

# Economics of Sanitation Initiative (ESI)

## EAP Regional Workshop

Date: 31 March – 2 April

Location: Phnom Penh Hotel, Phnom Penh, Cambodia



## Workshop Report<sup>1</sup>

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<sup>1</sup> Prepared by Guy Hutton, with contribution from workshop participants. Special thanks to Phalla Yin (WSP Cambodia) for playing a central role in organizing this workshop.

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## 1. Summary of key decisions and next steps

**Excel-based tool:** the current version will be overhauled, and will include complete set of formulae (with explanations); will take out the analyses which will not be conducted (e.g. national level CBA); and provide a full set of linking tables and graphics which can be copied directly to Word. Expected timeline: mid-June.

**Template report:** will be refined based on results of workshop. Countries can plan their report writing based on the current draft template, also based on what was discussed in the workshop. The revised template will be more detailed and contain more instructions and proposed text. Expected timeline: mid-June.

**Business survey:** a next questionnaire draft will be circulated on 1 May, for comments from country teams and finalization by 15 May.

**Program approach analysis (PAA):** countries teams are expected to proceed as agreed at the workshop, and share progress reports with WSP, including initial results of the long-listing and short-listing process for program inclusion.

**Until the revised templates are distributed, the most advanced countries will** focus on completing data collection; compiling data; and initial results tabulations.

### **Methodological issues:**

- National impact estimates for tourism and FDI/business will not be made; hence there will be no national-level cost-benefit outputs including these impacts.
- Given that attribution of impacts to households with improved sanitation cannot be distinguished from those without improved sanitation (e.g. health impacts, water impacts), the 'local' and household' analyses will now be merged.
- Actual versus ideal cost-benefit analysis. The initial CBA and CEA results will present 'ideal' ratios based on optimal expected performance of the sanitation options. Actual CBA and CEA results will be presented in a later chapter following PAA results where actual performance is assessed per technology.
- The economic vs financial distinction will receive less focus. Economic costs and impacts will be the main form of presentation of results. For costs and for some impacts (e.g. health expenditure) some presentation of more 'visible' (financial) costs will be made, compared to economic costs.
- International reviews on health impact (risk reductions), burden of disease of sanitation and hygiene-related diseases, value of time and mortality cost will be conducted by WSP and results fed to countries; national reviews on the same topics will be conducted by the study teams. Timeline: same as Excel sheets.

**Products:** standard reports were agreed (long report, short report, 2-pager) and agreements will later be made on additional reports per country (e.g. PAA, focus group discussion, tourism) based on the value-added of each report in each context. Key messages will be refined based on the discussions held at the workshop, and once the preliminary findings are available from each country.

### **Sharing lessons across countries, among others:**

- A field manual in Philippines, elaborated by the consultants (REECS) to ensure standard implementation of the study across all study sites, can be requested.
- Visual aids used by enumerators for the household questionnaire in Indonesia and Philippines helped respondents answer questions quickly and more accurately.

## 2. Introduction

This workshop brought together ESI Phase 2 study implementers and WSP staff from six countries of the East Asia and Pacific (EAP) region to discuss issues related to data collection, data analysis, reporting and dissemination of study findings. The workshop program (see Annex 1) covered two broad themes: on the first day issues of grounding ESI outputs in the needs and demands of sanitation decision makers for economic information were discussed; on the final two days, the key components of the research program were covered, including program approach analysis, local impacts, national impacts and costing. As well as regional WSP staff and contractors, the workshop benefited from the participation of global and South Asian staff representatives, and two of the ESI funding agencies (see Annex 2 for participant list).

## 3. Workshop Opening (Session 1)

The **Opening Address** was made by Mr **Jan Willem Rosenboom**, WSP Cambodia Country Team Leader. Mr Rosenboom welcome the audience to Cambodia on behalf of WSP, noting the participation of resource people from teams in Yunnan, Vietnam, Philippines, Lao PDR, Indonesia, India, and Cambodia, and extending a warm welcome also to partners from ADB and USAID's Eco-Asia program.

ESI was started over 2 years ago and has found a lot of resonance in the region and even globally, linking in with last year's International Year of Sanitation (IYS). We are now in the middle of the last phase, oriented on providing practical guidance to decision makers in selecting sanitation interventions, grounded in better socio-economic evidence.

It is important to realize that ESI is unique; it is the first of its kind examining sanitation economics in so many locations and creating investment scenarios using country data.

The **Regional Perspective on ESI** was delivered by Ms **Isabel Blackett**, WSP-EAP Senior Sanitation Specialist, acting on behalf of Almud Weitz, WSP-EAP Regional Team Leader. Ms Blackett started by examining the reasons why ESI was launched in 2006, which included (a) the lack of response to sanitation as a health issue by high level decision makers; (b) the 'economic development model' being pursued by most EAP countries but little evidence available on the relationship between sanitation and economic impacts; and (c) the need for a response to a overarching need to raise the profile of sanitation in EAP countries.

To assist in this advocacy task - media need numbers and evidence to pick up a story - these were lacking in all WSP-focus countries in EAP, aside from the usual 'numbers without adequate sanitation' - but little news worthy impact of such a situation.

Having started to disseminate ESI Impact results in 2007, the regional and global responses have been most encouraging. The 'gap' identified in EAP seems to apply in other regions as well.

The challenge now is to develop the next Options Study in an equally credible methodology - which is what we are doing this week. The Phase 2 methodology is more complicated, and

may raise many more questions with our clients – therefore, we have the opportunity this week to work on developing the method, so as answer some of those questions.

#### **4. ESI Overview and workshop introduction (Session 2)**

The **Opening Presentation** was made by **Guy Hutton**, WSP-EAP Senior Economist, and overall lead of ESI. The presentation, contained in the workshop folder, introduced the ESI vision, and how to make that vision a reality. The ESI Vision is that:

- Those with influence over sanitation policy making or funding take into account efficiency considerations in their decisions, reflecting the real-life costs and benefits of sanitation programs. (this is the topic of Phase 2: cost-benefit study)
- The amount of funds are increased through a better understanding of the benefits and cost-benefits of improved sanitation and hygiene, and their multiple beneficial effects (this is the topic of both Phases 1 and 2)

In order to achieve this, the ESI aims to:

1. Conduct policy-relevant economic research on sanitation, to strengthen the evidence-base for improved sanitation decision making
2. Capture attention through innovative approaches to quantifying sanitation cost-benefits, and exploring previously unexamined benefits
3. Through a better understanding of costs and benefits, and their determinants, to propose approaches to minimize sanitation costs and maximize sanitation benefits
4. Successfully disseminate and communicate results, conclusions and recommendations, thus creating dialogue with traditional as well as previously untapped sources of support

In order to be successful, ESI Phase 2 needs to be selective in the study scope (human excreta management) and inclusion of impacts (the most important, most easily provable, or potentially powerful for advocacy purposes). Information provided must be relevant to decision makers, thus needing us to distinguish different perspectives: household, local community, and national level; and types of costs and impacts measured: financial versus economic, short- versus long-term. The economic calculations will be based on a model that combines secondary with primary sources of evidence, based on data availability, ESI's budget and the value-added of additional data collection to fill key gaps.

ESI has been designed to have four main components per country:

1. Field surveys: at least four sites or projects per country
2. National surveys and case studies: tourism, business/FDI, and other
3. Program approach analysis: compare ways of implementing sanitation interventions
4. Compilation, synthesis and data analysis: standard methods adapted to country situations

The proposed outputs of ESI were as follows, for further discussion during this workshop:

Country	Long report		Short report		2-pager		Special reports		
	Eng	Local	Eng	Local	Eng	Local	PAA	Tourism	FGD
Cambodia	√	?	√	√	√	√	?	?	?
Indonesia	√	?	√	√	√	√	?	?	?
Lao PDR	√	?	√	√	√	√	?	?	?
Philippines	√	?	√	?	√	?	√	?	√
Vietnam	√	?	√	√	√	√	?	?	?
Yunnan	√	?	√	√	√	√	?	NO	?
EAP Regional	√	NO	√	NO	√	NO	?	√	?
<i>South Asia</i>	√	?	√	√	√	√	?	?	?

Key: Eng – English report; local – national language of country; √ - report proposed; ? – report uncertain.

Various dissemination materials and events used for ESI Phase 1 were presented, to give some perspective on the strategic discussions to be held for phase 2 dissemination. These included long reports, short reports, 2-pagers, cartoons, country workshops, regional events, international events, websites (WSP, World Bank), newsletters (ACCESS, World Bank country newsletters), newspaper articles, radio interviews, TV slots, and an EAP Blog.

The purpose of the workshop is many-fold, specifically to:

- Clarify data requirements and agree standard methods;
- Discuss study implementation issues, and how to optimize the outputs producible with the resources committed;
- Discuss concerns or unresolved issues;
- Support countries/sites where study is at earlier stages (cross-learning);
- Agree support required from the regional level to complete the study;
- Agree form of products (deliverables) and the study outputs (main results) based on their use by target audiences, and how we will disseminate the products and communicate the outputs; and
- Agree work program and time line to complete the study in each country.

In planning the workshop program, an attempt was made to find an appropriate balance between formal communication of knowledge (i.e. in presentations), question and answer sessions, and group work (for brainstorming and consensus-building) with plenary feedback. The four group work sessions over the 3 days proved invaluable opportunities to draw on participant experiences, elicit viewpoints and preferences, and enable cross-learning between country teams.

## 5. Report on country studies (Session 3)

Seven brief presentations were made on country progress in this session:

- Cambodia – Phyrum Kov (WS Analyst, Water and Sanitation Program), Sok Heng Sam (Researcher, Economic Institute of Cambodia)
- Indonesia – Asep Winara – Team Lead, MLD Indonesia
- Lao PDR – Alan Boatman – Team Lead, GeoSystems Lao PDR
- Philippines – Prime Rodriguez – Team Lead, WSP Consultant

- Vietnam – Nguyen Viet Anh – Team Lead, Institute of Environmental Science and Engineering
- Yunnan Province – Liang Chuan – Team Lead, Yunnan Academy of Social Science
- India and South Asia – Somnath Sen – Team Lead, WSP Consultant

**Presentations** were made in similar format by the five WSP-focus countries, by Yunnan Province China (which is involved in WSP’s Mekong regional program SAWAP) and by South Asia. Presenters covered the sanitation coverage, sector challenges and progress, the ESI team and stakeholder involvement, site selection, sample sizes, stage of data collection, positive and negative experiences for the ESI study, and timelines for study completion. In terms of stage of progress, countries can be classified into two main types: countries that have completed field site data collection but not all national surveys yet (Cambodia, Indonesia, Philippines), and countries where the teams are more recently in place, but where data collection is not yet started (Lao PDR, Vietnam, Yunnan). In India, the impact study is already close to finalization in India, and procurement of a firm to conduct survey work for ESI Phase 2 is near completion. In Vietnam, pilot testing has been done on the draft tools; the broader definition of sanitation in Vietnam (including waste water management in urban areas, trade village waste management, solid waste management, and animal waste management) and the 18 instead of 5 study sites, means a longer process of study preparation has been necessary. This includes extension of existing data collection tools.

In all countries, stakeholder collaboration is generally excellent. Local stakeholders have responded with interest and enthusiasm for ESI Phase 2, following the success of Phase 1. In most countries, study plans have been presented to already-existing sector meetings (Cambodia WatSan sector group which meets monthly, Indonesia Sanitation Technical Team, Philippines Environment Network), or else committees have been formed, as in Vietnam (the National Advisory Group, consisting of key government ministries and other partners). In Lao PDR the presentation of the ESI Phase 1 results to a sector group may be combined with a presentation of ESI Phase 2 plans, in the May or June period.

Study sites selected in the countries are highly diverse, and include basic toilets in rural areas (all countries), septage management (Philippines), waste water management approaches in urban areas (all countries), Urine-Diverting Dry Toilet (UDDT) (Philippines, Yunnan) and biogas-linked sanitation solutions (Vietnam, Yunnan). Actual sites per country are greater than the five sites specified in the terms of reference, as many sites or projects break into sub-sites (e.g. San Fernando site in Philippines, all 4 rural sanitation projects in Cambodia). This is partly because different sub-sites offer different types of sanitation option (as in San Fernando) or because a single village does not have the number of household to satisfy the sample size requirements (or around 200-300 households per site). This diversity will add to the usefulness of the findings, and the amount of results presented, but will increase workload at data analysis and reporting stages. In India there will be surveys conducted in 30 villages spanning a range of sanitation options in 6 districts and 3 States, as well as six cities (representing 6 States).

However, some presenters noted that country teams have found supposedly ‘improved’ sanitation options are not working as intended, such as low connection rates to sewer

systems, low treatment rate of waste water flowing to WWTPs (most countries mentioned this problem), latrines kept in an unhygienic state, low use rates of UDDTs, and low levels of hand washing with soap after defecation. This poses challenges for the analysis: do we evaluate interventions as practiced perfectly, or as practiced in reality?

No countries have made significant progress with the program approach analysis – only some long-listing and proposed short-listed projects have been made. Tourism surveys have been completed in Cambodia and Indonesia, and in Philippines the study team awaits the authorization from the airport authorities. As well as two international airports in Cambodia, a sample of 50 tourists was surveyed on the beach.

Countries offered a range of positive and not-so-positive experiences from their study implementation to-date. The Cambodia team reported the importance of sensitizing the field sites on a separate trip before data collection commences, and their good experiences with using local students (from the study site locality) as questionnaire enumerators, who are less expensive than bringing staff from the capital. In Philippines, there was a positive experience with the field manual, which was elaborated by the consultants (REECS) to ensure standard implementation of the study protocol across all study sites. Furthermore, visual aids used by enumerators for the household questionnaire in Indonesia and Philippines helped respondents answer questions quickly and more accurately.

On the not-so-positive, study teams found that the sample size available per sanitation option varied from the stated one (Cambodia, Philippines), partly due to misinformation from the project or due to households changing their practices (e.g. CLTS latrine non-functional; UDDT households stopped using this latrine and reverting to former latrine). Not all projects or sites could provide information before the survey on the types of toilet received per household. All countries have found the household questionnaire very long to apply, and in some sites this made completion of the questionnaire challenging. In Philippines, there was a high rate of refusal among respondents who practice open defecation. In Indonesia it is challenging to identify all the sanitation programs in the country (for the PAA, for example), as many are implemented by decentralized levels. Moreover, the PAA requires data from programs which is not existing anywhere on paper, as programs tend not to evaluate themselves comprehensively nor quantitatively (with a wide range of performance indicators). In Philippines and Indonesia, some public hospitals have refused to provide data to the study. Finally, the large number of study sites (18) in Vietnam, spread throughout the country, presents logistical, workload as well as budget pressure to this team.

In addition to the points raised above, **comments and questions** from the audience focused on:

- Selection of only donor-assisted sanitation programs will give unrepresentative (non-generalizable) pictures of program approaches and costs, with both positive and negative implications for sustainability, when compared with government-funded and implemented programs.
- Should teams who have not yet started field data collection conduct the PAA before the field survey?

- Choose field sites based on the needs for the PAA to have minimum of good quality data on range of program approaches?
- Do we build in inaccuracies to the study by the fact that households may misrepresent their sanitation and hygiene practices, out of shame? This concern is partially addressed by the ‘observational’ component of the household tool (e.g. checking if there is soap, checking the condition of the latrine).
- Some impacts of improved sanitation are outside the population benefiting from a sanitation program (discussed in relation to water quality impacts, when water-based sanitation washes the pollution downstream) – how do we capture these effects? And who do we assign them to?
- In relation to this point, it is difficult to capture the marginal benefits of cleaning up one upstream village, as there are many other villages polluting water resources, as well as other sources of pollution (deforestation, agriculture, industry).
- Due to the complexity and length of the household questionnaire, the proper training of interviewers is essential to the study.
- The study team in Cambodia gives a bar of soap to households who are surveyed, as motivation and as a ‘thank you’. Perhaps this could work in other locations.

## 6. Sanitation and policy making: what is the research need? (Session 4)

Four presentations were made in this session:

- “Economic evaluation and decision making by Guy Hutton, Senior Economist, WSP
- “Sanitation decision making in ADB by Anand Chiplunkar, Senior Water Supply and Sanitation Specialist and Chair of Sanitation Action Group, ADB
- “Good governance: using results of ESI to promote sustainable sanitation” by Linda Shi, Regional Coordinator, ECO-Asia
- “Sanitation decision making in Cambodia” by Chea Samnang, Head of Rural Healthcare Department, Ministry of Rural Development, Royal Government of Cambodia

The presentation by **Guy Hutton** focused on the rationale and current use of economic evaluation in the sanitation field, and the main outcomes of economic evaluation – both traditional and new – which could be used by ESI. Economic evaluation essentially compares the costs and consequences of at least one alternative policy choice. Consequences, or outcomes, can be expressed in various ways: outcomes expressed in monetary (\$) units enables cost-benefit analysis (CBA); outcomes expressed in physical units of improvement, such as health units, enables cost-effectiveness analysis (CEA). The rationale for economic evaluation is clear: (i) resources are scarce and needs are increasing due to demographic changes (ageing, population growth) and higher consumer expectations / standards; (ii) resource scarcity forces choices to be made, given that choices imply a sacrifice or foregone opportunity – what is spend on one program means those resources are not available for another program; and (iii) drive for effectiveness in government and donor policy making requires funds to be allocated to their most efficient uses. Since its heyday in the 1970s and 1980s, CBA has undergone a decline; while CEA (for health decision making) has experienced a significant increase in attention. Current global economic evaluation evidence in the sanitation field is very weak; so ESI will contribute substantially to the evidence-base.

However, given the diverse results coming from ESI, some decisions need to be made to prioritize some types of evidence for selected audiences. For example, for government decision making, should CBA be prioritized over CEA (except in health sector)? Should internal rate of return (IRR) be prioritized over benefit-cost ratio (BCR)? For household level use, should results focus on time taken to pay back investment (in financial terms)? At household level, is benefit-cost ratio easier to understand than the Internal Rate of Return? And to get the private sector involved, should Net Present Value (NPV) or IRR be used, based on income-earning potential?

**Anand Chiplunkar**, of the Asian Development Bank, presented the context of sanitation decision making in ADB – in relation to the ADB “Water for All” Policy. The ADB 7-point water agenda includes, among others: (1) Rural Water Services: to help the poor escape poverty; enjoy drinking water; benefit from improved sanitation; and build vibrant, water-secure communities; and to increase agricultural productivity and ease food prices. (2) Integrated Water Resource Management systems across river basins, to conserve water and clean up the environment for households, rivers and seas, and the “toilet to river” concept: to increase investments in comprehensive sanitation systems. ADBs Water Financing Program allocates 25% of its investment portfolio committed to water and sanitation projects, giving USD 2.7 Billion (2003-07) and USD 1.5 Billion (2008-10). The ADB Water Financing Partnership Facility mobilizes co-financing and investments from development partners, of which 20% is allocated to sanitation. The percentage share of sanitation to total WSS projects ranged from 27% to 76% in 2003-07, and from 44% to 50% in 2008-10. To increase sanitation awareness, ADB has formed a Sanitation Action Group in 2007, released ADB Sanitation Action Plan: "Dignity, Disease and Dollars" at the 2007 Stockholm World Water Week, hosted the 2008 Philippine Sanitation Summit, and supported the Awarding for Best Sanitation Practices. It has released sanitation toolkits and media documentation, and supports ESI, Water Utility Networks, CityNet and UN-Habitat. The ADB – DMC Sanitation Dialogue held in March 2009 brought together all ADB Developing Member Countries, with 6 key themes: economic costs and benefits, political perspectives, community participation, technological options, sustainable financing and private sector participation. Dialogues are now expected to take place at country level, the first one in Vietnam in April 2009. ADB intends to commission a study for the full economic cost-benefit analysis of sanitation, similar to WSP study, but broader. This will include a user-friendly model (used by local governments) and accounting for incremental benefits which will make the picture more convincing.

**Linda Shi** from the Eco-Asia program made a presentation with the title “Good Governance: Using the ESI to Promote Sustainable Sanitation”. ‘Sustainable Sanitation’ is one of Eco-Asia’s four thematic supports, other ones being ‘Connecting the Poor’, ‘Improving Water Utilities’, and ‘Enabling Water Finance’. Good Governance is a cross-cutting theme of Eco-Asia’s program, defined as “The process of decision-making and the process by which decisions are implemented (or not).” **ESI can impact Good Governance in several ways, including** (1) Understanding user demand; (2) Hearing the voices of less powerful groups (women, elderly, poor) in surveys; (3) Conveying findings to decision-makers; (4) Ensuring that findings contribute to sustainable sanitation policies; and (5) Allow users to hold decision-makers accountable. Several of the 10 steps for Public Promotion of sustainable

sanitation are relevant to ESI – namely (1) defining the problem, audiences, and ideal behaviors; (2) gathering information; and (3) focusing on feasible behaviors, audiences, and problems. Various management challenges are also seen as opportunities for ESI to support scaling up sustainable sanitation. Specific ways in which ESI can help include:

1. Select the sample population to reflect society
2. Match survey methods to target group's needs
3. Determine life cycle costs of sanitation options
4. Identify policy and institutional needs and options
5. Engage public agencies from the beginning
6. Connect findings to broader policy initiatives

**Samnang Chea** from the Ministry of Rural Development presented on “Decision making to improve Rural Sanitation in Cambodia”. The presentation opened with the steps to achieving universal sanitation in Cambodia by 2025. Challenges for sanitation include low rural sanitation coverage (16-20%), low priority to the sector (resulting in little activity), little consensus on approach or policy, ineffective hygiene promotion and awareness raising, no strategic planning and little coordination of interventions, and low level of awareness of people in rural areas of relation between good sanitation practices and health. While the Cambodian Prime Minister made very supportive comments to the National Sanitation Forum in late-2007<sup>2</sup>, and decentralized IYS events in 2008 were widespread, advocacy for the sector is still seen as crucial. A strategic plan to improve rural sanitation and hygiene is urgently needed – this is being worked out under the Technical Working Group (TWG) for Rural Water Supply and Sanitation. However, more support from the Ministry of Economy and Finance is crucial; human resources within the key Government agencies need to be strengthened and supported; demand for improved sanitation at the community level needs to be generated; a larger proportion of the commune budgets dedicated for infrastructure need to be allocated to gender and social investment; and commitment is needed towards a harmonized approach of strategic plan implementation.

### **Group Work 1A – presenting ESI results to decision makers**

This group divided target audiences into (a) financiers, at national, sub-national, and local levels; (b) implementers, also at national, sub-national, and local levels; and (c) citizens. For each of these, a series of messages for development were proposed; as well as comparisons needed, and formulation of results.

**Financiers.** The multilateral and bilateral financiers would be interested in inter-country comparative assessments. The national and sub-national financiers would be interested in:

1. Disease incidence & mortality
2. Better condition of environmental resources
3. No sanitation' cost vs 'better sanitation' benefit
4. Cost-benefit outputs: internal return ratio & payback period NPV

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<sup>2</sup> “Lack of Sanitation is one of the factors leading to poverty and hinders the Royal Government's national Economic Development Efforts We should recognize this is not just a personal and family issue, but it is a community one .”

The local level financiers would be interested in:

1. Is there WTP for improved sanitation?
2. What is the personal motivation or benefit (electability)?
3. Impact on health/welfare/education "Sanitation is a community concern"
4. Better sanitation --> better overall savings (health & income)

The different forms of presentation for this group include:

- Peer-reviewed quality reports/publications
- Supplemented with case-study comparisons
- \$1 investment --> x% increase in GDP
- Comparators: sector comparison CB per capita/per sector
- \$1 investment in sanitation vs health spending saved (and compare reduced health expenses/budget due to increased sanitation investments)

**Implementers.** National implementers are interested in:

1. Relative effectiveness of different sanitation options
2. Cost for target coverage; costs & benefits of reaching the sanitation MDG target
3. How to leverage grants to incentivize sub-national investments in sanitation
4. How to reach the private sector?

Sub-national implementers are interested in:

1. Poor sanitation contributing pollutants in main rivers and lakes
2. Economic impacts of poor sanitation on different sectors
3. Detailed cost presentation to base budget division
4. Benefit-cost ratio for each sanitation option

Local implementers are interested in:

1. Acceptability & sustainability of interventions
2. Combining efficiency improvements with new investments
3. Incremental economic values of different sanitation options
4. Selecting affordable and sustainable option – i.e. that can be operated and maintained
5. Select projects that can attract funding from national, sub-national & private sector

**Citizens** are interested in:

1. Individual benefits of sanitation improvement with respect to time, wages saved, expenditure on health, better quality of life & dignity
2. Impacts on property values & community quality of life
3. Benefit of taking 1st step of sanitation ladder and cost of waiting to jump the ladder
4. Reduced case of diarrhea or death through investment in sanitation leads to \$x benefit.

### **Group Work 1B – reporting ESI**

This group proposed length and contents of long and short reports. The long report should be no more than 100 pages, excluding Annexes, as follows:

- Opening pages (TOC, acknowledgements, foreword, executive summary, abbreviations, glossary) – 15 pages

- Introduction – 5 pages
- Methods – 20 pages
- Benefits – 25 pages
- Costs – 10 pages
- Cost-benefit analysis – 5 pages
- PAA – 10 pages
- Discussion, conclusions, recommendations – 10 pages

Annexes should contain surplus methods which cannot fit in 20 pages of Chapter 2 (e.g. algorithms), and long results tables, totaling up to 50 pages. Data collection tools could instead be placed on website, and also in CD-Rom inside the report sleeve. The main contents of these tools can be described in brief in the methods chapter. Benefits chapter should come before the cost chapter. In the main text, the long report should contain an equal mixture of tables and figures, also with some photos. The short report should be 30 pages (like in Phase 1) and an improved format with optimal visual look and mainly using photos and figures. It should be non-technical, easy to read (in under 1 hour), and 2 columns per page.

### Group Work 1C – communicating and advocacy of ESI results

First this group listed the target audiences of ESI results, and assessed the main products relevant for each:

Target audience	Reports			Press release	Stakeholder meetings		Hands-on workshop	Video / Power-point	IEC materials, poster, calendar
	Long	Short	2 page		National	Local			
Politicians		√	√	√	√			√	
Ministry of Economics, Budget, Finance, Planning		√	√	√	√			√	
Local leaders, religious leaders			√	√		√	√		
Academic research institutions	√	√			√				
Technical line ministries	√	√			√	√			
Donors and NGOs	√	√			√	√			
Private sector		√				√			
Local utilities and service providers		√	√			√			
Sanitation suppliers		√	√						
Frontline workers							√		√
Media			√	√	√	√	√		
General public			√	√			√		
Local language (translation)		√	√	√	√	√	√	√	√

Other points raised in group 1c include:

- It gives added impact/acceptability of government has its logo on the reports, and if they write and sign a foreword
- Translation to local languages is important, except the long report (in most countries)
- 6 months intensive phase for ESI dissemination
- We need a proper communications strategy per country
- For follow-on tools and events (workshops, IEC materials) – how should we partner with other agents? Note that Indonesia government has done much more successful dissemination of ESI Phase 1 than WSP!
- For some audience (general public) take into account illiteracy or actual preferences to derive the most effective forms of information
- A short video film will have considerable impact on audiences and can be put up on a range of TV programs, websites, etc.

Some points from discussions in this session:

- There was considerable discussion about the availability of reliable and comprehensive data on sanitation in each of the countries. While this posed a limitation, the ESI was a good way of contributing to this gap. It was also felt that in the recommendations of the report, there ought to be suggestions on a) points of regular data collection; and b) systems and procedures that enabled tracking progress (including follow-up surveys to ESI at later points to compare with the ESI “baseline”. All ESI studies should of course, use the latest data available (and not old data).
- Some countries were also faced with reconciling country data-sets with those reported by the JMP.
- Regional networks should be tapped for dissemination of results and for sanitation advocacy.

Teams are asked to confirm their interest in producing additional reports to be published as WSP research reports or field notes, and any other proposals they have for publications (e.g. academic journal articles). Teams should assess the relevance / usefulness of country-specific tourism-sanitation reports; and FGD and PAA reports.

## **7. Program approach analysis (Session 5)**

This session was opened with a **presentation from Jeremy Ockelford**, who is the consultant leading the PAA in the Philippines. First he reminded the participants of the overall aim of the PAA and how it fits into the ESI objectives: “The PAA will provide the evidence-base for a more complete understanding of the link between different program approaches and the eventual efficiency and impact of the range of sanitation options evaluated within research components 2 and 3 of the same study”. The key point is that, even if one has technically good interventions, if they are poorly implemented, the intervention will not have its intended consequences.

It was clarified that the secondary aims of the PAA should not consistute another major body of work, but a set of conclusions resulting from the PAA itself:

1. to provide an overview of current practice in relation to sanitation program evaluation
2. to identify major gaps in understanding of program performance
3. to provide recommendations for improved monitoring and evaluation of sanitation programs

The remaining presentation reminded the audience of the key steps provided in the guidance document on long-listing, short-listing, data compilation and data analysis. Case studies from the Philippines highlighted the high existing coverage levels but not “safe” due to poor septage management. Projects to address this do not necessarily focus on households (sludge tankers and sludge treatment) except for payment and affordability. Also projects do not always aim to provide new coverage, but target repetition (maintenance, replacement) or conversion (e.g. to ecosan).

For the short-listing, it was suggested to add in the classification (see *italics*):

- Target Population
- Intervention type
- Implementing and financing agents - *sub-divide “Implementer” and “Finance agent/donor” and add “Technical support agent”.*
- Implementation approaches – to the CLTS, sanitation marketing/informed choice, supply-driven, to add: *strategic (urban-wide) sanitation, and hygiene behaviour change*
- Financing approaches
- Partnerships
- Suggest adding: *Technology approaches*

For the performance assessment, it was suggested to add in the classification (see *italics*):

- Demand-responsiveness
- Supply-side strengthening
- Physical (hardware) achievements
- Behaviour change communication (software) achievements
- Economics and financing (including capital contribution and O&M management costs)
- Institutional drivers and sustainability of arrangements
- Outcomes
- *National policies and strategies*
- *National and local guidance and other supporting materials*
- *People and institutions at the various levels (e.g. lack of capacity in LGUs in Philippines, political will at local level)*
- *Supporting organizations: technical advice, capacity development and donors*
- *Time duration and scalability*
- *Monitoring and evaluation*

Sources of data for the PAA conduct include:

- Project documents, supplemented by interviews with project staff (fill gaps, interpret results)

- Interviews with other stakeholders and resource people, and 3<sup>rd</sup> party data
- ESI field surveys (household questionnaire) for projects selected for field work
- Mid-term reviews and end of project evaluations (conducted by implementing or funding agencies); may include independent evaluations (such as CLTS by UNICEF consultant in Cambodia)

**Group Work 2A** examined the issue of identifying and selecting projects for the long-list and then the short-list. **Group Work 2B** examined how, in the face of data constraints, the PAA can evaluate program performance and to interpret the results appropriately. The group was asked to suggest how to address challenges, and make a proposal for standardizing approach for all country studies.

While there was no question of the overall rationale for conducting PAA, or the general methods of long-listing and short-listing and data analysis, a number of challenges to the actual implementation of the PAA were raised, including methodological and data challenges:

#### Methodological

- How to isolate the impacts of sanitation programs from other interventions? Also of attribution to a particular program.
- How to analyze different software, hardware, financial, technology approaches in a single framework? What kind of indicators to select for measurement?
- How to quantify the intangible benefits and costs of programs?
- Hard to determine the ‘demand responsiveness’ of projects
- Different projects and programs will have different indicators – making it hard to compare
- Timescale for assessing sustainability – few projects have any proper evaluation 1-2 years after completion; even fewer conduct an evaluation 5 or 10 years after end of project to assess long term effect and sustainability.
- The suggested factor of success “enabling environment” may not have strong relationship with success of some projects
- Some projects in short-list may not be completed yet, and hence no overall appreciation of project success is possible
- Should PAA focus on successful or less successful programs, or both? Probably both. It is hard to know performance in advance of the PAA.

#### Sampling limitations

- Limited large-scale projects for short-list; more small-scale projects (with limited effect due to their small size and non-replicability at large size)
- Lack of projects with supply-side strengthening to include in PAA
- In some countries, some program approaches may not have been implemented – hence these approaches cannot be evaluated
- Some projects are implemented in multiple and diverse locations – should the PAA be done for each site separately, or the project as a whole? If the former, the analysis

becomes heavy; if the latter, there may not be a full appreciation of the site-specific factors determining success.

#### Data limitations

- Non-availability of data on selected performance indicators, especially related to project finances and costs
- Incorrect or biased information, due to poor evaluation or non-objective reporting of program impacts (conflict of interest)
- Behaviour change is not easily measurable
- Limited or no projects measuring actual project outcomes/impacts
- How to separate impacts of integrated projects? (e.g. agriculture, community development, WatSan)
- Some projects may not respond to our request for collaboration, or even with a collaborative agreement to provide the requested information.
- For completed projects, it may be difficult to access the project manager for interview, who may have moved on

Some proposed solutions to make the PAA manageable include:

- Determine exact needs of PAA for qualifying ESI results, to redefine scope of PAA
- Use common surveys for PAA – from ESI field work and contact with (5) projects
- Where there are gaps in quantitative indicators, qualitative assessments can be made based on available data and project information
- Do not short-list projects that do not have a basic M&E or project completion report, containing data on the essential indicators
- Define “performance” of program approaches by what the respective “Development Objectives” and not use any standard criteria.

**Group Work 2C** assessed how to relate PAA output to the overall ESI Study. This group concluded that it would make sense to use the PAA to convert the theoretical or ideal efficiency of technical options (evaluated in other ESI components) to actual efficiency, based on essential indicators of performance. These indicators may include:

- Proportion of targeted household actually using improved sanitation options
- % households regularly washing hands with soap at critical times
- Proportion of human excreta successfully isolated from the wider environment, including water sources

The adjustment of ‘ideal’ to ‘actual’ efficiency could be calculated in the closing section of the PAA chapter, and form an integral part of the discussion and also the executive summary. While the exact efficiency level of different projects and project approaches may not be available from the PAA, each country study could make conclusion of the approximate levels of efficiency being achieved, relating these separately to quantitative health, water and access time outcomes, as well as qualitative (intangible) outcomes.

Some other points discussed in this session (please include if relevant):

- Selecting appropriate indicators for sustainability e.g. continued communications for sustaining behavior change; systems (dis/incentives) for monitoring of practices e.g. closure of OD areas, building approval rules; evidence of maintenance and upgrading; systems for full-cycle treatment; environmental sanitation; sanitation in schools, and public places; etc.

## 8. Estimating local impacts (Session 6)

This session was opened by **Jack Molyneux** who introduced a scientific study being conducted by WSP in 6 countries globally, with funding from the Bill and Melinda Gates Foundation. The studies evaluate the health impacts, and will also estimate cost-benefit and cost-effectiveness of sanitation interventions (Indonesia, India, Tanzania) or hygiene interventions (Peru, Senegal, Tanzania, Vietnam). In order to capture health effect (diarrhea and respiratory infection prevalence), the study randomizes groups to control or intervention, and conducts before and after household surveys, including monthly surveys during implementation. Study results will only be available after 2 years, and therefore not usable for ESI. The next presentation by **Guy Hutton** outlined the proposed ESI methodology for estimating and valuing health, water, access time, land and intangible effects of the sanitation interventions being evaluated as part of ESI. At the end of each sub-section a number of issues were proposed for discussion/review, and at the end of the presentation participants were invited to write issues on cards to be addressed in the group work.

**Group Work 3A** focused on the **health impact** assessment. The aim of this group was to assess the strengths and weaknesses of alternative data sources and economic valuation techniques for health impact assessment. The proposals for dealing with each issue are given below:

### Health risk

- There are no local statistics on ALRI or other diseases
  - Compare alternative data sources, as described in the presentation, with guidance from Guy Hutton. (hierarchy of evidence approach)
- Can multiple sanitation location aspect (school, market, workplace toilets) be included in health assessment?
  - This is quite complex, and there is no supporting data for how much overall risks are reduced from different locations of sanitation improvement. Therefore ignore.
- Health risk reduction %: do these equally apply to diseases related to malnutrition and deaths?
  - Not discussed, but it should be assumed that malnutrition rates (and related diseases) can be reduced linearly with reductions in diarrheal disease. Wait for results of international review.
- Health risk reduction %: can we create steps in health risk reduction according to each rung of the sanitation ladder?
  - The different sanitation options evaluated in the synthesized research literature (the meta-analysis by Fewtrell et al) does not support such distinction, but using % reductions from individual studies (e.g. city-wide sewerage interventions) may be used, if the study is generalizable and good

enough quality. The community dimension of health-risk reduction remains unresolved. Wait for results of international review.

- Health risk reduction %: can we adjust the risk reductions based on context-specific community factors, and starting levels of disease? E.g. communities with poor animal sanitation vs communities with no animals.
  - Yes, but this should be based as much as possible in the research evidence. ESI teams should review the local-language literature. Proposals for context-specific adjustments will also be made by Guy Hutton, based on the international literature.

#### Disease impact

- Should we distinguish different severity for all diseases?
  - Choice depends on availability of underlying data to support rates, and can be checked with local health experts.
- Should we distinguish time off work according to ‘treated’ or ‘not treated’?
  - Not discussed. It is not sure whether we will have illness time broken down by whether treated or not, except by assumption.
- For time value, do we use national averages, sub-national averages, or actual income from the HH survey?
  - Propose to use sub-national averages, broken down by rural / urban (if available). If the HH survey gives reasonable estimate of local wage rates, then these can be used instead. It was also proposed to use both common ESI standards and country norms (or those used in major national projects) on shadow prices, for analysis and presentation.
- How do we value of time for adults versus children versus carers of children under five
  - Needs additional review by Guy Hutton to enable proposal to either confirm current assumptions, or to change the proposed assumptions.
- Should disabled people have the same time value?
  - In the interests of avoiding controversy, all people of the same age group will be valued the same.
- Impact of unemployment, availability of sick leave on time value assumption: this was not discussed. Proposal to use traditional economic valuation techniques – awaiting results of review.
- Economic unit value for value of life?
  - A group member proposed to use (Future Earning plus Future Non-Paid Contribution to Household Activities) minus (Future Consumption by the same income earner). Alternative Human Capital Approach methods will be compared in a review to be conducted by Guy Hutton, and teams will be updated. See review by India team.
- Financial value of life?
  - The proposal was made to exclude funeral expenses associated with premature death, due to the fact that the person will die eventually anyway, and the funeral cost of a young child may be less than the discounted future cost of an adult’s funeral many years later. Hence it may give counterproductive results.

- Also, the workshop concluded to focus on presentation of economic results, and give selected financial costs and impacts, where the financial values can be clearly distinguished.

#### Other sampling or analytical issues

- Which key parameters to be included in sensitivity analysis?
  - Major determining variables, such as mortality risk, baseline disease rates. Advice to be provided in next version template report.
- What is our period of analysis: 2007, 2008 or 2009?
  - 2008 should be used as the latest complete year for which some data are available (e.g. economic data) while for other variables the data may be older, but can be adjusted to 2008.
- Do we need to distinguish ‘financial’ from ‘economic’ costs?
  - It is proposed to present economic costs and benefits as the main result, and for certain variables where there is a clear and direct monetary cost/impact, this can be described in tables and text. Terminology was proposed to be changed to reflect visibility or tangibility of the cost.
- Should malnutrition rate among children < 5 be used for sampling?
  - No. Households should be selected randomly, and not based on the presence of children, or expected disease rates.

**Group Work 3B** focused on the **water resource impact** assessment. The aim of this group was to critically assess methodology, algorithms, data sources and key assumptions in making the sanitation-water link, and costs averted if sanitation improves. The proposals for dealing with the issues are given below:

- How do we identify the households who have switched local water source due to being unsafe?
  - Some proxies will enable this to be done, such as HH use of bottled water – even in HHs with treated piped water, the water is still not trusted.
- Does cost of full protection include further travel time to protected source?
  - Yes
- Is there a clear way of assessing if costs are averted when water sources are less polluted?
  - Partly by assumption (causal link) and partly by direct reference given by the respondent in the HH survey and also the FGD.
- Piped treated water: what are provider costs of treating more polluted water to meet standards?
  - Can assess incremental costs through interview with treated piped water suppliers.
- Pollution often affects more the HHs downstream of the actual polluter.
  - In this case, we “internalize the externality”, so that we do not ignore this impact.
- What about other water uses (e.g. home business)?
  - Dealt with in part by business survey.
- How to separate water pollution caused by sanitation from other pollution sources?
  - This will be available from the physical location survey.

- Does poor sanitation really impact non-drinking water uses of water?
  - This will be available from the HH survey.
- Do people drink as much cold water as we assume? Boiled water is often used for coffee/tea and not to be cooled for drinking water.
  - This will be available from the HH survey.
- What other non-pollution factors affect a HH's choice over water source? (e.g. convenience)
  - This will be available from the HH survey.
- Is a one-time water sample useful with no baseline? No measurement of seasonal variation either?
  - It is not ideal, but it still gives us a good idea of the link between poor sanitation and water quality. Interpretation should be based on seasonal factors.
- Should more parameters than residual chlorine be applied to the piped water quality testing?
  - Yes, it is possible, but should be agreed on case-by-case basis.
- Other pathogens than E Coli in water are not evaluated such as worms, bacteria causing respiratory and ear infection?
  - We are limited by budget as well as good quality laboratories, but due to site-specific nature of diseases, this can be proposed and accepted on case-by-case basis.
- Water quality improvements will have lagged impact from sanitation improvements.
  - In some cases this is true, but not always. When a sanitation facility is used 100% properly from day 1, the impact will be immediate (but only small, as many polluters remain). But when the scaling up is slow (e.g. connection rates to treated sewerage system), then of course there will be a lag. This issue will be dealt with in part in the 'ideal' versus 'actual' CBA.
- On the other hand, how to deal with decline in performance over time, e.g. as septic tanks become full and are not emptied?
  - The initial CBA assumes efficient functioning (based on costs of the technology functioning properly) and after the PAA there will be 'actual' efficiency estimates.
- How to we sample representatively?
  - Needs assessment of water sources and choice of (roughly) 10 water samples per project site, from variety of sources. Intervention versus control areas will be comparable. Focus on water bodies most likely to be affected by poor sanitation.
- Can water quality be presented in single index?
  - No.

A box item in the report was suggested which assess the costs of increasing water supply to settlements, especially in cities; and the inflexion point when sanitation becomes a key determinant in deciding to augment water supplies further.

**Group Work 3C** focused on the assessment of **access time, land and intangible impacts**. The aim of this group was to select the key access time, intangible, and land impact results

for presentation and ways in which to present them. The proposals for dealing with the issues are given below:

#### Access time:

- Can the same time values from health-related productivity be used to calculate economic benefits based on roughly 5-30 minutes gained per day?
  - Yes, unless it is clear from any sites that this time gain is of less value.
- Is time gain definitely a gain? Is it seen positively by households?
  - This will come from the HH questionnaire: satisfaction with proximity of current option (all) and reason to get toilet: save time (control), as well as the FGD. At the end of the HH questionnaire is the question how the respondent would spend extra 30 mins per day – giving some indication of what they would do with spare time. Another method is to given a large enough data-set, explore two sets of “otherwise similar” households with and without toilets, and examine difference if any, in their time allocations.

#### Land value:

- Land value: relevance; linkage with practice of OD? Any robust examples (with assigned causality)?
  - Anecdotal evidence only, but such instances will be rare.
- Value of land changes when its use for OD declines?
  - Can be assessed on case-by-case basis, and depends on alternative uses of land.
- Likely economic benefit per household (when averaged)?
  - Very small, and probably not worth including in benefit-cost ratio.

#### Intangibles:

- How to quantify intangibles such as social status?
  - From household questionnaire and FGD. Use a 5-point rating scale for measuring intangibles.
- What disaggregations and cross-tabulations?
  - Not fully elaborated in group work. Guidance will be provided in next version of report template.
- Importance of toilet?
  - For countries still to collect data, can include in questionnaire question on ‘most important items in household’ e.g. TV, phone, etc. to see if latrine is included.
- Impact of sanitation on school outcomes and eventual productivity?
  - Outside scope of ESI.
- Key findings for media messages
  - Specific to each country, and needs work with communications specialists.
  - It was proposed to use case studies, box items and so on, to capture and report on the above.

## 9. Estimating national impacts (Session 7)

A brief opening was made by **Guy Hutton** to introduce the topic and raise some of the issues to be discussed and resolved. On tourism benefits of improved sanitation, following a crude assessment carried out in ESI Phase 1, ESI-2 gathers responses from tourists themselves. A standard questionnaire has been developed which is being applied mainly at airports in countries. On business benefits of improved sanitation, no assessment was made in ESI Phase 1, so Phase 2 aims to gather responses from selected businesses that are affected by poor sanitation. The sampling approach and survey tool are still in preparation. Note that the tourist survey captures personal experiences and viewpoints of international business people, which may help inform us of their perceptions, as partially representative of the international business community.

**Group Work 4A: Tourism.** The aim of the group work was to agree how to analyze data from the survey in a meaningful way and relate it to overall tourism losses due to poor sanitation. In particular, what basic reporting tables are relevant, what sub-group analyses (e.g. nationality, daily spending) and cross-tabulations are relevant? Also, are there special hot-spots for sanitation-tourism link? And importantly, can we make a summary measure of overall importance of sanitation for tourist experience, effect on choice of holiday, and estimate the national economic gains from improved sanitation (as in Phase 1)?

This group attempted to work on an algorithm to assess impact of tourists choosing not to return (refer to ‘intent to return to a country’ in question 14, and ‘hesitancy to return to a country’ in question 15(a)), linking with reasons related to poor sanitation (including disease). This is based on the fact that tourism growth is partially dependent on return visitors, and for that matter, the recommendations of tourists for friends and family to visit a particular country or location (question 16(a)). With the current form of the tourist questionnaire, the calculation would be lacking a frequency of return visitor (e.g. every year? Every 5 years?) to assess actual economic impact. Other sources of tourism number growth is new first time visitors. However the questionnaire cannot capture that variable as it is only applied within countries – countries where the interviewed tourist has already chosen to visit. Tourist willingness to pay for improved sanitation is very hard to establish directly. The plenary concluded that, probably, Phase 2 should not attempt any ‘heroic’ analysis to link sanitation to overall changes in tourism income in the future, but the results of the questionnaire will support alternative forms of analysis (e.g. if x% of existing tourists express hesitancy to return for reasons of poor sanitation, then x dollars would be lost from them not returning...). Relevant cross-tabulations will be proposed in the next version of the template report. It was recommended to conduct analyses by age and country/region of origin.

**Group Work 4B: FDI/business.** The aim of the group work was to discuss sampling approach and key elements of a questionnaire for the business survey. In terms of sampling, which sectors to include (company size, ownership)? What sample size per sub-group? In terms of data collection, should there be single survey tool? What should the content be? How to apply it (interview, self-fill, FGD)? How to approach companies (phone, email, letter)? And how to scale-up / generalize the results to country level, if at all?

The group felt it is hard to link the responses of the questionnaire with overall FDI losses, as first we cannot easily get hold of those companies which decided not to invest in a country, and second we cannot estimate business revenue losses at country level based on a small sample size. Hence, the group proposed changing this to a “Cost of Doing Business” survey including capital and recurrent costs.

Some secondary sources may provide important background information as well as data for presentation, such as cost of doing business (World Bank), business investment surveys, studies from environmental sanitation projects (e.g. GTZ assessment in the Philippines), media reports and company reports. These will be examined to see if any environmental or sanitation related parameters are measured.

In the next step, a sample size of 15-20 businesses of different types was proposed to be covered (restaurants/ hotels, travel agents, food processing, water/ice, abattoirs, fish farming, sanitation and hygiene products, market retailers), using interviewer to apply a standard questionnaire. It was discussed that it is better to have less businesses in the sample but more reliable data with clear interpretation, rather than large sample of businesses but with poorly filled in forms and no follow-up with the companies to interpret their answers. Only businesses that are likely to be sensitive to poor sanitation will be approached, and this sampling technique will be taken into account in drawing conclusions from the study. The business-sanitation link can (and should) be broadened to include environmental sanitation. The core questions will ask companies what are the costs of doing business in an environment with poor sanitation – costs of health-related productivity loss (recruitment and replacement), costs of treating polluted water for production process, revenue losses from poor customer base, and so on. Arguments can also revolve around the attractiveness of businesses paying more to be located within a business park, where utilities are guaranteed and the environment is clean.

**Other impacts.** In plenary, it was discussed to avoid crude estimates of poor sanitation impact on fish production, given that this is hard to estimate precisely, and the actual direction of impact is ambiguous (given that human excreta is often purposefully fed to fish). If any case studies are available, or anecdotal information (such as cost of antibiotics to farmed fish), this can be quoted. The links between sanitation, wastewater use, and agricultural productivity can also be assessed. In some contexts, the flooding-sanitation link can be explored (e.g. Jakarta). Likewise, the link between poor water quality and recreation / wildlife can be assessed qualitatively, with case studies cited where possible. While for sanitation markets, the potential size of input and output markets can be assessed, improving on Phase 1 estimates.

## **10. Costing (Session 8)**

The opening presentation was made by **Guy Hutton**. The presentation covered cost data sources, costing definitions, costing principles and theory, Excel sheet inputs and calculations, cost data needs for CBA and CEA, and the tables in the costing chapter of the draft template report. Cost data of the sanitation interventions will need to be assembled from different sources of data, including the household questionnaire (on capital and O&M costs), the project provider (capital costs and subsidies), from wholesalers or local suppliers and

wastewater treatment plant operators (capital and O&M costs). Length of life of hardware will be collected from field data, manufacturer estimation, and assumption. Instructions were given on how to identify the 'correct' prices where more than one price figure is available (e.g. wholesale versus local provider) where the principle is to include the actual cost of delivering the final product to the customer. The ingredients costing method should avoid double-count, especially where subsidies are provided. Annualization of hardware and software lasting more than 1 year should be estimated using standard formulae consisting of discount rate ( $r$ ), length of life ( $n$ ) and net purchase price. Non-financial costs should be included, but presented separately, by estimating the equivalent cost of those inputs, such as household own labor for capital costs (e.g. construction) or operational costs (e.g. water collection).

Maintenance & emptying costs should be collected, comparing actual costs with costs required for proper functioning. Estimation of program costs per household should be estimated using cost allocation principles based on dividing overall attributed program costs by number of households receiving an intervention. Program costs should definitely include decentralized program costs in locality, plus, if possible, a proportion of allocated headquarter costs (e.g. office in national capital). The **Question & Answer** session clarified some of the costing methodology points, which will be further elaborated in the next draft of the long report template and dummy Excel sheets.

## **11. Workshop closing (Sessions 9 and 10)**

**Closing remarks** were made on the draft report template and Excel sheets. It was agreed that the Excel sheets should be as complete and comprehensive as possible, allowing standardized calculations to be made across sites and countries. Country teams would appreciate having variables fully clarified so that the input data are correctly specified, and the calculations explained so that they understand their rationale. Cell coloring and comments boxes can be used in Excel. A glossary of terms was recommended. The country teams were encouraged to communicate with each other. For technical issues, the primary point of contact remains Guy Hutton, but he may channel some requests to global resource persons.

## ANNEX 1. AGENDA

Tuesday, 31 March 2009

Day/time	Session	Who	Institution
<b>8.00-8.30</b>	<b>Registration</b>		
<b>8.30-8.45</b>	<b>1. Opening</b>		
8.30-8.35	Welcome to Phnom Penh	Jan-Willem Rosenboom	WSP
8.35-8.45	ESI as part of WSP's regional mandate	Isabel Blackett	WSP
<b>8.45-9.00</b>	<b>2. ESI Overview and workshop introduction</b>		
		Guy Hutton	WSP
<b>9.00-10.30</b>	<b>3. Report on country studies: design, progress (Chair: Isabel Blackett)</b>		
9.00-9.10	Cambodia	Phyrum Kov, Sok Heng Sam	WSP, EIC
9.10-9.20	Indonesia	Asep Winara	MLD Indonesia
9.20-9.30	Lao PDR	Alan Boatman	GeoSystems Lao PDR
9.30-9.40	Philippines	Prime Rodriguez	STC, U.P Los Banos
9.40-9.50	Vietnam	Nguyen Viet Anh	IESE
9.50-10.00	Yunnan Province, China	Liqiong Yang, Liang Chuan	YEPB, YASS
10.00-10.10	India and South Asia	Somnath Sen	STC
10.10-10.30	Question and Answer	All	
<b>10.30-11.00</b>	<b>BREAK</b>		
<b>11.00-12.30</b>	<b>4. Sanitation and policy making: what is the research need? (Chair: Jan-Willem Rosenboom)</b>		
11.00-11.20	Economic evaluation and decision making	Guy Hutton	WSP
11.20-12.40	Sanitation decision making in ADB	Anand Chiplunkar	ADB
11.40-12.00	Good governance: ESI to promote sustainable sanitation	Linda Shi	ECO-Asia
12.00-12.30	Question and Answer	All	
<b>12.30-2.00</b>	<b>LUNCH</b>		
<b>2.00-5.30</b>	<b>Implications of policy research needs for ESI data analysis, interpretation, reporting, dissemination</b>		
2.00-2.20	Sanitation decision making in Cambodia	Chea Samnang	MRD
2.20-2.30	Data analysis and reporting – ESI template overview	Guy Hutton	WSP
2.30-2.35	Introduction to group work	Guy Hutton	WSP
2.35-3.45	Group work 1	All	
<b>3.45-4.00</b>	<b>BREAK</b>		
4.00-5.30	Plenary feedback and discussion	Group reporters	

Wednesday, 1 April 2009

Day/time	Session	Who	Institution
<b>8.30-8.40</b>	<b>Summary of the first day's results</b>	Rapporteur	
<b>8.40-11.30</b>	<b>5. Program approach analysis (Chair: EdKarl Galing)</b>		
8.40-9.10	Presentation of methods and data requirements	Jeremy Ockelford	Consultant
9.10-9.15	Introduction to group work (PAA)	Jeremy Ockelford	WSP
9.15-10.15	Group work 2	All	
10.15-10.30	Plenary feedback and discussion		
<b>10.30-11.00</b>	<b>BREAK</b>		
<b>11.00-12.30</b>	<b>6. Estimating local impacts (Chair: Jack Molyneaux)</b>		
11.00-11.20	Economic evaluation of TSSM, with Q&A	Jack Molyneaux	WSP
11.20-11.40	ESI and the standard economic evaluation framework	Guy Hutton	WSP
11.40-12.30	Presentation of health and water impact estimation	Guy Hutton	
<b>12.30-2.00</b>	<b>LUNCH</b>		
<b>2.00-5.30</b>	<b>...continued...</b>		
2.00-2.30	Question and answer, collection of health/water issues	All	
2.30-3.00	Presentation of time impact and intangibles	Guy Hutton	WSP
3.00-3.30	Question and answer, collection of issues	All	
<b>3.30-4.00</b>	<b>BREAK</b>		
4.00-4.10	Introduction to group work	Guy Hutton	WSP
4.10-5.15	Group work 3	All	
5.15-5.30	Plenary feedback and discussion	Group reporters	

Thursday, 2 April 2009

Day/time	Session	Who	Institution
<b>8.30-8.45</b>	<b>Summary of the second day's results</b>	Rapporteur	WSP
<b>8.45-10.30</b>	<b>7. Estimating national impacts (Chair: U-Prime Rodriguez)</b>		
8.45-9.00	Presentation of national impact estimation	Guy Hutton	WSP
9.00-9.10	Introduction to group work	Guy Hutton	WSP
9.10-10.00	Group work 4	All	
10.00-10.30	Plenary feedback and discussion	Group reporters	
<b>10.30-11.00</b>	<b>BREAK</b>		
<b>11.00-12.30</b>	<b>8. Costing (Chair: Nguyen Viet Anh)</b>		
11.00-11.30	Presentation of cost requirements	Guy Hutton	WSP
11.30-12.30	Question and answer		
<b>12.30-2.00</b>	<b>LUNCH</b>		
<b>2.00-4.30</b>	<b>9. Resolution of unresolved issues (Chair: Christopher Trethewey)</b>		
2.00-2.20	Collection of issues	Guy Hutton	WSP
2.20-3.10	Group work 5	By country	
3.10-3.30	Plenary feedback and discussion	Group reporters	
<b>3.30-4.00</b>	<b>BREAK</b>		
4.00-4.30	Agreements and decisions	Guy Hutton	WSP
<b>4.30-5.15</b>	<b>10. Work planning</b>		
4.30-5.15	Group work 6	By country	
<b>5.15-5.30</b>	<b>Workshop closing</b>		

## ANNEX 2. PARTICIPANT LIST

No.	Country / Individual	Institution	Responsibility
<b>WSP Regional and Global Staff</b>			
1	<b>Isabel Blackett</b>	WSP-EAP (Indonesia)	Sanitation Specialist
2	<b>Guy Hutton</b>	WSP-EAP (Cambodia)	Senior Economist
3	<b>Somnath Sen</b>	WSP-SA (STC) (India)	ESI Team Lead India
4	<b>Jack Molyneaux</b>	WSP-HQ (Washington, D.C.)	Senior WS Specialist
5	<b>Christopher Trethewey</b>	WSP-EAP (Vietnam)	SAWAP Coordinator
<b>Cambodia</b>			
6	<b>Jan-Willem Rosenboom</b>	WSP-EAP	Country Team Leader
7	<b>Phyrum Kov</b>	WSP-EAP	WS Analyst
8	<b>Phalla Yin</b>	WSP-EAP	Program Assistant
9	<b>Seiha Neou</b>	Economic Institute of Cambodia	ESI Team Member
10	<b>Sok Heng Sam</b>	Economic Institute of Cambodia	ESI Team Member
11	<b>Chea Samnang</b>	Ministry of Rural Development, Royal Government of Cambodia	Head of Rural Healthcare Department
<b>China (Yunnan province)</b>			
12	<b>Liqiong Yang</b>	WSP-EAP (STC) (Yunnan Environmental Protection Bureau)	ESI Team Leader
13	<b>Liang Chuan</b>	Yunnan Academy for Social Sciences	ESI Team Leader
14	<b>Zhouzheng Yuxiao</b>	Yunnan Environmental Development Institute	ESI Team Member
<b>Indonesia</b>			
15	<b>Martin Albrecht</b>	WSP-EAP	WS Analyst
16	<b>Asep Winara</b>	PT Mitra Lingkungan Dutaconsult	ESI Team Leader
17	<b>Oktarinda Miko</b>	PT Mitra Lingkungan Dutaconsult	ESI Team Member
<b>Lao PDR</b>			
18	<b>Viengsamay Vongkhamso</b>	WSP-EAP	Country Team Leader
19	<b>Alan Boatman</b>	Geo-Systems Lao PDR	ESI Team Leader
20	<b>Stephanie Cohen</b>	Geo-Systems Lao PDR	ESI Team Member
<b>Philippines</b>			
21	<b>EdKarl Galing</b>	WSP-EAP	SuSEA Program Manager
22	<b>U-Primo E. Rodriguez</b>	WSP-EAP (STC)	ESI Team Lead
23	<b>Dieldre Harder</b>	Resources, Environment and Economics Center for Studies	ESI Field Survey Lead
24	<b>Jeremy Ockelford</b>	WSP-EAP (STC)	ESI PAA Consultant
<b>Viet Nam</b>			
25	<b>Hang Diem Nguyen</b>	WSP-EAP	WS Specialist
26	<b>Nguyen Viet Anh</b>	Institute of Environmental Science, Hanoi University of Civil Engineering	ESI Team Lead
27	<b>Le Thu Hoa</b>	National Economics University	ESI Team Member
28	<b>Hoang Thuy Lan</b>	Research Center for Family Health and Community Development	ESI Team Member
<b>Development Partners</b>			
29	<b>Anand Chiplunkar</b>	Asian Development Bank (Philippines)	Senior WSS Specialist
30	<b>Linda Shi</b>	ECO-Asia (USAID) (China)	Regional Coordinator

STC – WSP short-term consultant; SAWAP – Mekong Regional Sanitation and Water Partnership.