



Institutional Changes for Sanitation



Discussion Paper
on the
Institutional Changes required
to achieve the MDG target on Sanitation

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Institutional Changes for Sanitation

Discussion Paper



New York, 2009

Institutional Changes required to achieve the MDG target on Sanitation: Survey and Experiences from the Asia-Pacific Region

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This publication was prepared by Ermina Sokou (Environment and Development Division, ESCAP) under the overall guidance of Le Huu Ti, Chief of the Water Security Section. The paper also benefitted from the support of many ESCAP staff. Miguel Perez Ludena and Katerina Limenopoulou not only enabled the printing of the paper, but also provided significant lessons learned and experiences from the project on Integrated Pro-Poor Water and Wastewater Management in Small Towns. Tae Hyung Kim and Salmah Zakaria provided support and peer review and Tae Hyung Kim also contributed the cover photograph. Hye Yoon Jung also contributed to text box 2 and assisted with the annexes and references. The views expressed are those of the authors and do not necessarily reflect the views of the United Nations or of the Governments of the surveyed countries.

This document has been issued without formal editing.

Cover photograph: courtesy of Tae Hyung Kim

Preface

Following the Hashimoto Action Plan of the United Nations Secretary-General's Advisory Board on Water and Sanitation, the General Assembly of the United Nations declared 2008 International Year of Sanitation (IYS) through Resolution A/C.2/61/L.16/Rev.1 on 4 December 2006. The resolution expressed concern on the slow and insufficient progress made in achieving the global sanitation target, and recognized that progress can be made through active commitment and action by all States, including at the national and local levels, as well as United Nations agencies, regional and international organizations, civil society organizations and other relevant stakeholders.

In the Asia-Pacific region, rapid socio-economic development has lifted many people out of poverty and has contributed to significant achievements with regards to access to sanitation facilities. Between 1990 and 2006, access to improved sanitation in the region increased by an impressive 73 per cent. Today, more than half of the people of the region have access to improved sanitation facilities. However, this impressive improvement still leaves a staggering 1.76 billion people without adequate sanitation. In fact, compared to other regions, the Asia-Pacific region has the largest number of people who have yet to gain access to basic sanitation.

Against this backdrop, the Water Security Section of the Environment and Development Division of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) conducted a survey to identify achievements and delays in institutional changes required to achieve sanitation goals. As part of the survey, a questionnaire was sent to member countries in September 2008, through the regional offices of the WHO and UNICEF. The findings of this survey were discussed and analyzed with government representatives at a regional workshop, held back-to-back with World Toilet Expo and Summit in November 2008. The main findings were also presented to representatives of civil society and NGOs at the 2nd International WASH Practitioners' Marketplace and Fair, in Cox's Bazaar, Bangladesh. This initiative was supported and also contributed to the objectives of the GTZ-funded project on "Integrated Pro-Poor Water and Wastewater Management in Small Towns."

This discussion paper was prepared by Ermina Sokou under the overall guidance of Le Huu Ti, Chief of the Water Security Section, Environment and Development Division, ESCAP. The paper also benefitted from the support of many ESCAP staff. Miguel Perez Ludena and Katerina Limenopoulou not only enabled the printing of the paper, but also provided significant lessons learned and experiences from the project on Integrated Pro-Poor Water and Wastewater Management in Small Towns. Tae Hyung Kim and Salmah Zakaria provided support and peer review and Tae Hyung Kim also contributed the cover photograph. Hye Yoon Jung also contributed to text Box 2 and assisted with the annexes and references.

The survey was led by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), with the contribution and assistance of UNICEF and the WHO. Mark Henderson and TV Luong from UNICEF/EAPRO helped enrich the information available, contributing with a survey prepared in preparation for the 2007 EASAN meeting.

Jack Sim created the forum where the first draft of this paper was presented and discussed with 15 policymakers from ESCAP member countries, in Macao, China, during the World Toilet Summit and Expo in November 2008.

This paper was published with the support of GTZ-financed project on "Pro-poor water and wastewater management". ESCAP is grateful for the support.

Acronyms and Abbreviations

CBO	Community-Based Organization
CLTS	Community-Led Total Sanitation
EASAN	East Asia Ministerial Conference on Sanitation and Hygiene
ECOSAN	Ecological Sanitation
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESI	Economics of Sanitation Initiative
IYS	International Year of Sanitation
LGI	Local Government Institute
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation
NO	Number of Occurrences (in questionnaire responses)
ODF	Open Defecation Free
O&M	Operation and Maintenance
PI	Pacific Islands
PSP	Private Sector Participation
SACOSAN	South Asian Conference on Sanitation
SEA	South-East Asia
SSWA	South and South-West Asia
UNICEF	United Nations Children's Fund
UNITAR	United Nations Institute for Training and Research
WHO	World Health Organization

Country Abbreviations

BAN	Bangladesh
CAM	Cambodia
LAO	Lao, PDR
NEP	Nepal
PHI	Philippines
PLW	Palau
PNG	Papua New Guinea
SRI	Sri Lanka
TLS	Timor-Leste
THA	Thailand
VAN	Vanuatu
VIE	Vietnam

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Executive Summary

Policymakers in the region are more aware than ever of the economic, social, health and environmental benefits of adequate sanitation. Various efforts have been made to raise the political profile of sanitation, through a United Nations General Assembly resolution (No. 61/192) that declared 2008 the International Year of Sanitation, regional high-level sanitation conferences (SACOSAN and EASAN) and close monitoring of the related Millennium Development Goal targets. This improved understanding is also demonstrated by a wide array of institutional changes, undertaken during the past five years in countries that are lagging behind.

This report presents the institutional progress made in selected member countries towards achieving sanitation goals, as reported in an ESCAP-led survey. Institutional progress consists of changes in administrative, legal and financial rules and practices that have been made with sanitation goals in mind. It also includes the “slow-moving” institutions, which are social norms and practices, general awareness of the public and the ensuing demand for sanitation services.

In terms of administrative changes, the survey revealed that nine out of thirteen countries have created a sanitation coordination mechanism at the national level. Many governments have also undertaken legal reform, integrating sanitation into existing development plans or introducing decentralization laws that pass authority for sanitation to local governments. Few countries, however, have taken the needed step of providing adequate financial resources to local authorities, so that they can start investing in their jurisdictions.

The role of the civil society was recognized as the most important driver of change. Community-based initiatives were also presented as major contributors to improvements in sanitation conditions.

In terms of future priorities, the consensus was that local governments should be entrusted with more financial responsibility and decision-making authority. In terms of covering the vast amounts needed for investments, household contributions were identified as the most viable solution. Integrating water supply and sanitation solutions is also a proven way of ensuring that households will pay for the service, since they tend to assign very high value to water access. Integrated water supply and sanitation infrastructure also has the benefit of eco-efficiency, as it locks-in water use patterns that respect the environment.

At the regional level, there is a need for more capacity building, not only to raise awareness about the importance of sanitation, but also to spread the knowledge on solutions that are cost-effective and sustainable.

The role of slow-moving institutions cannot be overemphasized. They define behavioral changes on sanitation, encouraging civil-society mobilization and creating demand for a sanitation market. Awareness campaigns and inclusion of hygiene and sanitation in school curricula are among the most cost-effective and high-impact initiatives of governments.

Introduction

The Asia-Pacific region has made significant strides in economic and social progress during the past half century with per capita income growing at a much faster rate than elsewhere in the world. Rapid socio-economic development has lifted many people out of poverty and has contributed to significant achievements with regards to access to sanitation facilities. Between 1990 and 2006, access to improved sanitation in the region increased by an impressive 73 per cent. Today, more than half of the people of the region have access to improved sanitation facilities.

However, this impressive improvement still leaves a staggering 1.76 billion people without adequate sanitation. In fact, compared to other regions, the Asia-Pacific region has the largest number of people who have yet to gain access to basic sanitation. Open defecation continues, not only in the country side, but also among the poorest in the region's swelling cities. Large wastewater quantities remain untreated, leading to land and water resources pollution. This reality is hard to place in a region that has been enjoying years of economic growth at a rate far exceeding that of Western countries, and where cultures share strong values for dignity and prosperity through health and harmony with nature.

A global assessment on water supply and sanitation interventions shows that achieving MDG targets for sanitation can avert 10 per cent of the 5.4 billion diarrhea episodes worldwide (Hutton et al., 2004). Similarly, providing access to in-house water and wastewater collection for all can reduce episodes by 69 per cent. Over one third of this potential reduction would be in this region.

In 2006, 48 per cent of the population in South Asia was still practicing open defecation, the highest percentage in the world (WHO, 2008). New challenges also loom in East Asia, particularly through the 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 about 80 per cent of those without improved sanitation are *rural* inhabitants. Urban sanitation coverage remains more than double that in rural areas, leaving far fewer urban unserved (Robinson, 2007).

This report presents institutional progress made in selected member countries towards achieving sanitation goals. Institutional progress consists of changes in administrative, legal and financial rules and practices that have been made with sanitation goals in mind. These institutional changes may or may not have contributed to meeting sanitation goals, but assessing their impact is beyond the scope of this study. The analysis will identify recent reforms, shortcomings and future opportunities for improvement in sanitation policies, but will not attempt to attribute progress towards sanitation goals to these institutional choices.

The goal of the publication is to raise awareness about the institutional changes that may contribute to improving sanitation conditions in countries in the region. As will be duly explained in Chapter 2, the policies that lead to such institutional changes are not easily transferable from one country or context to another. Instead policies should be aligned with local needs, cultural norms and priorities of the country in question. The report will provide policy reform recommendations for member countries, but will also point out that changes are rarely the direct result of a single initiative, a development project or international aid. Governments will need to show long-term commitment to sanitation goals.

The target audience is primarily policymakers with decision-making role in sanitation, or with other relevant policymaking authority, in finance, public infrastructure or education related roles. This publication is also addressed to researchers, who seek a brief overview of recent changes in sanitation policies in the Asia-Pacific region. Lastly, the publication is addressed to international organizations that engage in capacity building or infrastructure development, in order to accelerate changes for better sanitation in the region.

1. Sanitation context in Asia-Pacific

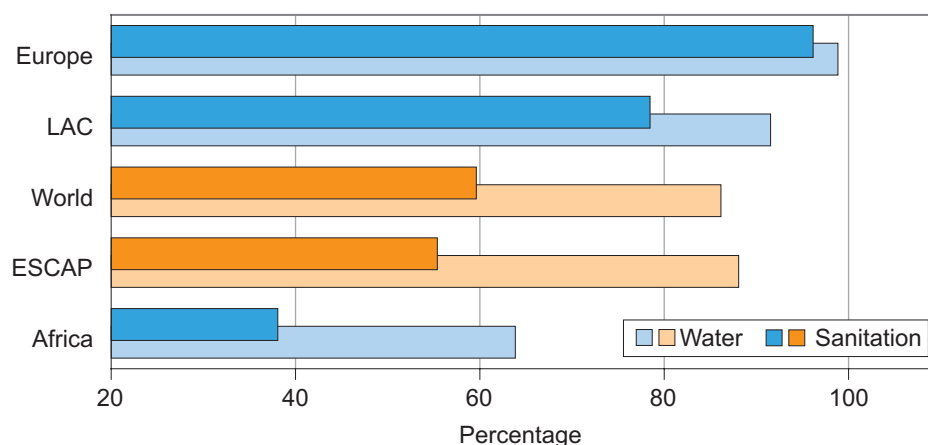
1.1 Slow changes in the last twenty years

The United Nations General Assembly declared 2008 as “International Year of Sanitation” to help improve the poor performance in sanitation coverage worldwide. For the ESCAP region, that means providing access to those 45 per cent of the region’s population. The challenge is greater for rural areas, where only 44 per cent of the people have access to improved sanitation facilities.

While access to sanitation has improved significantly in almost all Asian and Pacific subregions, the regional average (55 per cent) is still lower than the global (60 per cent) or Latin American and Caribbean (78 per cent) average but higher than the average for Africa (38 per cent).

Resource allocation for sanitation in many Asian countries has been far from adequate, and what resources are available benefit the rich more than the poor. The most vulnerable and marginalized populations in urban and rural areas suffer the worst forms of deprivation and the greatest burdens of disease.

Figure 1: Proportion of access to improved water sources and sanitation in Asia and the Pacific and World regions, 2006



Across the ESCAP subregions, the picture is varied. South-East Asia and East and North-East Asia have made significant progress, with access to improved sanitation increasing since 1990 by 15 and 18 percentage points respectively.

In contrast, despite an almost 50 per cent more people having access to acceptable sanitation than in 1990, the average for South and South-West Asia remains very low, at 35 per cent in 2006. This low average hides relatively better performance in countries like Sri Lanka, Turkey, the Maldives and Pakistan. The access remains very low in Nepal, India, Afghanistan and Bangladesh, although they have achieved significant relative improvements since. For example India improved rural coverage from a mere 4 per cent in 1990 to 18 per cent in 2006. Nepal also made noteworthy improvements, since a quarter of the rural population had access to improved sanitation in 2006, compared to only 6 per cent in 1990.

Progress in rural South-East Asia has been led by Myanmar and Vietnam, where access to improved sanitation increased 5.4 and 2.7 times respectively. North and Central Asia, starting from high rural coverage levels in 1990, were comfortably standing above the regional average in 2006. Thailand and Malaysia both stood out, achieving almost universal access to improved sanitation for their rural population, at 96 and 93 per cent respectively.

The Pacific subregion as a whole has not been able to improve sanitation since 1990. Apart from Australia and New Zealand, the smaller islands are lagging behind. In fact, rural areas in the Federated States of Micronesia, the Solomon Islands and Kiribati have some of the worst access rates in the region, with only 14, 18 and 20 per cent of rural population respectively enjoying improved sanitation.

Figure 2: Proportion of the rural population with access to improved sanitation in selected Asian countries, 1990-2006

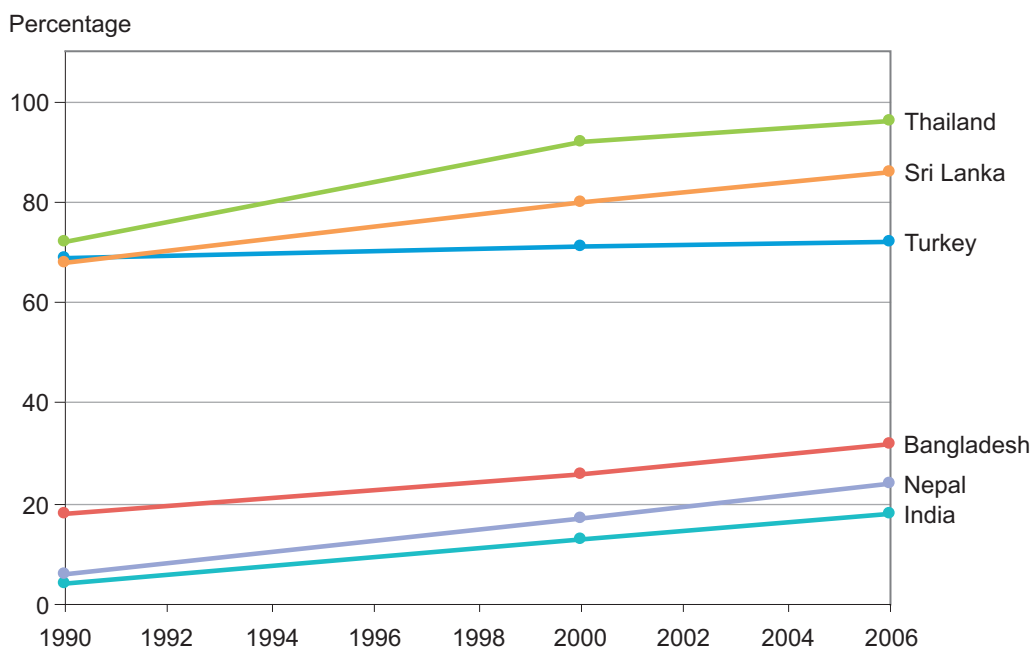
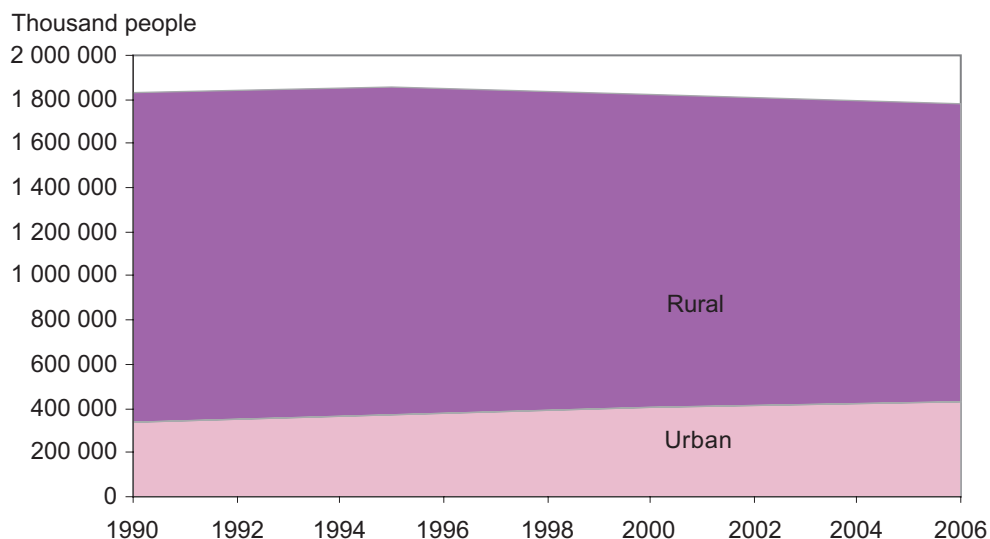


Figure 3: People without access to improved sanitation in Asia and the Pacific, 1990-2006

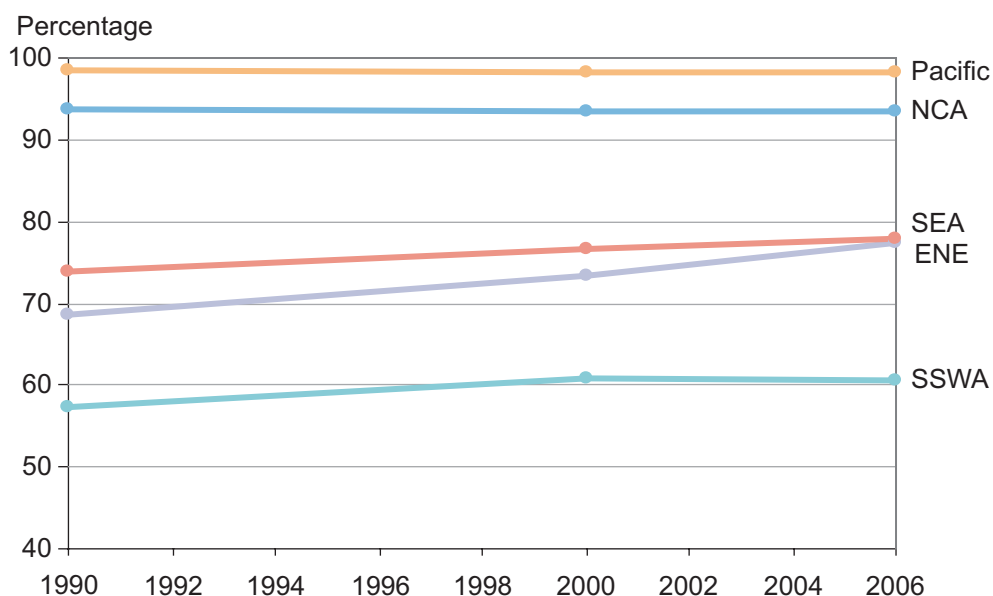


Although providing access to improved sanitation is relatively easier in urban environments, the region's urban average increased only moderately, from 69 per cent in 1990 to 74 per cent in 2006. Rapid urbanization and the increase in the number of people living in slums are probably largely responsible for this unimpressive performance. Landlocked developing countries and Pacific developing economies faced the largest challenges, since the percentage of urban population with access to improved sanitation actually fell since 2000. Few highly populated countries, like Indonesia

and Bangladesh, have also recorded worrisome declines in the proportion of the urban population with access to improved sanitation.

On the other hand, East and North-East Asian urban dwellers witnessed an improvement to access of nearly ten percentage points. Urban dwellers in South and South-West Asia also experienced a three percentage point increase in access to improved sanitation. Like with rural access, North and Central Asia already started from very high coverage of over 90 per cent. As a result, small declines in access to sanitation for urban dwellers can also be attributed to the urbanization challenges.

Figure 4: Average urban access to improved sanitation in the Asia and Pacific subregions, 1990-2006



The importance of access to water and sanitation to development cannot be overemphasized. The benefits of access include personal benefits from higher school participation, better living standards, increased labor productivity and saved health care costs, as well as broader societal benefits like tourist revenues, foreign direct investment and improved aesthetics. A recent study of just four South-East Asian countries estimated the total economic benefits of achieving universal access to sanitation to be between 5.4 and 26.5 billion US\$ (Hutton et al., 2008).

1.2 Sanitation programming in ESCAP

Although many countries have defined their own sanitation targets, for the benefit of consistency, this study's reference point is the Millennium Development Goal framework (MDG). The Millennium Development Goals target on sanitation is defined as halving the number of people without access to improved sanitation. Improved sanitation facilities include household toilets or latrines connected to piped sewage systems and also septic tanks and ventilated improved pit latrines. People without these facilities usually defecate in fields or dispose of faeces in plastic bags, bucket latrines or rivers.

In parallel to the MDG-drawn targets, the report will also consider the commitments made by governments at the subregional level, in particular the EASAN and SACOSAN processes. These ministerial-level conferences set high goals and are indicative of the increasing attention and political commitment afforded to sanitation in the region.

ESCAP has made significant efforts in promoting pro-poor urban and peri-urban sanitation, collecting innovative practices in low-cost decentralized solutions for water and sanitation. In total, 14 case studies have been collected from seven different countries. These case studies deal with a broad spectrum of water and sanitation issues such as piped water distribution, city-wide strategies, water conservation, wastewater management and public toilets. A brief summary of cases relating to sanitation (wastewater treatment) is given in Box 1.

Box 1: Wastewater management

Sanitation by the Community in Denpasar, Indonesia (SANIMAS)

This is a community-based wastewater collection and treatment system that has been replicated in about 100 locations around Indonesia. Government and donors subsidise the initial investment, but the running costs and maintenance are taken care of by the community. The treatment plant can be built under a road, thus making it suitable for urban communities with limited space.

Wastewater treatment facility in the Muntinlupa Public Market, Philippines

Public markets pose a challenge for waste management in cities and towns. The local government of Muntinlupa (Metro Manila), with the assistance of USAID, installed a low-cost wastewater treatment plant in the public market. The investment is recovered through a small surcharge in the rental fee that vendors pay for their stall. The practice helps lessen water pollution, saves money by recycling water and helps maintain clean standards in the market.

Wastewater Management and Recreation Park in Orissa, India

This is an innovative solution for converting an unsanitary wetland in the middle of the city, which was being used as a waste dumping ground, into a green area with recreation facilities. The municipality awarded a concession to a private company to establish and run a recreation park and charge fees for visitors. In exchange, the company contributes to the costs of treating the wastewater that had previously been discharged in the area. The practice addressed the issue of untreated sewage through low cost technology, creating a sanitary environment for the city residents.

Source: Integrated Pro-Poor Water and Wastewater Management in Small Towns, ESCAP website: <http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/Water/CaseStudy.asp>

Through workshops that disseminate these good practices, ESCAP has assisted local governments and their civil society partners to develop integrated and participatory strategies for water and wastewater management. Progress made towards enhancing awareness, encouraging Governments to review policies and strategies on sanitation and mobilizing communities to change sanitation and hygiene practices, needs to continue.

There are various definitions of sanitation. The term is used to describe many different aspects of hygiene and waste disposal and treatment. In the international development arena, the focus is on human excreta, and therefore data collection on population access to improved sanitation is much better.

Consistent with previous ESCAP work and the Commission's socio-economic and environmental mandates, this study will adopt a broader sanitation definition: one that covers individual access to sanitation, but also includes the hygienic disposal of human, agricultural and industrial waste, particularly wastewater. Despite the data shortage, this study will present available facts and will propose measures that can help governments tackle the huge environmental, social and economic problems caused by poor sanitation.

2. Turning point: the International Year of Sanitation

Following the Hashimoto Action Plan of the United Nations Secretary-General's Advisory Board on Water and Sanitation, the General Assembly voted a resolution declaring 2008 as International Year of Sanitation (IYS).¹ The resolution expressed concern about the slow and insufficient progress made in achieving the global sanitation target, and recognized that progress can be made through active commitment and action by all States, including at the national and local levels, as well as United Nations agencies, regional and international organizations, civil society organizations and other relevant stakeholders.

In late 2008, ESCAP conducted a survey in the Asian and Pacific region with the purpose of identifying achievements and delays in institutional changes required to achieve sanitation goals. A questionnaire was distributed to member countries through the regional WHO and UNICEF offices. The survey process and outcomes are described in more detail in Annex 1.

The survey outcomes have since been discussed and analyzed with government representatives at a "Regional Workshop on Institutional Changes Required to meet the MDG on Sanitation," held in Macao, China in November 2008, back-to-back with World Toilet Expo and Summit. The outcomes were also presented to civil society and NGO representatives at the 2nd International WASH Practitioners' Marketplace and Fair, in Cox's Bazaar, Bangladesh. Furthermore, the regional UNICEF office has contributed additional materials on institutional progress in the region. All these outcomes were synthesized for this study.

The role of slow-moving institutions cannot be overemphasized. They define behavioral changes on sanitation.

2.1 Defining the institutional environment

The question of what drives economic progress is one that has puzzled economists and social scientists for years. The role of institutions has been debated at length. A fairly common definition of institutions views them as constraints on behavior, imposed by the rules of the game in society (North, 1990).² Policymakers and development practitioners have for long wondered whether there is one "ideal" set of institutions that offer optimal solutions to socio-economic problems and, if yes, whether these can be imported/exported to other countries. There is no convincing answer on what this set of institutional mechanisms are and how they contribute to differences in growth outcomes.

This analysis will not tackle the complicated role of institutions in meeting sanitation goals or in explaining countries' progress differences in attaining sanitation goals. Instead, it will attempt to examine the role of *institutional changes* that have driven progress in achieving sanitation goals in Asia-Pacific countries. By focusing on *change*, the study will propose a conceptual framework that classifies institutions based on whether they change slowly or rapidly (Roland, 2004). The emerging policy recommendations will also be classified accordingly. However, readers should bear in mind that, by definition, the policy classifications and relevance for each country will depend on its: (a) institutional development starting point; (b) its socio-economic development; and (c) its political agenda.

A distinction can be made between "fast-moving" and "slow-moving" institutions. The former refer to those institutions that do not necessarily change often, but can change quickly. For example, political institutions can be classified as fast-moving institutions. Slow-moving institutions, on the other hand, change slowly, incrementally and continuously, like culture, including values, beliefs and social

¹ Resolution A/C.2/61/L.16/Rev.1 dated 4 December 2006.

² Researchers tend to model institutions as exogenous constraints (conforming to North's definition) or as endogenously-appearing self-enforcing rules, which are the equilibrium of a repeated game (Aoki, 2001).

Table 1: Institutional changes classification

	Fast-moving	Medium-speed	Slow-moving	Reason for classification
Policy and planning reform				
Strategic Document/Policy (Legal)		×		Legal/Centralized
Integration of sanitation into existing Plan	×			Political/Centralized
Coordination reform				
Coordination Group/Mechanism	×			Political/Centralized
Creation of a Special Ministry	×			Political/Centralized
Decentralization reform				
Decentralization initiatives		×		Political/Decentralized
Distribution of budget to local authorities		×		Political/Decentralized
Financing reform				
Ministry of Finance Involvement	×			Political/Centralized
Local government budget matched by central government	×			Political/Centralized
Technological reform ³				
Quality control initiative	×			Political/Centralized
Appropriate technology identification			×	Human Resources
Public awareness				
Awareness campaign (Household, school)			×	Social norms/Human

norms (Roland, 2004). Legal frameworks stand in between (“medium-speed”), as they reflect social norms to a large extent. Table 1 shows the institutional changes addressed by this report.

Policymakers tend to focus on fast moving institutions, which in general can change fast, with a decree, overnight. However, the role of slow-moving institutions cannot be overemphasized. Slow-moving institutions merit the attention of both international organizations and policymakers, as they define behavioral changes towards sanitation.

Change happens when fast-moving institutions are influenced by slow-moving ones. As slow-moving institutions (for example, the demand/need for sanitary facilities in remote rural areas) change slowly but steadily, they create inconsistencies with fast-moving ones (for example centralized and inadequate funding for schools sanitation). Thereby, pressures are created, that eventually lead to change. Of course, sometimes change does come “parachuted from above.” Governments can and should be in touch with changes in social perceptions and norms and they should experiment, be innovative and – when necessary – make decisions for the people’s benefit to avoid lifting that pressure to friction level.

An important hypothesis of this analysis is that institutional systems are generally not a modular construction where one module can be replaced easily by another. Instead, each institution is complemented by others and replacing one institution by another can some times disrupt systemic consistency. Institutional congruence can bring about value-adding stability and harmony, but it can also cause criminal inertia. Deriving from this analytical framework is that “transplanting” institutions from one country to another will not necessarily work. Countries with different cultural and historical

“Transplanting” institutions from one country to another will not necessarily work.

Countries with different cultural and historical paths must find within their existing ‘slow-moving’ institutions the roots for changes in the fast-moving institutions.

³ Not really institutional – depends on human capacities.

paths must find the roots for changes in the fast-moving institutions within their existing 'slow-moving' institutions.

The period examined roughly starts in 2004, and ends in 2008. There are several limitations to this study. Firstly, the methodological base is incomplete, as it ignores how preexisting institutions have empowered different groups in society so that they could address the sanitation problem. Furthermore, institutions are not usually exogenous but could be themselves products of preexisting conditions. It is therefore difficult to strictly define causality (for example between legal arrangements and social awareness on sanitation). As a result, policy recommendations become particularly complicated. Thirdly, the information available was the outcome of few consultative meetings and a survey. The data available, even if reliable, does not allow for much analysis beyond what is evident.

2.2 Country experiences in sanitation programming

Building on a survey conducted by ESCAP in late 2008, inputs from UNICEF, WHO and other stakeholders, as well as desk research, the following section presents the main institutional changes as reported in some key countries in South-East and South and South-West Asia.

2.2.1 Ongoing/Completed institutional changes

The survey conducted by ESCAP in 13 member countries illustrated a general achievements picture, in the institutional aspects related to sanitation (Annex 1). Table 2 provides a categorization of the 22 cases of institutional changes, as identified in the responses, particularly since 2003.

Table 2: Types of institutional changes in 22 reported cases

Legal/Administrative/Financial	Total	NO (22) ^a	Total	NO (22)
Policy and planning reform			27%	6
Strategic Document/Policy (Legal)	23%	5		
Integration of sanitation into existing Plan	5%	1		
Coordination reform			45%	10
Coordination Group/Committee/Mechanism	41%	9		
Creation of a Special Ministry	5%	1		
Decentralization reform			18%	4
Decentralization initiatives	5%	1		
Distribution of budget to local authorities	14%	3		
Financing reform			18%	4
Ministry of Finance Involvement	5%	1		
Local government budget matched by the central government	14%	3		
Technological reform			9%	2
Quality control initiative	5%	1		
Appropriate technology identification	5%	1		
Public awareness promotion			18%	4
Awareness campaign (Household, school)^b	18%	4		

NO: Number of occurrences.

^a Some institutional changes may have had elements of more than one type of change.

^b Campaigns are not really institutional changes but as they were included in few Q2 responses, they are reported.

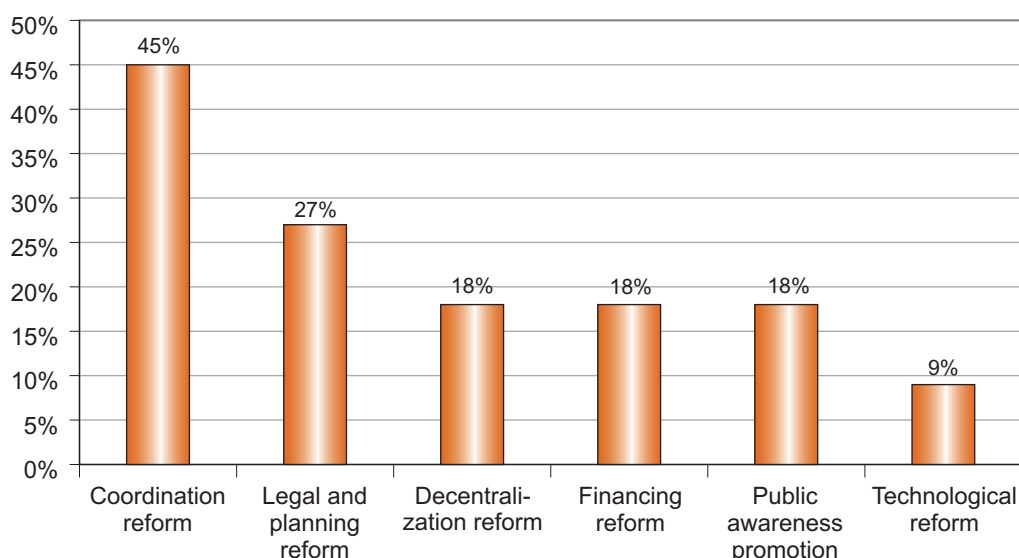
The responses indicated that nine out of 13 countries studied have established a coordination mechanism for sanitation issues (e.g. National Coordination Mechanism, National Committee on Sanitation, Steering Committee on Sanitation etc.). These committees usually consist of representatives from all the Ministries that influence sanitation decisions or are mandated to help in meeting the MDG on sanitation. They also sometimes involve local governments.

An additional change of *legal nature* was the sanitation integration in national plans (National Health Plan, National Water Supply Plan etc.) in six countries. Furthermore, two of these countries reported to have produced strategy documents or drafted policies specifically for sanitation improvement. In one case, an independent Ministry of Water Supply and Drainage was established and mandated to deal with sanitation (Sri Lanka).

Achievements in *financial planning* were also identified, but were more limited in scope. In one case the Ministry of Finance joined national fora on sanitation, to ensure that adequate weight was placed on financing for investment. In another case, the national government pledged to match local government expenditures on sanitation, to encourage sanitation budgeting at the local level. In a third case, Local Government Institutes (LGIs) were given block allocations to promote sanitation and hygiene, which they would manage themselves.

Little progress was made in *administrative* decentralization. In fact among all 22 cases studied, only three (3) of them institutionalized decentralization in managing sanitation funds or decisions. Many new initiatives were implemented at the local level, but little was done to institutionalize this practice, by providing increased financial and decision-making authority to the local level.

Figure 5: Most cited institutional changes since 2003



The survey outcomes shape an interesting pattern: **fast-moving institutional changes** have dominated the reform agenda in the studied countries, during the past four to five years. As seen in Table 3, 16 of 22 cases were relating to coordination or financing reform. The next most frequent change was of medium-speed institutions (mostly legal changes and strategic documents preparation). A possible interpretation is that changes in social norms and practices (slow-moving institutions) are not easily identified and revealed within a four to five year period, examined in this study. Of course, it is also conceivable that the respondents did not perceive the survey question on “institutional change” to include awareness raising campaigns and perception changes (Annex 2, Q2, Table A.4). Either way, changes in slow-moving institutions are harder to capture, measure, assess and influence.

Table 3: Institutional changes by type

Type of institutional change	NOTM	Share (out of NO = 22)
Fast-moving institutions	16	73%
Medium-speed institutions	9	41%
Slow-moving institutions	5	23%

NOTM: Number of Times (a certain institutional change is) Mentioned in the total 22 cases.

2.2.2 Responding to the IYS mandates

The GA resolution that established the IYS also recognized that the roots of change lie in social norms, values and practices, in other words in slow-moving institutions. The resolution called for active commitment and action by all countries, both at the national and at local level, as well as by United Nations agencies, regional and international organizations, civil society organizations and other relevant stakeholders. The main IYS goals are to raise awareness and accelerate progress towards the MDG target on sanitation. As such, advocacy and promotional activities during the year should focus on:

- Raising awareness on the importance of sanitation and its impact on achieving other MDGs, from three perspectives: hygiene, household sanitation and wastewater.
- Encouraging governments and its partners to promote and implement policies and actions for meeting the sanitation target.
- Mobilizing communities, particularly women's groups, towards changing sanitation and hygiene practices through sanitation – health-education campaigns.

Furthermore, existing regional initiatives like EASAN and SACOSAN have already set a framework for action in the region. SACOSAN has met three times already and has produced three commitment declarations (Dhaka 2003, Islamabad 2006 and Delhi 2008.) The Delhi Declaration emphasized the importance of sustainable sanitation for all and the need to initiate an inclusive process, involving all stakeholders, especially local governments, community and grassroots groups. In this study, three South Asian countries are reviewed in detail: Sri Lanka, Bangladesh and Nepal.

EASAN has set the ambitious target of universal sanitation. Workable and affordable solutions are available to address barriers, problems and challenges, but appropriate policies need to promote this goal. This report analyzed eight questionnaires received from EASAN countries: seven are from EASAN “target countries” (SEA) and one from an EASAN “participating country” (Thailand). Additional information on the “target countries” was also available through the UNICEF questionnaires, as provided in Annex 4, and on one “participating” country, the Republic of Korea. (Box 2)

THE EASAN BEPPU CITY DECLARATION (2007)

- Identifies sanitation and hygiene as primary requirements for poverty reduction and economic growth;
- Recognizes that levels of investment and political attention are not commensurate with the scale of the challenge;
- Commits the EASAN countries to strive for universal sanitation going far beyond the MDG targets

Given these commitments, the country experiences analysis was done in two steps: first under the overall framework of the IYS priorities, and then within the formulation process of subregional action plans, through SACOSAN and EASAN.

2.2.3 IYS Goal 1: Raising Awareness on hygiene, household sanitation and wastewater

The awareness-raising framework can include several initiatives, of diverse nature. Capacity building is an important modality to raise awareness among governments and their constituencies or partners. Both the Dhaka (2003) and the Delhi (2008) Declarations stress the importance of appropriate acknowledgement and rewards to local governments and communities that demonstrate tangible results in promoting sanitation. Bringing sanitation to the top of the political agenda is not an easy task but the region's governments have undertaken significant efforts to raise its profile.

As part of a grassroots initiative, the government of Bangladesh has offered the ultimate recognition to Local Governments in the form of budgetary autonomy to manage a block allocation for sanitation and hygiene promotion. This empowerment mechanism has promoted awareness creation for latrine installation and use. In Thailand, the Ministry of Public Health, Health Department, launched the first toilet contest in 2005. The event attracted significant press attention and additional revenues to the operators of the toilets in question.

In Indonesia, a scheme was established by the national government to reward local districts that allocated budgets for sanitation by matching the local allocation. This initiative not only helped raise awareness about sanitation but also boosted sanitation spending.

In Vietnam, the Health Cultural Villages concept has set sanitation and hygiene criteria for selecting a community or a family for the award. In 2008, the Government of Lao PDR organized a large campaign to raise awareness about the relevance of sanitation among policymakers. As a result, sanitation and hygiene were incorporated into programmes and projects of various concerned government agencies.

The Republic of Palau also launched a "guide to attaining a healthful environment" in 2007, which aimed at raising awareness on sanitation benefits. As people often ignore the invisible costs of poor sanitation (ill health, missed educational opportunities, wasted time, lost income, inconvenience, indignity, and environmental degradation), their demand for sanitation facilities is low. All these initiatives contributed to raising awareness and potentially demand for sanitation.

Box 2: Clean Toilet Campaigns

Thailand

The sanitation programme in Thailand changed strategy in 2005. According to the new decentralization law, **distribution of central budget to local authorities has become a requirement**. Since then, all efforts are aimed at enhancing the capacity of local administration organizations as well as toilet owners to manage public toilets. **Several incentives** can be highlighted:

- The owner of the land where toilets are situated serves as a key focal point in implementing project
- Trainings are available for both operational level personnel and the general public
- Best public toilet of the year is awarded
- Evaluative inspection offers a standard recognition symbol on signboard
- Toilet spies are appointed
- A ministerial regulation on public toilets was drafted

Republic of Korea

The Beautiful Toilet Campaign was launched on the run-up to the 2002 Republic of Korea-Japan World Cup and was initiated by high-ranking officials and civil society, in particular the Korea Toilet Association. The campaign has been gaining incremental attention from the Korean public with its explicit outcomes at public toilets. The campaign was initiated with tourism in mind, but improving public health was also a matter of important concern. With innovative renovations in public toilets, Korean people's attitude towards sanitation has changed. Toilets are no longer a place of stigma. The effort has been more consolidated with the launch of World Toilet Association. The launch of international initiatives reflects the strong will of Korea's government in its leading role in promoting toilet sanitation and environment. For more information, visit www.unescap.org/esdd/water.

The establishment in 2006 of the International Year of Sanitation (2008) has served as an opportunity for different actors to enhance collaboration for common understanding and problem solving. In Sri Lanka, for example, four concerned ministries and two authorities got together to discuss respective roles and identify deficiencies and gaps in improving sanitation. In the Philippines, a Sanitation Summit has been held every year since the IYS establishment in 2006. This summit has brought together different government agencies and has increased collaboration, networking and cost sharing.

Of increasing concern is the post conflict or post disaster improvement of sanitation conditions. In Sri Lanka, the 2004 tsunami turned a lot of poorly designed septic tanks and poor disposal systems into a serious threat for public health. The Ministry of Healthcare and Nutrition formed a partnership with the National Water Supply and Drainage Board to construct a fecal sludge disposal. This collaboration has spurred an interest for more long-term solutions for densely populated areas. Furthermore, a Post-tsunami National Water and Sanitation Forum was established to coordinate activities by donor agencies, government and NGOs.

2.2.4. IYS Goal 2: Encouraging Governments to promote and implement policies and actions

As already discussed, awareness raising efforts in the region have picked up over the last few years. Yet if cultural norms move exogenously and has a determinant impact on legal and political

Box 3: Working with Women's Associations for Sanitation in India

The Self-Employed Women's Association in India (SEWA) has concentrated much of its work on gaining access to water for productive enterprises, which are often part of the self-employed workers segment. Today more than 93 per cent of all workers in India are considered self-employed workers, more than half of whom are women. SEWA has helped selected areas in India to develop plastic-lined ponds for water conservation, with technical support and training provided by the Foundation for Public Interest (FPI). Local women are now managing their own village ponds, including all bookkeeping and accounts. In eight villages of Banaskantha district of Gujarat, women have formed their own water committees. Through these they undertake contour binding, building checkdams, repair of village ponds and other water conservation related construction.

Source: Makiko, W., 2004. Self Employed Women's Workers
<http://www.gdrc.org/icm/makiko/makiko.html>. See also www.sewa.org/ca/water.htm

institutions, it is very difficult to "transplant" political and legal institutions in diverse cultural environments (Kornai, 2005). Creating a "culture of sanitation" is the first priority for governments. At the same time, policymakers should also engage in institutional experimentation with a spirit of openness.

Awareness raising, therefore, needs to be complemented by corresponding sanitation policies, based on clear socio-economic and environmental vision. The declarations made in SACOSAN and EASAN indicate that the vision is already there. Some governments have already taken specific actions to translate this vision into policies.

The Dhaka Declaration supported direct and indirect subsidies for sanitation *software*, as opposed to hardware. It emphasized that household subsidies should only target the poorest. Instead, governments should invest in key software aspects such as sanitation promotion, capacity building for service suppliers, education and toilet builder training to ensure sustainability. Conforming to this recommendation, the Sri Lankan government strengthened the role of Public Health Inspectors through capacity building and revised a 20-year old field manual to include emergency water and sanitation responses, as well as ecological solutions.

Providing adequate sanitation is a complicated problem, because of its multi-disciplinary nature. It starts with the simple process of human excreta disposal but takes environmental, economic, social and cultural dimensions. It is therefore important to

address all these different aspects in a coordinated matter. Integrating sanitation initiatives in water management and provision policies has also proven a successful way of ensuring that synergies are captured and policies are harmonious.

Coordination between different actors is a case in point. In Cambodia, rural sanitation has been included in the Technical Working Group for Rural Water Supply, Sanitation and Hygiene. As a result, inter-ministerial and donor support produced the first national sanitation strategy in 2008. In Vietnam, the National Target Programme on Water and Sanitation set up in 1998 to promote rural sanitation, personal hygiene and water supply, involved five (5) different concerned Ministries. In 2006, the Rural Water Supply and Sanitation initiative was established with a Prime Minister's Decision, which bundled the responsibilities for rural health, agriculture, education with water and sanitation. Programming synergies include complementary budgetary allocations and better monitoring and evaluation. The outcome for water and sanitation is a higher percentage of rural households with access to hygienic latrines.

A major political concern is raising funds for investment in sanitation. As people are often unaware of the health and other socio-economic sanitation benefits, their demand for improved facilities is low. Many governments, faced with competing priorities and low demand for sanitation, have not given sanitation the importance it deserves (Robinson, 2005). Including sanitation into national poverty reduction strategies contributes to achieving consistency and predictability. In 2001, Papua New Guinea integrated water and sanitation for the first time in the national health plan. Water and sanitation interventions in the country are now a lot more integrated, resulting in more cost-effective programmes.

Institutional changes required to improve sanitation can be brought about by internal assessments of the existing sanitation status, coordination problems or difficulties, the effectiveness of different players, as well as the authority distribution between administrative levels. In Sri Lanka, for example, it was deemed necessary to create a separate "Ministry of Water Supply and Drainage," to manage increasing funds flowing to sanitation from the government budget. Beyond the actual scope of work of the new Ministry, creating a separate entity underlined the importance of achieving national and international targets for sanitation. Regional organizations can provide guidance to governments on possible institutional changes, by presenting the available options.

2.2.5 IYS Goal 3: Mobilizing communities through sanitation – health-education campaigns

The Dhaka and Delhi Declarations recommended increased focus on community sanitation programmes. In order to ensure the local sanitation initiatives viability, focus should be placed on locally-appropriate and affordable technological options for communities. The example of ecological sanitation in Nepal could serve as a model. During the past six years, the Government of Nepal, international organizations and local NGOs have been cooperating to promote Ecological Sanitation (ECOSAN). According to this initiative, human excreta are separated, composted and enter the farming system as natural fertilizers. The ECOSAN success lies on the economic value created for farmers by this recycling process.

The SACOSAN Islamabad Declaration further emphasized the active participation of women and children in all the activities relating to the sanitation sector. EASAN also noted that women consistently attach higher value to sanitation facilities than men do.⁴ This is explained by women's greater responsibility for children's health and domestic cleanliness, and the higher value they place on privacy, safety and convenience. In Vietnam, the Ministry of Health partnered with the Vietnam Women's Union and the Vietnam Farmers' Association and UNICEF to implement an Intensive Sanitation Promotion project. The intervention targeted particularly women and children and focused on changing hygiene behavior.

⁴ WSP-EASAN Joint Publication.

THE SACOSAN DELHI DECLARATION (2008)

- Calls access to sanitation and safe drinking water a basic right, and;
- Recognizes that according national priority to sanitation is given
- Calls for involving all stakeholders at all stages, effective policymaking, institutional and fiscal incentives, working in partnership with religious leaders, communities, institutions and local governments and service providers

According to the Dhaka Declaration, special attention should also be given to hygiene education in school. Several school hygiene education programmes have been implemented in recent years. In primary schools in Bangladesh, children are educated about safe water, sanitation and hygiene. The efforts, which are coordinated by UNICEF and the Department of Public Health Engineering, also place emphasis on encouraging children to pass on what they have learnt to other children and to their families and communities.

The School-Led Total Sanitation programme in Nepal has been successful in declaring more than 50 schools in various parts of the country as open defecation free (ODF). The Department of Water Supply and Sewerage in Nepal has been cooperating with district education offices, NGOs, international organizations and other stakeholders to ensure initiatives are locally owned and to create healthy competition between schools and districts.

In Vanuatu, a joint effort from the Ministry of Health and the Ministry of Education aims at improving primary school toilet facilities. In Thailand, the two ministries (Ministry of Education and the Ministry of Public Health) also worked together to launch a pilot toilet improvement campaign in schools. By 2008, all toilets in the pilot province Thai Schools met the set health standards.

Very positive outcomes have also been produced by the Community-Led Total Sanitation (CLTS) initiative, which was pioneered in Bangladesh. The initiative has been training and rewarding ODF communities throughout South and South-East Asia. Implementation started in 2005 in Indonesia and in 2006 in Cambodia. A significant advantage of CLTS is its dependence on resources of the community itself, as well as its minimum financing requirements.

Box 4: Bangladesh: Sanitation in the Hyogo Framework for Action

During the Cyclone Sidr, in November 2007, an accompanying tidal surge of up to 3 meters in coastal areas caused extensive damage to water and sanitation infrastructure and resulted in salt-water intrusion to surface water ponds used for drinking water supply, and pit latrines. The accompanying Response Framework included a WASH cluster, which covered immediate water and sanitation needs of the affected households.

The strategic goal of the Bangladesh Hyogo Framework for Action is to effectively integrate disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.

As indicated in the first progress report in August 2008, significant achievements have been made with respect to revising the existing national legal framework and policies, through multi-stakeholder consultation at local and national levels. Also, emphasis has been placed on identifying, assessing and monitoring disaster risks and enhancing early warning.

However, an identified shortcoming is that risk assessment of critical sectors such as health, water and sanitation, shelter, education and food security have not been included in national and local risk assessments.

Source: www.preventionweb.net/files/7485_Bangladesh.pdf and "Draft O – WASH Cluster, Bangladesh Super Cyclone SIDR Response," accessible from: <http://www.lcgbangladesh.org/>

The CLTS approach recognizes that merely providing toilets does not guarantee their use, nor result in improved sanitation and hygiene. Unlike earlier approaches to sanitation, CLTS does not prescribe very high initial sanitation standards and does not – in principle – offer subsidies as an incentive. Experience has shown, however, that it may be difficult to work without some initial assistance, particularly for the extremely poor.

With respect to financing at the local level, some countries have adopted innovative practices. In Indonesia, for example, the national government supported decentralized wastewater treatment systems. Community participation was high, through labor and land contributions. Another successful example comes from Sri Lanka, where wetlands were used for excreta disposal after the 2004 tsunami. While a donor provided capital funds, all operation and maintenance (O&M) costs were handled by a Community-Based Organization (CBO).

3. Need for Change: Priorities for the future

The ambitious goals set by EASAN and SACOSAN, as well as broader national sanitation goals, are far from attained. Although the achievements have been significant, few policymakers in the developing, or developed world, are ready to rest on their laurels. Through the survey, but also in meeting discussions, representatives from ESCAP member countries have identified key requirements and conditions that are necessary for a country to improve sanitation coverage and meet the MDG on Sanitation.⁵

3.1 Reforming “fast-moving” Institutions

3.1.1 Administrative Reform

Coordination Reform

The vast majority of responses (13 out of 15) supported the creation of *an anchor institution*, which coordinates different ministries and other stakeholders. The anchor institution can be loosely established (e.g. National Coordination Mechanism) or it can have a structured character, in the form of a Committee, or even a special Ministry for Water Supply and Sanitation.

Although not explicitly provided as an answer/option, four respondents mentioned the importance of creating a coordination mechanism. Already, nine out of 13 studied countries were reported to have established a coordination body. The purpose of such a body is to bring together different disciplines and authorities to discuss strategy, planning, modalities and implementation costs, as sanitation is a multi-disciplinary and complex issue. Consolidating **policy** developed by different institutions is also crucial, in order to avoid duplication of efforts and ensure a common understanding of goals. Prioritizing sanitation is the linchpin of this thrust: it is the driving force that will bring different policymakers together, through a coordination mechanism, and will empower them to take bold decisions for sanitation. The key constraint for sanitation today is not the lack of resources, but the lack of prioritization – as policy. Once this hurdle is overcome, funding and action will follow.⁶

At the distributed survey, *all* 15 respondents considered that the utmost **requirement for future** sanitation improvement is local government empowerment, through increased decision-making and financial authority.

⁵ For more detailed recommendations, please see Annexes 1 and 2.

⁶ This was the first priority, as identified in the MACAO meeting.

Decentralization Reform

At the distributed survey, *all* 15 respondents considered that the utmost requirement for improving sanitation is **local government empowerment**, through increased decision-making and financial authority. The call for transfer of responsibility to the local level was unanimous. Decentralization is primarily a political decision that can take several forms, but is decided relatively easy to at the central government level. However, the decentralization programmes implementation requires significant efforts. Aside from adequately trained human capacity, there is a need to provide local governments with clear strategic goals, adequate incentives and, most importantly, financial resources. Although the decentralization decision resembles a fast-moving institutional arrangement, in fact, creating adequate conditions for decentralization lies somewhere between slow and fast-moving change.

In the 13 studied countries, only three had actually clearly allocated sanitation funds to local governments. Whether the rest of the governments lacked adequate financing for sanitation, or simply insisted on more centralized management is not clear. Yet even where decentralization efforts were advanced, local government performance remains a challenge. Local governments are closer to end-users, understand the challenges better, but they may not have the incentives or resources to address those challenges.

In order to adequately decentralize authority, three things need to be transferred: a) decision-making authority, b) resources and c) accountability. The central government needs to be less an *actor* and more a *facilitator*. The issue of accountability is perhaps the most complicated. Building an adequate monitoring and evaluation (M&E) system for sanitation can help better identify the gaps and needs. Currently is no developed comprehensive M&E framework for sanitation at the international level. As a result, few local governments have monitoring capacities, beyond the basic coverage indicators. Building such a framework and the capacity to apply it would improve data availability and would create incentives for local governments. These incentives could be financial awards to local governments or motivation through recognition.

An additional hurdle, particularly for large countries, stems from differences in local government jurisdictions and regulations. Harmonization of regulations and of monitoring and reporting systems can help overcome administrative problems and build healthy competition between local governments, raising sanitation standards in the process.

Independent regulator

Regulating sanitation service provision is considered key to assuring the quality and coverage at affordable prices. Service regulation can prove useful irrespective of the market structure (competitive or non-competitive) and of the service provider status (public or private).

Despite the relevance of regulation, few survey respondents considered an independent regulator for sanitation to be a requirement. This low interest in the option may indicate skepticism towards regulators – or how independent they can actually be. It can also reflect an aversion towards centralized, complicated and resource-intensive organizational structures, when the problem at hand can best be addressed at the local level, close to the end-user.

In general, the institutions responsible for regulation may be ministerial departments, sectoral or multisectoral autonomous regulatory agencies. The regulatory agency should be independent from political influence and the regulation and service provision functions should be separated (Sandec-UNITAR-WBI, 2008). Furthermore, experience has shown that a good regulatory system maintains coherence between quality of services provided and prices charged. It is also predictable, credible and accountable (World Bank, 2007). Infrastructure development activities (planning, design construction and operation) should be implemented by the same entity.

Private Sector Participation (PSP)

In order to meet the MDG sanitation target, developing countries would need to spend about USD 142, an annual equivalent of USD 14 billion over ten years (Rosemarin et al., 2008). These are staggering sums, particularly in the current financial and economic crisis context. In order to fill this financing gap, many developing countries in the region hope to explore the market-based instruments potential, like private financing and water pricing.

Private sector participation is considered by many the only way out of the sanitation crisis. In total, 12 out of 15 ESCAP survey responses indicated that PSP is critical for sanitation improvement. The UNICEF survey (see Annex 4) revealed that 78 per cent of EASAN 'target' countries are already encouraging private sector involvement. If demand is there, the private sector can identify many innovative ways to provide sanitation services. Building on examples from other infrastructure projects, several models for public-private partnership exist. For example, the Build-Operate-Transfer (BOT) concept can be applied for larger infrastructure projects, like sewage systems. Furthermore, the Clean Development Mechanism can be used to generate additional financing for investments in bioenergy that uses human and/or animal waste.

In order to meet the MDG sanitation target, developing countries would need to spend about USD 142, an annual equivalent of USD 14 billion over ten years. Private sector participation is considered by many the only way out of the sanitation crisis.

Small-scale providers should be targeted in particular, as they tend to be closer to the end-user. PSP can bring efficiency gains in operation and can facilitate access to technology, technical expertise and know-how, particularly for wastewater treatment functions, which tend to be more complicated.

Creating an adequate legal framework for the private sector is still the government's role. Either through a regulator, or through other legislative rulings, governments need to ensure an enabling environment for private service providers. After removing barriers for private sector participation, governments can introduce incentives, like favorable taxation schemes and management skill building. The simple right to advertise, for example, can generate enough revenues to run and maintain a public toilet. Furthermore, establishing standards for the marketplace, for example global guidelines for public toilet design, is considered a sine-qua-non for fair competition and adequate service. The International Code Council is currently working with scientists, policymakers and NGOs to establish these standards.

Pollution and Wastewater Treatment

Water pollution in the Asia-Pacific region is a huge environmental and socio-economic concern. Domestic, industrial and agricultural uses are all responsible for this pollution but 50 per cent of BOD comes from domestic water. Domestic "gray" water management is still not a priority in the agendas of policymakers. The UNICEF survey revealed that only three EASAN 'target' countries, Mongolia, Myanmar and Thailand, consider wastewater and sludge management a national priority, although many more have already established national strategies (see Annex 4).

The economic impacts of polluted water resources relate directly to water for drinking, water for other non-commercial uses and water for agriculture and particularly freshwater fish production. A study recently assessed the economic costs of water pollution to be about USD 2.3 billion in four South-East Asian countries only (Hutton et al., 2008).

3.1.2 Financing Reform

Household contributions

With respect to sanitation investment financing, *all respondents* recognized the key role of household contributions. The consensus on this issue stems from existing lessons learned in providing hardware sanitation to poor households. The end-user (households) should be convinced about the sanitation benefits and be willing to pay, even a nominal amount, to use sanitation services.

Regarding wastewater several innovative proposals have been made. As most people are willing to pay for water, but are not used to paying for wastewater disposal, a promising approach is to integrate the charges. The water and wastewater payments can be integrated in decentralized, community-based systems that, for example, use communal septic tanks, reed-bed systems and bio-digesters.

Access to Microfinance

Experience shows that it is inefficient to give away toilets, but the question remains, how will the poorest be able to afford one? One possible answer is access to microfinance for poorer communities. 87 per cent of the ESCAP survey responses indicated that having access to finance for installing sanitation hardware is as important for meeting sanitation goals as regularizing funding for sanitation in National Accounts.

In designing microfinance schemes, it is important to set payments affordable and accessible to even the poorest. Local financing should be based on local ability to pay, but can always include some subsidy where needed. Also, loans should take into account the inflation that may affect the necessary loan size.

Microfinance schemes can be very effective for livelihood creation. Sanitation-related loans could perhaps be coupled with other livelihood based loans to mitigate default risk and to support income generation in parallel with health and hygiene considerations. Livelihood-based loans may also be easier to upscale, since they are more common.

Access to soft loans, of course, has its own limitations. Successful microfinance initiatives depend on the transparency and inclusiveness in the beneficiaries' selection process. Furthermore, another challenge is lack of clear design quality guidelines that can guarantee a construction is up to the standard.

Government Financing

Government financing is essential in promoting sanitation. From assigning specific budget lines to sanitation, to decentralizing this budget, the government can take several important measures that grease the sanitation wheels. National budgeting for sanitation needs to increase and be regularized.

It is very important that governments understand the costs and benefits of adequate sanitation. The World Bank Economics of Sanitation Initiative (ESI) has been developed to quantify these costs, in terms of health, time and opportunity lost. Studies show that one US dollar of investment can return on average nine dollars, which will mostly benefit the billions at the bottom. Furthermore, some waste products could also be viewed as resources. For example, wastewater could have nutrients reusable as chemical fertilizers, while solid waste can help produce energy. More information on the economics of sanitation is presented in Box 6.

Integrating water and sanitation investments

Sanitation and wastewater treatment are inextricably linked as different parts of the same water supply and sanitation cycle. Experience has shown that returns on investments in water and sanitation together are three times higher than investments made in either one sector alone,⁷ but access to adequate water also requires smaller upfront investment than sanitation. Easy access to water also tends to be valued more by the poor, in the short-term. It is therefore suggested that any investments in water access also integrate provisions for sanitation and wastewater treatment from the beginning. Poor people are more likely to pay for sanitation services if they receive a “package” of water and sanitation services, than sanitation alone.

Box 5: A replication case through knowledge transfer in the Philippines

For years the wastewater from the Sorsogon market, including a slaughterhouse, with its 300 vendors, where 30 per cent of the population shops every day, was being deposited untreated to the Salog River, a tributary of the Sorsogon bay. The city identified the need to upgrade the public market with its slaughterhouse, particularly its wastewater control system, to prevent pollution of the bay. Sorsogon city, which is also the owner of the market and responsible for its operation, decided to construct a new building for the market, with higher hygiene standards and room for more vendors. The construction of the new building began in August 2006 and the vendors were relocated to a nearby site. Many vendors were negatively affected by the relocation and saw their income decrease since they moved. It was only in September 2007 that the city found a way to construct a water treatment facility in the new market when the city's mayor participated in the LGA – ESCAP workshop in Manila. **There, he was informed about the possibility of investing in a low cost decentralized wastewater treatment facility** and partnered with BNS – BORDA, a coalition between a German training and research institute and a local NGO in the Philippines. The city signed a contract with BNS – BORDA and began the construction of the treatment facility in May 2008. The facility will be completed in June 2009 and is a case in point of how international cooperation and knowledge sharing can facilitate sanitation improvements.

Source: ESCAP-led non-structured interviews with Sorsogon city and BNS – BORDA, the Philippines, 01/10/2008

If the willingness to pay is not adequate to cover both water and sanitation costs, it is preferred to choose a more centralized solution, which can be cheaper.

Although piped sewage systems maybe more expensive than on-site treatment, on a large scale such piped systems have a number of advantages including less impact on underlying groundwater. Also, subsequent urbanization makes such systems installation at a later date much more expensive. Without sewage and wastewater infrastructure network, developing the collection and treatment facilities is extremely difficult, particularly in cities where space for decentralized solutions is limited.

At the same time, despite these general principles, is important to realize that demand for water is a lot more vocal and standardized than demand for sanitation, which is silent and a lot more customized. This different response of consumers does not mean that integrated solutions are not viable, but that service providers should explore clients' preferences, decoupling water and sanitation in the market research. Cheaper, alternative options for sanitation could be on-site dry latrines, ventilated improved pit latrines, pour flush latrines, stabilization ponds (suitable for smaller urban areas due to land requirements), small-bore sewer (solids collected in an on-site tank; only liquid effluents are passed through sewer system) or simple two-pit latrine, as promoted by Sulabh International.

⁷ Urban Sanitation and Wastewater Treatment, www.makingcitieswork.org

3.2 Reforming “medium-speed” institutions

3.2.1 Legal Reform

Legal systems

Adequate legal systems enable institutional changes. A legal system allows changes in social norms to be translated into institutionalized rights and obligations, for both governments and civilians. For example, sanitation experts at the Macao, China meeting in late 2008 (Annex 2) pointed out the need to draft ministerial regulations and guidelines on public or private toilets and waste management. Standards are important because they enable measurement, promote quality and make the sanitation service provider accountable. There are increasing calls for adequate decentralization law, which should support budget distribution to local government authorities, as seen earlier.

National Strategies

Political leadership and commitment are key drivers for achieving institutional changes. Occasionally, however, the place of sanitation among national priorities can be jeopardized because of other political priorities and demands from other sectors. To avoid sidetrack, it is necessary to establish a “national strategy on sanitation”, or at least to incorporate sanitation in existing legal documents, for example the National Health Plan. Of course, political change can also favor sanitation. In Nepal, the new constitution was seen as an opportunity to emphasize sanitation goals. In preparing strategies for sanitation, institutional evolution theories suggest that good policy design is the design of an organizational structure capable of learning and adjusting, in response to what is learned (Van den Bergh et al., 2003).

3.2.2 Technical Conditions

Sustainability of Sanitation

With respect to the most important technical conditions for improving sanitation, there was a consensus on adopting sustainable and traditional solutions (15 questionnaires). This focus on sustainability was backed by six additional recommendations for affordable and simple sanitation solutions. If sanitation goals are to be met, the poorest people need to be able to afford both access and maintenance.

Sustainability in sanitation is achieved when three conditions are met: affordability, availability and respect for the environment. Regarding affordability and availability, experience shows that using local materials and creating local sanitation markets with standardized products contributes significantly to the long-term viability of sanitation solutions. Providing environmentally-friendly sanitation for little money is not easy. Wastewater treatment plants are not cheap to build, operate and maintain, but people in rural areas in particular have been neglected or offered sub-par options for too long. There is a need to move beyond small-scale projects to *permanent systems* that respect the environment. Systems that are available in towns should be able to reach rural areas and for that, more research on creative approaches is necessary.

Policymakers also emphasized the additional need for ecological sanitation solutions and few made special reference to providing sanitation solutions in flood-prone areas. Flood-prone areas cannot sustain most standard low-cost latrines.

Knowledge Sharing

Almost all survey respondents also indicated that knowledge sharing on good sanitation practices is very important. Although not all solutions can be replicated, it is crucial to learn from experiences in

other villages, cities or countries. Knowledge sharing will be reiterated in the following section, as an important priority for Regional Cooperation. A successful knowledge sharing example has been the Community-Led Total Sanitation (CLTS) initiative. Pioneered in Bangladesh, the initiative has been already successfully replicated in countries like Indonesia and Cambodia.

Many survey responses indicated that adequate staff training on sanitation options and their characteristics, as well as on complex infrastructure, was important. Although simple sanitation solutions are available, wastewater treatment requires some technical knowledge that is not easily available. Training on building and maintaining these structures will be important, particularly for local government representatives and middle-management professionals. Trainings on new technologies and related research can be institutionalized at the national level, to ensure continuity of skill-building, as well as buy-in and motivation of local governments.

3.3 Influencing “slow-moving” institutions

Empowering Civil Society

Discussions with stakeholders and survey results identified civil society mobilization and community-based initiatives as the most important driver for achieving sanitation. Local initiatives do not only fill in the gaps that central governments may not be able to cover, because of limited resources. From the policymakers’ perspective, civil society and local initiatives also provide *insight* into cultural evolution and changes in society that may be difficult to observe otherwise.

Civil society mobilization and community-based initiatives were identified as the most important **drivers** of sanitation achievements up to today.

Despite this dual role, few grassroots initiatives are solidified as institutionalized approaches, and the support for replication and upscaling is marginal. Many civil society initiatives remain localized, although successful in promoting sanitation. One reason is that institutional and financial decentralization is far from complete. Local governments could serve as a perfect place to mend this ‘communication break-down’ between civil society representatives and central governments. Yet the only three countries where budgetary authority for sanitation had been decentralized were Bangladesh, Indonesia and Thailand. Another reason for the lack of recognition is that local initiatives are often lost after a local ‘champion’ is no longer available. The role of NGOs is crucial for initiating projects at the local level, but it is the governments that retain this knowledge in the long term.

Creating Demand for Sanitation

The epitome of slow-moving institutional change is the increased social awareness on sanitation benefits and the ensuing demand. Important efforts have been made in almost all studied countries to create this demand. Still, all questionnaire respondents agreed that social awareness remains the most essential condition for sanitation improvement.

In that context, sanitation and hygiene campaigns are as relevant as ever. Every individual should be able to enjoy the dignity and health benefits that adequate sanitation allows. However, not everyone is aware of the hygienic practices that will help them enjoy these rights. Sanitation campaigns should remain the national policies cornerstone for sanitation improvement. As analyzed in Chapter 2, most countries implemented some kind of sanitation campaign, for schools or rural households. Investing in sanitation ‘social marketing’ proposes that water and sanitation practitioners consider people as customers rather than beneficiaries, and focus on processes that empower the customer to make informed choices.⁸ The vision adopted by the World Toilet Organization (WTO) follows a similar note: “Instead of seeing 2.5 billion toilet-less as underprivileged and helpless people, WTO visualizes 2.5 billion of potential customers demanding safe and affordable toilets.”

⁸ <http://www.unhabitat.org/content.asp?cid=3797&catid=46&typeid=6&subMenuId=0>

AN EARTHQUAKE METAPHOR

An analogy for the pressures that slow-moving institutions can exert on fast-moving ones is the concept of an earthquake: pressures along fault lines build up continuously but slowly, then suddenly provoke an earthquake that abruptly changes the topography of a given area. Slow-moving institutions are the equivalent of these tectonic pressures. Just like the interaction between slow-moving and fast-moving institutions causes change, it is the interaction between that institutional change and technology that drives economic growth. (Roland, 2004)

In fact, the most effective way to spur demand is to access future generations, by mainstreaming advocacy campaigns through education. Some countries, like Bangladesh and Thailand, have already included sanitation in school curricula. More than basic hygiene knowledge, introducing sanitation in advanced or tertiary education systems can also accelerate the innovation speed in the private sector. This allows firms to adapt to changing economic and environmental circumstances, predict needs and demand and thus contribute to the increasingly fast pace of cultural and economic evolution which is taking place (Van den Bergh et al., 2003).

Building on Social Norms

87 per cent of the ESCAP survey respondents agreed that there are cultural norms and practices that can promote or contradict basic sanitation and hygiene standards. These norms should be identified and people can be adequately informed about the health risks associated with cultural practices. Informed decision-making is possible, even in the most remote areas, thanks to improved communications and technology.

Additional recommendations made by the experts included good practices and knowledge exchange between communities (4 responses out of 15). Lessons learned are better assimilated if there are tangible examples in neighboring towns or villages, which can demonstrate the sanitation benefits. Two responses

also went even further and added the local initiatives “recognition”, either through awards, the media, or other mechanisms that raise visibility and create incentives. Some successful examples are analyzed in Chapter 2.

3.4 Priorities for regional cooperation

Regional Capacity Building

The majority of the survey responses indicated that the most important role for regional organizations is capacity building of governments on options for institutional improvement. Regional knowledge hubs can gather institutional experiences from various countries, identify lessons learned and provide advice on governance.

A possible research and capacity building example is shown in Box 6. Such research and accompanying trainings would provide governments with the long-term ability to manage sanitation in a coordinated manner, plan investments, respond to emergencies and build long-term internal capacity for policymaking.

Regional Knowledge Sharing

The proposed institutional changes are perhaps appropriate in some settings, but not in all. In setting the framework for this analysis, it was stated that slow-moving institutions, which usually drive political, legal and financial reform, are very location specific. Subsequently, these reforms are perhaps not appropriate in all settings.

Box 6: Capacity Building: Explaining the costs of inaction

Sanitation pays for itself many times, so there is a lot of potential for dialogue. Regional organizations can help explain the costs of inadequate sanitation and quantify the benefits of investments in sanitation, which usually help the economy as a whole. For example, the WHO commission on macroeconomics and health 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. While 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 per cent. Sanitation improvements are thus likely to have a dramatic impact on long-term economic development, particularly in countries that currently have low sanitation coverage and high infant mortality.

The accurate economic valuation of sanitation services should include the benefits to health and the environment, particularly for the poor. Adequate environmental valuation of costs and benefits of sanitation can guide policies that induce private sector participation. Sanitation should be brought at the top of the political agenda and in order to achieve that, the economic benefits of sanitation need to be explained. Bringing dignity and health for all necessitates evidence-based information and advocacy.

The institutional transplanting problem notwithstanding, the proposed framework underscores the cross-cultural ideas exchange, as a way to accumulate knowledge and create greater potential for fast-moving institutional change. Regional cooperation cannot be overemphasized, as a knowledge exchange forum that can hopefully lead to closer inter-cultural understanding and change.

Knowledge sharing should include successful community initiatives. Although sanitation solutions are often local, different countries can have similar problems and regional organizations are well placed to help transfer these experiences from one country to the next.

Donor approach harmonization

Together with the role of regional organizations in transferring knowledge, another identified priority was assisting governments in identifying investment options and providing possible fund-raising mechanisms.

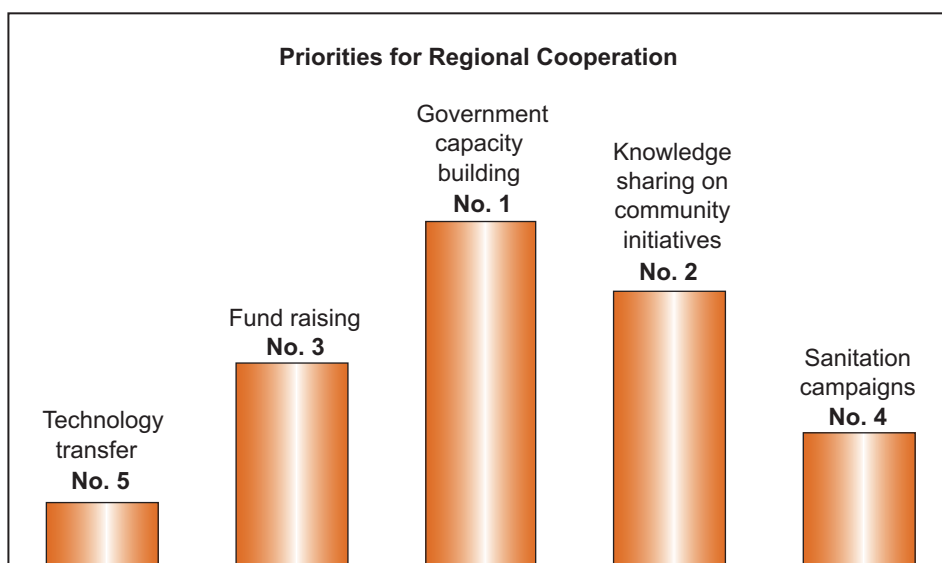
Securing financing for investment in sanitation remains a great challenge in many developing countries where different sectors compete for limited funding. International donors play a great role in initiating investment in developing countries. While international aid has been rising steadily since the 1990's, the share to water supply and sanitation has decreased. The 2006 Human Development Report argued that aid flows should rise by about US\$ 4 billion each year, if sanitation and water goals are to be met. Aid should also flow more to the region's least developed countries, rather than middle-income ones.

In seeking assistance from donors, an identified priority was sanitation campaigns. As seen, a change in attitude is more than critical, if unsustainable practices are to be eliminated.

Technology transfer

The last identified priority for regional cooperation was technology transfer. In theory, technology transfer can be facilitated by regional bodies, which bring together specialists from different countries and communities. Through their role as fora for information exchange on successful and cost-effective sanitation solutions, regional organizations can also assist in informing countries about *available* technologies. However, *appropriate* technologies tend to be specific to the geographic, economic, social and cultural conditions in specific locations.

Figure 6: Priorities for regional cooperation ranked (average of survey responses)



3.5 Priorities for SACOSAN and EASAN

Subregional bodies like SACOSAN and EASAN have a crucial role to play in facilitating the member countries' efforts to improve sanitation. Yet the responses were varied when it came to identifying a priority role for them. 60 per cent of responses perceived these bodies to be agents for technology transfer (9 responses) and another 60 per cent emphasized general knowledge sharing on good practices. Almost 50 per cent of responses (7) pointed out that these organizations should also assist with securing financing and in capacity building on options for institutional change. However, only four responses indicated that these bodies should run sanitation and hygiene campaigns. The modalities through which SACOSAN and EASAN can play these roles were not elaborated in the questionnaire (Annex 1)

An additional point made in the survey by 4 independent responses (out of 15) was that enough goals have been set and promises have been made. The governing bodies focus ought to shift to establishing specific action plans, sanitation standards setting and appropriate monitoring and evaluation mechanisms. Follow-up to the existing declarations should come to the political agenda top. One more response pointed it out that these bodies could also keep drawing policymakers' attention to sanitation goals and targets.

Finally, three responses indicated the need for sanitation solutions in disaster, particularly as climate change may increase extreme weather events and cause rise of the sea level.

To effectively address future challenges, it is important to incorporate **climate change impacts** into planning processes and improve enforcement of regulations.

3.6 Other issues of regional importance

Climate change and disaster-proof sanitation was also raised as a general area of importance. On a related issue, three responses raised the links between poverty and the environment, which should be more closely examined. Poor sanitation and untreated wastewater does not only affect human health directly. It can also threaten livelihoods, by affecting crops and livestock and hence further worsen the socio-economic conditions of the poor. Box 7 gives an example of a water and sanitation investment programme that miscalculated the impacts of climate change and may become obsolete in the future.

Box 7: Climate Change impact on Urban Water and Sanitation: Ho Chi Minh City, Vietnam

A study of the impact of climate change in Ho Chi Minh City (HCMC), Vietnam, revealed how unprepared many urban centers are for climate change. Currently, HCMC has a major system of canals and waterways running through, which help drain the rainfall and flood waters. These canals, however, are severely polluted from domestic and industrial wastes and are often blocked by sediment, rubbish and water weeds.

Climate change predictions for HCMC conclude that by 2050 storm surge, tidal flooding and extreme monsoon rains will be the most serious concerns for HCMC. The effect of sea level rise will be comparatively small (26 cm increase) but a tipping point exists at around 50 cm, where the impacts will severely damage infrastructure and affect livelihoods.

More intense rainfalls may end up transporting contaminants and sediments into water bodies, overloading wastewater treatment systems. Storm activity and sea level rise is likely to increase the salinity levels in rivers and the infiltration of saline water into groundwater resources. Increases in flooding are also likely to increase incidence of water borne diseases, as floodwater could be easily contaminated by sewage overflowing from pit latrines and septic tanks.

By 2050, the estimated HCMC population is about 25 million people, half of which could be affected by extreme events. In order to deal with future challenges, the nine existing wastewater treatments plants are being upgraded to meet discharge volumes and another eight are being built to cover demand by 2025. However, **the upgrade and planned new treatment capacity is unlikely to address drainage needs beyond 2035**. Furthermore, consideration of location for the projects has not considered climate change impacts, such as the potential extent of extreme flooding events.

The city also committed to building an extended dyke system, at a cost of USD 750 million. This proposed flood defense measure considered sea level rise (70 cm by 2010) and one in 30 year storm event, **but did not take into account the two climate change parameters which the HCMC study found to be the most influential in flooding, heavy monsoon rains and storm surge**. Governance arrangements, legislation and national standards are in place to address water pollution, but implementation has been slow. In order to effectively address future challenges, it is important to incorporate climate change impacts into planning processes and improve enforcement of regulations.

Adapted from: ICEM, 2009, Climate Change Impact and Adaptation in Ho Chi Minh City, Vietnam, Report Summary, Prepared for the HCMC People's Committee and Asian Development Bank by ICEM – the International Center for Environmental Management, Hanoi, Vietnam.

Some responses reiterated that fund-raising and knowledge sharing are important matters for potential regional cooperation. Bilateral aid institutions should place more emphasis on sanitation, particularly for countries that need it most.

4. Conclusions

The survey and subsequent interviews are not comprehensive as they did not cover all the five ESCAP subregions. However, the region's target countries for sanitation were adequately represented. In 2006, 48 per cent of the population in South Asia was still practicing open defecation, the highest percentage in the world. Open defecation in South-East Asia was at 18 per cent, lower than in South Asia but far from the EASAN goal of universal sanitation. Monitoring and reporting on the progress made in these countries reveals a lot about the region's needs. The sanitation improvements have to be considered in the context of a fast economic growth combined with a fast population growth.

The experiences in the region showed a wide variety in the modalities and methodologies for improving sanitation. Among these, advocacy and awareness creation in the form of sanitation and hygiene campaigns, particularly in rural areas, were most common.

The most important national driver for institutional changes was found to be civil society mobilization, followed closely by community-based initiatives and political leadership. Focusing on the slow-moving institutions, like social awareness and norms, is perhaps the most reliable and sustainable way to improve sanitation conditions for all.

Various fast-moving political institutions were also assessed, such as creation of an anchor institution, integrating sanitation into other national plans and increasing community participation. Many of these are measures that a government can take overnight, if the conditions are favorable.

Information received from the responses was rich with respect to presenting key recommendations in promoting sustainable sanitation infrastructure at the local level. Financial sustainability was a key concern and a unanimous recommendation was the establishment of household contributions. Adequate support for the extreme poor was also identified as key condition.

Integrating water supply and sanitation solutions is also a way of ensuring that households will pay for the service, since they tend to assign very high value to water access. Integrated water supply and sanitation infrastructure also has the benefit of eco-efficiency, as it locks-in water use patterns that respect the environment.

Capacity building of governments in implementing institutional changes was found to be the top priority for regional cooperation in sanitation. It was followed by knowledge sharing on community initiatives (second) and assistance on fund-raising (third). Knowledge sharing and technology transfer were the key recommendations for bodies like EASAN and SACOSAN, but several responses added the need to translate existing commitments and vision into action.

National efforts to meet sanitation goals need to not only fit in the political and institutional setting of the country in question. They also ought to address the major concerns in environmental conservation, and to be people-centered and community-oriented.

The survey highlighted the new risks posed by climate change and disasters. Emerging risks demand innovative technologies and solutions for sanitation. Affordability, sustainability and conformity with local cultural practices should be key criteria for planners and policymakers. A focus on raising the sanitation profile to include wastewater is also particularly relevant. Sanitation investments should not be made just in latrine extension programmes, but in improved sludge and wastewater management. Not integrating those aspects into an overall national development plan may result in the undoing of some existing initiatives.

The regional experiences analysis suggested that the sanitation integration into economic and social development plans be viewed as a contributor to the overall developmental goals and not as

another strain on national budgets. Adequate sanitation not only brings dignity, but more importantly it brings health to individuals, and in the process raises productivity as it reduces time away from work or school and therefore contributes to the equitable and sustainable economic development of modern societies.

In general, the progress in implementing institutional changes was found to be good. Although hygiene and sanitation campaigns were effective tools for promoting sanitation goals, uplifting the current standards and sustaining the improved goals requires institutional support. Such improvements need to be part of, and integrated within the national development plans.

Support for civil society mobilization, community based initiatives and political leadership may need to be institutionalized as well, within the national development plan initiatives. Economic theory stipulates that large groups of people, with stakes in institutional change, may find it difficult to get organized and solve their collective problem (Olson, 1971, as cited in Roland, 2004). This incapacity can perpetuate inefficient institutions and poor performance (Roland, 2004). Civil society organization enables such negotiations to take place and carry the message to governments. Also, civil society can – in a crisis – organize itself in order to bring about change.

Annexes

Annex 1: The survey

Following the Hashimoto Action Plan of the United Nations Secretary-General's Advisory Board on Water and Sanitation, the General Assembly of the United Nations through its Resolution A/C.2/61/L.16/Rev.1 dated 4 December 2006 declared 2008 as an International Year of Sanitation (IYS). The resolution expressed concern on the slow and insufficient progress made in achieving the global sanitation target, and recognized that progress can be made through active commitment and action by all States, including at the national and local levels, as well as United Nations agencies, regional and international organizations, civil society organizations and other relevant stakeholders.

Between September and October 2008, the Water Security Section of the Economic and Social Commission for Asia and the Pacific (ESCAP) conducted a survey in the Asian and Pacific region to identify achievements and delays in institutional changes required to achieve sanitation goals. As part of the survey, a questionnaire was sent at the beginning of September 2008 to members countries through the regional offices of the WHO and UNICEF. The list of respondents is indicated in Table A.1. Despite a tight deadline, national agencies and experts participated actively in the survey. In most cases, the questionnaires were sent to ESCAP by e-mail, either directly or via the country WHO or UNICEF offices. The assistance and support of the regional offices of WHO and UNICEF constituted a key element in the conduct of this survey and instrumental for obtaining these responses.

The outcomes of this research were discussed and analyzed with government representatives at a regional workshop, held back-to-back with World Toilet Expo and Summit. The main outcomes were also presented to representatives of civil society and NGOs at the 2nd International WASH Practitioners' Marketplace and Fair, in Cox's Bazaar, Bangladesh. The following analysis builds on the survey, as well as the following discussions.

Table A.1: List of returned questionnaires

	Country	Organization
1	Bangladesh	Department of Health Engineering
2	Cambodia	Ministry of Health
3	Indonesia	Ministry of Health
4	Lao PDR	Ministry of Health
5	Nepal	Ministry of Physical Planning and Works
6	Palau	Ministry of Health
7	Philippines	Department of Health
8	PNG	WHO
9	Sri Lanka	UNICEF
10	Sri Lanka	National Water Supply and Drainage Board
11	Thailand	Ministry of Public Health
12	Timor-Leste	Ministry of Health
13	Vanuatu	Ministry of Health
14	Vietnam	Ministry of Health
15	Vietnam	UNICEF

Main elements of the survey

The design of the questionnaire needed to be based on the above information and on the rich experiences of the United Nations, through its various publications particularly those guidelines and documents such as the “Progress on Drinking Water and Sanitation” (WHO/UNICEF, 2008), the “Beppu City Declaration” (EASAN, 2007), the “Human Development Report 2006: Beyond Scarcity” (UNDP, 2006), the “Hashimoto Action Plan” (UN, 2006), the “Islamabad Declaration on Sanitation” (SACOSAN, 2006), the “Dhaka Declaration on Sanitation” (SACOSAN, 2003), and the “Universal Sanitation in East Asia: Mission Possible” (Joint Publication of WHO/UNICEF/WSP, 2007).

The questionnaire adopted in the survey included the following aspects of the national experiences on institutional changes enacted to improve sanitation in ESCAP member countries: key institutional change examples and their nature (legal, policy-related, financial management-related, administrative), key drivers of change (political leadership, civil society mobilization, community based initiatives, international aid, private sector participation), the necessary conditions for sustainable improvement of sanitation (institutional conditions, financial conditions, technical conditions and social awareness conditions), successful case studies, and key priority issues of regional cooperation.

It should be noted that the above design for the questionnaire took into account the results of previous efforts to capture the importance of institutional changes, particularly the training material “Governance in the Urban Sanitation Sector” (Sandec-UNITAR-WBI, 2008) and the lessons learned of the ESCAP project on “Integrated Pro-Poor Water and Wastewater Management in Small Towns”, which assists local governments and their civil society partners, including the poor, to develop integrated and participatory strategies for water and wastewater management.

The results are reported in the following two sections. Section 2 will present the outcomes of the standardized questions. Section 3 will present some of the major achievements and good practices reported by the 13 countries, as they relate to existing commitments made through SACOSAN, EASAN and the Hashimoto Plan of Action.

Summary of findings

In order to provide the readers an overall picture of the survey, the following statistics are extracted from the 15 returned questionnaires:

- 15 completed questionnaires along with additional information were received from sanitation-related agencies in 13 regional members of ESCAP. These responses covered three of the five subregions of ESCAP: Central Asia (0), North-East Asia (0); Pacific (3), South and South-West Asia (3) and South-East Asia (7).
- 9 responses were from national government agencies, two from the country UNICEF offices and two from the country WHO offices;
- 21 cases of major institutional changes were reported in the questionnaire. The highest frequency of institutional changes referred to the creation of a *national coordination mechanism* for sanitation (9 cases). The most important driver for change in sanitation was identified to be civil society mobilization (13 answers), followed closely by community-based initiatives (12) and political leadership (11) and international aid (10.) Capacity building of governments was identified as the first priority for regional cooperation, followed by knowledge sharing on successful – community-initiatives (2nd rank) and by providing assistance to raise funds for investment in sanitation (3rd rank).

The information provided in the completed questionnaires was compiled in Table A.4. The main findings are summarized below. Most of the answers are evaluated per questionnaire (total of 15),

as they reflect personal experiences and views of the drafters. Note should be taken as some answers (Q2) are aggregated and analyzed per country (total of 13 countries have answered), as they relate to national practices/policies.

Table A.2: Countries that have undertaken institutional changes

Type of reform	Total	Countries (Abbreviations provided)
Coordination reform	45%	BAN, CAM, LAO, NEP, SRI, TLS, THA, VAN, VIE
Legal and planning reform	27%	BAN, CAM, NEP, PNG, SRI, TLS
Decentralization reform	18%	BAN, INA, THA
Financing reform	18%	BAN, INA, THA, VIE
Public awareness promotion	18%	LAO, PLW, THA, VAN
Technological reform	9%	PHI, VIE

Ongoing/Completed institutional changes

The information provided by the completed questionnaires illustrates a general picture of achievements, particularly since 2003, in the institutional aspects related to sanitation. Table A.2 provides a categorization of the institutional changes, as identified in the responses.

The responses to question 2 (Q2) from member countries indicated that **nine (9)** out of the thirteen (13) countries have established a coordination mechanism for sanitation issues (e.g. National Coordination Mechanism, National Committee on Sanitation, Steering Committee on Sanitation etc.). These committees usually consist of representatives from all the Ministries that influence sanitation decisions or are mandated to help in meeting the MDG on sanitation. They can also sometimes involve local governments.

An additional *policy* change was the integration of sanitation in existing national plans (National Health Plan, National Water Supply Plan etc.) in six countries. Furthermore, two countries reported to have produced strategy documents or drafted policies specifically for sanitation improvement. In one case, an independent Ministry of Water Supply and Drainage was established and mandated to deal with sanitation (Sri Lanka).

Figure A.1: Most cited institutional changes since 2003

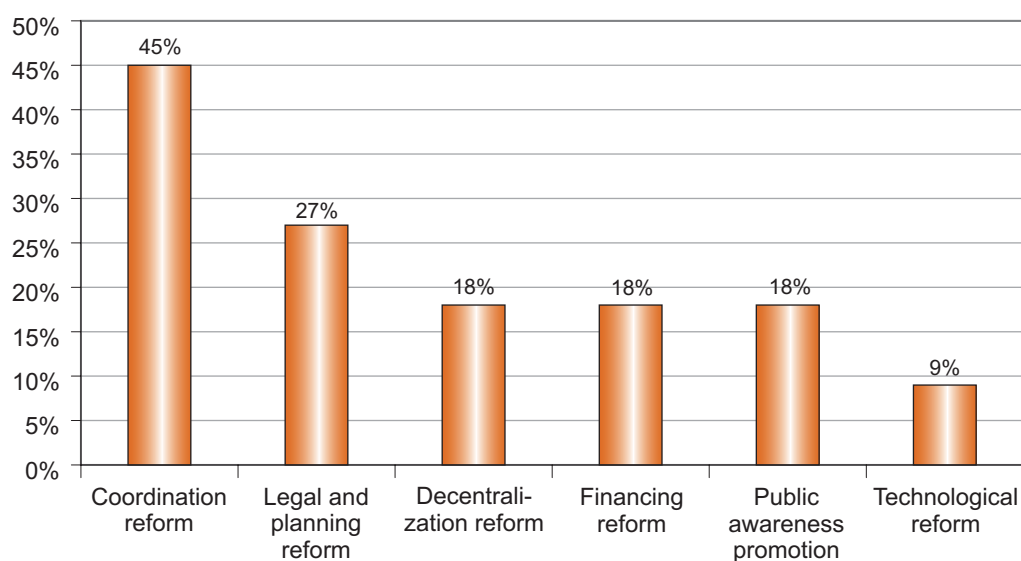


Table A.3: Types of institutional changes in 22 reported cases

Legal/Administrative/Financial	Total	NO (22) ^a	Total	NO (22)
Policy and planning reform			27%	6
Strategic Document/Policy (Legal)	23%	5		
Integration of sanitation into existing Plan	5%	1		
Coordination reform			45%	10
Coordination Group/Committee/Mechanism	41%	9		
Creation of a Special Ministry	5%	1		
Decentralization reform			18%	4
Decentralization initiatives	5%	1		
Distribution of budget to local authorities	14%	3		
Financing reform			18%	4
Ministry of Finance Involvement	5%	1		
Local government budget matched by the central government	14%	3		
Technological reform			9%	2
Quality control initiative	5%	1		
Appropriate technology identification	5%	1		
Public awareness promotion			18%	4
Awareness campaign (Household, school)^b	18%	4		

NO: Number of occurrences.

^a Some institutional changes may have had elements of more than one type of change.

^b Campaigns are not really institutional changes but as they were included in few Q2 responses, they are reported.

Achievements in *financial planning* were also identified, but were more limited in scope. In one case the Ministry of Finance joined national fora on sanitation, to ensure that adequate weight was placed on financing for investment. In another case, the national government pledged to match local government expenditures on sanitation, to encourage sanitation budgeting at the local level. In a third case, Local Government Institutes (LGIs) were given block allocations to promote sanitation and hygiene, which they would manage themselves.

Little progress was made in *administrative* decentralization. In fact among all 21 cases studied, only three (3) of them institutionalized decentralization in managing sanitation funds or decisions. Implementation of the many new initiatives took place at the local level, but little was done to institutionalize this practice, by providing increased financial and decision-making authority to the local level.

Table A.4: Summary of responses to the questionnaire

Q1. Description of good practices or lessons learned in promoting sanitation since 2000
Examples from case studies presented in the text of the report (Section 2.2)
Q2. Most Important institutional changes and resulting achievements or lessons learned since 2000

See Tables A.2 and A.3 for a summary of responses

Q3. Conditions for and requirements for institutional changes

a. Please indicate which factors have been the overarching drivers of institutional improvements

Drivers of change (up to date)	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
<i>Standardized answers:</i>					
Political Leadership	3	1	7	73%	11
Civil society mobilization	3	3	7	87%	13
Community-based initiative	3	2	7	80%	12
International Aid	2	2	6	67%	10
Private Sector Participation	3	1	5	60%	9
<i>Other: (added by respondents)</i>					
Coordination mechanism	0	0	1	7%	1
Empowerment of Local Governments	1	0	0	7%	1

b. What are the necessary requirements for improving sanitation (in future)

Institutional	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
<i>Standardized answers:</i>					
Anchor Institution	4	2	7	87%	13
Independent Regulator	0	0	4	27%	4
Increased Responsibility of local communities	4	3	8	100%	15
<i>Other: (added by respondents)</i>					
Coordination mechanism and sector-wide approach	2	0	2	27%	4
Develop/Update Policy	0	0	1	7%	1
Focus on vulnerable groups/slum areas	1	0	0	7%	1
Financial Conditions	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
<i>Standardized answers:</i>					
Improved national budgeting	4	3	6	87%	13
Private Sector Participation	2	2	8	80%	12
Access to microfinance	4	1	8	87%	13
Household contributions	4	3	8	100%	15
<i>Other: (added by respondents)</i>					
Proper valuation/Environmental costs	1	0	0	7%	1
Political Leadership	1	0	1	13%	2
Support to poor people	1	0	0	7%	1
International Aid/Development partners	1	0	0	7%	1
Technical conditions	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
<i>Standardized answers:</i>					
Adequate staff training on complex infrastructure	4	3	5	80%	12
Better understanding of sustainable and traditional solutions	4	3	8	100%	15
Knowledge sharing on good practices	4	2	8	93%	14
<i>Other: (added by respondents)</i>					
Improve capacity for policy formulation	0	0	1	7%	1

Simple/Affordable technical options	2	0	4	40%	6
Ecological Sanitation	2	0	0	13%	2
Specialized solutions, example for flooded areas	1	0	1	13%	2
Provide training to the private sector	1	0	0	7%	1
Social Awareness Conditions	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
<i>Standardized answers:</i>					
Promotion of hygiene through sanitation	4	3	8	100%	15
Identification of cultural practices and lessons learned	4	3	6	87%	13
<i>Other: (added by respondents)</i>					
Demonstrate through pilot projects/good practices	1	0	4	33%	5
Grants for achievement to local governments	1	0	1	13%	2

Q4. Priorities for Regional Cooperation

a. Based on above, what do you think is priority issue for regional cooperation

	SSWA (4)	PI (3)	SEA (8)	Total ⁹	Priority Rank ¹⁰
<i>Standardized answers:</i>					
Help raise funding for investment in sanitation	14	8	16	38	NO 3
Focus on technology transfer	20	9	19	48	NO 5
Capacity building of governments on options for institutional improvement	9	3	14	26	NO 1
Knowledge sharing on successful community initiatives	12	5	19	36	NO 2
Organization of sanitation campaigns	15	9	21	45	NO 4
<i>Other: (added by respondents)</i>					
Coordination mechanism	1	0	0	1	
Change social and environmental conditions	1	0	0	1	
Political Leadership	1	0	0	1	
Formulation of guidelines	2	0	0	2	

b. Recognizing the importance of existing regional initiatives, such as SACOSAN, EASAN, please identify priorities

	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
<i>Standardized answers:</i>					
Help raise funding for investment in sanitation	1	1	5	47%	7
Technology transfer	2	2	5	60%	9
Capacity building of governments on options for institutional improvement	0	2	5	47%	7
Knowledge sharing on successful community initiatives	1	2	6	60%	9
Organization of sanitation campaigns	0	1	3	27%	4
Coordination mechanism	1	0	0	7%	1
<i>Other: (added by respondents)</i>					
Translate commitments into action plans	0	1	3	27%	4
Draw Policy Attention	1	0	0	7%	1
Monitor progress to narrow sanitation gap	1	0	0	7%	1
Waste Management	0	1	0	7%	1
Disaster/Climate Change/Groundwater protection	1	2	0	20%	3

NO: Number of occurrences.

⁹ Calculated as the sum of Rankings (1-5) in all questionnaires.

¹⁰ Lowest sum indicates the highest priority, since 1 is highest priority and 5 is lowest.

Q5. Other issues to be addressed

All added by respondents:	SSWA (4)	PI (3)	SEA (8)	Total	NO (15)
Advocacy for funding through bilateral (e.g. AUSAID) and multilateral organizations (e.g. UNICEF)	1	0	4	33%	5
Technology transfer	0	1	1	13%	2
Knowledge sharing on successful community initiatives	0	1	4	33%	5
Capacity building of governments on options for institutional improvement	0	1	2	20%	3
Sanitation campaigns	0	0	1	7%	1
Urban Sanitation mainstreaming	2	0	0	13%	2
Environment and poverty	1	1	1	20%	3
Disaster/Climate Change/Groundwater protection	1	0	0	7%	1

SSWA: South and South-West Asia, PI: Pacific Islands, SEA: South-East Asia, NO: Number of occurrences.

Annex 2: Outcomes from Macao

In follow-up to activities related to the International Year of Sanitation, ESCAP organized a regional workshop back-to-back with the 8th World Toilet Summit, on 4-6 November 2008. The focus of the workshop was on institutional changes needed to attain the MDG on sanitation. The outcomes and recommendations of the Macao, China meeting have served as input to the preparation of the Secretary-General's report on the implementation of IYS to the General Assembly at its sixty-fourth session in 2009. In Annex 1, the survey questionnaire was presented, which was prepared to highlight good practices and lessons learned from ESCAP member countries on the improvement of sanitation and to promote consensus on priority issues related to institutional changes to be implemented to achieve the MDGs on sanitation. The findings of the survey were discussed at length in the Macao regional meeting. Table A.5 gives an overview of the responses given in the outcome questionnaire.

Table A.5: Outcome of the Macao evaluation questionnaires:

Answer provided by Macao workshop practitioners (13 responses)	# of answers	Per cent
Most important needs in institutional changes at regional level		
Capacity building at government and local level (but on what?)	5	38%
Knowledge Sharing mechanism	4	31%
Prepare policies on water supply and sanitation sectors	3	23%
Monitoring and evaluation system	3	23%
Identify funding	3	23%
Coordinate regional partners and cooperate	3	23%
Pressure groups to push governments	2	15%
(Regional) Pilot project with cost recovery (e.g. ECOSAN, biogas digester etc.)	2	15%
Sustainability (planning, implementation, monitoring)	1	8%
Regional research center	1	8%
Private sector participation	1	8%
Decentralized sanitation	1	8%
National strateic plan on sanitation and hygiene	1	8%
Effectiveness of interventions	1	8%
Good, inspiring leadership at subnational levels	1	8%
Training	1	8%
IEC Share information and Technology	1	8%
Emerging issues – Climate Change/Disaster	1	8%
Most important needs in institutional changes at national and local levels		
Responsibilities and coordination between sectors	5	38%
Educational Campaigns on health and hygiene at all levels	4	31%
National strategy on (rural) sanitation	4	31%
Political support to implement sanitation activities	4	31%
HR capacities	3	23%
Capacity building of entrepreneurs in local areas	3	23%
National budget to supporty communities/Decentralization	3	23%
National budget line for sanitation	3	23%
Coordination with and support for decentralized institutions	3	23%
Community participation (CLTS)	2	15%
Harmonize subsidy policies	2	15%
Create leadership equiped with necessary information	2	15%
Low-cost approaches	1	8%
Empower leading agencies	1	8%

Answer provided by Macao workshop practitioners (13 responses)	# of answers	Per cent
Regulation of private sector involvement	1	8%
Appropriate Technologies	1	8%
Develop Action Plan	1	8%
IEC Strategy needs a plan	1	8%
Coordination between government and donors	1	8%
Monitoring and evaluation system	1	8%
Potential approaches to enhance regional cooperation		
Strengthen regional cooperation, experience sharing, M&E , best standards	8	62%
Advocate to leaders (including governments, donors , private sector)	3	23%
Capacity building	2	15%
Knowledge sharing mechanism in one website	2	15%
Study visits between countries	2	15%
Legal status of sanitation	1	8%
Help with fundraising	1	8%
Consider as a universal issue (beyond MDGs)	1	8%
Role of SACOSAN as evaluator	1	8%
Harmonization of subsidy policies for sanitation	1	8%
Improve outreach – share analysis on institutional changes rather than specific analyses	1	8%
Specify capacity building needs – are we talking about the same thing?	1	8%
Best performers rewarded internationally (NGO + Public + Govmt)	1	8%
Support best performing countries in leading initiative and expanding progress	1	8%
(Regional) Pilot project	1	8%
Bring relevant UN or non-UN partners together to help meet MDGs	1	8%
Is the workshop organized efficiently?		
Yes, learn from others	7	54%
Relevant topics	1	8%
First day not properly organized	1	8%
Yes, need more assistance (?)	1	8%
Yes, except for unclear instruction about change of room	1	8%
No, time was insufficient, workshop could be 4 days long	1	8%
Excellent	1	8%
Are topics relevant to the objectives of meeting and/or your organization?		
Yes adequate	5	38%
Yes useful and relevant	4	31%
Yes, more on legal	1	8%
Yes, gain from experience of other countries	1	8%
50:50, because could not attend other sessions (simultaneous)	1	8%
Yes, can learn from and improve on others' experience	1	8%
Did you have sufficient opportunities to present?		
Yes	6	46%
No, time for presentation was insufficient	2	15%
Yes, but would like to discuss more sanitation technology in urban areas	1	8%
Wanted to attend more sessions	1	8%
Yes, but of course time was limited to present all our ideas	1	8%
Yes, adding sanitation through school health promotion at school children, FRESH	1	8%

Answer provided by Macao workshop practitioners (13 responses)	# of answers	Per cent
Is the workshop relevant to IYS?		
Yes	3	23%
Yes, focus on partnerships	2	15%
Yes, institutional aspects received less attention this year	2	15%
Yes, both urban and rural	1	8%
No, IYS not mentioned much	1	8%
Yes, implement workshop recommendations	1	8%
Yes, small group discussion gave a lot of opportunities/ideas	1	8%
Partly, toilet activities relate to handwashing and other hygienic practices	1	8%
Yes, Many different topics presented	1	8%
Was the workshop useful for your organization?		
Yes, brought in knowledge of what others are doing	4	31%
Yes, very pertinent topics	2	15%
Yes, more focus on topics?	1	8%
Yes, water supply and sanitation	1	8%
Yes, raise profile of activities at national level	1	8%
Yes, opinions of governments	1	8%
50:50, because we also need to learn how to monitor and also how to expand to urban areas	1	8%
Yes, need to recommend Action Plan	1	8%
Yes	1	8%
Yes, need to build strong partnership with ESCAP specially in achieving MDGs	1	8%
What kind of assistance do you think ESCAP should provide to your country or organization as follow-up?		
Maintain contact to review follow-up actions on recommendations	3	23%
Develop indicators and monitor	2	15%
Training and capacity building	2	15%
Observe how developed/successful nations ensure sanitation related programmes are implemented successfully – the role of Ministry of Health	2	15%
Pilot project with cost recovery (e.g. ECOSAN, biogas digester etc.)	2	15%
Rural water supply and sanitation	1	8%
Local level research on sanitation	1	8%
Provide funds for implementation	1	8%
Assist national MDG committees in adopting workshop recommendations	1	8%
Assist with Action Plan	1	8%
Share information	1	8%
Any other remarks/comments?		
Need additional meetings to concentrate on more technical topics	2	15%
Continue with workshops	2	15%
Rural meetings, local participants, use money to give hardware	1	8%
More time to discuss countries' actions	1	8%
It would be much more beneficial if we could attend all sessions	1	8%
Need more time for Q&A	1	8%

Annex 3: Outcome from 2nd WASH Fair

2nd International
WASH PRACTITIONERS' MARKETPLACE AND FAIR
10-13 November 2008, Cox's Bazaar, Bangladesh

CALL FOR ACTION

We, the participants of the above referenced meeting commit to keep sharing and further strengthen the exchange of WASH (water, sanitation and hygiene) knowledge, expertise, experience, products and services regarding change and development mechanisms. We have focused on sustainable sanitation and declare the following as our priority advocacy messages collectively and individually:

- Sanitation is everybody's business and concerns all Ministries and other autonomous bodies
- Sanitation is a major community responsibility and calls for pro-active initiatives
- Sanitation is more than a toilet and has many approaches and technologies
- Availability of water for sanitation and hygiene practices is essential

Sanitation service provision requires strong political support from all levels of governance, strengthening of local bodies, community leaders, local champions and other stakeholders. Sanitation coverage must be priority one – for the next few years or until 100 per cent coverage is achieved – among the social development projects of governments in line with its pro poor strategies. Local government should have funds to especially support software for implementation. Additionally, observed gaps between coverage and use must be addressed.

There is a need to increase investments, incl. ring fence funds and revolving funds for sanitation. Incentives and support for implementers should relate to software over hardware to support implementation processes to manage new knowledge, strengthen capacity, facilitating the transfer of skills and capacities across a wide spectrum of stakeholders at various levels. Learning should be closely tied with collective action from grassroots to meet the Millennium Development Goals (MDGs).

As countries push for increased coverage, sanitation, water management and hygiene promotional messages should be anchored on differentiated motivation drivers and take into consideration environmental vulnerability, gender, equity and differences between rural, urban and peri-urban communities. Links to food production, livelihood generation, climate change and personal aspirations are entry points to trigger action for improved sanitation. When appropriate, reduce and recycle sanitation by-products/fractions in a safe manner. School-based sanitation and hygiene education and practices must be supported to make children agents of change. Invest in targeted, innovative communication strategies and social marketing to make use of partnerships with private entrepreneurs and corporations, civil society, academia, media and other stakeholders.

Post project monitoring and support is essential for sustainable sanitation services. Transparency and accountability of procurement and implementation of sanitation services must be strictly observed. We respectfully request the Secretary Shaikh Khurshid Alam, Ministry of Local Government, Rural Development and Cooperatives, Bangladesh, and other key actors to assist in delivering this "Call for Action" to relevant authorities in Bangladesh and other counties and to SACOSAN III in November 2008, Delhi, India, and to other relevant gatherings.

* The WASH Fair was attended by 148 expert participants and government representatives from 14 countries in Asia, Africa, and Europe.

Annex 4: Country papers (UNICEF)

Table A.6: Wastewater and Sludge Management

Country	Treated as national priority	National policy and strategy exists	Targets and implementation plan exists	National investment and funds to implement exist	National implementation is on track	Strategies and plans are localized
Cambodia						
Indonesia		✓	✓	✓		✓
Lao PDR						
Mongolia	✓	✓	✓		✓	✓
Myanmar	✓	✓	✓	✓	✓	✓
Philippines		✓		✓		
Thailand	✓	✓	✓	✓	✓	✓
Timor-Leste						
Vietnam		✓				
Total EASAN	33%	66%	44%	44%	33%	44%

Table A.7: Who is involved in EASAN target countries?

Country	Private sector collaboration is encouraged	Community action and local NGO involvement is promoted	Public support for sanitation is high
Cambodia	✓	✓	✓
Indonesia	✓	✓	
Lao PDR		✓	
Mongolia	✓	✓	✓
Myanmar	✓	✓	✓
Philippines	✓	✓	✓
Thailand	✓	✓	✓
Timor Leste		✓	
Vietnam	✓	✓	
Total EASAN	78%	100%	56%

Source: East Asia Ministerial Conference on Sanitation and Hygiene 2007, collected by UNICEF.

Annex 5: Sanitation and CSR

Businesses operations are usually focused to make profits. Yet opportunities for business entities, as social actors, are expanding beyond making profit. Under '*Corporate Social Responsibility (CSR)*' schemes, corporations are pushing into other socio-economic areas, like environmental degradation and poverty alleviation. Water and sanitation have emerged as important concerns for many corporations. For that reason, The CEO Water Mandate is initiated by the CEOs of six global corporations at the UN Global Compact Leaders Summit in Geneva in 2007.

Unilever

Unilever has reduced its water use in manufacturing through site initiatives. Since 1995, Unilever has reduced by 61.7 per cent the amount of water use per tonne of production by minimizing water usage and maximizing water recycling. In 2007, the company reduced the total consumption of water in their operations worldwide by 4.9 million m³ and the load per tonne of production by 7.5 per cent. For example, home and personal care factories in Pondicherry, India and Rungkut, Indonesia achieved a zero effluent discharge thanks to new systems that treat all wastewater, enabling it to be recycled and reused within the factories.

Levi Strauss

Levi Strauss and Co.'s has launched a Global Effluent Guidelines programme, which aims to reduce environmental, health and safety impacts of untreated wastewater from garment operations. Factory managers abide by wastewater requirements by (a) maintaining proper permits, (b) treating wastewater and sewage, as required, (c) contracting with suitable vendors and certified laboratories to conduct wastewater sampling and analysis, and (d) contracting with a permitted site and a permitted transporter to dispose of bio-solids or sludge. As a follow-up, wastewater sampling and analysis are conducted twice a year to verify the wastewater requirements.

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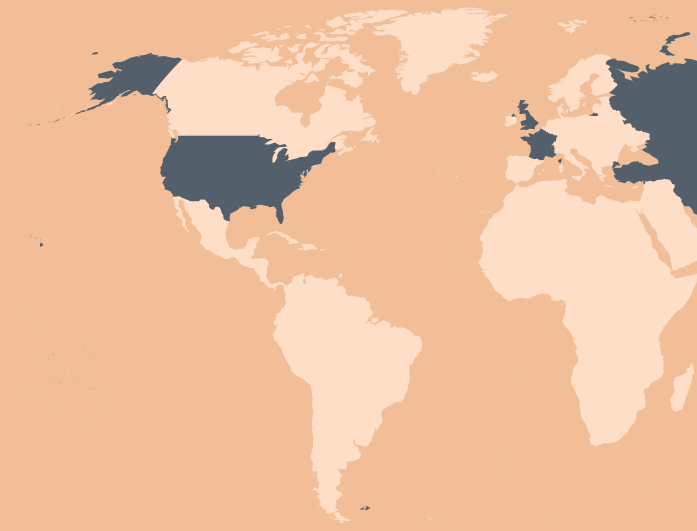
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