Reaching the sanitation MDG is unlikely to benefit the worst-affected

The unserved population is likely to contain the worst-affected people and areas even after the sanitation MDG is achieved—this means that the bulk of the disease burden and wider costs of inadequate sanitation are likely to remain, unless urgent efforts are made to adapt and target interventions towards the worst-affected.

The MDG Target 10, to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015, represents a realistic and achievable milestone. But universal sanitation should be our over-riding ambition—without it, many of the benefits of improved sanitation will not be realized.

EASan: Trends in access to improved sanitation

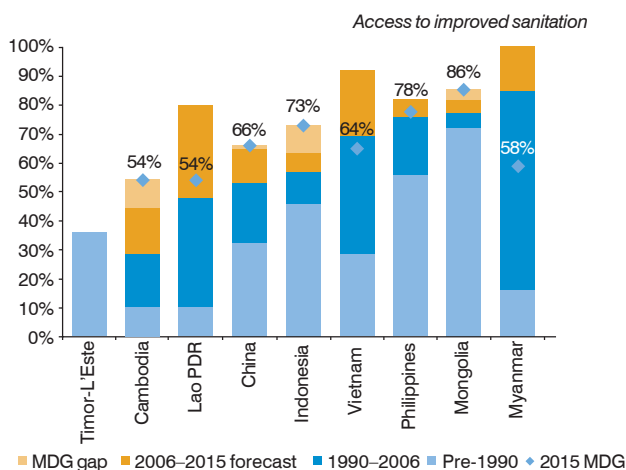


Source: Author's calculation

Progress report: national sanitation achievements

Progress varies substantially across the EASan focus countries: two countries (Myanmar and Vietnam) have already achieved their 2015 MDG targets; and another four countries (PR China, Lao PDR, Mongolia, and the Philippines) will reach their MDG targets before 2015, or soon afterwards. However, both Cambodia and Indonesia look likely to fall well short of their MDG targets unless their sanitation progress accelerates substantially over the next few years²².

EASan sanitation progress



Source: EASan updated estimates

Urban proportion of EASan population is forecast to reach 50% by 2015

Three-quarters of those without sanitation live in rural areas

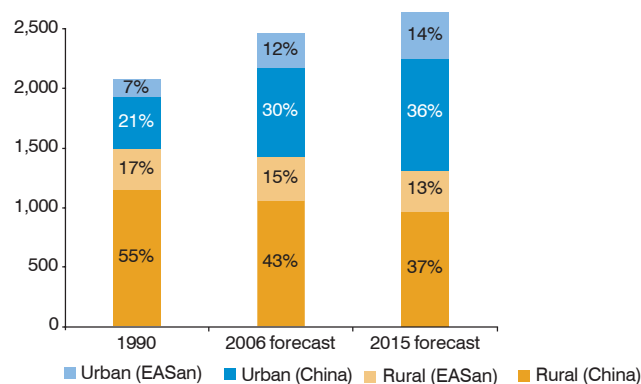
New challenges loom in East Asia: accelerating urbanization, with the prospect of having to provide services to an additional 500 million urban inhabitants by 2025; and rising inequality driven by the widening rural-urban divide. Urbanization is a critical issue in East Asia, but its increasing importance should not conceal the fact that, for now at least, *about 80% of those without improved sanitation are rural inhabitants*. The urban proportion of the EASan population is forecast to reach 50% by 2015, but *urban sanitation coverage remains more than double that in rural areas*, leaving far fewer urban unserved.

Child mortality and disease burden are significantly higher in rural areas

Demographic and Health Surveys (DHS) in East Asia suggest that the disease burden, and thus the health cost, is higher in rural areas. Recent DHS surveys in Cambodia, Indonesia, and Vietnam report that, on average:

- Infant and child mortality rates were 75% higher in rural areas.
- Infectious diseases (diarrhea, fever, ARI) were 53% more prevalent in rural areas.
- Child malnutrition rates were 22% higher in rural areas.

Population: Rising urbanization in East Asia

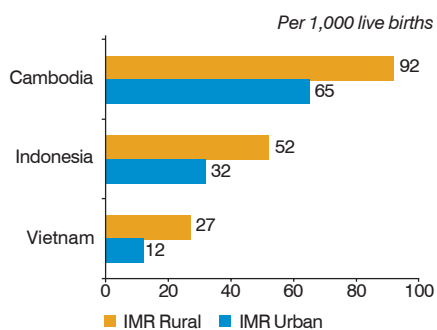


Source: UN Population Division, 2005

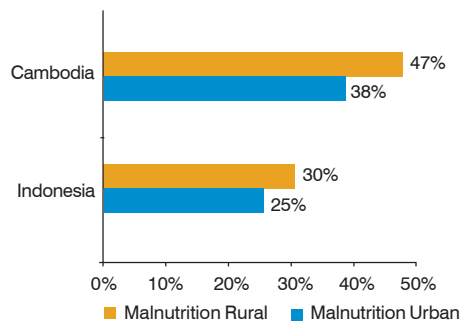
²² Insufficient sanitation data to comment on the progress of Timor-L'Este.

Three-quarters of those without sanitation live in rural areas

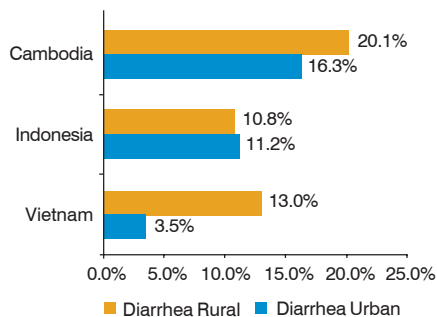
Infant mortality rate



Child malnutrition

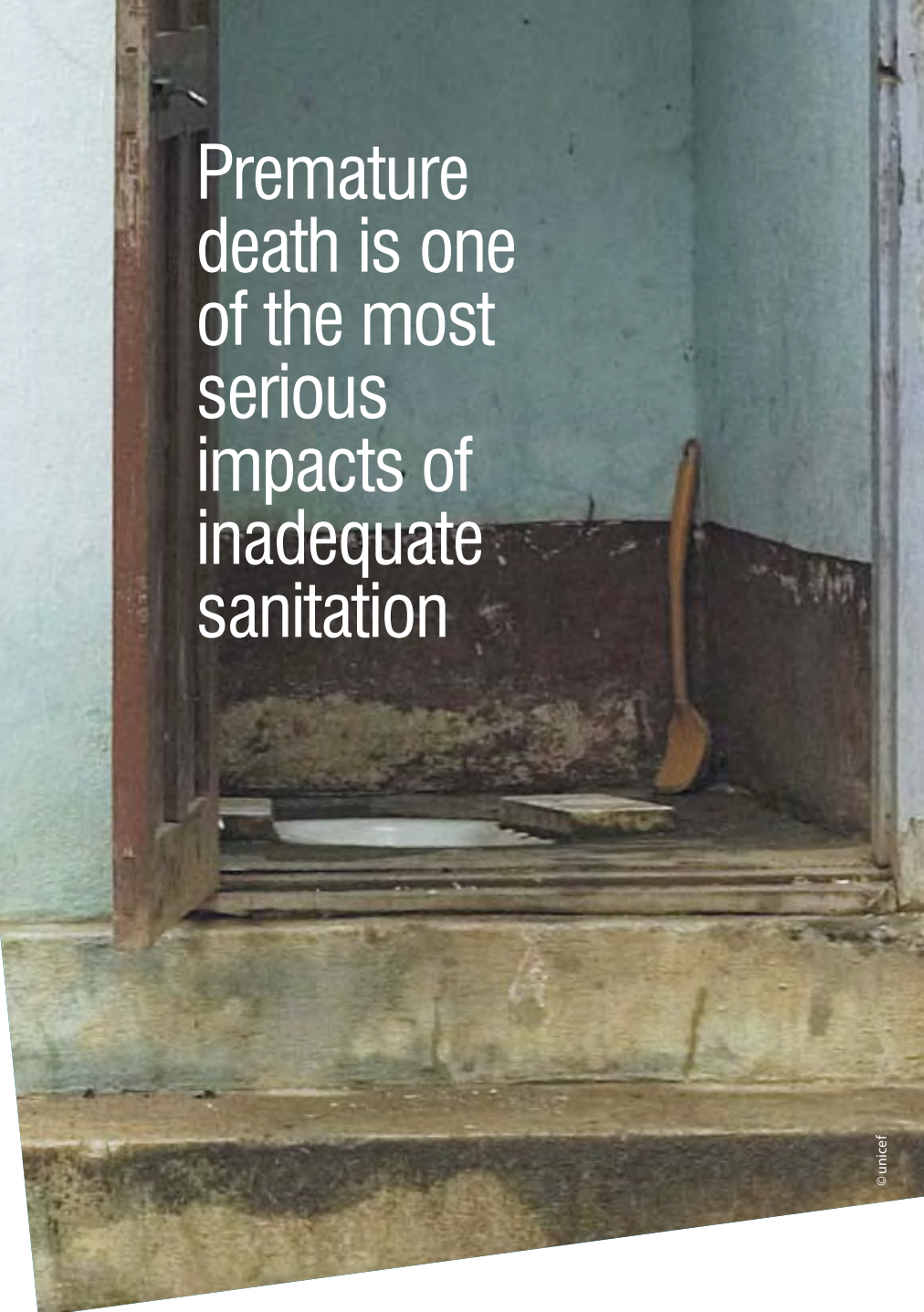


Diarrhea prevalence



Source: DHS 2002 (Cambodia, Indonesia, and Vietnam)

Premature death is one of the most serious impacts of inadequate sanitation



The health statistics in China suggest a similar pattern: the mortality rate due to diarrheal disease among rural children is reported to be nearly twice that among urban children²³. Premature deaths in children under five are often linked to diarrheal disease and infections caused by malnutrition; and the health statistics suggest that the bulk of these sanitation-related impacts will be in rural areas. Premature death is one of the most serious impacts of inadequate sanitation—the ESI study estimated that premature death was responsible for 90% of the health-related economic losses of inadequate sanitation.

²³ Ministry of Health. 2004. *Annual Health Statistics of China*. Beijing: Ministry of Health.

Why are public sanitation facilities considered unimproved?

Public sanitation facilities have their place—there are few alternatives in markets, bus stations, schools and other government buildings—but they are rarely clean or well maintained, thus do not provide a good alternative to household sanitation. In addition, users soon discover that public facilities are not usually accessible at night or by the elderly, by those with disabilities, or—if there is any entry charge—by young children. These service restrictions usually lead to some open defecation, particularly by children, especially in communities where no other facility is available.

However, there is often no alternative to public facilities in congested urban slums, for instance where tenants are unable to persuade landlords to build adequate facilities. The consensus seems to be that access to public or shared toilets is beneficial when the facilities are well looked after, and remains better than no access in other cases. Therefore, public facilities will continue to be promoted in public buildings and where no other household alternative is possible, but a clear demarcation needs to be made between the limited benefits derived from public sanitation facilities and the much higher benefits of improved household sanitation.

Adapted from: Cairncross and Valdmanis (2006)

The urban-rural balance is shifting as the urban population grows

Rural areas have higher health costs, but these are partially offset by the higher productivity losses due to the higher wages paid in urban areas. Aggregate rural costs are higher, due to the larger rural population, but the balance of these costs is likely to shift as the urban population grows and urban densities increase.

Three-quarters of those without sanitation live in rural areas

Urban slums are home to appalling sanitation and increased health risks

In absolute terms, the health data make it clear that the rural population carry the bulk of the disease burden from inadequate sanitation. However, few household surveys disaggregate the abysmal sanitation conditions and health impacts found in urban slums from those in more wealthy urban areas. As a result, little reliable information is available to gauge the significance of intra-urban differences to city or national health costs.

Some 30% of the urban population of East Asia—more than 200 million people—is crowded into congested slum settlements. Urban densities are as high as 15,000 people per square kilometer, and the numbers continue to rise as cities struggle to cope with the growing influx of rural migrants. This over-crowding and concentration increases the severity of sanitation-related health risks; puts enormous pressure on strained sanitation services and the over-stressed urban environment; and results in ever larger and more complex sanitation problems and economic losses.

Strategic investments are required to close the sanitation gap

Strategic decisions need to be made regarding relative budget and resource allocations for the phased development and promotion of sanitation services. Governments need to target and coordinate interventions to reduce the costs of inadequate sanitation—this means identifying where the disease burden, productivity losses, and other costs are highest; and where the benefits of improved sanitation are likely to be greatest. The government's role should be largely one of regulation, facilitation and promotion—ensuring an enabling environment that encourages a range of stakeholders (local governments, donors, NGOs, private providers, communities and households) to work together to improve and sustain sanitation services.

Are the poor being left behind?



Sanitation and hygiene improvements help to lift people out of poverty by cutting medical bills, improving educational attainments, raising productivity, and boosting long-term economic growth. But without sanitation and hygiene improvement, the poor can be caught in cycles of deprivation that limit their opportunities and freedoms.

Many of those without sanitation are poor

Access to improved sanitation is much lower among the poor: the bottom three wealth quintiles in Vietnam have less than 10% access to sanitation, whereas the top two wealth quintiles average 49% access to sanitation. The 2004 Cambodia Socio-Economic Survey (CSES) draws a similar picture—less than 5% of the poorest quintile has access to improved sanitation, compared to 63% in the richest quintile.

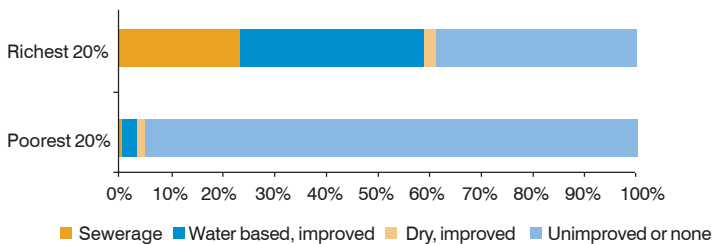
Significantly higher child mortality among the poor

Child Mortality Rates in Vietnam show a similar but inverse relationship—the under-five mortality rate in the bottom wealth quintile (63.3 deaths per 1,000 live births) is almost three times that in the top wealth quintile (23.0 deaths per 1,000 live births). Therefore, with 90% of sanitation-related health costs due to premature mortality, it seems likely that the bulk of the economic losses from health impacts are borne by the poor.

The challenge is to extend sustainable sanitation services to the poor

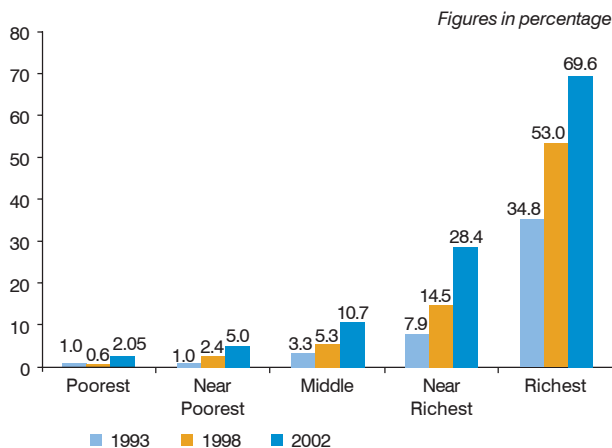
It is no real surprise that the poor have lower access to improved sanitation and higher disease burdens. Many reasons for this differential access have been posited—the lack of affordable or appropriate sanitation options for low-income households; insufficient investment and targeting of sanitation and hygiene promotion among low-income communities; and a widespread failure to create incentives for collective sanitation outcomes—whereby everyone, including the poorest of the poor, stops unsafe excreta disposal practices. The challenge is to design sanitation programs that address the special constraints faced by poor; monitor the sanitation outcomes of the poor; and extend sustainable and large-scale sanitation services to the poor.

Cambodia: Sanitation access by richest and poorest quintiles



Source: Rosenboom et al (2006) Water and Sanitation in Cambodia: Poor access for poor people

Vietnam: Low sanitation access among the poor



Financing sanitation

Previous sanitation investments in East Asia have favored capital-intensive works like trunk sewers, but have often failed to tackle the root problems of open defecation, unsafe disposal of human wastes, and poor hygiene behavior. The emphasis has been on building infrastructure and facilities rather than on delivering sustainable improvements to sanitation services. Where improved facilities have been built, the arrangements for operation and maintenance have rarely been adequate; unsurprisingly, these facilities often fell into disrepair, leaving many users without sanitation.

The public good elements of sanitation, e.g. protection of the environment and management of environmental health, provide a strong argument for the public finance of sanitation services. However, in most cases, recognition of the wider impacts of unsanitary behavior by private individuals has not translated into effective public policies or interventions. In particular, much of the public finance directed at household sanitation facilities, usually through subsidies designed to increase uptake among the poor, has failed to reach the intended beneficiaries. As a result, both rich and poor suffer the costs.

East Asian households self-finance most household sanitation facilities

The majority of existing sanitation facilities in East Asia, be they simple pit latrines, or flush toilets connected to some form of septic tank, have been financed and constructed by private households. Usage rates in these self-provided facilities tend to be higher than those in subsidized or public facilities, perhaps because the users are more convinced of the benefits; they are also more likely to maintain, improve, and sustain the improvements in their hygiene behavior. Therefore, there is a strong argument for expanding the self-provision of improved sanitation facilities through: marketing popular goods and services; promoting the benefits of sanitation and hygiene improvements; and providing simple credit options—payment by installments—to small-scale service providers and cash-poor households.

Public finance should be used to:

- Raise awareness and generate demand for improved sanitation.

- Improve the supply of affordable sanitation goods and services.
- Encourage, support and increase the self-provision of sanitation facilities.
- Reward collective sanitation outcomes.
- Develop national sanitation policies, strategies, institutions, and monitoring.
- Subsidize large-scale public infrastructure.

Smart subsidies can improve access in difficult-to-reach contexts

The track record of household sanitation subsidies has not been good, but there remains a 'public good' argument for the use of carefully-tailored hardware subsidies to improve access and services in difficult-to-reach contexts, or among the poorest sections of society—for instance, where low-income urban tenants are unable to find space (or permission) to build individual household toilets, or where unsafe excreta disposal by those unable to access sanitation is likely to jeopardize the public health of the larger, served community.

In South Asia, local governments and communities have assisted and subsidized the provision of simple improved sanitation facilities to very poor and labor-short households, those that are clearly unable to self-provide, in order to achieve collective sanitation goals and deliver the benefits of universal sanitation. These latrine subsidies are self-financed by local governments and communities, rather than by central programs, which provides far stronger incentives for accurate targeting, cost-effective expenditure, and long-term outcome monitoring.

Sanitation programs should promote a wide range of sanitation technologies

Sanitation interventions should not distort the market supply of sanitation goods and services. Public service providers have often promoted and discounted sanitation technologies favored by government engineers over those preferred by users, thus discouraging the innovation, development, and uptake of other local options. Most people would agree that private manufacturers and retailers are far more cost-efficient and effective in producing, marketing, and delivering consumer goods than governments or nongovernmental organizations (NGOs). Therefore,

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Financing sanitation

Cambodia: limited benefits from subsidized sanitation facilities

A recent sanitation project in Cambodia was designed to implement 400 latrines in 14 rural communities using promotional activities and \$25 latrine subsidies. The project appeared to succeed: 400 sanitary latrines were constructed; the \$25 latrine subsidy leveraged substantial private investments (\$25–\$300) by beneficiary households; and all the latrines are in use.

However, the impacts on hygiene behavior, health and the environment are more limited. The 400 beneficiary households comprise only 9% of the 4,500 households living in the 14 rural communities. The project's

promotional activities did not result in the construction of any new latrines by non-project households; and rapid appraisals suggest that 50% to 80% of all households continue to defecate in the open. Furthermore, 80% of the project subsidies went to non-poor households, so few of the direct benefits from the project reached the poor or those with the greatest health problems. The unpleasant post-project reality is that about 15,000 people continue to defecate in and around the 14 villages, depositing thousands of kilograms of feces into the local environment on a daily basis.



Cambodia sanitation project was designed to implement 400 latrines in 14 rural communities

Financing sanitation

Sanitation facilities need to be used by everyone all the time

There are two critical conditions for effective sanitation: the sanitation facilities need to be *used by everyone all the time*; and they need to be designed and maintained in order to *prevent human contact with human excreta*.

Two recent studies in India (Knowledge Links, 2004; RMRCT, 2007) suggest that 'open defecation free' (ODF) rural communities, in which everyone uses improved sanitation facilities all the time, have substantially lower diarrheal disease rates than similar local communities. In fact, both studies found that the ODF villages had 80% lower prevalence of diarrheal disease than the norm. However, the findings of the two studies are controversial, as most experts believe that sanitation improvements alone will not reduce diarrheal disease by more than 30–40%.

The Indian studies illustrate two important points: firstly, good hygiene behavior plays a big part in reducing diarrheal disease; and secondly, universal sanitation may play a bigger part in combating diarrheal disease than is currently recognized.

Cross-sectional studies, which compare across intervention and non-intervention communities, rarely control for pre-intervention differences in behavior or conditions. In the Indian cases, the ODF communities were among the first villages in their districts to achieve ODF status—despite similar incomes and conditions, these communities were more progressive and development-minded than average, and probably had much better hygiene behavior (and other facilities) than the non-intervention communities. The implication is that sanitation improvement was not the only factor—improved hygiene behavior also played a strong part in their better health status. Nevertheless, both recall surveys and clinical examinations confirmed significantly lower diarrheal disease rates among ODF communities.

It appears likely that a combination of three beneficial factors result in the lower diarrheal disease rates found

in these ODF communities: improved sanitation; improved hygiene behavior; and universal sanitation—the fact that *everyone uses the sanitation facilities all the time*. More rigorous research is required in this area, but there seems little doubt that the full benefits of improved sanitation are not available until every person in the community is using an improved facility—if only a handful of people continue with open defecation or unsafe excreta disposal, then even those with improved facilities are at risk, and are likely to have a higher prevalence of diarrheal disease than people living in ODF communities.

Financing sanitation

Outcome-based Incentives in South Asia


There are several different types of incentive system operating in South Asia, but all of the successful ones are based on rewarding collective outcomes. Another facet of the successful incentive systems is that multiple incentives and verification systems are provided by different tiers of government, thus reinforcing the promotion and monitoring of the collective outcomes:

- Community cash awards by central government.
- Clean village competitions financed by the state or province government.
- Project incentives (e.g. allocation of new schemes) provided by districts and programs.

The most successful of the incentive systems is the *Nirmal Gram Puraskar* (NGP) in India, which is linked to the US\$800 million national rural sanitation program known as the *Total Sanitation Campaign*. The NGP combines community cash transfers with prestigious awards to elected village heads (and other officials), using independent verification of sanitation outcomes. The NGP also examines hygiene and environmental sanitation—the NGP criteria include ODF status, hygiene behavior, solid waste management, wastewater management, general village cleanliness and quality of life.

Pakistan is currently piloting a phased performance grant system intended to move active local governments towards common environmental sanitation objectives. A progressively increasing performance grant is awarded on the achievement of each phased collective outcome:

- Phase 1: Defecation free status (ODF plus universal handwashing plus universal sanitation).
- Phase 2: Litter free status (solid waste management plus reconfirmation of defecation free status).
- Phase 3: Foul water free status (safe drainage and wastewater disposal plus reconfirmation of defecation free and litter free status).



The successful incentive systems are based on rewarding collective outcomes



The NGP awards have grown dramatically since their inception in 2005, with about 20 million people living in 5,246 villages now benefiting from 'totally sanitized' conditions:

481

applications from 6 different States resulting in 40 NGP awards in 2005

1,421

applications from 16 different States resulting in 769 NGP awards in 2006

9,745

applications from 24 different States resulting in 4,437 NGP awards in 2007

The Khushal Pakistan Fund recently announced that scheme allocations in the US\$200 million program, which is executed through a national NGO, would be dependent on the achievement of Open Defecation Free (ODF) targets in its project villages. During the current calendar year, the Khushal Pakistan Fund is expected to reach 9.7 million people in 1.36 million households spread across 73 districts of Pakistan; there is huge demand for Khushal Pakistan Fund schemes, thus this policy decision creates a massive incentive for communities and local governments to invest in stopping open defecation and improving local sanitation facilities.

Financing sanitation

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sanitation interventions need to focus on stimulating demand, promoting a wide range of desirable sanitation options, and encouraging householders and small-scale providers to build simple latrines that provide sustainable access to improved sanitation.

Outcome-based incentives leverage local expenditures towards sanitation goals

National governments tend to reward service providers and local governments for expenditure rather than for improved service provision. Outcome-based incentives are designed to reward the achievement of specific sanitation outcomes with performance grants, thus leveraging local expenditures towards the realization of sector objectives.

Outcome-based incentives encourage the use of cost-effective approaches

The shift towards outcome-based incentive frameworks provides local governments the freedom to decide their own priorities, financing options, and implementation methodologies, thus encouraging local innovation and cost efficiency. Cost-effective approaches like component sharing, community-led total sanitation, and sanitation marketing are encouraged, but these should form part of a menu of options and methodologies open to local governments, rather than a prescribed program of activities.

Outcome-based incentives are inclusive—rewarding only collective outcomes

Outcome-based incentive frameworks are also inclusive, creating incentives for local governments to include the poor and marginalized in public outcomes. Sanitation outcomes are assessed at the community and sub-district levels, thus the sanitation problems of the poorest and most reluctant households must be tackled in order to deliver the collective outcomes. This encourages 'sector coordination' around outcomes, rather than the conventional focus on inputs, i.e. local governments seek to optimize partnerships that deliver improved sanitation outcomes rather than seeking greater control over the implementation and management of infrastructure.

What should be done in East Asia?

Practical "things to do"

1. Improve the enabling environment: prevent sanitation being submerged by water supply

Form a separate sanitation working group and develop separate sanitation policies:

- Appoint a lead agency for sanitation (but allow sufficient institutional space for cooperation and collaboration with all stakeholders).
- Avoid combined water supply and sanitation groups (as water supply tends to dominate agendas and discussions).
- Be inclusive—involve nongovernment stakeholders (NGOs, manufacturers, private providers, civil society groups).
- Disaggregate diverse and complex sanitation issues into more manageable sub-sectors (e.g. urban into informal settlements, small urban, mega-city, utilities; rural into remote rural, market-connected rural, coastal and so on). Use a broad consultation process to formulate national sanitation policies that are evidence-based, practical, and effective.

2. Conduct a national cost-effectiveness review

Use a review of the relative cost-effectiveness of different sanitation interventions to build consensus on the methodologies, institutional structures, and implementation mechanisms needed for large-scale sanitation improvement:

- Compile data on sanitation costs (hardware costs, software costs, program costs).
- Compile data on project effectiveness (outcomes, impacts, achievement of objectives).
- Compare the relative cost-effectiveness of existing approaches and models.
- Use this review to increase attention to cost-effectiveness and scale in strategic planning and program design.



Form a separate sanitation working group and develop separate sanitation policies

3. Use Outcome-Based Incentive Frameworks to drive large-scale sanitation improvement

Monitor a wider range of sanitation outcomes and develop incentive frameworks that reward the achievement of pre-defined sanitation outcomes:

- Monitor the number of open-defecation free communities, sub-districts, and districts.
- Build up a broad package of outcome-based incentives aimed at all tiers of local government (open awards; performance grants; competitions; conditional allocation of other program schemes).
- Plan and design incentive frameworks to work towards universal sanitation (on a national scale).
- Institute high-profile ceremonies to increase the prestige and political capital of the awards/rewards.
- Use performance grants to encourage sustainability and phased service improvements (performance grants for defecation free status, litter free status, foul water free status, and safe effluent status; with higher awards dependent on sustaining initial outcomes).
- Develop independent outcome verification systems to raise the award profile, increase transparency, and limit conflicts of interest in the award process.

4. Develop national sanitation plans and programs (for universal sanitation)

Develop a long-term strategic action plan that:

- prioritizes the different sub-sectors, areas and population groups, including hard-to-reach groups (based on reliable information regarding disease burdens, benefits of intervention, relative cost of interventions).
- proposes a realistic, data and evidence-based investment and implementation strategy for reaching universal sanitation.
- involves program implementation through decentralized local government units.
- requires periodic strategic reviews and updates (e.g. Annual Joint Sector Reviews).

What should be done in East Asia?

The UN General Assembly recently declared 2008 the International Year of Sanitation (IYS). The main goals of the IYS are to raise awareness and accelerate progress towards the sanitation MDG, with the following specific objectives:

- Increase awareness and commitment for reaching the sanitation MDG.
- Mobilize key stakeholders to take action and monitor progress.
- Secure real commitments to review, develop and implement effective action.
- Encourage demand driven, sustainable and traditional solutions.
- Secure increased budget and aid financing to jump start and sustain progress.
- Develop and strengthen institutional and human capacity.
- Enhance the sustainability and effectiveness of sanitation solutions for improved health and other beneficial impacts.
- Promote and capture learning, develop publications and tools, and effectively advocate for increased sector investment..

More information about the IYS is available at: <http://esa.un.org/iys/index.shtml>

The 2003 WASH Global Forum held in Dakar, Senegal produced a "roadmap for achieving the MDGs for sanitation and water". This document details a well thought out and comprehensive approach to sanitation improvement, including a 23-step process towards the sanitation MDG that will be useful to all stakeholders—available at the following website: http://www.wsscc.org/fileadmin/files/pdf/publication/Dakar_Forum_Proceedings_en.pdf

Rather than attempt to repeat or duplicate the good work of the WASH MDG roadmap or other IYS activities, the joint publication will instead highlight some specific "things to do" in East Asia. This list is not intended to be as comprehensive as the WASH MDG roadmap, but rather to promote some practical steps that may appeal to action-oriented stakeholders.

Striving for Universal Sanitation

East Asia is doing well: economies are booming, poverty is on the decline, and the outlook is good. Yet almost half the EASan population—more than 800 million people—remains without sanitation, and current trends suggest that a third of the population will still lack sanitation by 2015.

Undoubtedly, it will take time and effort, but the goal of universal sanitation can be made more believable through working city by city, and district by district, to show what is achievable when people are committed and conditions are supportive. India and Bangladesh, countries that have pledged to reach universal sanitation before 2015, are already close to declaring the first completely open defecation free districts in South Asia. These success stories are built around unusually active and innovative local leaders, but show that it is possible to achieve universal sanitation in a relatively short period of time if political support, finance, and technical consensus can be combined.

And it has already been done in East Asia. In 1990, sanitation coverage in Thailand was 80%; setting the 2015 MDG sanitation target for Thailand at 90% coverage. Yet by 2005, only fifteen years later (and only three years after the establishment of the sanitation MDG at the 2002 World Summit on Sustainable Development), 99% of Thais have access to improved sanitation facilities, and universal sanitation is within reach.

Greater understanding of the benefit of sanitation and hygiene improvements, and of the potential costs of inaction, are generating increased support and priority for sanitation. Evidence of the higher recent profile of the sub-sector include:

- Ministerial-level regional conferences on sanitation (SACOSan, AfricaSan, EASan).
- Increasing consensus on the importance of cost-effective new approaches for meeting MDGs and working towards universal sanitation.

- ADB pledge to provide 200 million people in Asia with sustainable access to improved sanitation between 2006–2010.

Can we continue to avert our gaze; to ignore the smell and the suffering; and to allow ourselves to blame other people and other problems? This aversion is the real reason why access to sanitation remains so low in so many parts of the world, and why it does not receive the priority it deserves in budgets and development plans. To be sure, funds are limited; there is fierce competition for resources; and we need to be realistic about what can be achieved. But the root cause of the neglect and apathy is that we have accepted this dismal situation as normal, as some sort of historical legacy, and thus feel no urgency about eradicating open defecation or pursuing universal sanitation.

It is essential that countries in East Asia start planning the investments and implementation needed for universal sanitation now. The 2015 MDG sanitation target will be an important milestone in the drive for universal sanitation, but the longer-term goal will require a broader vision, more comprehensive approaches, and significant finance.

There are many important environmental sanitation issues that remain to be addressed—sewage treatment, wastewater disposal, and solid waste management are among them—but this conference focuses on a more fundamental issue: universal sanitation—ensuring that everyone uses improved sanitation facilities all the time. The message to take from this joint WSP-WHO-UNICEF publication is that, given single-minded commitment and concerted efforts from the Governments of East Asia, *the universal sanitation mission is possible*. But for this to happen, national and international political leaders need to put excreta and its safe disposal firmly on the international development agenda, and start taking action on this urgent challenge now.

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Annex 1: Sanitation Coverage Estimates

Countries	JMP estimates		EASan estimates			EASan progress forecast	
	1990	2004	1990	2006	Datapoint	2015	
Urban Sanitation							
Cambodia	–	53%	49%	61%	56% (2005)	75%	
China	64%	69%	57%	78%	75% (2004)	90%	
Indonesia	65%	73%	65%	74%	74% (2004)	79%	
Lao PDR	–	67%	46%	87%	79% (2005)	100%	
Mongolia	–	75%	97%	94%	95% (2005)	90%	
Myanmar	48%	88%	42%	88%	85% (2003)	100%	
Philippines	66%	80%	66%	79%	78% (2003)	86%	
Timor-L'Este	–	66%	66%	66%	66% (2003)	66%	
Vietnam	58%	92%	68%	89%	86% (2006)	100%	
EASan total	64%	72%	59%	78%		88%	
Countries	JMP estimates		EASan estimates			EASan progress forecast	
	1990	2004	1990	2006	Datapoint	2015	
Rural Sanitation							
Cambodia	–	8%	3%	19%	16% (2005)	32%	
China	7%	28%	22%	35%	34% (2004)	42%	
Indonesia	37%	40%	37%	41%	43% (2004)	43%	
Lao PDR	–	20%	3%	36%	30% (2005)	63%	
Mongolia	–	37%	40%	54%	52% (2005)	90%	
Myanmar	16%	72%	7%	83%	75% (2003)	100%	
Philippines	48%	59%	44%	72%	64% (2003)	88%	
Timor-L'Este	–	33%	33%	33%	36% (2003)	33%	
Vietnam	30%	50%	18%	61%	55% (2006)	85%	
EASan total	13%	32%	24%	40%		49%	
Countries	JMP estimates		EASan estimates			EASan forecasts	
	1990	2004	1990	2006	2015	MDG	MDG gap
Total Sanitation							
Cambodia	–	17%	10%	28%	44%	54%	10%
China	23%	44%	32%	53%	65%	66%	1%
Indonesia	46%	56%	46%	57%	63%	73%	10%
Lao PDR	–	30%	10%	47%	80%	54%	–
Mongolia	–	59%	72%	77%	82%	86%	4%
Myanmar	24%	77%	16%	85%	100%	58%	–
Philippines	57%	72%	55%	76%	88%	78%	–
Timor-L'Este	–	36%	36%	36%	36%	68%	32%
Vietnam	36%	61%	28%	69%	92%	64%	–
EASan total	27%	48%	33%	56%	69%	67%	–

Source: Author's own tabulations; JMP estimates from WHO-UNICEF Joint Monitoring Program website: <http://www.wssinfo.org/>

Note 1. Time series data from the China Health and Nutrition Survey (CHNS)²⁴, which conducts sample surveys in nine provinces, have been used to update the sanitation coverage estimates for China.

Note 2. Nationally representative household surveys (DHS, MICS) have been used to update the coverage estimates for Cambodia, Lao PDR, Mongolia, and Vietnam.

²⁴ An ongoing international collaborative project between the Carolina Population Center at the University of North Carolina at Chapel Hill, the National Institute of Nutrition and Food Safety, and the Chinese Center for Disease Control and Prevention.

Annex 2: Diarrheal Disease Data

Countries	WHO data on diarrheal disease	
	Deaths per year	DALYs* per 1000 capita per year
Environmental Burden of Disease		
Brunei Darussalam	–	0.8
Cambodia	10,600	26.0
China	95,600	3.6
Indonesia	31,200	5.5
Japan	–	0.3
Lao PDR	4,900	30.0
DPR Korea	2,800	5.4
Republic of Korea	–	1.2
Malaysia	300	1.1
Mongolia	800	11.0
Myanmar	21,700	16.0
Philippines	10,600	4.9
Singapore	–	0.5
Timor-L'Este	100	5.8
Thailand	2,800	2.8
Vietnam	9,400	4.6
EASan total	190,800	–

Source: WHO Country Profiles of Environmental Burden of Disease (2007)

* Disability Adjusted Life Years

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