Support on Water and Sanitation Sector Analysis and Program FINAL

2009-2014

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ACRONYMS

ACWSI	Access to Clean Water and Sanitation Initiative
ADB	Asian Development Bank
AMPL	Drinking Water and Environmental Health
APBD	City/Regional Annual Budget (Daerah)
APBN	National Annual Budget (Nasional)
AusAID	The Australian Government's Overseas Aid Program
BAPPENAS	Badan Perencana Pembangunan Nasional (National Development Planning Agency)
BAPPEDA	Badan Perencana Pembangunan Daerah (Local Government Development Planning Agency)
BORDA	Bremen Overseas Research and Development Association
CBO	Community based Organization
CBS	Community based Sanitation
CHC	Community Health Council
CLTS	Community led Total Sanitation
CTPS	Cuci Tangan Pakai Sabun (Handwashing with Soap)
DAK	Dana Alokasi Khusus (Specific Allocation from Central Government)
DEWATS	Decentralized Water and Sanitation Facility
DSDP	Denpasar Sewerage Development Project
DPRD	Dewan Perwakilan Rakyat Daerah (Local Legislative Parliament/Council)
ESP	Environmental Services Program
GOI	Government of Indonesia
GH/CS	Global Health/Child Survival
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Government's Aid Program)
HSP	Health Services Program
HWTS	Household Water Treatment and Storage (PAM RT)
HWWS	Handwashing with Soap
IMCI	Integrated Management of Childhood Illness
IPLT	Instalasi Pengolahan Air Limbah (Sludge Treatment Plant)
ISSDP	Indonesia Sanitation Sector Development Program

JICA	Japan International Cooperation Agency
JBIC	Japan Bank for International Cooperation
JMP	Joint Monitoring Program (WHO/UNICEF)
LG	Local Government
M&E	Monitoring & Evaluation
MCK	Mandi Cuci Kakus (communal bathing/washing/toilet facility)
MDG	Millennium Development Goal
Musrenbang	Musyawarah Perencanaan Pembangunan (Development Planning Stakeholders Consultation Forum)
MoH	Ministry of Health
MPW	Ministry of Public Works (PU)
NRW	Non Revenue Water
NTT	Nusa Tenggara Timur (Eastern Nusa Tenggara Islands Province)
NGO	Non-governmental organization (legally registered, private non-profit sector)
OBA	Output-based Aid
O&M	Operation and Maintenance
ORT	Oral Rehydration Therapy
PAMSIMAS	WSLIC-3 (Water and Sanitation for Low Income Communities)
P2KP	Program Penanggulangan Kemiskinan Perkotaan (Urban Poverty Project)
Perda	Peraturan daerah (local government regulation)
PDAM	Perusahaan Daerah Air Minum (Local Government Water Supply Enterprise)
PHBS	Perilaku Hidup Bersih dan Sehat (Clean and Healthy Life Behavior - MOH program)
PNPM	Program Nasional Pemberdayaan Masyarakat (National Project for Community Empowerment)
Pokja	Working Group
Pokjasan	Sanitation Working Group
Posyandu	Pos Pelayanan Terpadu (Integrated Service Post – at sub village level)
POU	Point of Use
Promkes	Promosi Kesehatan (Health Promotion Unit of MOH)
PU	Pekerjaan Umum (Public Work)
Puskesmas	Pusat Kesehatan Masyarakat (Community Health Centre at sub-district level)

3R	Reduce-Recycle-Reuse
RT	Rukun Tetangga (neighborhood grouping (under RW)
RW	Rukun Warga (neighborhood association)
SANIMAS	Sanitasi Masyarakat (Community Based Sanitation)
SNVT	Satuan Kerja Non Vertikal Tertentu (Non Vertical Work Unit, for a particular purpose)
SUPAS	Survey Penduduk Antar Sensus (Intercensal Survey)
SPM	Standard Pelayanan Minimun (minimum service standard)
STBM	Sanitasi Total Berbasis Masyarakat (Community Based Total Sanitation)
SWS	Safe Water System
TSSM	Total Sanitation and Sanitation Marketing (funded by Bill and Melinda Gates Foundation)
USAID	United States Agency for International Development
UNICEF	United Nations Children's Fund
WASAP	Indonesia Water and Sanitation Program (trust fund managed by the World Bank)
WASPOLA	Water and Sanitation Policy Formulation and Action Planning Project
WATSAN	Water and Sanitation
WFP	Water for the Poor (Act)
WHO	World Health Organization
WSLIC-II	Second Water and Sanitation for Low Income Communities
WSP	Water and Sanitation Program (managed by the World Bank)
WWTP	Waste Water Treatment Plant

EXECUTIVE SUMMARY

USAID is embarking on a five year development assistance strategy for Indonesia. The purpose of this report is to provide input for the water and sanitation portion of that strategy, including a proposed set of programmatic technical assistance activities that could constitute a USAID Water and Sanitation portfolio for the next five year period (2009-2014).

Over the course of four weeks (preceded by several days of literature review), a six member team:

- Completed a strategic analysis of the water and sanitation sector including a desk top review of the accomplishments and challenges of ongoing USAID/Indonesia, and other USAID related activities in water, sanitation and hygiene;
- Met with GOI officials, donors, NGOs, and others involved in the water, sanitation, and hygiene promotion sector; and
- Traveled to Medan, Surabaya, Malang, and Jakarta to perform field visits with stakeholders involved in on-going USAID projects.

Using the information gathered from these activities, the team took a two-pronged approach to its work. The team evaluated and ranked potential interventions using an organized and logical weighted matrix approach with participation by USAID; it also arrived at conclusions based on team discussions and brainstorming following field trips and discussions with a wide range of people in the GOI, USAID and other bi-lateral donors, key implementing partners and beneficiary communities, multilateral assistance agencies, PDAMs (water utilities), and international and local NGOs. This two-pronged approach led to similar conclusions and a subsequent set of proposed interventions that support these conclusions.

The formal team evaluation with weighted design criteria resulted in the following ranking order of interventions:

Table ES.1. Summary of Interventions and Rankings

Intervention	Score	Rank Order
PDAM capacity building	965	1
Finance activities including microfinance and utility/local government finance	864	2
Community Mobilization for water, sanitation, and hygiene	862	2
National and sub-national Advocacy Strategies to increase political and financial commitment	842	3
Strategies to address Sanitation (advocacy, infrastructure, and behavioral)	841	3
Increase Access to water services among poor households in urban/peri-urban areas	822	3
Rural approaches to improving access to drinking water	720	4
Sanitation in coastal areas including technology and behavioral innovations	673	5
Household alternative POU methods	612	6
Watershed activities impacting water quality and quantity	471	7
Water Quality Testing and reporting	446	8

As shown in Table ES.1, the ranking order fall into several general groups with PDAM capacity building at the top, finance activities and community mobilization are second, followed by advocacy strategies, sanitation strategies, and with increased access to water services in poor households coming in a very close third.

Team discussions and brainstorming following field trips, and discussions with GOI, USAID, various donors and other stakeholders resulted in the following findings and conclusions:

- USAID's comparative advantage in water, sanitation, and hygiene promotion is to address the major "gaps" that exist in the assistance now provided to urban areas, as opposed to the lesser gaps in rural areas. The "gaps" that are related to urban areas, for both water supply and sanitation, include inadequate institutional capacity to deliver needed services, inadequate total coverage, inadequate inclusion of the poor (less than their proportion of the total population), and lack of sufficient financial resources. In regard to excreta disposal, there is a gap in the recognition of its importance among the population in poor communities, and in the relative priority given to it by government institutions.
- The next five years should be a particularly opportune time to assist PDAMs, because of both the opportunity to build on lessons learned during the soon to be completed USAID Environmental Services Program (ESP), and the planned supporting activities to be undertaken by others.
- USAID can use the lessons learned from its past work, including the functionality of micro-credit and communal metering schemes for serving the poor, the relatively greater potential for municipal bonds than for corporate (PDAM-backed) bonds, and other such lessons.
- GOI decentralization provides opportunity including:
    - Opportunity for embedding technical assistance within local institutions -
        - Addressing the increased GOI desire for technical guidance and definition for institutional and operational improvements. For hygiene, these include more defined roles, and skill building in behavior change communications. For water, these include focus on performance improvements and governance, planning, and financial management, and for sanitation. These include greater focus on advocacy and awareness raising, organization, and city-wide strategies.
- Sanitation should be a priority issue, considering that overall sanitation access is woefully behind what is needed and what one

would hope for in a country at Indonesia's level of economic development, and no municipal organization currently takes overall responsibility for managing excreta disposal other than septic tank pumping. However, USAID has had several successful endeavors in this arena, and a national donor-supported framework exists that supports the Indonesian Sanitation Sector Development Program (ISSDP) model, as well as evidence for securing investor funding to support needs

Summarizing results from the two-pronged approach, the recommended overall strategy is to focus on:

- Urban Areas
- Water, Sanitation, and Hygiene Promotion (as opposed to the option of doing one or two of the three)
- Technical Assistance with multiplier effect (high probability to be taken up by others and self-replicated)
- Focus at local level
- Assistance Activities that leverage funds and resources

Interventions not included were watershed activities and water quality testing largely because of their low scores on "bang for the buck" (in the context of the goals of The Paul Simon Water for The Poor Act), ability to leverage financing, relatively low health impact, and ability to reach the poor, particularly women and children.

The focus of interventions recommended for assistance over the next five years is listed below. Relative priorities among these will vary from PDAM to PDAM, and should be established at an early stage in project implementation, with the possibility of some prioritization occurring in the design stage of the project.

For PDAMs:

(a) Performance and Governance:
- Standard Operating Procedures (SOPs) for cost recovery
- PDAM staffing improvements
- Financial operating procedures, including billing system improvement
- Addressing autonomy and revenue retention issue with local government (including with legislative institution – DPRD)
- Non-revenue water management
- Energy efficiency, including model investor tender for energy efficiency
- Distribution network analysis, including water pressure zone management for equitable distribution
- Responsiveness to customers,: including consumer satisfaction surveys, etc

(b) Planning
- Business plan development, including annual budgeting

- Tariff analysis and structuring
- Planning capital improvements, including master planning for supply including identifying raw water source, treatment and distribution systems, and detailed engineering design for upcoming investments (USAID funds would not be invested in actual protection of water sources, or detailed design, or water rights transfers. Priority would be on first improving the management of water already supplied to the utility including improved pressure zone management, and addressing non-revenue water including leaks.)

(c) Financing

- Leveraging resources from government/donors/investors to expand water services for poor-inclusive schemes including:
    - Service connections partially paid by new users (in some cases via micro-credit)
    - Water service entirely provided by new user (funded by Output Based AID (OBA) or other)
    - Water-for-poor communal meters
- Debt management, including cooperating with and taking advantage of Ministry of Finance initiatives facilitating the restructuring of PDAM debt
- Getting a credit rating, and establishing credit-worthiness (most of the aspects of assistance to PDAMs will contribute to this)
- Evaluation of appropriate funding mechanisms (when appropriate, provide assistance preparing and arranging for funding, such as preparation of bond issuance or other funding mechanisms)

For sanitation and hygiene promotion - interventions focused on Citywide Assistance, including:

- Technical Assistance to Establish and Support City Sanitation Working Group (PokjaSan) and PokjaSan-led decisions to manage sanitation
- Institutionalize local management of sewerage and other excreta disposal
- Leverage funding from City, provincial, and central government as well as outside investors
- Advocacy and Awareness Raising for Sanitation (building on the Community-based total sanitation approach (STBM) recently endorsed by MoH)
- Preparation and implementation of City-wide Sanitation Strategies & Action Plan (following ISSDP model)
- Hygiene Promotion (part of citywide strategy)
- Provision of working examples of community based sanitation (both software + decentralized wastewater solutions) to support portfolio of citywide solutions (following Sanimas model and MoH STBM methodology)

Given the fairly sure acceptance associated with water programs, and the relative risk of acceptance, implementation, and prompt positive performance indicator results associated with a more robust sanitation program, it is recommended that seventy percent of the USAID funded project budget be directed to water, with thirty percent of the USAID funded project budget applied to sanitation and hygiene promotion. It is also recommended that the sanitation and hygiene promotion activities be implemented in a manner that will reduce associated risks, beginning with selection of communities where the likelihood of successfully benefiting the poor is greatest.

SECTION I. INTRODUCTION

USAID is embarking on a multi part five year strategy for providing development assistance in Indonesia. An important part of this strategy will be helping Indonesia make strides in reaching their Millennium Development Goals in water and sanitation. The purpose of this report is to provide input to help shape USAID's water and sanitation sector strategy, including a proposed set of programmatic technical assistance activities that could constitute a USAID Water and Sanitation portfolio for the next 5 year period (2009-2014).

In developing the strategy and interventions, the team received guidance from the Mission Director and USAID staff including representatives from the Basic Health Services (including Environment and Health Sector staff), and USAID Washington managers. The team also solicited input from the government of Indonesia (GOI) at central, provincial, district, subdistrict and village level as well as major donors, USAID consultants, and NGOs.

Integrating these inputs with the parameters facilitating and constraining USAID investment in Indonesia and at the same time prioritizing what is best for the Indonesian people, the team identified strategic interventions centered on the following themes:

- Focus on Water and Sanitation in Urban Areas
- Leveraging investment that leads to expanded coverage including:
    - Focus on Cities that want to serve the poor
    - Obtaining, programming, and managing investment at the local government level
    - Working with GOI and other donors within the new frameworks being adopted by Ministries and Bappenas that facilitate work at the municipal level
- Activating catalytic processes that serve to:
    - Trigger GOI municipally developed solutions that mobilize and initiate institutional changes through improved capability
    - Promote self-replication and scale up

Past USAID investment projects have provided a very meaningful context of what is possible and achievable and have succinctly clarified technical and policy gaps. Thus, a central focus here is to develop a more concentrated strategy through recommending those interventions which have the most merit in terms of converging need, outcomes, and number of people served.

Following this introduction, the report is organized into seven remaining sections.

Section 2: Strategic Analysis of the water and sanitation sector and what other donors are doing.

Section 3: Parameters Facilitating and Constraining USAID Investment

Section 4: Design Criteria for USAID interventions

Section 5: Summary of Potential Interventions and Ranking using the design criteria from Section 4.

Section 6: Recommendations and Rationale for programmatic water and sanitation interventions.

Section 7: Core Performance Indicators for each recommended program activity.

Section 8: Program Management and Design Parameters

Finally, the annexes provide the scope of work, a list of individuals contacted, and documents referenced

SECTION 2. STRATEGIC ANALYSIS

Access to clean water and sanitation are important determinants of health outcomes. Access to improved drinking water sources in urban areas in Indonesia has been in a slow gradual decline since 1990, based on a broad definition of "access." Such access has declined from 92% to 89% between 1990 and 2002, and according to the WHO-UNICEF joint monitoring program, to only 87% in 2004. Using a narrower definition of access, restricted to household connections, access in urban areas is much lower, although steadily increasing, with coverage estimated to be 34% (WHO/UNICEF JMP 2008). The rural situation is worse with only 7% coverage for household connections, although it is about 70% using a broader definition of "access". The MDG improved drinking water target of 86% by 2015 is scarcely on track (World Bank 2008).

In addition, Indonesia is facing a sanitation crisis. Given the context of rapid urbanization, high levels of open defecation (18% in urban areas, 39% in rural areas), low levels of improved sanitation (69% in urban areas, 37% in rural areas), widespread contamination of surface and ground water, and insufficient public sector and donor investments, Indonesia is highly unlikely to meet the MDG target of 73% for sanitation (DHV 2008; Robinson 2007; WHO/UNICEF JMP 2008). A recent estimation suggests that if current progress continues, the MDG sanitation target will be missed by approximately 11 % (World Bank 2008). The cost to achieve the MDG sanitation target will be substantial, although precise estimates are difficult to make and subject to controversy. One conservative estimate suggests that to achieve the sanitation MDG target alone, new investments of around $600 million will be needed each year until 2015 (Robinson 2007 report for the World Bank managed Water and Sanitation Program). Clearly, additional resources are needed, especially in urban slums and in rural and remote areas.

Further compounding issues of limited access to clean water and sanitation is the low level of awareness of the causal relationship between diarrhea and hygiene, low level of incorporating soap with handwashing at critical times (especially after defecating or cleaning a child's bottom), and extensive attitudes, practices and beliefs throughout communities resulting in barriers to good sanitation (ESP 2006). Diarrhea continues to be a leading killer of children under five in Indonesia, accounting for 18% of child mortality.

Although political support for water, sanitation and hygiene in both urban and rural settings has appeared limited, there are indications that it is now improving. There are currently several GOI initiatives and programs which directly or have the potential to address water, sanitation and hygiene needs, and progress further efforts to achieve the MDG goals (see below Table 2.1.).

Table 2.1. GOI Initiatives and Activities Matrix

Ministry/ Agency	Initiative	Role/Objective
National, Provincial and District Planning Agency (BAPPENAS/ BAPPEDA)	Water and Sanitation Working Group (Pokja AMPL)	• Central level policy coordination of water, sanitation and hygiene efforts – includes the Ministries of Public Works, Health, Home Affairs, Finance, Environment and Industry, National Planning Agency (BAPPENAS) • Coordination of Ministry, Agency and other stakeholder efforts at central, provincial and district levels • Coordination of ISSDP, including coordination of City Sanitation Strategies development
Ministry of Health (MoH)	National Strategy for Community-based Total Sanitation (STBM)	• Launched in August 2008 by Minister of Health • Target of 10,000 open defecation free villages and total sanitation over 5 years • Total sanitation includes utilization of STBM methodology which includes the five pillars: o Open Defecation Free Environment o Handwashing with soap o Safe Household Water Management o Safe Food Handling o Safe solid waste management • The STBM strategy is considered and planned to be applicable for health and hygiene behavior in both rural and urban settings • Includes National Handwashing Initiative with the development of Public Private Partnerships (various ministries, organizations and private sector) and support to Handwashing with Soap Team (Tim CTPS) • Establishment of National Network for Household Water Treatment and Storage
	Other linked programs	• Maternal Child Health Program – including early initiation of breastfeeding, Integrated Management of Childhood Illnesses (IMCI) including treatment of diarrhea with ORT, zinc, breastfeeding/child feeding, hygiene and handwashing promotion • Healthy Cities Program, Healthy Markets Program, Healthy Schools Program, Health Promotion (PHBS – promotion of 10 key behaviors including 3 directly related to water, sanitation and hygiene)
Ministry for Social Welfare	National Project for Community Empowerment (PNPM)	• Chair of PNPM working group and steering committee • Provision of block grants directly to community organizations to support achievement of MDGs, including access to improved water supply and sanitation though expanded poverty reduction community-driven development (CDD) projects • Includes the Urban Poverty Project (UPP) to be executed by the Ministry of Public Works in urban areas • Includes the Kecamatan Development Project (KDP) to be executed by the Ministry of Home Affairs in rural areas

Ministry/ Agency	Initiative	Role/Objective
Ministry of Public Works	Directorate of Environmental Sanitation (PLP)	• Provides technical support for sanitation initiatives and development of national guidelines and regulations • Promotion of 3R program (reuse, recycle, reduce) • Advocacy–concerning capacity building, institutional strengthening in terms of sanitation to local government • EcoDrain Program – community participative approach program to improve capacity for maintenance of drain and grey water
	Directorate of Water Supply (SPAM)	• Provides technical support for water initiatives and development of national guidelines and regulations • Advocacy – to PDAM and private investors • Provide infrastructure at community level including wells, tap stands, public toilets, footpaths
	P2KP	• Aims to promote economic growth at community level through development and implementation of projects which are co-funded by communities, and the private and public sector.
	Sanimas	• Central level matches funds from local level for community based sanitation (CBS), technical and software • Target of 200 CBS locations reached per year until 2015
Ministry of Education		• Implementation of Green School Extra curriculum – promote 3R, washing hands with soap and use of toilet
Ministry of Environment		• Prepare environmental regulations and environmental impact assessments • Water source protection • Develop and socialize 3R Module
Ministry of Housing (Menpera)	Low Cost housing schemes	• Targets low income groups and the poor • Jointly implemented with local governments and sometimes the private sector

Table 2.2 demonstrates the efforts by donors and investors to assist the GOI to realize the sanitation and water MDGs, improve health and hygiene outcomes, and contribute to improved economic and environmental productivity as a result of water, sanitation and hygiene investments in Indonesia. Although there are many local and international NGOs and CBOs contributing to water, sanitation and hygiene improvements in Indonesia, the following data serves to provide an overview of major investments in the sector.

Table 2.2. Donor, Investor and Agency Efforts Matrix

Donor/ Investor Agency/ NGO	Program	Technical & Programmatic Areas
ADB	Community Water Service and Health Project	• Low income communities • Rural focus + Aceh/Nias • Water, sanitation and hygiene
	Metropolitan Sanitation Management and Health Project	• Environmental sanitation and health management in three metro cities (under preparation)
AusAID	WASPOLA 2	• Water and sanitation sector focus • Capacity building in policy implementation and policy reform • Emphasis on demand responsive and participatory processes
	WSLIC-2	• Grant co-funding to World Bank Loan • Low income communities • Community-based approaches, including CLTS
	Access to Clean Water and Sanitation Initiative (ACWSI)	2-year regional initiative to commence in 2009 which will include: • contribution to ADB and World Bank programs to support assistance to PDAMs • contribution to development of facilitators and infrastructure within PAMSIMAS • Assistance to GOI for PNPM initiative • Assistance to Pro-Air (GTZ watsan program in NTT) • Assistance to other AusAID funded programs including ANTARA, ACCESS, Nias Reconstruction, and provision of water and latrines to schools through the Basic Education Program
Borda	Sustainable management of natural resource in SEA	• Implements Sanimas interventions - community-based sanitation • Water waste treatment plant for SME's • Decentralized technical and social options in rural and urban areas
GTZ	Pro-Air	• Eastern Island focus • CLTS approach to sanitation
JICA	Urban Environmental Improvement Program	• Sanitation and wastewater treatment
JBIC	Denpasar Sewerage Development Project II (DSDP II)	• Expansion of coverage rate of sewerage system in Denpasar, Sanur and Kuta areas • Focus on improvement in O&M by local government

Donor/ Investor Agency/ NGO	Program	Technical & Programmatic Areas
MercyCorps	SENYUM (Health and Safety for Communities	• Focus on health of mothers and children under 5-years through improved maternal and child health practices, improved access to water supply and sanitation facilities and improved hygiene practices
	HP3 (Health Places Prosperous People)	• Water supply, sanitation and solid waste services • Economic benefit focus
	SHSP (Sumatra Health Schools Program)	• School children • Nutrition and hygiene behavior interventions • Water supply and sanitation infrastructure • Behavior change promotion and training in school facilities
Netherlands Embassy	Embassy Water Resources Program	• Contribute to WASAP (trust fund managed by World Bank) • Contribute to UNICEF's WES Program in the eastern provinces • Contribute to ISSDP
PLAN Indonesia	Community Water and Environmental Sanitation Project	• Community based hygiene promotion, including households, schools and village delivery posts • Community-based water supply and waste disposal (solid waste and wastewater) • O&M focus • Contribute to development of local government policies and implementation of government health, hygiene and sanitation programs
UNICEF	Water and Environmental Sanitation (WES)Program	• Water, sanitation and hygiene practices in Eastern Provinces • Village, school and urban with focus on the poor • Rain water harvesting • Hygiene education implemented through Care
USAID	Environmental Services Program (ESP)	• Improved water resources, protection and watershed management • Expanded access to clean water and sanitation services • Increasing production and distribution of clean water • Capacity building in advocacy skills among communities, governments, private sector, local institutions and NGOs • Expand opportunities for intersectoral participation • Strengthen biodiversity conservation • Water supply, sanitation and hygiene promotion • Innovative financing solutions and sustainable market oriented activities

Donor/ Investor Agency/ NGO	Program	Technical & Programmatic Areas
	Health Services Program (HSP)	• Enhanced diarrheal disease control through pairing prevention (handwashing, hygiene and breastfeeding) with treatment of diarrhea (IMCI, ORT zinc and breastfeeding/child feeding) • Promotion of 10 key MoH behaviors (PHBS) and capacity building of BCC teams – including handwashing with soap, clean water and sanitation • Strengthen political commitment and funding for MCH through advocacy coalitions and engagement in Musrenbang • Community mobilization • Focus on reduction in diarrheal disease
	Safe Water System (SWS)	• Promotion of Household Water Treatment and Storage (HWTS) • Creation of commercial model for a Point of Use Product • Creation of a market for Point of Use Product • Establish Public Private Partnership • Creation of enabling policy environment for HWTS • Establishment of National Network for HWTS • Community mobilization
World Bank	WSLIC-2	• Rural poor in underserved rural villages • Support to local health services • Community based behavior change, including CLTS • Water supply and sanitation
	PAMSIMAS	• Rural and peri-urban poor • Hygiene behavior focus • Scaling up of nation-wide community driven approach including CLTS methodology
	Support to GOI PNPM Initiative	• Provision of a three-year World Bank loan along with management of a trust fund to support the PNPM initiative.
	UWSSP	• Urban Water Supply and Sanitation Project in three cities (under preparation)
	WASAP	• Promotes sectoral and institutional reform • Focus on water utilities, river basins, cities and towns • Integrated Water Resources Management • Provision of Technical Assistance • Capacity Building • Sector Performance Monitoring • Sector Investment Initiative • Sanitation Sector Development

Donor/ Investor Agency/ NGO	Program	Technical & Programmatic Areas
WSP	Indonesian Sanitation Sector Development Project (ISSDP)	• Urban focus • Develop enabling environment for improved sanitation • Develop framework for city wide sanitation strategies with a focus on unserved communities • Develop coordination frameworks for sanitation development • Sanitation and hygiene promotion
	Economics of Sanitation Initiative	• Impact study of economic losses from poor sanitation and benefits gained by improving sanitation • Options study of different sanitation management models through the Economics of Sanitation Initiative (ESI)
	Total Sanitation and Sanitation Marketing (TSSM/StoPS)	• Create large scale demand for sanitation and hygiene • Conduct road show and stakeholder advocacy workshops • Develop catalogue of affordable sanitation options • Create large scale supply for sanitation and hygiene • Strengthen supply capacity of the private sector • Establish learning about the most effective approaches to scaling up and sustaining sanitation programs • Strengthen knowledge of health and socio economic impact of large scale sanitation programs
	Handwashing Initiative (CTPS) (MoH)	• Provision of technical support to the MoH's National Handwashing Initiative • Support to the Handwashing with Soap Team (CTPS) • Support to the establishment of Public-Private Partnerships to accelerate the CTPS initiative

Programmatical and technical issues

Analysis of the sector reveals key issues in relation to the six technical and programmatic areas highlighted within the Terms of Reference for the team.

1. Point of use technologies, policies, markets and behaviors:

The value of point of use technologies as an effective intervention to achieve health gains through reduction in diarrhea is now widely acknowledged and gaining increased attention. Indeed a 2005 systematic review concluded that diarrheal episodes are reduced by 39% via household water treatment and storage (HWTS), and a (2006) Cochrane review of randomized controlled trials confirmed the key role that HWTS could play in reducing diarrhea episodes, reporting a reduction in diarrheal disease morbidity by roughly half, on average, with some studies resulting in disease reductions of 70% or more (WHO 2007: Clasen et al 2007). While boiling water is a universal water treatment practice in Indonesia, proper storage and handling of water is not. It is therefore sound policy to include HWTS as one of the key interventions in diarrheal disease

prevention programs in Indonesia. In August 2008, the Ministry of Health publicly launched its new HWTS policy as well as endorsing Air RahMat and other HWTS technologies.

Given the extent of the use of contaminated sources for drinking water, expense involved with boiling water and evidence of recontamination of water stored, the promotion and utilization of alternative HWTS is essential to achieving health gains in the Indonesian context, particularly among poorer households. The recently launched National Strategy for Community-based Total Sanitation (STBM) also reflects the importance of HWTS as a key intervention in reducing diarrheal disease, by including the treatment of drinking water as one of five key criteria which must be met before communities can be rated as having achieved Total Sanitation status – the ultimate goal of the strategy.

However overall gains in reduction of diarrheal disease will not be made until increased awareness of the role contaminated drinking water plays and its causal relationship with diarrhea, and consequential infant morbidity, mortality, loss in school attendance and work performance/productivity, and associated health costs, as well as behavior changes occur. Research findings from the USAID–funded Health Services Program highlight the contradictory behavior pattern of the use of boiled water for drinking when at home while drinking raw or untreated water particularly when outdoors. This behavior is mostly due to practicability, the belief that there is no risk, positive characteristics attributed to raw water and the lack of peer pressure to drink only treated water (Rimbatmaja et al 2006).

Of note is the experience of the USAID-funded Safe Water System Project where the marketing of Air RahMat, a water disinfection product targeted at low-middle income mothers of children under five, encountered two major barriers: 1) the smell; and 2) the reluctance of the general population to adopt a new technology given the almost universal and deeply embedded Indonesian practice of boiling water. The Air RahMat experience poses a huge acceptance challenge to the Ministry of Health's new STBM program and its efforts to achieve effective treatment of drinking water at household level given these barriers. However, concrete results shared during a recent National conference have shown that endorsement from central government has triggered local government to take the lead in promoting and implementing POU treatment, particularly in Trenggalek and Nganjuk in East Java.

So are alternative HWT technologies viable in Indonesia? Given that it is unlikely that the estimated 100 million Indonesians without access to safe water today will receive quality water directly to their homes in the near future, there is obvious value in supporting both a sustained national campaign to both increase awareness and behavior change interventions to address HWTS whilst

concurrently developing and marketing the supply of alternative HWT technologies.

Other options for support to efforts to promote HWTS include:

- More intense and extensive promotion of HWTS at community level, including support to the HWTS component within MoH's recently launched STBM strategy
- Ensuring inclusion of a HWTS focus in Citywide Hygiene Promotion and Community Participation Plans
- Provision of technical assistance to the Ministry of Health with the facilitation of links with universities, technical institutes and marketing and advertising agencies to conduct further research and development of HWTS, marketing strategies and behavior change interventions
- Provision of technical assistance with the development of a national mass communications campaign to increase awareness and knowledge of the benefits of effective HWTS and alternative technologies and stimulate demand for a mix of HWTS products
- Development and implementation of complementary strategies where possible to build upon what is essentially positive behavior (i.e. treating water by boiling): promotion of correct boiling method whilst utilizing more environmentally-friendly and cheaper fuel (e.g. using biogas from community-based sanitation)
- Development of a lessons learned package for dissemination and further analysis among members of the recently formed National Network of HWTS
- Provision of assistance to business plans, development of suppliers, and research and analysis of the market.

2. Handwashing communications and hygiene behavior change interventions

The promotion of handwashing with soap (HWWS) at critical times is an essential intervention in diarrheal reduction programs, control of the spread of avian influenza, acute respiratory infection and perinatal complications (Indonesia MoH Director of Environmental Health Presentation to East Asia Conference on Sanitation and Hygiene, December 2007), and reduction in infant mortality. A 2005 systematic review concluded that diarrheal episodes are reduced by 45% via HWWS at critical times (WHO 2007). HWWS is also a key element in the MoH's STBM strategy – communities must achieve HWWS along with four other key behaviors in order to attain the overall goal of Total Sanitation.

Both ESP and HSP include promotion of HWWS as a key intervention in their programs. ESP's formative research of local hygiene practices and the factors facilitating and inhibiting these hygiene behaviors demonstrated handwashing with water is a common practice. However, even though access to soap is widespread, soap is infrequently used at critical times. The task of developing tools for behavior change communications and interventions, based upon the findings of ESP's research, is currently in development through the MoH's national handwashing initiative and with support from WSP.

Issues concerning handwashing with soap include the following:

- There is a need for regular monitoring of hygiene outcomes from interventions such as handwashing and disposal of infant excreta. The introduction of the "Ten Minute Monitoring Tool" by ESP (a survey tool used in monitoring and evaluation to obtain input on behaviors in less than 10 minutes from an interviewee) is to be commended. Sustainability of the use of the tool after Project end is yet to be determined. Nevertheless, there is a need for this type of monitoring to be systemized, linked to central databases and harmonized with other monitoring systems, ensuring availability of data on hygiene outcomes. The MoH's new national handwashing with soap initiative presents an opportunity to explore the utilization and possible adaptation of the 10-minute monitoring tool for systemized use by MoH staff, including Sanitarians at Puskesmas level, and its sanitation and hygiene partners.
- There is an overall need to ensure an impact analysis is conducted of all handwashing with soap initiatives. Given ESP's experience with the development of its formative research tool, data collection and analysis (and SWS' experience with marketing positive behavior and product), opportunities to assist the MoH and/or tertiary education institutions with future research are obvious.
- Independent verification of hygiene outcomes is another important monitoring mechanism, contracted out to independent agencies, consultants, NGOs, universities. This is another area where assistance could be utilized to assist MoH and its partners in establishing an independent monitoring mechanism within the handwashing with soap program.
- As a result of low demand for surveillance data, current efforts to collect data by MoH staff and others involved with the promotion of HWWS are minimal. Incentives for health staff and others involved in the promotion of HWWS along with other hygiene and sanitation improvements need to be explored.

- Sanitarians at Puskesmas level are in the main underutilized and under-resourced to support efforts to effect hygiene improvements in the field. Exploration of ways to both provide institutional incentives for Sanitarians and ensure they are resourced and skilled to carry out an expanded monitoring and supportive role could be explored and developed.
- Innovative solutions for the provision of access to handwashing facilities which provide for running water and constant supply of soap close to toilet facilities, especially in challenging situations such as urban slums will be required.

3. Community mobilization as a strategy for behavior change

Community mobilization should remain a core element of strategies which aim to improve access to water, sanitation and hygiene improvements. Low levels of community participation and subsidy-driven sanitation programs have had limited success in Indonesia, resulting in low levels of ownership, utilization and maintenance of both water and sanitation facilities. Furthermore, community mobilization will remain a core of future efforts to promote environmental health improvements, given local governments continue to grapple with their responsibilities within a decentralization institutionalized setting. In the short and medium term, the poor and the marginalized including those in urban slums and remote rural areas will remain underserved by their local governments. Community mobilization approaches are appropriate to reach these hard to reach groups in order to promote environmental health improvements.

The STBM strategy launched in August 2008 was the MOH response to the successful community mobilization activities in various water and sanitation programs including CLTS, SWS, Sanimas, WSSLIC, Handwashing partnership. The strategy was strengthened by observation results from MOH attendance in the POU conferences in Kenya and Ghana where they learned the importance of national policy to endorse community participation in the watsan sector. There are five pillars to the STBM strategy including:

- Open Defecation Free Environment
- Handwashing with soap
- Safe Household Water Management
- Safe Food Handling
- Safe solid waste management

The inclusion of CLTS in the STBM strategy was in response to its success with field trials. CLTS empowers and inspires rural communities to stop open defecation without subsidies. A number of agencies and programs are utilizing CLTS methodology (e.g., TSSM, UNICEF, PLAN Indonesia).

The MoH, buoyed by the success of implementing the STBM strategy, proposes to implement the Strategy in 10,000 villages over the next five years. Although CLTS methodology (leading to open defecation free communities) has been applied in rural and peri-urban areas where sufficient land is available for on-site excreta disposal, adaptation of the key element to stimulate demand for open defecation free communities in challenging urban settings is yet to be developed or considered in the Indonesian context. It is envisaged that the MoH will require technical assistance with adaptations to the approach in densely populated areas, considerable research inputs into the impact of an adapted methodology, and solutions to providing appropriate supply in response to triggering demand. Further, the STBM strategy is considered and planned to be applicable for health and hygiene behavior in both rural and urban settings, where the CLTS objective of open defecation free communities is just one pillar of the STBM strategy.

An impact study of the various community development and mobilization methodologies that have been utilized in promoting water, sanitation and hygiene improvements, including the role of women and other entry points such as nutrition, would also both benefit and deepen the knowledge of the sector.

During the design state of the project, the role and linkage should be determined with the USAID Regional Development Mission for Asia (RDMA), through its Water and Sanitation Program, within Environmental Cooperation-Asia (ECO-Asia). RDMA is active in Indonesia and continues to have an important role. It has promoted septage management in urban communities as a means to achieve improved sanitation conditions.

USAID-funded projects, ESP, HSP and SWS have gained important experience in community mobilization strategies. ESP has ongoing water for the poor activities which are collaborating with a local PDAM and Community-based Organizations in increasing access to piped water through a simple piped network system downstream of a bulk/communal water meter. HSP has targeted village health committees concentrating on improving targeted behaviors including handwashing as one of these. HSP has also played a key role in establishing health committees and replicating approaches to support health committees, as well as linking these committees to puskesmas. In addition to Air Rahmat, SWS has promoted proper water storage and handling at the community level.

4. PDAM management assistance needs

Although there is a great range in the capacity of the PDAMs throughout the country (several perform relatively better than others, attributed to previous assistance funded by USAID), none of the PDAMs are without serious

challenges. A glaring shortcoming is that none of the PDAMs appear to have the financial capacity to expand as much as is needed.

The financial limitations suffered by the PDAMs are, in part, related to insufficient support by local government. The World Bank's 2007 public expenditure review for Indonesia concluded that:

> *"Today, Indonesia's main development challenge is not to transfer significant additional resources to poor areas, but to make sure that existing resources are spent effectively... Despite large surpluses, resources are often channeled to the wrong places. For instance, while (part of) local government funds remain unspent, many PDAMs have become insolvent and unable to provide water services."*

PDAMs have a number of management issues that must be resolved both to achieve efficient operation, and to be able to attract financial support. Examples include the need for standard operating procedures for cost recovery, improving non-revenue water management, and business plan development including annual budgeting.

To say that PDAM management issues must be resolved to attract financial support, is not to say that this alone will attract the needed financial support. This is also related to central government decision-making, management, and commitment.

5. Community level water access improvement strategies

Many poor communities consist of "squatters" who do not have legal title to the land on which they live. PDAMs (water utilities) cannot legally provide household connections in such communities. However, creative solutions can work, such as having the PDAM bring water only as far as a community meter at the entrance to such communities. Then the community can take responsibility for constructing and maintaining its own distribution piping beyond the community meter.

ESP has successfully demonstrated such models for helping poor households through leveraging resources from government /donors/investors to expand water services for poor-inclusive schemes, including:

- Service connections partially paid by new users (in some cases via micro-credit)
- water service entirely reimbursed to the PDAM by a financial backer (Output Based Aid (OBA) or other)
- water-for-poor communal meters

6. Other larger policy, regulatory, governance or finance issues affecting PDAM functional capacity

A pro-poor and poor-inclusive strategy is recommended, which will benefit not only the poor, but also the general population. That is because improving the capacity of a PDAM will benefit all of its customers, not only the poor. Furthermore, cross-subsidies require that others besides the poor be benefited; the income from those who are not poor is necessary for a utility to pursue full cost recovery; and politically the local government, which owns the utility, must serve more than only the poor. A pro-poor and poor-inclusive approach requires that the poor not be an after-thought for the utility, but rather that actions are taken to ensure that the poor benefit from the improved capacity of the utility. Typically, with a pro-poor and poor-inclusive approach, about 20% to 25% of new connections can directly benefit poor families (official GOI programs assume that 20% of those benefited will be poor, but with proper targeting this might be increased somewhat – 22% is assumed in this report).

Another important issue is that local governments (which own the PDAMs) tend to view the PDAMs as a source of revenue, rather than a public service which the local government should help to support, instead of vice versa. Local governments often constrain the financial viability of their PDAMs by both taking revenue from them, and limiting the tariffs they can charge to insufficient amounts. However, the ESP project has shown that this attitude can be improved with TA oriented at capacity building coupled with making the case to local governments that it is in the interest of their citizens for the local governments to assist their PDAMs.[1]

[1] In this report, when reference is made to the local government, it implicitly includes provincial and municipal governments, including their legislative assemblies (DPRDs). A law passed in 2004 gives a much bigger role to the DPRDs than in the past, and they have also recently been directly elected, instead of appointed. The project must take this into account when dealing with local governments. The DPRDs now have legislative, budgetary and supervisory functions, whereas, in the previous law, their role was just to approve draft regional regulations made by the head of the region. Because of their nature as legislatures with many members, they can be more difficult to interact with than the staff of local government departments, and specific programs should be developed for this. This would consist of various capacity building and advocacy programs, such as workshops, exposure visits, briefings, and formal meetings.

SECTION 3. PARAMETERS FACILITATING AND CONSTRAINING USAID INVESTMENT

The parameters which facilitate and constrain USAID investment in the water, sanitation and hygiene sector are largely affected by the political and government landscape and to some degree the extent of and potential for engagement and involvement of private sector actors. In addition, the local Indonesian context influences investment in the water, sanitation, and hygiene sector. These parameters are discussed below.

Political/Government:

In 2001, Indonesia embarked on a decentralization program with local districts and municipalities assuming many new responsibilities that were previously undertaken by the national government in Jakarta. On the one hand, decentralization provides an opportunity for investment and assistance to be directed at District level, a level where management and decisions have a closer relationship with intended recipients. On the other hand, given the various ways each district has institutionalized their governing responsibilities; it is often difficult for multi-lateral investors such as the World Bank to identify one central government institution for overall management.

While decentralization has provided local communities the first-ever opportunity to directly elect their leaders and develop a vibrant civil society, it has also posed a huge governance challenge for Indonesia. Newly elected and incumbent local officials are often inadequately prepared for their new governance responsibilities within what is mostly a weak institutional framework. This has resulted in capacity constraints across and within the new government decentralized structure, including constraints with planning efforts in best using development budgets to improve communities, support gender responsive and pro-poor planning, and allowing for civil oversight of government spending.

Further compounding capacity constraints at district level is the reluctance and risk aversion of some PDAM managers to receiving either loans or grants for large capital projects regardless of need. This risk aversion is in response to both ongoing efforts to restructure debt among a large number of PDAMs and the highly publicized and intimidating anti-corruption measures and their implementation introduced by President Yudhoyono's administration. However, Indonesia has managed its overall government debt burden well. Efforts to reduce Indonesia's debt-to-GDP ratio have resulted in Indonesia's public debt burden falling from 100% in 1999 to 40.8% in 2006, comparable with neighboring countries, with the expectation that it will continue to decline to 30-35% by 2009 (World Bank 2007).

In contrast, regulations concerning water supply are rarely enforced due to lack of political will and limited citizen pressure to enforce water regulations, which

would provide for higher levels of service from the PDAMs. While there are now greater opportunities for Indonesian citizens to participate in the policy making process and to hold local authorities accountable for service delivery, pressure from local groups for local government to provide both adequate amounts of and quality water along with sanitation services remain limited. However, of note, hundreds of women protested the lack of water in front of Cirebon's Mayoral office on 11 November 2008, indicative that a vibrant democracy is emerging.

Current political support and direction for sanitation and hygiene in both urban and rural settings appears limited at present, although there are indications that it is improving. While most stakeholders agree the Ministry of Public Works (MPW) is responsible for urban sanitation and the Ministry of Health (MoH) is responsible for rural sanitation and hygiene, the design of combined water supply and sanitation programs and the blurring of the distinction between rural and urban spaces complicates this institutional division. In the context of Indonesian policy development, planning, and budgeting, sanitation is not recognized as an independent sector. There are no specific institutional arrangements for management of sanitation at the municipal level nor is there robust intergovernmental coordination occurring at all levels.

The MPW is however implementing and facilitating the SANIMAS approach to sanitation, a community-based sanitation approach, with assistance from NGOs, to provide decentralized technical sanitation options in rural and urban areas. The MPW aims to reach 200 locations each year with the SANIMAS approach.

The MoH recently launched its community-based total sanitation strategy (STBM) which is essentially a behavior change strategy to motivate communities to adopt key hygiene behaviors, one of which is to achieve open defecation free communities. However, lack of human resources to respond to the responsibilities of decentralization along with a lack of dedicated human resources to sanitation and hygiene programs by District Health Offices continue to challenge efforts to effectively respond in a sustained way to water, sanitation and hygiene related health initiatives let alone integrate other key vertical MOH programs into existing district and health centre activities. Although a Sanitarian Officer position is included at sub-District level, resources are rarely made available for the Sanitarian Officer to provide a useful and enhanced planning, implementation, monitoring and supervision role within sanitation and hygiene promotion initiatives.

Given there is a strong desire among local and central government for technical guidance and definition for institutional and operational improvement, decentralization presents an opportunity for providing and embedding technical assistance within local institutions.

Private Sector

The private sector as it relates to water and sanitation presents both a number of challenges and opportunities. The MPW has attempted to engage the private sector over the last five years, including the development of promotional materials by BAPPENAS which encourage private sector opportunities within the sanitation sector, with limited success. There is general consensus that low levels of private sector involvement are due to lack of skills, creativity and understanding among local government with engaging and maintaining private sector interest. Nevertheless, some PDAMs are contracting services to the private sector, including the design and construction of a water treatment plant in Surabaya, outsourcing management of billing systems, and experimentation with contracting private services for paid-for-performance energy efficiency improvements.

The private sector also reaches almost all geographic locations and sections within in Indonesia with supply of bottled water, soap and other hygiene products. The Ministry of Health recently embarked on a Public Private Partnership approach to assist with its national handwashing with soap initiative, engaging private sector enterprises to help accelerate the adoption of handwashing with soap at critical times throughout Indonesia.

Of note, local governments are also struggling to counter NGO resistance and their accompanying public advocacy campaigns which oppose the introduction of privatization measures for water supply. On the other hand, USAID programs in water and sanitation show high private sector interest in Indonesia in contributing to development of wide range of water and sanitation relevant activities, from water resource protection and land rehabilitation in upstream areas to community-based water and sanitation systems as well as hygiene behavior change in downstream areas. Increased and more effective engagement with the private sector and NGO sector is an opportunity which technical assistance can support.

Private sector alliances provide opportunity to support the water, sanitation, and hygiene-promotion sector. For example, USAID Indonesia and Coca-Cola launched the Community Watershed Partnership Program, or Cinta Air, in Bekasi, West Java, to provide clean water and sanitation services to 25,000 people living in the rapidly growing district of Bekasi. A US$700,000 partnership, Cinta Air built an understanding of the vital connection between the environmental conditions in upstream forest areas and a regular supply of clean water downstream. Under the program, school and community group activities developed local leadership needed to protect water resources, manage clean water and sanitation systems, and treat water to make it drinkable.

Going forward, other private sector alliances should be included as other potential activities for USAID/Indonesia. Supporting considerations include:

- A large private sector and leveraging potential exist in various water, sanitation, and hygiene promotion subsectors in Indonesia
- A global USAID initiative to triple private sector alliances is being encouraged
- On July 20, 2007, the Indonesia House of Representatives passed the controversial "Corporate Social Responsibility" corporation bill into law, making CSR mandatory for companies operating in any business field related to natural resources, with sanctions to be imposed on non–compliant firms. [World Bank defines CSR as the commitment of business to contribute to sustainable economic development working with employees and their representatives, their families, the local community and society at large to improve quality of life, in ways that are both good for business and good for development.]

Local Indonesian Context

The Indonesian cultural and social context includes the following factors which influence water, sanitation and hygiene promotion interventions:

- Many urban poor live as illegal squatters, and this complicates bringing services to them. For instance, a PDAM (utility) cannot legally provide connections to such households. Nonetheless, the USAID-funded ESP project was able to facilitate innovative solutions such as having PDAMs bring water only as far as community meters; the communities themselves then took responsibility for constructing distribution piping from such community meters to the homes.
- Government officials, including PDAM (water utility) administrators, are risk averse in relation to financing options and investments. This is at least in part the result of strong anti-corruption laws, and the fear that they will become entangled in accusations of corruption if financing options and investments go badly, and they fear that they could even find themselves spending time in jail.
- There is a cultural readiness to share knowledge and lessons learned from experience. For instance, personnel from relatively better run PDAMs take pride in their capabilities and are ready to share and explain this with personnel from other PDAMs.
- People are enthusiastic about receiving training and improving their capabilities.
- In Indonesia, the term sanitation ("Sanitasi") is understood to refer to environmental sanitation comprised of three things:
    - solid waste collection,

- stormwater drainage, and
- excreta disposal via sewerage, septic tanks, or latrines.

Generally, communities prioritize these three in the order that they are listed above. On the positive side, this means that solid waste collection can be used as an entry point, building credibility and moving on to dealing with excreta disposal. On the negative side, it corresponds to a low perceived importance to dealing with excreta disposal (except for the desire for privacy).

- Most Indonesians boil tap water before consuming it, and have not been exposed to other POU methods. When done properly, boiling water can eliminate bacteriological contamination, but such boiled water nonetheless is often re-contaminated during storage and handling.

  The subject of alternative POU treatment methods is one for which there is a lack of consensus about what should be recommended. There is no question that POU chlorination, using Air Rahmat, can provide a residual to counter re-contamination during storage and handling, and thus could have a greater health impact than boiling. However, there are differing opinions about the feasibility of convincing a large segment of the population to adopt such POU chlorination. Research on this topic was commissioned by the ESP project (DAI, 2006), and included the following observations: "Indonesians have long been taught in schools, local clinics, etc. to boil their drinking water to prevent sickness...Changing behavior from a customary practice is a challenging endeavor no matter what the case...taste and odor issues (are) the main reason why many Indonesians have an aversion to using chlorine, or if they use chlorinated water, prefer to let the chlorine dissipate first... Many Indonesians are already using water that has been chlorinated from the government supply, which they typically boil to get rid of the chlorine smell." The research described in the report included a pilot-scale investigation among underprivileged households around Jakarta. This included a month of monitoring of 87 volunteer participating households in four communities, and a follow-up campaign where users shared their opinions on the water treatment they used. After extensive explanations about the relative benefits of various POU treatment methods, and after the one-month trial and sharing of opinions by users, boiling was still the first choice POU treatment method for 40% of the participants. This was followed by 26% for SODIS (solar purification), 19.5% for bottled water, 10% for ceramic filtration, and only 3.4% for chlorination using Air Rahmat.

A case can be made that perhaps a "tipping point" is being approached in which the promotion of POU chlorination will be more effective. Nonetheless, this has not yet happened.

In the end, it seems best to emphasize to the population the importance of POU treatment in a context in which the water that is delivered to homes is rarely safe to drink without such POU treatment. The population should be offered information about various POU alternatives as well as proper storage and handling.

SECTION 4. DESIGN CRITERIA

A number of design criteria were developed for ranking potential USAID interventions. The criteria were developed from an initial set of guidelines provided in the scope of work, as well as approximately 10 other criteria developed by the team. These criteria were developed from review of funding objectives, as well as other objectives normally prescribed for USAID water and sanitation activities such as health, cost, sustainability, and acceptability. Multiple levels of government are involved in decision making, and the somewhat recent move to decentralize government has resulted in legislation with ambiguous interpretation and mixed enforcement. Given these facts, design criteria were added for "institutional complexity" and "benefit relative to risk" for each intervention.

A paired matrix methodology was used to develop relative ranking for the design criteria. USAID staff and the consultant team provided input and participated in ranking of the design criteria. The purpose of the paired matrix comparison of design criteria is to arrive at a relative weighting for each of the criteria considered. Many people are accustomed to an approach to weighting in which relative weightings are arrived at simply by discussion and using the judgment of those who develop the weightings, without the step of using a paired matrix comparison. However, the paired matrix comparison is a more rigorous approach that results in weightings that can be better justified, and for that reason is used in this report.

In this methodology, each criterion is compared to another to develop a weighting. As shown in Table 4.2 on the following page, a matrix is set up in which each design criteria is listed twice, once as a column heading, and once as a row heading. This results in a matrix in which there is a box in which each design criterion can be compared to every other design criterion. For instance, where row D, corresponding to "National GOI support," crosses column K, "bang for the buck" these two can be compared. The letter corresponding to the criterion that is deemed most important of the two is then written in the box. In this case it is criteria K: "bang for the buck." Then a number is added which indicates how much more important K (bang for the buck) is than D (National GOI support). The more important variable is ranked from 0.5 to 3 using the following:

> 0.5 indicates that the more important of the two criteria is very slightly more important (they are almost equal in importance) than the other one;
>
> 1.0 indicates that the more important of the two criteria is more important, but not by much;

1.5 indicates that the more important of the two criteria is intermediate between a 1.0 and a 2.0;

2.0 indicates that the more important of the two criteria is significantly more important than the other one;

2.5 indicates that the more important of the two criteria is intermediate between a 2.0 and a 3.0; and

3.0 indicates that the more important of the two criteria is very much more important than the other one.

Once the paired matrix comparison table has been filled out, the results are added to generate the relative weightings for all the design criteria. In Section 5 of this report, these weightings are used in the process of evaluating potential interventions, to determine the ranking of those interventions.

Results

As identified in the matrix and shown in Table 4.1 below, local government support, meeting funding criteria, acceptability by those impacted, high health impact, and bang for buck ranked among the most influential criteria.

Table 4.1. Most Influential Design Criteria

	Weight	Comment
Local GOI support	21.5	
Meets Funding Criteria	21.5	Includes both GH/CS and WFP considerations
High Potential for Acceptability by those Impacted	20	Refers to both Implementees and Beneficiaries
High Health Impact	19.5	
Bang for Buck	19.5	
High Opportunity for Sustainability	16.5	
Leverages Investment	15.5	GOI as well as outside sources
High Benefit Relative to Risk	15.5	

While the exercise is challenging in that it forces difficult decisions among criteria, the exercise provides value in soliciting discussion and providing a framework for group consensus of which criteria should have the most influence on strategic and programmatic direction and interventions.

Table 4.2. Paired Matrix Comparison of Design Criteria

		A	B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	R
		Doable in five year schedule	Ability to reach poor, particularly women and children	Potential for cost-effective replication & likelihood	National GOI support	Local GOI support	Private Investor interest	Opportunity for future donor collaboration	Complementarity with past USAID investments	Leverages investment	Bang for buck	High benefit relative to risk	High potential health impact	High opportunity for sustainability	High potential for acceptability by those impacted	Directness of intervention to beneficiaries	Low institutional complexity	Meets USAID funding criteria
A	Doable in five year schedule		3B	3C	2.5D	3E	1F	1A	2A	3J	3K	1.5L	2.5M	2N	2O	1A	0.5A	2R
B	Ability to reach poor, particularly women and children			1.5C	0.5D	1.5E	1.5B	2B	1B	1.5J	0.5B	1.5L	1M	1N	1O	2B	1B	2R
C	Potential for cost-effective replication & likelihood				0.5C	1E	0.5F	1.5C	2C	1.5J	1K	1L	1.5M	0 5N	1.5O	1.5C	2C	2R
D	National GOI support					2E	2D	1.5D	3D	1D	0.5K	1.5L	2M	0.5N	1O	1.5D	2D	1D
E	Local GOI support						2E	3E	3E	0.5J	0.5K	1E	2M	0 5N	1O	3E	2E	1.5R
F	Private investor interest							1.5F	0.5F	2J	2K	2L	1.5M	1.5N	2O	1F	2F	2R
H	Opportunity for future donor collaboration								1I	2.5J	2K	2L	2M	3N	3O	0.5P	1H	2.5R
I	Complementarity with past USAID investments									1.5J	2.5K	2.5L	3M	2.5N	2.5O	1P	0.5Q	3R
J	Leverages investment										1K	0.5L	2M	0.5N	0.5O	1J	2J	1.5R
K	Bang for buck											0.5K	2K	0.5N	0.5O	2.5K	2K	0.5R
L	High benefit relative to risk												1M	1N	0.5O	1.5L	1.5L	1R
M	High health impact													1.5M	1.5O	2M	1.5M	0.5M
N	High opportunity for sustainability														1O	2N	2N	0.5N
O	High potential for acceptability by those impacted															2.5O	2O	0.5O
P	Directness of intervention to beneficiaries																1Q	2R
Q	Low institutional complexity																	1.5R
R	Meets funding criteria																	

SECTION 5. SUMMARY OF POTENTIAL INTERVENTIONS AND RANKING

The eleven potential interventions identified in the scope of work were slightly refined, and then given scores and ranked in the order of appropriateness for support by USAID during the coming five years. The results are summarized in Table 5.1. The methodology used to arrive at the scores is explained in the paragraphs following the table.

Table 5.1. Summary of Interventions and Rankings

Intervention	Score	Ranking Order
PDAM capacity building	965	1
Finance activities including microfinance and utility/local government finance	864	2
Community Mobilization for water, sanitation, and hygiene	862	2
National and sub-national Advocacy Strategies to increase political and financial commitment	842	3
Strategies to address Sanitation (advocacy, infrastructure, and behavioral)	841	3
Increase Access to water services among poor households in urban/peri-urban areas	822	3
Rural approaches to improving access to drinking water	720	4
Sanitation in coastal areas including technology and behavioral innovations	673	5
Household alternative POU methods	612	6
Watershed activities impacting water quality and quantity	471	7
Water Quality Testing and reporting	446	8

Methodology for arriving at the scores in Table 5.1:

> The results presented in Table 5.1 are based on an evaluation of potential interventions which proceeded as follows. As shown in Table 5.2, the potential interventions were placed on the left side of the rows of a matrix, and the weighted design criteria discussed in Section 4 of this report were placed at the top of the columns in the matrix. Then the matrix was filled in with each design criteria's applicability to each intervention being given a score of 1 to 5, with "1" being low and "5" being excellent (these scores of 1 to 5 were assigned by the consultant team, taking into account inputs from USAID/Indonesia staff). Then the "objective weighted points" that appear in the final (right-most) column of the matrix, were calculated for

each intervention by summing the multiples of its score for each design criteria, by the weight given to that design criteria (these weights were explained in Section 4 of this report). For instance, for the first intervention in the matrix, "Increase Access to water services among poor households in urban/peri-urban areas" the score of 5 for the design criteria "doable in a five-year schedule" was multiplied by the 4.5 weighting for that design criteria, and the score of 5 for the design criteria "ability to reach poor, particularly women and children" was multiplied by the 11 weighting for that design criteria. This process was continued for all of the design criteria, and then the multiples were summed to arrive at a sum of objective weighted points of 822 for that intervention. This process was repeated for each of the potential interventions.

As shown in Table 5.1, the ranking order fall in several general groups with PDAM capacity building at the top, and finance activities and community mobilization as second, followed by advocacy strategies, strategies to address sanitation, increased access to water services in poor households coming in a very close third.

More than 100 points away are rural approaches to drinking water, sanitation in coastal areas and household point of use methods.

Watershed activities and water quality testing bring up the rear largely because of their low scores on bang for the buck, ability to leverage financing, relatively low health impact, and ability to reach the poor, particularly women and children.

In this report, "bang for the buck" refers to achieving as much as possible per dollar spent, in relation to the goals of the Water for the Poor (WFP) Act. If a huge part of a watershed were to be protected, that could have a very beneficial impact on both the quantity and quality of raw water available for use downstream. However, achieving this would require a huge investment, such as might be associated with the creation of a large national park or other very large protected area. In relation to the goals of the WFP Act, other uses of such a huge investment could benefit more people. That said, those who are working to improve water supplies should certainly cooperate with actions to protect watersheds. Further, sufficient raw water supply is an issue; however, the water supply goal can most appropriately be addressed in the context of the WFP Act through (a) making utilities financially viable enough to warrant investment for water source infrastructure improvements, and (b) better managing what water utilities do have through reduction in non-revenue water and improvements in implementing pressure zones. These activities also meet the relatively short-time frame associated with performance indicators, and the WRP Act interest in serving as many people as possible.

Water quality testing can be divided into (a) testing of the raw water and treated water at a treatment facility, and (b) testing of the water at various points within the

distribution system, including at points of delivery to users, such as household connections. It can also be divided between physical (especially suspended solids and color), chemical (such as arsenic, heavy metals, pesticides, and other contaminants), and microbiological testing. This last, microbiological testing is usually what is emphasized at the point of use, because microbiological contamination is probably the greatest cause of disease, including diarrhea that can result in infant mortality.

The testing of raw and finished water quality is generally a routine function of those who run water treatment plants, especially testing of Total Suspended Solids, which can be removed by sedimentation. Because few samples need to be tested, this is relatively inexpensive, and will often be done by PDAMs without the need for any investment by USAID. Where the situation exists where a PDAM does not do such testing, then it should be encouraged to do so as part of the capacity building that is recommended in this report. It can be noted that in Indonesia the testing of bacteriological quality generally is not worthwhile for raw surface water sources, because it can be assumed that they are highly contaminated without the need for such testing.

With regard to distribution, in developed countries, a simple test is used to determine if there is chlorine residual at various points in the system. If so, then it can be assumed that the water is bacteriologically safe. However, in Indonesia water usually reaches users without a chlorine residual, either because chlorine was not used as part of the treatment process (typically because users object to the taste and odor of chlorine, and/or to reduce costs), or because the chlorine was consumed by interacting with contamination that is sucked into pipelines when there is negative pressure (caused by either insufficient water to keep the distribution system full at all times, or by hydraulic pressure factors). Because it is not expected that residual chlorine will be found throughout the distribution system, more complicated and expensive testing would be needed to establish the bacteriological quality of the water. That in turn would not be likely to provide useful information, because (a) even without such testing, it can be assumed that much of such water supplies are contaminated, and (b) most Indonesians will only drink tap water after boiling it because, even without bacteriological testing, they are aware that such "point of use" treatment is needed. Thus the question arises: What would be the point of such testing?

Considering the above, water quality testing is not deemed to provide sufficient "bang for the buck" to justify investing in it at this time. Of course priorities can change over time, and in the future a PDAM may progress to where many of the current priority problems are resolved, and water quality testing could move up to become a higher priority. However, that is not deemed to be the case at the present time.

Given these scores, it is recommended that the proposed technical interventions be those that are consistent with the categories ranked 1 through 3.

The specific technical recommendations developed by the strategy team and their rationale are discussed in Section 6.

Table 5.2. Ranking of Interventions

Intervention	A Doable in five year schedule	B Ability to reach poor, particularly women and children	C Potential for cost-effective replication & likelihood	D National GOI support	E Local GOI support	F Private investor interest	H Opportunity for future donor collaboration	I Complementarity with past USAID investments	J Leverages investment	K Bang for buck	L High benefit relative to risk	M High health impact	N High opportunity for sustainability	O High potential for acceptability by those that are impacted	P Directness of intervention to beneficiaries	Q Low institutional complexity	R Meets funding criteria	Objective Weighted Points
Alt/Weight	4.5	11	12	15	21.5	6.5	1	1	15.5	19.5	15.5	19.5	16.5	20	1.5	1.5	21.5	
1. Increase Access to water services among poor households in uban/peri-urban areas	5	5	4	3	4	1	5	5	4	4	4	4	3	5	5	3	5	822
2. PDAM capacity building	4	4	4	4	5	4	4	5	4	5	3	4	4	5	4	3	5	965
3. Community Mobilization for water, sanitation, and hygiene	5	5	3	4	3	2	4	4	3	3	3	4	3	5	5	3	5	862
4. Strategies to address Sanitation (advocacy, infrastructure, and behavioral)	4	3	4	4	3	2	5	5	3	4	3	4	4	4	4	2	5	841
5. National and sub-national Advocacy Stategies to increase political and financial commitment	4	3	3	3	4	4	5	5	4	5	3	4	4	3	3	2	5	842
6. Watershed activities impacting water quality and quantity	3	1	1	2	2	1	2	5	1	1	2	2	3	4	3	2	2	471
7. Finance activities including microfinance and utility/local government finance	4	4	4	3	3	5	3	5	5	5	3	4	4	3	3	2	5	864
8. Household alternative POU methods	3	3	2	4	3	3	3	5	2	2	2	4	3	2	5	4	5	612
9. Water Quality Testing and reporting	5	1	2	2	2	1	1	2	1	2	2	2	3	3	1	4	3	446
10. Rural approaches to improving access to drinking water	5	3	3	3	3	2	4	2	2	3	4	4	3	5	5	4	5	720
11. Sanitation in coastal areas including technology and behavioral innovations	3	3	3	3	3	2	3	3	3	3	2	4	3	4	5	2	5	673

SECTION 6. RECOMMENDATIONS AND RATIONALE

6.1 WATER SUPPLY RECOMMENDATIONS FOR STRATEGY AND INTERVENTIONS

The best way to have the most impact on increasing the number of Indonesians, who have affordable and equitable access to water supplies, as required by the Water for The Poor Act, is by strengthening the capacity of the country's PDAMs (water supply utilities).

The only realistic way to contribute to greatly increasing the number of urban dwellers with affordable and equitable access to clean water supplies is by improving the capacity of the PDAMs (water supply utilities) to deliver this service. For the past decade, Indonesia has been embarked on a decentralization process which puts ultimate responsibility for water supply in the hands of local governments and the PDAMs which they own. For this reason it is essential for the PDAMs to become efficient, effective, and economically viable if urban water supply coverage is to improve. Of course improving the capacity of the PDAMs to deliver services, does not automatically increase the number of people served, as this will also require utility commitment and financial resources. Nonetheless, it is a necessary step, and achieving improved capacity can be expected to greatly facilitate in attracting the needed financial resources.

It is recommended that USAID assistance with water supplies in Indonesia focus on urban areas, as opposed to rural areas, because it is in urban areas that a given amount of funding can benefit the most people. This also takes into account:

- The GOI preference for USAID serving urban areas
- USAID's comparative advantage because of its experience and established reputation and credibility for working with PDAMs
- Opportunity timing given the World Bank and Ministry of Finance development of incentive programs for local governments support to PDAMs
- Opportunity to attract outside investment
- The fact that there are a large number of donors and projects already focusing on rural water supply and sanitation

Depending upon USAID's future investments in health and education in rural areas, there would be the potential for leveraging with rural programs; however, we do not believe it would be enough to change these conclusions.

As mentioned earlier, a pro-poor and poor-inclusive strategy is recommended, which will benefit not only the poor, but also the general population. That is

because improving the capacity of a PDAM will benefit all of its customers, not only the poor.

It is recommended that USAID work with several clusters of PDAMs (water supply utilities) to increase their capacity to provide affordable and safe water to urban populations. This recommendation is based on the above considerations about how to have the most impact, on the rankings of potential interventions, presented elsewhere in this report, and on programmatic considerations.

PDAM capacity building is the highest ranked of the interventions considered, as discussed in the previous section of this report. It also incorporates other of the most highly ranked interventions, as indicated in the following table:

Table 6.1. Highest Ranked Interventions Related to Water

Ranking	Highest Ranked Interventions Related To Water
1	PDAM capacity building
2	Finance activities including microfinance and utility/local government finance.
2	Community Mobilization for water, sanitation, and hygiene
3	Increase Access to water services among poor households in urban/peri-urban areas

Financing problems cannot be separated from performance, governance, and planning problems, as financing entities will only support PDAMs that are credit worthy and have the capacity to put the funding to good use in a manner that they are confident will generate the revenue to repay the loan.

While becoming credit worthy, as indicated by a good credit rating, may be with the goal of securing finance, credit worthiness can be considered to be an end in itself. This is because all of the steps needed to become credit worthy also contribute to the viability of the PDAM. Even the final step of getting a credit rating contributes to the viability of the PDAM, because the requirements for getting a credit rating, such as audits, clear financial operating procedures, and having a business plan, require a healthy discipline on the part of the PDAM and bring order to the way it is operated.

The assistance to PDAMs is to focus on the same things that must be well implemented in order to be credit worthy: (a) performance and governance; (b) planning; and (c) financing, as outlined below. This is to be the focus of assistance because only when these three components are improved, will a PDAM be in a position to greatly increase the number of people served, in a poor-inclusive manner.

Capacity building for the purpose of expanding access of the urban poor could be organized around three areas of interventions: (1) Improve and replicate successful models for service/access improvement; (2) Improve access to finance; and (3) Advocacy at all levels, including demand creation at the community level, and advocacy at the municipal, provincial and national levels.

Table 6.2. Focus of Recommended Assistance to PDAMS

(a) Performance and Governance:

- Standard Operating Procedures for cost recovery
- PDAM staffing improvements
- Financial operating procedures: including billing system improvement
- Addressing autonomy and revenue retention issue with local government
- Non-revenue water management
- Energy efficiency: including model investor tender for energy efficiency
- Distribution network analysis: including water pressure zone management for equitable distribution
- Responsiveness to customers: including consumer satisfaction surveys, etc.

(b) Planning:

- Business plan development: including annual budgeting
- Tariff analysis and structuring
- Planning capital improvements: including master planning for supply including raw water source, treatment and distribution systems, and detailed engineering design for upcoming investments

(c) Financing:

- Leveraging resources from government /donors/investors to expand water services for poor-inclusive micro-credit schemes: including
  - Service connections partially paid by new users
  - water service entirely provided by new user (funded by OBA or other)
  - water-for-poor communal meters
- Debt management: including cooperating with and taking advantage of Ministry of Finance initiatives facilitating the restructuring of PDAM debt
- Getting a credit rating, and establishing credit-worthiness (most of the aspects of assistance to PDAMs will contribute to this).
- Evaluation of appropriate funding mechanisms (when appropriate, provide assistance preparing and arranging for funding, such as preparation of bond issuance or other funding mechanisms).

Clusters of PDAMS and Centers of Excellence

The selection criteria discussed in Section 6.2.5 include seeking clusters of PDAMs that are geographically close to one another. Ideally, one of these PDAMs will be in relatively good shape, although none of the PDAMs in the country are performing as well as they should. The relatively better PDAM can be treated as a "Center of Excellence," sharing its experiences with neighboring PDAMs.

Whenever feasible and per agreement with PDAMs in the same cluster, the USAID-funded assistance team will be physically installed in the headquarters building of the PDAM that is treated as a "Center of Excellence." That PDAM will both receive assistance from USAID, and work with USAID to provide assistance to neighboring PDAMs.

A rough estimate of the number of people benefited by the recommended assistance to PDAMs would be as indicated below. The following numbers are based on a total budget for the project of US$35 million, of which roughly seventy percent would be invested in assisting the PDAMs as discussed above. These numbers can be scaled up or down in accord with the funding available, and in any case these numbers are rough estimates.

Table 6.3. Illustrative Example of Number of PDAM Clusters That May Be Served and the Corresponding Population

• Clusters of PDAMs that might be selected:	5
• Number of PDAMs in these clusters	19 to 23
• Number of people presently served by these PDAMs:	7,380,000
• Estimate of the number of additional people that will be served as a result of the project:	1,610,000
• Estimate of the number of additional POOR people that will be served as a result of the project:	355,000

Note: In the above example, three of the larger PDAMs in the country are included (Bandung, Medan, Surabaya). Other examples with the same number of people benefited, would include more, but smaller, PDAMs and would include a greater number of clusters of PDAMs. If smaller PDAMs are selected, it is possible that two to three times as many PDAMs, and corresponding clusters, might benefit, but with about the same total population. The criteria for selecting PDAMs is listed in Section 6.2.5. The size of the PDAM is not the most important criteria, but rather, the opportunity for successful implementation.

The following clarifications are important to note:

There will not be an intervention focused on rural water supply, and no USAID funds will be spent on construction of rural water supplies, because of relatively low leveraging of such investments, the lack of a comparative advantage for USAID, and other considerations included in the ranking of interventions presented in the previous section of this report. Nonetheless, **it is important to note that there are some semi-rural districts which are served by PDAMs and which may be included in the project, if they neighbor urban PDAMS and meet other criteria to be part of a cluster of PDAMs to be assisted.**

- Direct assistance with watershed protection will not be pursued. This is because of its low ranking compared to other potential interventions, which is the result of such considerations as poor "bang for the buck," and low leveraging of investment. Nonetheless, assistance to PDAMs with their planning for water source protection will be a part of the recommended assistance, for those of the assisted PDAMs where this is determined to be important. PDAMs need to be able to identify their raw water needs and include it as part of their development plan. This can be also later used to put more pressure on local, regional and national government to address issues and leverage funding for water resources management.
- Private sector participation will be encouraged wherever it is feasible and likely to improve the functioning of the PDAMs. This includes, but is not limited to, contracting out such services as design and construction of infrastructure, purchase of equipment manufactured by the private sector, and contracting services such as energy audits and bill collection. However, the largest category of potential private sector participation in the work of a PDAM, which would be the concession of the entire PDAM operation, will not be a focus of the USAID assistance. Although this is considered to be desirable in the long term, it is a very ambitious goal for which the present moment does not seem to be ideal, and for which USAID does not have a comparative advantage compared to other players, such as the multilateral lending institutions.
- It should also be noted that depending upon the level of funding to be provided by USAID, it might be anticipated that something on the order of five clusters of PDAMs, including roughly about 19 PDAMs, might be assisted by the project. The criteria for choosing the PDAMs are discussed in Section 6.2.5: Geographic Areas to Be Targeted and Methodology.

- It is anticipated that the work with the selected clusters of PDAMs will not only assist those PDAMs, but the results will serve as a model for other PDAMs to emulate.
- During the design phase of the project it would be useful to set some criteria for PDAM performance/organization that will be used to determine when and how capacity building activities are launched with a given PDAM. Criteria should be designed to solicit commitment from the PDAMs and targets could be used as milestones for triggering higher levels of assistance.

6.2 RATIONALE FOR WATER SUPPLY RECOMMENDATIONS

6.2.1 USAID Development Policy Aims And Comparative Advantage

USAID's comparative advantage is to address the major "gaps" that exist in the assistance now provided to urban areas, as opposed to the lesser gaps related to rural areas. In the words of the regional team leader for the World Bank Water Supply Program: "rural water supply is well covered by other donors and the Government of Indonesia," and she would therefore suggest that USAID "leave rural water supply to others." (Almud Weitz, Regional Team Leader for East Asia and The Pacific, Water and Sanitation Program, interviewed on November 7, 2008).

At present all of the PDAMs in the country have serious problems, although some are far more serious than others, and a number have improved as a result of previous USAID assistance.

The coming five years should be a particularly opportune time to assist PDAMs, because of both the opportunity to build on lessons learned during the soon to be completed USAID project, and because of planned supporting activities to be undertaken by others. Chief among these planned supporting activities is a project that the World Bank is now preparing with the Ministry of Finance, to provide financial incentives to local governments that are supportive of their PDAMs.

USAID is in a better position than others to assist PDAMs with improvement in their capacity. This is because USAID can build on its experience doing precisely this type of work, which it has done more extensively and more effectively than anyone else (this seems to be a universal perception in Indonesia, as our team has heard it from officials at the Ministry of Public Works, BAPPENAS - The Planning Ministry, the World Bank's Water and Sanitation Program, and representatives of the PDAMs themselves). Lessons have been learned from USAID's past involvement with such work, and these lessons will allow USAID to optimize its effectiveness in the future.

USAID's comparative advantage for assisting PDAMs to improve their capacity can be summarized to include:

- USAID can use the lessons learned from its past work, including the functionality of micro-credit and communal metering schemes for serving the poor, the relatively greater potential for municipal bonds than for corporate (PDAM-backed) bonds, and other such lessons.
- PDAMs can build on the achievements that have resulted from past assistance by USAID, including performance improvements which bring some of them much closer to a desirable level.
- This is a largely unmet need

6.2.2 Responsiveness to GOI needs and policies

Support for improving the capacity of the PDAMs is consistent with GOI policies and fulfills a need that is recognized by both the central government and typical PDAMs themselves.

For the past decade the GOI has had a decentralization policy, which places the main responsibility for urban water supply on local entities. Thus, directly assisting the PDAMs is responsive to the decentralization policy of the GOI, and is the most effective way to bring safe water to increased numbers of urban people, including the urban poor.

Although most responsibility for urban water supply has been decentralized, the central government continues to play a supportive role. Examples of this are (a) a Ministry of Finance (MOF) program of PDAM partial debt forgiveness; (b) a program being developed by the MOF and World Bank to provide financial incentives to local governments that support their PDAMs; and (c) Ministry of Public Works efforts to provide technical assistance (TA) to a limited number of PDAMs through programs of Regulatory Agency of Drinking Water Supply System (BP2SPAM). This TA from the Ministry of Public Works, has the similar aims as the recommended USAID-funded assistance, but is very limited in scope due to budget constraints, with a staff of only six people. The Ministry of Public Works person responsible for this TA, Rachmat Karnada, expressed to our team his desire that USAID assist PDAMs as recommended in this report. Such TA must be coordinated with the Ministry of Public Works to avoid duplication of efforts.

6.2.3 Integration With The Work of Ohers

The Ministry of Public Works has already embarked on a program with similar goals, but it is limited in scale (it will not reach most PDAMs) and intensity (a team of only two people are assigned to work with several PDAMs, with a total of only three such teams), and is not expected to have as great an impact as the recommended work to be funded by USAID.[2] The Ministry of Public Works is appreciative of USAIDs past efforts in such assistance, and encourages USAID to continue to assist the PDAMs in the future.

It is recommended that USAID and the Ministry of Public Works coordinate their work assisting the PDAMs, to avoid duplication of efforts and to share lessons learned.

The World Bank is working, together with the Ministry of Finance, to develop a program of financial incentives to local governments that are supportive of improving the capacity of their PDAMs, and this incentive program is expected to be implemented beginning in January 2010. In the opinion of the regional team leader for the World Bank Water Supply Program, the next five years are likely to be a particularly opportune time for the recommended USAID assistance to the PDAMs, because this important complementary intervention is expected to be in place (Almud Weitz, Regional Team Leader for East Asia and The Pacific, Water and Sanitation Program, interviewed on November 7, 2008).

The private sector has an important role, both as a provider of services to the PDAMs, and as a potential provider of financing. Examples of private sector services that the USAID assistance would encourage and be coordinated with, would be creating Pay for Performance contracts for assisting the PDAMs to increase their energy efficiency, and having the PDAMs contract private firms to design and build needed infrastructure.

The private sector is an important potential source of financing that the PDAMs require to expand their service coverage. This can be through loans from banks, corporate bonds sold directly by the PDAMs, and municipal bonds sold by the local government to support investments that could include the PDAMs.

6.2.4 Replicability

The recommended assistance to PDAMs will include assistance to some relatively stronger PDAMs, which as "Centers of Excellence" will share their experience with weaker PDAMs, helping to replicate program achievements. Because some program staff will be "embedded" in these "Centers of Excellence," it will present an

[2] BPPSPAM (Supporting Body for Water Supply System Improement/Development) has 6 key persons in their team and some additional Short Term Technical Assistance

opportunity to institutionalize the capacity-building efforts, which can be carried on by the Centers of Excellence well into the future.

It may be noted that in Indonesia there is a culture of taking pride in capabilities, and this results in relatively better run PDAMs being proud to assist other PDAMs. For instance, some of the Surabaya PDAM staffs have indicated that they think of themselves as a "role model" for other PDAMs. This will help with replication of the capacity building results of the recommended program.

To enable further replication to more PDAMs outside assisted clusters, technical assistance process may involve the regional branch of PDAMs association (DPD PERPAMSI).

6.2.5 Geographic Areas to be Targeted and Methodology

It is recommended that in the design phase of the project, geographic areas be targeted based on the following selection criteria:

- The PDAM and the local government (which owns the PDAM) must welcome the assistance and the opportunity to improve their capacity with a "poor inclusive" approach. In addition, local parliament (DPRD) should be also involved to gain their support.
- Assistance should be targeted to geographic clusters of several PDAMs, especially in areas where one of the PDAMs can be treated as a (relative) "center of excellence." In such cases, the PDAM that is labeled a "center of excellence" would both receive assistance to further improve itself, and would be expected to cooperate with USAID efforts to help neighboring PDAMs to improve themselves (note that past experience indicates that better performing PDAMs have been proud to share their experiences with other PDAMs, so requiring this should be feasible).
- Priority should be given to assisting PDAMs where there is potential for making the greatest increase in the number of poor people who have affordable and equitable access to clean water supplies. This may lead to prioritizing clusters of PDAMs which serve larger populations.
- In cases where it can be expected to lead to a greater impact, consideration should be given to building on relationships already established between the USAID-funded Environmental Services Project (now nearing completion) and specific PDAMs. Note that building on such relationships is not to be an end in itself, and is only to be pursued where it is expected to contribute to greater impact.

Annex 5: **Illustrative Examples of Clusters of PDAMS and Corresponding Populations** provides a rough estimate of the number of people who could be benefit with access to safe water supplies as a result of the recommended assistance to PDAMs. However, the actual selection of clusters of PDAMs should await the design phase of the project, based on the above selection criteria.

6.3 THE DIRE EXISTING SITUATION FOR URBAN SANITATION IN INDONESIA

The level of public investments in sanitation has been negligible: less than ten cities in Indonesia have centralized sewerage systems, and even these have extremely limited coverage. In these cities, the system is not fully utilized as only a very small percentage of people are interested in having a sewer connection. In other cases, people are unwilling to pay for the services. In other smaller towns, with support from the World Bank managed Water and Sanitation Program (WSP), the GOI has initiated a number of small community-based sanitation (*Sanimas*) schemes (since 2001) in East Java. These small interventions have proven to be effective in solving the sanitation problem locally, but they are only a small fraction of what is needed compared to the larger city's problem, - and, relying on small schemes does not solve the city-wide problem. As long as there is an absence of a clear sanitation strategy and planning at the city level, it is difficult to hope for sanitation improvements in the future.

Urban sanitation as understood in Indonesia, is not merely excreta disposal, but also deals with garbage collection and disposal, and drainage maintenance to prevent flooding. The impact of these three aspects are closely linked, but these are dealt with separately and sometimes not integrally. Institutions at the city level are fragmented into several agencies in-charge of a wider spectrum of environmental sanitation covering septic tank sludge emptying and disposal, garbage collection and disposal and drains maintenance. There is no comprehensive planning tool to address sanitation problems.

The fact that 18% of the urban population practice open defecation for their excreta disposal method is in large part the result of urban sanitation being a low priority in the people's minds. Convincing people to improve their sanitation conditions is a challenging task due to the fact that they perceive diarrhea outbreak as neither due to poor sanitation condition nor lack of clean water, but due to other reasons that they cannot explain. Poor people in slum urban areas do not see sanitation as an immediate need as much as water. This is in part because slum dwellers often pay water venders as much as 20 times more per liter than what is paid by those with PDAM water connections, whereas little, if anything, is perceived to be paid for unsanitary excreta disposal. Of course there is an indirect cost in health impact, but those who are affected do not usually understand the connection with health, and thus do not perceive this as a cost.

In most urban areas, except for those few cities with extremely limited sewer network coverage, sewerage systems are new to the city administration. The low level of sewerage infrastructure in most Indonesian cities indicates that the sewer collection systems did not come with area development. In the absence of sewer collection systems, septic tanks, sometimes with improper design and percolation systems, are used in most cities, including in Jakarta, the country's

capital and largest city. Emptying septic tanks is carried out by the city agency, usually city cleaning unit (*Dinas Kebersihan*), or by private operator in some large cities. Many standards and regulations already exist, but the political will to enforce them in Indonesia is lax, and in other cases local regulations (*perda*) and provincial or national guidelines may be contradictory. For example, most cities now have septic tank sludge treatment facilities (IPLT – *instalasi pengolahan lumpur tinja*) as a result of the construction oriented sanitation investments in the mid-1990s, but few public or private septic tanks emptying services use these facilities because of the costs involved. In some areas, there are not yet regulations in place to require sludge disposal at these sites, and where regulations exist they are poorly enforced. Customers are charged for de-sludging the septic tank, however, there is no guarantee that the operator will dispose of the sludge at the IPLT. Often, sludge is disposed off in the nearby river, thus polluting the river.

The second main source of contamination is direct exposure to fecal material from open defecation by people who do not have toilets in their houses. Based on current ESP experience on average 50% of households in poor neighborhoods have basic in-house toilet facilities. An estimated 20% may be able / willing to construct one at their house (or house used by tenants) after receiving hygiene promotion messages / campaigns and some financial incentives. This means an estimated 30% of the urban poor target population will require basic communal toilet facilities, which can be maintained by same cadre involved in the water supply and other hygiene promotion activities.

Although some cities are not comparable (e.g., Hong Kong, Seoul), and sewerage does not necessarily equal improved sanitation, the following two figures, Figures 6.1, and 6.2, provide a general illustration of how investment in the sanitation sector in Indonesia is critically needed.

Figure 6.1. Sewerage Access, Selected Asian Cities, 2001/2002

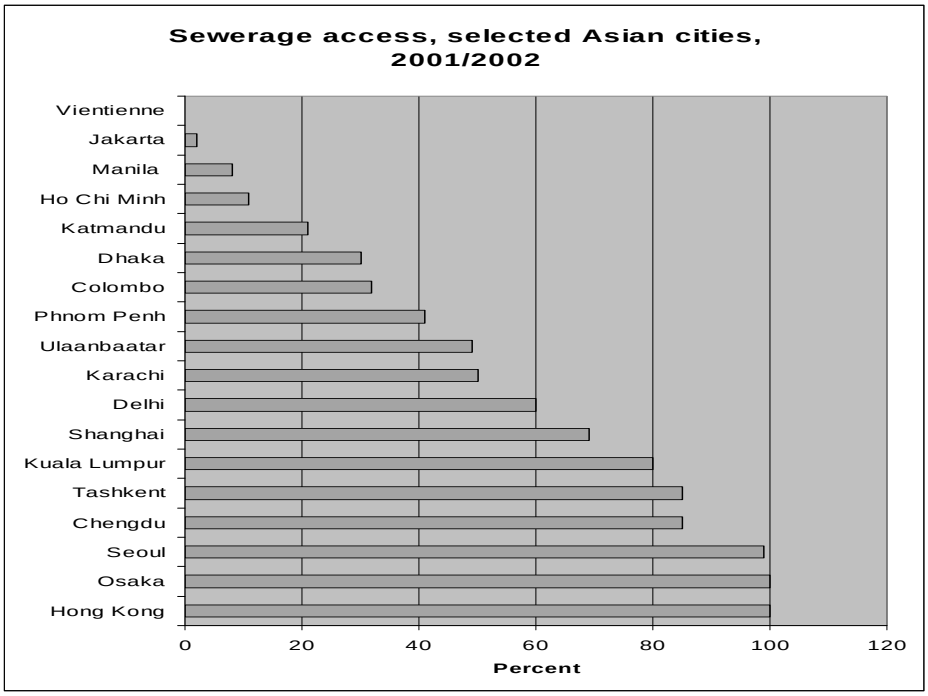
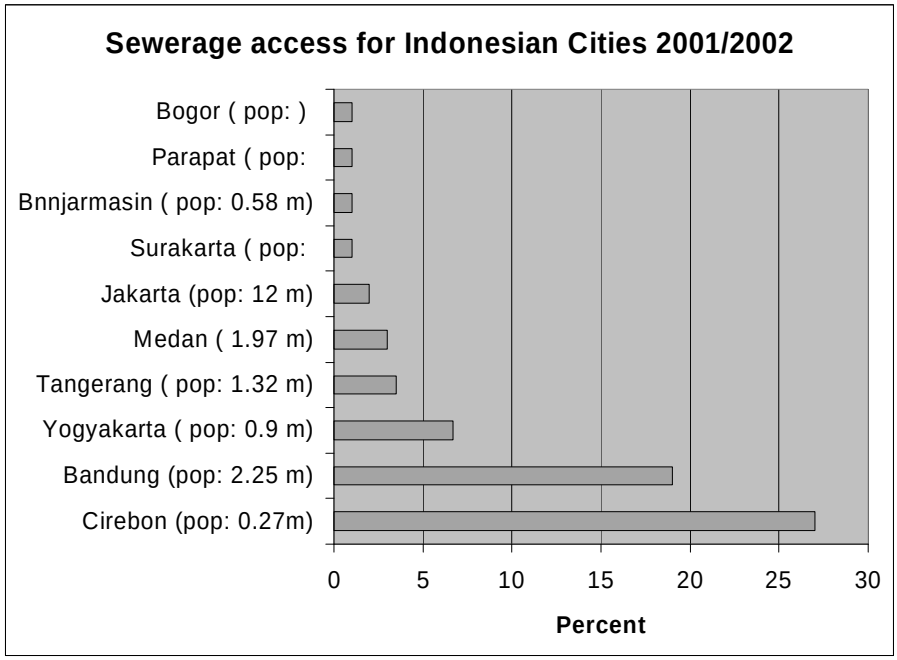


Figure 6.2. Sewerage Access for Indonesian Cities, 2001/2002

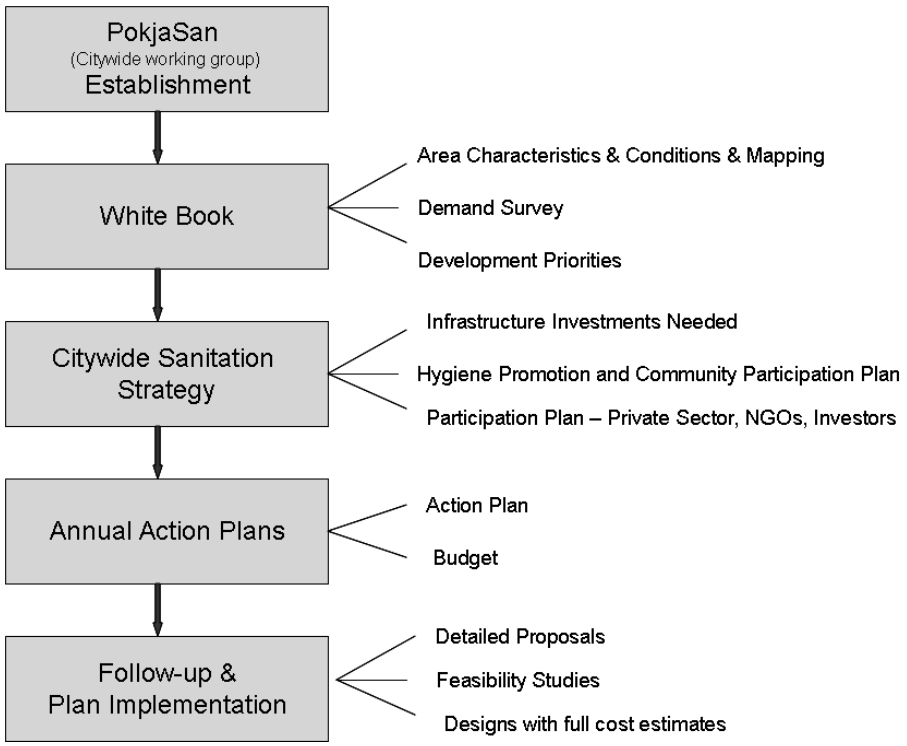


The lack of institutions and investment in the sanitation sector creates a situation that is unquestionably more problematic than the water sector." (Averting Infrastructure Crisis: A Framework for Policy and Action, 2005, World Bank).

The Indonesia Sanitation Sector Development Program (ISSDP)

The ISSDP has provided a methodology for pursuing urban sanitation improvements in Indonesia. Working with the BAPPENAS, the Indonesia Sanitation Sector Development Program (ISSDP) was established to propagate a framework for planning, monitoring and evaluating urban sanitation improvements based on a comprehensive model bringing together integral, strategic, citywide planning and bottom-up, community-based initiatives. ISSDP is a WASAP subproject, funded by the Dutch government and the government of Sweden, and works at several levels.

Figure 6.3 Framework for City Based Urban Sanitation Planning Process



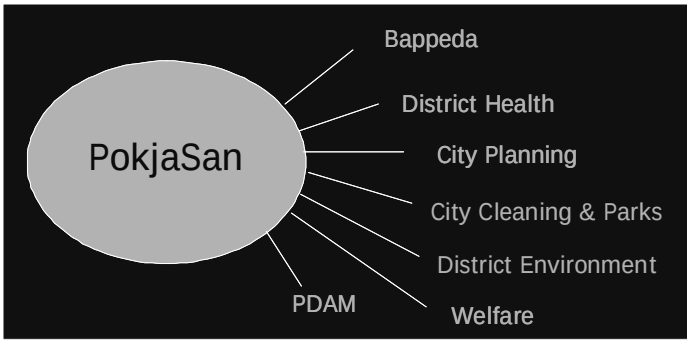
National coordination of activities takes place under a National Sanitation Working Steering Committee through advocacy strategies, regulations, and institutional development as well as encouragement for demand for sanitation awareness and promotion at the National level.

At the City-level, the role of the framework being promoted by the BAPPENAS and ISSDP comprises the following stages of development (ISSDP, 2008) as summarized in the above Figure 6.1: (i) introduction of the city sanitation development program; (ii) sanitation situation assessment and mapping; (iii) development of a citywide sanitation strategy; (iv) preparation of annual and

multi annual sanitation action plans; and (v) follow-up and consolidation of the city sanitation development program.

In each of the six cities currently participating in ISSDP, a sanitation working group (kelompok kerja sanitasi –PokjaSan) was established. Members of the group consist of officials, agencies and units in the city government (public works, health, environment, city cleaning unit, planning board, and PDAMs) as shown in Figure 6.4 below.

Figure 6.4. PokjaSan (Working Group) Members



The PokjaSan plays an important role in stimulating discussion among stakeholders, and in preparing the 'white book'. Through the ESP project, USAID has developed somewhat parallel interventions that at least in part conform to the same model. (ESP is about 18 months ahead of the ISSDP cities in their work.)

Sanimas

In the Indonesian context, Community-based Sanitation (*Sanitasi Berbasis Masyarakat) Sanimas* is an initial initiative and entry point to solve larger, city-wide sanitation issues in urban areas. *Sanimas* was introduced by WSP to address sanitation problems in urban slums by involving the local community in the project, from design and implementation to maintaining the completed facility. This approach was taken up by GOI as a means to address sanitation at the community level.

SANIMAS APPROACH

"A "technical gap" exists between well known on-site, household-based sanitation options and large-scale sanitation infrastructure options that are aimed to connect urban households to a centralized sewerage treatment system. Both of these technical options are problematic:

On-site sanitation has become problematic for public health and the aquatic environment as most urban households discharge wastewater into the ground via absorption or leach-pits or discharge untreated wastewater directly into streams and rivers. The resulting contamination of urban clean water sources leads to regular outbreaks of diarrhea during the rainy season especially in poorer settlements.

Implementation of centralized sewerage systems in cities proves to be problematic due to the high cost of required technical options such as construction of large scale conventional sewers and treatment plants. To date, less than 1 % of urban households in Indonesia are connected to centralized sewerage systems. In some cases, costs for operation and maintenance of centralized systems cannot be recovered by user-fees, effectively rendering such centralized sewerage infrastructure "unsustainable".

To develop a third way, SANIMAS EA consultants identified and analyzed technical options - especially collection systems, treatment systems and disposal/re-use options - which could become efficient components of CBS-systems in neighborhoods where a demand for improved sanitation services exist." (WSP-EAP, 2002)

STBM

Following the national consensus on a community-based approach for water and sanitation, the Government recently launched its National Strategy for Community-based Total Sanitation or STBM Strategy (2008). This is logical step in development of the city –side sanitation strategy as shown in Figure 6.3, that the city government is responsible to initiate and develop.

6.4 RECOMMENDED SANITATION AND HYGIENE PROMOTION STRATEGY AND INTERVENTIONS

ISSDP accomplished the first Phase of their program from April 2006 to March 2008. Now, embarking on the second phase of the government supported program, assistance for cities at the municipal and community levels is needed to improve institutional capacity in planning. The development of the City-based coordinated planning process, "builds a sustainable city sanitation team with a good understanding of the capacity for ongoing planning, monitoring and evaluation of sanitation improvements, and increases ownership of problems and solutions at all levels of city government and at community level." (WSP-ISSDP 2008). The Citywide Sanitation Strategy is "the basis for sanitation investments from local APDB, national (APBN, DAK, others) and external funding." (WSP-ISSDP 2008).

Over the past 5 years, USAID has enjoyed good success in facilitating working groups in 6 cities, including facilitating the working group in Medan which resulted in ADB funding for sanitation improvements [noted in text box].

Given the overall sanitation sector need, the success of past USAID endeavors in this arena, and a national donor-supported framework that supports the ISSDP model, as well as evidence for securing investor funding to support needs, we recommend that USAID's sanitation and hygiene promotion strategy focus on the following Citywide Assistance strategies and interventions:

ADB Assistance

Presently, ADB is carrying out study and project preparation on urban sanitation for three metropolitan cities, for the Metropolitan Sanitation Management and Health Project (MSMHP, 2008). The Project goal is to improve sanitation services (including wastewater collection and treatment, and solid waste management) in large urban areas in Indonesia. Its purposes are to (i) reduce exposure of urban communities, particularly low-income groups, to health risks associated with the discharge of raw or partially treated sewage into city drains and rivers; (ii) contribute to a significant reduction of pollutants in water bodies; (iii) improve solid waste collection and treatment practices; (iv) contribute to better local urban environments and an overall reduction of environmental pollution; and (v) address serious institutional constraints affecting the sector.

The Project has the following components: (i) community mobilization for improved health and hygiene (including the development of community-based sanitation facilities); (ii) infrastructure development for sewerage and main drainage; (iii) improvement of existing solid waste final disposal sites; and (iv) capacity building, institutional development and project implementation support with consulting services. Work done by ESP in Medan with their Pokjasan has been integral to meeting ADB funding preparation conditions. As a result of this work, Medan will be one of the three MSMHP cities securing funding for sanitation improvements.

- Technical Assistance to Establish and Support City Sanitation Working Group (PokjaSan) and PokjaSan-led decisions to manage sanitation
    - Institutionalize local management of sewerage and other excreta disposal
    - Leverage funding from City, provincial, and central government as well as outside investors
- Advocacy and Awareness Raising for Sanitation (building on the community based total sanitation approach recently endorsed by MoH for urban areas)
- Support preparation and implementation of City-wide Sanitation Strategies & Action Plan (following ISSDP model)
- Hygiene Promotion (part of citywide strategy)
- Provide working examples of community based sanitation (both software + decentralized wastewater solutions) to support portfolio of citywide solutions (following Sanimas model and MoH STBM methodology). (The ultimate goal is have municipalities secure funding for STBM as part of the City-wide strategy and annual action plans, but initial pilot schemes could involve subsidies from USAID.)

It is recommended that thirty percent of the USAID funded project budget be applied to sanitation and hygiene promotion. If this funding were to be based solely on the need, we would recommend that this be one-half, instead of only one-third. However, taking into account the challenges and risks associated with sanitation interventions, we recommend that this be only thirty percent. Furthermore, with a view towards risk mitigation, we recommend that implementation be monitored, and if at the half-way point of project implementation, progress and prospects for success are less than planned, then at that time funding for sanitation and hygiene promotion can be further reduced or increased. This is discussed further under the heading of "Recognizing and Dealing with Program Risks." It is recommended that a percentage of the budget should be assigned to each sector, to make sure that neither sector is neglected, and to make sure that the management team feels pressure to invest in both sectors. Otherwise, the project management team could prioritize one sector over the other, perhaps in response to pressure from local governments, or in response to which activities are easiest to initiate, or other factors. We are particularly concerned about avoiding the possibility of sanitation not receiving the attention it merits.

Because sanitation needs are so great, and so much is required in the way of institution and skills and capacity building, and the fact that poor sanitation is directly linked to contamination of urban clean water sources and leads to

regular outbreaks of diarrhea especially during the rainy season in poorer settlements, we recommend that USAID invest in technical assistance funding for sanitation and hygiene promotion.

Proceeding with the assumption that thirty percent of the overall USAID budget for this activity would be programmed for sanitation and hygiene activities, conceptual level budget allocations for each intervention are outlined in the Table below. It should be emphasized that Table 6.4 is illustrative, and that the actual budget is to be developed during the design phase.

Table 6.4. Illustrative Proportion of Funding for Sanitation and Hygiene Promotion Interventions

Sanitation & Hygiene Promotion	30%
A. Support to Citywide Sanitation Working Groups	9%
B. TA, Media Campaign, Surveys, and other to Develop and Operationalize Hygiene Promotion and Community Participation Plan	9%
C. TA to Dinkes, CBOs, NGOs	4%
D. Incentive Grants to Communities for Integrated Sanitation & Hygiene Promotion	4%
E. Innovative pilot model as part of Citywide working group initiatives (sludge utilization, biogas, private sector pumping, etc.)	4%

Technical assistance to the citywide working groups and the activities to be accomplished through these working groups would follow the ISSDP model.

As shown in Figure 6.3 and the illustrative funding distribution above, hygiene promotion would figure prominently throughout the citywide interventions. As part of the Citywide Sanitation Strategy, a hygiene promotion and community participation plan would be developed.

Steps would include:

- Development and implementation of a Sanitation & Hygiene Knowledge Attitudes Practices survey
- Analysis of the results (with MOH leading)
- Development of a city-wide behavior change communications strategy to support Hygiene Promotion and Community Participation Plans
- Operationalization of the Hygiene Promotion and Community Participation Plan, including:
    - Skills building to Dinkes, Community Based Organizations (CBOs), NGOs to properly facilitate the work and support the PokjaSan and MoH in planning and carrying out the community initiatives

- Synergy with STBM methodology, i.e., developing contextual approaches for behavior change and closely working with the MoH to share information with them on lessons learned in applying this relatively new approach (in Indonesia) to urban settings

The working examples of community based sanitation (both software + decentralized wastewater solutions), to support the overall portfolio of citywide solutions, would follow the Sanimas model for physical infrastructure improvements, and integrate with the MoH STBM strategy focused on five "pillars" for hygiene promotion. The locations, planning and implementation parameters for the community based sanitation systems to serve poorer communities would be identified and managed by the PokjaSan and its relevant subcommittees, thereby reinforcing the citywide management and concern for the portfolio of solutions being supported by the PokjaSan. Construction of the working examples would commence early in the Program, providing evidence to the PokjaSan of both cost-effectiveness and appropriateness of the approach to the given sanitation problem and allowing for lessons learned to be incorporated as the Citywide Sanitation Strategy is developed.

Link to Ranking

The interventions identified above fully support the ranking order developed in Sections 4 and 5. As shown in Table 6.5, finance for water and sanitation initiatives is second in ranking order priority along with community mobilization for water, sanitation, and hygiene. Advocacy, including sub-national (local) strategies to increase political and financial commitment are a close third.

Table 6.5. Summary of Interventions and Rankings

Intervention	Rank
PDAM capacity building	1
Finance activities including microfinance and utility/local government finance	2
Community Mobilization for water, sanitation, and hygiene	2
National and sub-national Advocacy Strategies to increase political and financial commitment	3
Strategies to address Sanitation (advocacy, infrastructure, and behavioral)	3
Increase Access to water services among poor households in urban/peri-urban areas	3

RECOGNIZING AND DEALING WITH PROGRAM RISKS

It is recommended that investments be made in sanitation and hygiene promotion because of the likelihood of success and the value of such success, both to those who benefit directly from it, and as a model for replication elsewhere in Indonesia.

Current conditions show that there is increasing demand and interest from local governments to start working in sanitation sector. There are already some success stories where local governments have increased significantly their budget allocation and leveraged support from central government for sanitation sector development. What these municipalities need is assistance in developing good citywide strategies and plans. Strategies must look at more than just sewerage as a solution. Given the current GOI and growing citizen interest, the time is right to support sanitation investment.

In addition, the interventions are compliant and consistent with several of the design criteria carefully selected and identified in Section 3, including:

- Local GOI support
- Meeting Funding Criteria,
- High Potential for Acceptability by Those Impacted (implementees and beneficiaries)
- High Health Impact
- Bang for Buck, and
- Leveraging Investment

In spite of the above, some risk can be anticipated with any sanitation intervention. One of the associated challenges is that once poor communities are aware of the importance of sanitation and are motivated to improve their conditions, there must be technical solutions available at a cost for which funding is available, either completely from those who will benefit, or in combination with a subsidy for which funding is available.

To deal with the associated risk, the following steps are recommended:

- Select geographical areas where the risk is relatively low (see criteria in sub-section 6.5.5)
- Budget only 30% of the overall project funding for sanitation and hygiene promotion (the other 70% going to water supply).
- Monitor progress and prospects for success, and based on this, at the mid-point of the project make a decision as to whether to reduce or increase funding for sanitation and hygiene promotion.

6.5 RATIONALE FOR SANITATION RECOMMENDATIONS

Several rationale considerations were identified for discussion in the Scope of Work. These are addressed below.

6.5.1 USAID Development Policy Aims And Comparative Advantage

The Indonesian Sanitation Sector Development Policy (ISSDP) has spent their first two years developing policy and guidelines, but now need to take it to the next step, which is working with Cities directly. Their aim is to implement a City sanitation framework (comprehensive plan) that includes a portfolio of solutions that ranges from central conveyance, community based solutions, difficult to serve slums. The ISSDP approach also directly supports USAID's program element 3.1.8 that states, "ensure broadly accessible, reliable, and economically sustainable sanitation services for health, security, and prosperity." USAID's comparative advantage is supporting the ISSDP model. Given the decentralization process, where other groups are influencing the process (ISSDP) at the Ministerial and BAPPENAS level, USAID's advantage is help advance these policies at the local level. In helping Cities develop Action plans, budgets particularly that involve appropriate technologies, and institution capacity, finances and human resources to do this, USAID is better set to do this, and has already demonstrated this well through the ESP projects.

6.5.2 Responsiveness to GOI needs and policies

The need is to create a sense of local ownership by helping local institutions to take responsibility, through consultant facilitated, not led, interventions. The democratization and decentralization processes have been progressing over 10 years, and local governments are still very much on a learning curve. With one third of government expenditures now determined at the local level, it is important that local government continue to improve their prioritization of spending. Within this context, assistance (technical and management advice) is needed. There is a sensed need for this based on what our team has consistently heard in many locations when asked what their needs are. They've asked not for money, but training and guidance.

Support of the citywide sanitation strategies, action plans, and budgeting support is consistent with the sanitation framework being promoted by the Ministerial interagency standing committee being led by Bappenas and facilitated by ISSDP. Furthermore the approach, which includes development of a Hygiene Promotion and Community Participation Plan, is consistent with the community-based approach employed by the Ministry of Health, STBM with its 5 pillars, to stimulate demand for sanitation and hygiene improvements and supports health promotion efforts to prevent diarrheal diseases through several key programs (e.g. PHBS, Maternal Child Health).

6.5.3 Integration With The Work of Others

As mentioned above, the proposed interventions fully support what the Ministerial standing committee led by Bappenas and ISSDP are promoting and implementing. Some NGOs including BORDA and MercyCorps are implementing decentralized community based systems including software and infrastructure, either as part of, or parallel to the Sanimas approach. As part of the USAID proposed intervention and demonstration community based projects, we would recommend working with these groups. This work could include using NGOs in an oversight role, giving them grants to implement both the software and hardware sides, contracting them to undertake certain tasks, or simply generally coordinating work with them to avoid duplication. Such decisions should be determined during the design phase of the project.

Over the next several months, the Ministry of Public Works is going to employ 60 City facilitators to help facilitation of Citywide working groups. A question posed by both the GOI and WSP is whether or not USAID could help supplement this assistance both in terms of providing the training and skills building, and supplying at least some of the assistance providers. (If so, this could be part of the technical assistance shown in the conceptual budget in Tables 8.2 and 8.3)

In SANIMAS, more facilitators are needed. Ministry of Public Works has started a program of sending facilitators to work in locations around the country. Usually this is a team of two facilitators per location, one being a technical specialist and one being a social specialist. In an interview, the Director of Environmental Sanitation of Public Works, Mr. Susmono, stated that more facilitators and training of these facilitators is needed. He indicated an interest in having USAID assist with such training. As a result, this also provides an opportunity, or at least entry point for USAID in cities interested in addressing sanitation.

The MoH's recently launched National Strategy for Community-based Total Sanitation (STBM) provides a framework for a revitalized approach to sanitation and hygiene promotion within the Ministry. The approach may use any of the 5 pillars as an entry point, for instance a first strategy may rely on triggering community-based demand for improved sanitation through inciting disgust and shame with sanitation behavior (open defecation) and empowering communities to find local solutions to their sanitation problems. Later on, based on progress, the other pillars will be introduced, and in the end the area will have complete sanitation and hygiene promotion interventions. The CLTS methodology has been successfully applied in rural settings. Pak Zainal, Environmental Health Directorate (MoH), indicated interest in receiving assistance to trial adaptations of the STBM methodology (of which CLTS is a component) in urban settings and technical support with the design of appropriate sanitation hardware solutions given possible urban contextual challenges. Further, with the STBM Strategy, the MOH would like to have facilitators for all programs (SANIMAS, CLTS, CWSH,

PAMSIMAS/WSSLIC) to be trained to get a comprehensive understanding of the integrated STBM Strategy.

Finally, a World Bank report entitled "Sanitation Infrastructure in Indonesia: Business Plan (August 2005) written by Keshav Verma. Jan Drozdz, and Risyana Sukarma (who is a member of our team)[3] shows that each of the proposed interventions outlined in this report fully correspond with the need as studied and confirmed by others. See Table below.

Table 6.6. Sanitation Related Activities Needing Finance

- Sanitation and Hygiene Promotion:
  - Policy/institutional reform, capacity building, development of sanitation finance strategy
  - Promoting demand for sanitation
  - Promoting hygienic practices
  - Development of sanitation as a business
- Household, Institutional & Community Sanitation for safe excreta and sewage disposal:
  - Design, construction of onsite sanitation
  - Design, construction of connection to sewer systems
  - Improved management of fecal sludge from on-site systems
  - Sanitation infrastructure for schools, clinics, etc.
- Waste Water Management:
  - Design and construction of wastewater collection infrastructure (sewers)
  - Appropriate wastewater treatment and safe disposal/reuse of sludge (does not increase access but may be required for environmental protection objectives)

Source: The Challenge of Financing Sanitation for Meeting the MDGs", Meera Mehta and Andreas Knapp, March 2004

Given the urgency of the need, the GOI must pursue reforms and investments in parallel, rather than sequentially

6.5.4 Replicability

Two primary aspects exist with respect to replicability. One is that the interventions that are being done are applicable other places. The other aspect, is given that an intervention is appropriate for someplace else, the other entity is interested in taking it up.

[3] *assisted by Eduardo Perez (EWD), James Woodcock, Isabel Blackett (WSP-EAP) and, Jemima Sy (WSP-EAP*

This requires a long engagement with the cities involved. This process has begun with the nine cities which are now working with either ISSDP or ESP. To replicate in more than these nine cities, there must be an engagement at the provincial level. We recommend working with Bappenas through ISSDP to make this happens.

The Blitar declaration is evidence that many cities already want to pursue this. This is an agreement that was originally signed by the mayors of six cities during a meeting to discuss sanitation. This declaration was further strengthened by the Payakumbuh Declaration (a year later) where 9 additional cities added their names.

Intensive facilitation and support in early years in identified cities is needed to get the comprehensive sanitation city strategy, action plan and budget, and to begin implementation of several actual projects that will improve access to sanitation. Demonstrated progress is needed as a model, so that other cities will want to replicate. At that point it will be easier for Bappenas to promote replication.

6.5.5 Geographic Areas to be Targeted and Methodology

The following criteria should be used by the design team when selecting where sanitation and hygiene promotion interventions should be implemented by the USAID-funded program. It should be noted that **these criteria are aimed at selecting locations where there is the greatest likelihood of successfully making a significant improvement in sanitation and hygiene conditions for poor neighborhoods** (although city-wide strategies will benefit more than the poor, a pro-poor strategy is to be used). The program should be willing to take the risk of failure, in exchange for the possibility of success that can serve the poor and can be a model and precedent for others.

- The local government has expressed interest
- Local government agencies from MOH, provincial, Bappeda (coordinator), health district, public works district, PDAM, housing and settlement, bureau of finance, office of first secretary for Bupati, community empowerment office, are willing to designate a representative from their organizations to participate and take a meaningful role
- Select areas where viable technical solutions would apply to poor neighborhoods, at relatively low per capita cost. This initially may mean cities where the poor live in relatively less dense conditions, and it will normally exclude coastal areas prone to flooding. Solutions in higher density areas could be addressed after success has been demonstrated in the less challenging situations

- Give a priority to cities where USAID is already working or intending to work with the PDAM
- For efficiency in program management, prioritize cities that are in the same general geographic area (try to work in clusters of cities), but do not sacrifice the above selection criteria for this purpose. Any helpful peer-to-peer competition may be used to speed up the replication
- Take into consideration that this intervention will serve fewer geographic areas than water interventions, so selection criteria can be more restrictive

SECTION 7. CORE PERFORMANCE INDICATORS

Standard agency operational plan indicators are available for development assistance projects. These are available at http://www.state.gov/f/indicators/index.htm, and are part of the U.S. State Department website. They are located on the page entitled "Standard Foreign Assistance Indicators" under Element IIP-1.8 Clean Water and Sanitation Services: Investing in People.

Those that are most applicable for clean water and sanitation relevant to the strategy and proposed interventions for Indonesia are as follows:

- Number of people in target areas with access to improved drinking water supplies as a result of USG assistance
- Number of people in target areas with access to improved sanitation facilities as a result of USG assistance

Using these indicators as a basis, and applying them as practical, the following overall key performance indicators and logical and informative additional indicators for each proposed program activity are recommended below.

Overall Key Performance Indicators

- Number of households with affordable access to improved water, including an equitable (poor-inclusion) distribution to poor households
- % of children under 5 with diarrhea in the last two weeks in pilot communities selected for community based sanitation systems
- Number of households with access to improved sanitation (infrastructure) in pilot communities selected for community based sanitation systems
- Number of households utilizing improved sanitation facilities (behavior change) in pilot communities selected for community based sanitation systems

Logical and Informative Additional Indicators

A. Water

PDAM performance indicators
(a) Performance and Governance indicators: • % of assisted PDAMs with functional Standard Operating Procedures for cost recovery • % of assisted PDAMs that have developed a staffing analysis and improvement plan, and begun implementing it • % of assisted PDAMs which have developed comprehensive financial operating procedures • % of assisted PDAMs that have addressed autonomy and revenue retention issues with local government • % of assisted PDAMs with reduced non-revenue water volume by at least 5% • % of assisted PDAMs with programs to increase energy efficiency • % of assisted PDAMs which have undertaken distribution network analysis, including water pressure zone management • % of assisted PDAMs making efforts to be responsive to customer concerns. (b) Planning indicators • % of assisted PDAMs with annual business plans, including annual budgeting and capital improvement plans • % of assisted PDAMs having analyzed the levels and structuring of their tariffs • % of assisted PDAMs with good planning of capital improvements, including master planning for supply, treatment and distribution systems (c) Financial indicators • % of assisted PDAMs which have established credit-worthiness, or moved significantly closer to that goal, and have gotten a credit rating • % of assisted PDAMs which have done undertaken evaluations of appropriate funding mechanisms • % of assisted PDAMs which are leveraging an amount equal to one US dollar or more for each household presently connected to its water system, in monetary or in-kind resources from government/ donors/ investors to expand water services for poor-inclusive schemes • % of assisted PDAMs which are leveraging an amount equal to ten US dollars or more for each household presently connected to its water system, in financial or in-kind resources from government/ donors/ investors to expand water services for poor-inclusive schemes • % of assisted PDAMs which have made significant progress with managing their debt, under the new MOF debt forgiveness program or by other means.

B. Sanitation and Hygiene Promotion

Sanitation and Hygiene Promotion performance indicators
• Number of City Sanitation Action Plans developed • Number of Citywide Hygiene Promotion and Community Participation Plans developed • Number of people living in communities taking up STBM and improved sanitation as part of Citywide working group initiative • Number of caretakers of children under five with improved hygiene behavior in pilot communities selected for community based sanitation systems • Number of City policies on Sanitation Promulgated (septic tank system regulation/penalties, enforcement, and incentives, requirements for hotel, business, commercial, real estate hook-ups, etc.) • Amount of funding leveraged from other sources • Number of decentralized systems developed and X number of households served • Number of households with improved, regulated septic systems • Increase in sludge being hauled to central or satellite sludge treatment systems • Number of people living in communities taking up an innovative pilot model as part of Citywide working group initiatives (sludge utilization, biogas, private sector pumping, etc.)

SECTION 8. PROGRAM MANAGEMENT AND DESIGN PARAMETERS

This section of this report discusses the strategy and parameters for the management and design of a program to implement the interventions presented in Section 6. The actual design of a water, sanitation and hygiene promotion program will be a later step in the process of turning the recommendations of this report into a reality.

Program Management

The various components of the program, including water supply, sanitation, and hygiene promotion, should be managed under a single integrated management scheme. The reasons for this can be seen in the following table, in which the case for it clearly outweighs the case against it.

TABLE 8.1. The Case For and Against Having a Single Integrated Management Scheme for Water, Sanitation, and Hygiene Promotion Interventions

PROS	CONS
Increased efficiency of managing one consultant team.	If incompetently managed, a single management scheme could result in neglect of one component (most likely sanitation and hygiene promotion) as water could attract more management attention.
Integration of goals.	Tendency to have the lead firm dominate the whole philosophy that may not always be applicable for all interventions needed. Need to make sure that all partners in the consortium can contribute based on their expertise.
A single entity will present itself to local governments which may be involved with all components of the project.	
Assurance that when selecting communities for inclusion, priority will be given to implementing various interventions in the same communities.	
Increased leverage to achieve project goals, e.g., consultants embedded as part of PDAM staff can help ensure that PDAM participates as fully as possible in PokjaSan.	

A professional firm or consortium of firms should be contracted to manage the program. It is unlikely that one firm will have all the capabilities needed, so several consultants from various firms may be necessary. Most of the members of the implementation team should be Indonesian nationals, to take advantage of local capabilities and to reduce costs.

A decentralized organization is recommended because it is closer to cities where the project will be implemented, and it will facilitate day to day interactions. Furthermore, a decentralized organization will allow members of the project team members who are working on water supply, to be "embedded" within "centers of excellence" that may be set up within the best-run PDAMs among various clusters of PDAMs that are to be assisted. Project team members who are working on sanitation and hygiene promotion should also be based in the local area, but the nature of the location of their office should be adapted to the specifics of the city where they are working: for instance, if the PDAM in that city accepts responsibility for sanitation, then they may be "embedded" in the PDAM. Otherwise, on a case-by-case basis it should be determined whether they should have their own office, or should be "embedded" in the office of a local government agency that accepts responsibility for sanitation.

Although most of the staff should be placed in regional offices, a small headquarters staff will also be needed. This should consist of senior professionals with expertise relevant to the program needs. The specific expertise to be included should be determined during the design phase, but may include Strategic Communication for Behavior Change to catalyze the process, Public Private Partnership to tap opportunities and resources from private sector, and an Outreach role to document and communicate the processes and lessons learned.

For dealing with PDAMs and the Sanitation Working Group, a professional and highly experienced expert in particular fields will be needed, for example, an expert on reduction of non-revenue water, utility performance, contracting mechanisms, utility operations and budgeting, tariff structuring. Similarly in health and sanitation, senior professional expertise will be needed in development of health surveys and analysis, behavior change, and community based participatory methodology. In sanitation, expertise will be needed in appropriate technologies where behavior change is required, including management of biogas and bio-solids.

There is a potential capability for a local organization to play a major role in implementation

- NGOs can play a big role in empowering each community to work together in planning, designing, and maintaining community based-solutions including behavior change and technical options (note that software and hardware may require two different types of NGOs).
- NGOs may have a role in supporting hygiene education components of community based activities.
- NGOs or local students may be able help carry out health baseline studies and or knowledge attitudes and practices (KAP) survey

- Universities could help review the analysis done by MOH and city health office on analysis of KAP.
- Universities could help perform research on STBM
- In some cities, it may be useful to create links between local universities and "Centers of Excellence" that may be created in some of the best-run PDAMs. Although this must be evaluated on a case-by-case basis, universities may be able to provide expertise, and university students may be able to develop thesis projects which are useful to the project.
- The program should be alert to opportunities to form alliances with the private sector. Taking advantage of such opportunities may involve delegation of some management responsibilities, which should be reviewed on a case-by-case basis.

The management structure will conceptually be the same for any total funding level between US$20 million and US$50 million, with the difference being in the number of staff. Clearly, the size of the staff will need to correspond to the number of cities being served, which in turn will be a function of the funding level for the project.

Design Parameters

The following tables are for illustrative purposes only, and to give a rough idea of how program funding might be spent, with the corresponding numbers of people to be benefited. These budgets will need to be adjusted during the design phase of the project.

Table 8.2. People Benefited as a Function of the Total Level of Funding

Total program funding	$20 million	$35 million	$50 million
Total no. of people benefiting	860,000	1,610,000	2,420,000
No. of poor people benefiting	190,000	355,000	530,000
Cost per capita	$23.00	$22.00	$21.00
Cost per poor person benefited	$105.00	$99.00	$94.00

Table 8.3. Illustrative Estimate of Project Expenditures and Cost/Benefit Ratios for Three Levels of Funding: $20 Million, $35 Million, and $50 Million

Note that the numbers of people benefited refers to the number that will have improved water supplies. About 40% of these people will also have improved sanitation.

ASSUMED TOTAL FUNDING AVAILABLE:	$20 million	
	million $	% of cost
water infrastructure incentive grants for connecting poor households	$2.0	10%
sanitation and hygiene promotion incentive grants to support TA	$0.8	4%
regional technical assistance	$12.8	64%
headquarters technical assistance	$4.4	22%
total cost	$20.0	100%
serve:	860,000	total people
including (22%):	190,000	poor people
per capita cost based on all who benefit	$ 23.00	
per capita cost applied only to poor who benefit	$ 105..00	

ASSUMED TOTAL FUNDING AVAILABLE:	$35 Million	
	million $	% of cost
water infrastructure incentive grants for connecting poor households	$3.5	10%
sanitation and hygiene promotion incentive grants to support TA	$1.5	4%
regional technical assistance	$23.9	68%
headquarters technical assistance	$6.1	17%
total cost	$35.0	100%
serve:	1,610,000	total people
including (22%):	355,000	poor people
per capita cost based on all who benefit	$ 22.00	
per capita cost applied only to poor who benefit	$ 99.00	

ASSUMED TOTAL FUNDING AVAILABLE:	$50 million	
	million $	% of cost
water infrastructure incentive grants for connecting poor households	$3.8	8%
sanitation and hygiene promotion incentive grants to support TA	$3.8	8%
regional technical assistance	$35.8	72%
headquarters technical assistance	$6.6	13%
total cost	$50.0	100%
serve:	2,420,000	total people
including (22%):	530,000	poor people
per capita cost based on all who benefit	$ 21.00	
per capita cost applied only to poor who benefit	$ 94.00	

Table 8.4. Illustrative Percentage Distribution of Program Expenditures

Intervention	$20M	$35M	$50M
1. PDAM Assistance	70%	70%	70%
A. TA	60%	60%	58%
B. Incentive Grants	10%	10%	12%
2. Sanitation & Hygiene Promotion	30%	30%	30%
A. Support to Citywide Sanitation Working Groups	10%	10%	9%
B. TA, Media Campaign, Surveys, and other to Develop and Operationalize Hygiene Promotion and Community Participation Plan	8%	8%	7%
C. TA to Dinkes, CBOs, NGOs	4%	4%	5%
D. Incentive Grants to Communities for Integrated Sanitation & Hygiene Promotion	4%	4%	5%
E. Innovative pilot model as part of Citywide working group initiatives (sludge utilization, biogas, private sector pumping, etc.)	4%	4%	4%
Total	100%	100%	100%

APPENDIX 1: SCOPE OF WORK

Support on Water and Sanitation Sector Analysis and Program

The outcome of this program support activity should be a proposed set of programmatic technical assistance activities that could reasonably constitute a USAID Water Sanitation portfolio for the next 5 year period (2009-2014). Accompanying this proposed activity set should be a clear rationale supporting it. The following tasks should be accomplished and reported on in the final report.

a) Complete a **strategic analysis** of the water and sanitation sector in Indonesia in the context of USAID past and potential future areas of investment.

   i) Conduct a critical desktop review the accomplishments and challenges of ongoing activities across the USAID/BHS portfolio in water, sanitation and hygiene. Relevant activities of GOI and other donors should also be included in this review. Conduct an inventory (matrix/mapping) of GOI priorities, USAID, and other donors' efforts. Assess unmet needs and identify technical gaps and potential solutions – short and medium term.

   ii) Technical and programmatic areas to cover in the strategic analysis include: (1) point-of-use (treatment and storage) technologies, policies, markets and behaviors (SWS program and other non-USAID efforts), (2) handwashing communications and hygiene behavior change interventions (ESP, HSP and other non-USAID), (3) community mobilization as a strategy for behavior change related to water quality, hygiene behavior change, and/or improved sanitation utilization (access and behavioral; HSP, ESP, SWS and other non-USAID efforts), (4) PDAM management assistance needs, (5) community level water access improvement strategies, specifically the *water for the poor* approaches (ESP) as applied to both urban/peri-urban and rural settings, and (6) other larger policy, regulatory, governance or finance issues affecting PDAM functional capacity (Note: above technical areas may overlap).

b) Analyze **parameters facilitating and constraining USAID investment** in this sector with a *focus on the Indonesian* cultural and social context and operating environment (political, governmental, private sector). U.S. foreign policy, administration change, possible budget and earmark fluctuation, etc. need not be discussed in detail. Assume a total water/sanitation portfolio commitment of 3 different total levels: $20, $35 and $50 million over 5 years, where a proportion of that investment should be focused on household/community level benefits.

c) Develop **criteria** for ranking potential USAID interventions. Examples of such include, but are not limited to: (1) likelihood of achieving demonstrable impact (outcome) in five years; (2) ability to reach the poor, particularly women and children; (3) potential for cost-effective

replication; (4) Indonesian institutional (public and private) interest in collaboration; (5) bilateral/multilateral institutional interest in collaboration; (6) complementarity with past USAID investments and ongoing programs supported by GOI or other donors; (7) potential platform for USAID and/or Indonesia to benefit from leveraging private sector (corporate) resources through GDAs or other partnership mechanisms. Comment on the relative value of investing in rural vs. urban water approaches and present arguments for including rural water/sanitation activities if warranted, or not.

d) Develop a list of **potential USAID program interventions** after in-depth consultation and field visits with USAID, GOI and stakeholders focused on increasing access to water and sanitation and improving hygiene among the poor and rank them using the Team's criteria.

   Discussion of potential interventions should at least include the following:

   i) Master meter approach, micro-credit and other innovative approaches to increase access to water services among poor households in urban/peri-urban settlements of legal and illegal status.

   ii) PDAM capacity building technical assistance in areas including, but not limited to: standard operating procedures, corporate (financial) planning, energy efficiency, accounting, facilitating access to financial capital.

   iii) Engaging local organizations and community leadership in community mobilization for water, sanitation and hygiene and in community management of access to water and sanitation services.

   iv) Opportunities and strategies to address sanitation needs and to support implementation of the Total Sanitation Strategy – both infrastructural and behavioral in program areas being served by the innovative approaches mentioned in (i) above as well as advocacy/ capacity building for local governments in developing the sanitation strategy.

   v) Utilizing national and sub-national level advocacy strategies to increase political and financial commitment to improving water and sanitation services for poor communities. Advocacy efforts may focus on, but are not limited to: raising awareness of consumer rights and government obligations to provide water/sanitation services, increasing district budget support for PDAMs or other water/sanitation infrastructure, better engaging villages in the budget planning process for water/sanitation interests, revising regulations and policies adversely affecting water/sanitation service delivery systems (national, sub-national), central financial incentives/disincentives for local government investment in water/sanitation service delivery improvement, etc.

Other intervention areas that could be considered could include:

i. Watershed activities that could have an appreciable impact on water quality and/or water quantity.

ii. Finance activities supporting Indonesia's MDG water and sanitation goals. Utilization of microfinance as well as issues of utility and/or local government finance.

iii. Household water quality improvements activities (point of use treatment/storage technologies) that build on work supported by USAID in recent years.

iv. Support for water quality testing (microbiological and chemical) and reporting (both to communities and up to sub-national and national authorities).

v. Rural approaches to improving access to drinking water, including low cost drilling.

vi. New technological and behavioral innovations for sanitation in coastal areas with a high water table.

e) Develop a **rationale for all program recommendations** describing why the technical areas and programmatic strategies recommended are best suited to USAID investment according to (1) USAID's comparative advantage vis-à-vis other donors, including synergies with/ built-on from existing USAID/Indonesia programs (2) ability to leverage (replicability, scalability, partnership/integration with local organizations) financial and human resources (e.g. GOI, donor, private organizations, private commercial entities, community), (3) responsiveness to GOI needs and policy directions (recognizing that given decentralization, *GOI* includes national level issues and provincial/district governments), and (4) include discussion and recommendation on criteria for how geographic areas targeted for program activities and assistance should be selected (by invitation from district?, PDAMS already have adequate raw water access?, local organizational capacity?, etc.).

   In formulating its recommendations, the team shall take into account U.S. development policy aims in the water/sanitation sector as described earlier in this Statement of Work.

f) Propose, define and justify **core performance indicators for each recommended program activity**. While standard agency Operational Plan indicators should be prioritized; logical and informative additional indicators reflecting impact where feasible, and outcomes and output are encouraged.

g) Identify and justify the advantages and disadvantages of various **program management and implementation approaches** with special reference to the following: (1) Choice of using a single integrated mechanism or separate program mechanisms; (2) Potential capacity of local organizations to play a primary (prime?) role in implementation.

APPENDIX 2: TEAM COMPOSITION AND STUDY METHODS

The team consisted of two Americans, one Australian, and three Indonesians, as follows:

Janelle Rogers, Team Leader: She is a Vice President of CDM Inc, based in their Seattle office, and is a board certified environmental engineer, and a licensed engineer in four states. She earned her doctorate in engineering management and specializes in water and wastewater planning, assessment, program design and management. Dr. Rogers is an environmental and civil engineer with 24 years of experience in water supply and wastewater. She has worked in Africa, the former Soviet Union, Central and Eastern Europe, the Middle East, Central America and the Caribbean, Latin America, India, and the United States.

Dr. Bimo is an Indonesian specialist in Health Policy, with an MD from the University of Indonesia, Jakarta, and both an MPH from Harvard University, as well as post doctoral studies at Harvard in the field of Health Policy. He has over 27 years of experience working in the health sector in Indonesia.

Andy Karp is a Sanitary Engineer with 35 years of experience in Latin America, Africa, and Asia. He has experience with project management, project identification, feasibility studies, design, planning for sustainable operation and maintenance, training, evaluation, and dealing with institutional, economic, social and technical issues. This includes co-founding an NGO in Guatemala, managing a USAID funded project in El Salvador, work in the private sector, and five years as a Project Officer in the World Bank managed Water and Sanitation Program.

Ruth Nicholls is a health and hygiene specialist. Professionally she also specializes in strategic program planning and design related to sanitation, hygiene and environmental health promotion, as well as community based approaches to sanitation, hygiene and safe water management. She has Masters Degrees in International Public Health and International Relations, and a Bachelors degree in Asian Studies, all from Australian universities. She speaks English and Bahasa Indonesian. Her previous work experience was in Indonesia, Timor-Leste, Myanmar, Viet Nam, Papua New Guinea, Samoa, Solomon Islands, and Australia.

Ms. Pratiwi (Tiwi) Andharvati M. is an Indonesian Environmental Planner/Environmental Engineer. She has a degree in Sanitary Engineering, and also holds a Masters Degree in Development Sciences, both from Bandung Institute of Technology. She has 27 years of experience working for a series of consulting firms, on a variety of sanitation, management, urban planning, and health projects.

Risyana Sukarma is an Indonesian Sanitary Engineer/Operations Officer with more than eleven years experience with the World Bank and 19 years experience as government official in the Ministry of Public Works. He holds degrees from the Institute of Technology, Bandung, Indonesia, and the International Institute for Hydraulic and Environmental Engineering, Delft, The Netherlands.

The team's study methods began with a review of relevant literature, including annual reports and evaluations of the ESP, HSP and SWS projects, documents about Community Led Total Sanitation (rural) and Community Based Total Sanitation, articles downloaded from the ESP project website, and a large number of other documents related to water, sanitation and hygiene promotion in Indonesia. After that, the team took a two-pronged approach to its work: it evaluated and ranked potential interventions using a very organized and logical approach; and it also arrived at conclusions based on team discussions and brainstorming following field trips and discussions with a wide range of people in the GOI, USAID and other bi-lateral donors, key implementing partners and beneficiary communities, multilateral assistance agencies, PDAMs (water utilities), and international and local NGOs. Both sides of this two-pronged approach led to similar conclusions, thereby reinforcing these conclusions.

APPENDIX 3: DOCUMENTS CONSULTED

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APPENDIX 4: INDIVIDUALS AND AGENCIES CONTACTED

Central Government of GOI

1.	Rachmat Karnadi	Head of BP SPAM	Badan Pendukung Sistem Penyediaan Air Minum, Ministry of Public Works
2.	Amry Darma	Staff of BP SPAM	Ministry of Public Works
3.	Susmono	Director of Directorate of Environmental Sanitation Development	Ministry of Public Works
4.	Kati Andraini D	Head of Sub-Directorate for Drainage & Solid Waste Dev	Ministry of Public Works
5.	Handy B Legowo	Head of Sub-Directorate of Sanitation	Ministry of Public Works
6.	Zainal I Nampira	Head of Sub-Directorate Water Sanitation	Directorate General of Disease Control & Environmental Health, Ministry of Health
7.	Kodrat Pramudho	Health Promotion	Ministry of Health
8.	Nugroho T Utomo	Directorate of Housing & Human Settlement	BAPPENAS

North Sumatra

No.	Name	Position	Institution/Organization
1.	Julian Syah	Community Based Watsan Spec	USAID – ESP North Sumatra
2.	Rambey	Program Management Spec.	USAID – HSP North Sumatra
3.	Dr. Masroel Siregar	Regional Office Director	USAID – HSP North Sumatra
4.	Bertha Nababan	Health Communications Spec	USAID – ESP North Sumatra
5.	Deni Andayuni	Regional Coordinator	USAID – SWS North Sumatra
6.	Safri Tanjung	Mentor	Youth Community Group Sub Village IV, Aur Village, Medan Maimun Sub District
7.	Aminah	Teacher	Madrasah Scholl – Sub. Distric
8.	Risma	Cader	Mini baseline (monitoring for 10 minutes)
9	Asnita	Cader	Women Water Awareness and Initial Breast Feeding Group.
10.	Lisnawati		P4K
11.	Dahlia Nasution	Head	Tim Kessa (CHC – Community Health Council)
12.	Mimi	Cader	Head of Enviromental - I
13.	Lindawati	Cader	PHBS
14.	Emilia	Cader	Air Rahmat
15.	Dr.Anni Mariani	Head of Puskesmas	Community Health Center, Kampung Baru
16.	Libren Sihotang	Sanitarian	Health Agency, Medan Municipal
17.	Teti	Evironment Health - Staff	Community Health Center, Kampung Baru

18.	Drs. Syahid Marqum	Head of Islamic Boarding School	Rhaudah Hasanah Islamic Boarding School
19	Harianto	Staff	Satker. Penyehatan Lingkungan North Sumatra Province
20.	Rawaluddin Siregar	Head of Section	ısing & Settlement Agency, Medan nicipal
21.	Hamid	Ustadz/Coord. Waste Mgnt	Rhaudah Hasanah Islamic Boarding School
22.	Charles Ginting	Ustadz	Rhaudah Hasanah Islamic Boarding School
23.	Ilham Nudin	Head of Village	Sukamaju Village, Sub-Distric. Tanjung Pura, Langkat Regency
24.	Efendi Lubis	NGO Leader	PARAS - NGO
25.	Erna	Leader	Credit Union - Mawar
26.	Others	Representative from other CU	Credit Union from other sub-village (dusun)
27.	Pariman	Head of Sub-Village (dusun)	
28.	Warjino	Pump Operator	Public tap built by LG
29.	Sugeng Hartono	Technical Staff	PDAM Binjai
30.	Wasid Budiarjo	Head of Technical Division	PDAM Binjai
31.	Ahmad Edi	Head of Financial Division	PDAM Binjai
32.	Boyke	Sanitary Engineer	ESP North Sumatra
33.	Muhamad Nurbakti	Staff	Bappeko Medan
34.	Dr. Suherman	Head of Enviromental Health	Provincial Health Office, North Sumatra
35.	Subahri Ritonga	Director Planning & Production	PDAM Tirtanadi
36.	Tedi	Staff Distribution	Sub-Division PDAM Tirtanadi
37.	Zainal	Staff	Public Relation PDAM Tirtanadi
38.	Yusnah	Head of Section	Cleansing Departement
39.	Sugito	Field Assistant	JKM – Young Panah Hijau
40.	Yeti	Secretary	CBO Young Panah Hijau
41.	Sanusi	Water meter reading	CBO Young Panah Hijau
42.	Amsal	Leader	CBO Young Panah Hijau
43.	Sumarno	Field Assistant	CBO Bagan Deli
44.	Moh. Aulia	Field Assistant	CBO Bagan Deli
45.	Debi	Field Assistant	CBO Bagan Deli

East Java

No.	Name	Position	Institution/Project/Organization
1.	Indrarini Tenrisan	Head of Research & Dev.	PDAM Surabaya
2.	Lorensia	Head of Sub. Division	Research & Dev. – PDAM Surabaya
3.	Mohamad Selim	President Director	PDAM Surabaya
4.	Dr. Esty Martiana	Head	Health Agency, Surabaya Muncipal
5.	Ina	Kabid. Pencegahan &	Health Agency, Surabaya Muncipal

		Penanggulangan Penyakit Menular	
6.	Suryadi	Head of Section	Hygiene & Sanitation Health Agency
7.	Eli	Cader	Wonokromo Village,Wonokromo Sub District,RW 06/RT 02
8.	Poniman	Cader	Wonokromo Village,Wonokromo Sub District,RW 06/RT 02
9.	Irsan	Head of Cader	Wonokromo Village,Wonokromo Sub District,RW 06/RT 14
10.	Agus	Cader	HSP
11.	Ratna Suwandi	Head of Puskesmas	Community Health Centre Wonokromo Village
12.	Waliji	Head of Village	Wonokromo Village
13.	Supriadi	Cader active	Wonokromo Village
14.	Jaidin	Cader	Wonokromo Village
15.	Hasan	President Director	PDAM , Malang Regency
16.	Sumardi	Head of Sub-Village	Mergosono Village, Malang Municipal
17.	Sugianto	WWTP Operator	Kertomulyo Village, Malang Municipal
18.	Edi Widodo	IPAL	Mergosono Village, Malang Municipal
19.	Nurhayati	Head of Village	Mergosono Village, Malang Municipal
20.	Lilik Muchlis	Teacher	HSP
21.	Sumardi	Cader	ESP
22.	Darsono	Cader	
22.	Esti	Nutrition cader	Mergosono Village, Malang Municipal
23.	Sunardi	Community Leader	Mergosono Village, Malang Municipal
24.	Kusbianto	Head of Clinic	Mergosono Village, Malang Municipal
25.	Agus Widodo	Public Realation	Mergosono Village, Malang Municipal
26.	Nandan	Cader	Mergosono Village, Malang Municipal
27.	Wiwik	Cader	Mergosono Village, Malang Municipal
28.	Zainal	Cader	Mergosono Village, Malang Municipal
29.	Muhdoi	Cader	Mergosono Village, Malang Municipal
30.	Sri Armiyati Jarkasi	Area Coordinator East Java	Aman Tirta Program/SWS
31.	Sri Juliani	Head of Puskesmas	Turen Community Health Center
32	Sugiyanto	Sanitarian	Puskesmas Turen
33.	Ibu Esti	Midwife	Puskesmas Turen
34	Tulus	Health Promotion	Puskesmas Turen
35	Ibu Uswatun	School Health	Puskesmas Turen
36.	Ibu Ruminiwati	Midwife	Village Tawang Rejeni
37.	Karimin	Community Health Committee	Village Tawang Rejeni
38.	Heru Santoso	Community Health Committee	Village Tawang Rejeni
39.	Bisri	Community Health Committee	Village Tawang Rejeni
40	Ibu Tuti	Community Health Committee	Village Tawang Rejeni

41	Ibu Indra	Community Health Committee	Village Tawang Rejeni
42	Sugiyanto	Community Health Committee	Village Tawang Rejeni
43.	Soeharto	Bupati/Head of District	Trenggalek, District, East Java
44	Dr Ubaidilah	District Health Office, Head	Trenggalek, District, East Java
45	Sutikno	Environmental Health	DHO Trenggalek, District, East Java

World Bank

1.	George Soraya	Task Team Leader	Pamsimas – World Bank
2.	Jana Uno	Co-Team Leader	Pamsimas – World bank
3.	Almud Weitz	Regional Team Leader	WSP – World Bank
4.	Isabel Blackett	Senior Sanitation Spec.	WSP – World Bank
5.	Jemina Sy	Water & Sanitation Spec.	WSP – World Bank
6.	James Woodcock	Consultant Instutional Dev.	WASAP consultant – World Bank
7.	Indra	TSSM/STopS	WSP – World Bank

USAID

1.	Walter North	Mission Director	USAID-Indonesia
2.	Katherine O. Valdez	Acting Water & Environment Section Head, Basic Human Services	USAID-Indonesia
3.	Alfred Nakatsuma	Acting Basic Human Services Director	USAID-Indonesia
4.	Charles Oliver	Health Section Head, Basic Human Services	USAID-Indonesia
5.	Gretchen Antelman	Maternal, Child and Health Advisor, Basic Human Services	USAID-Indonesia
6.	Trigeany Linggoatmodjo	Program Specialist, Water & Environment Office, Basic Human Services	USAID - Indonesia
7.	Irma Setiono	Program Specialist, Water & Environment Office, Basic Human Services	USAID - Indonesia

AusAID

1.	Christiana Dewi	Program Mgr. Regional Dev.	AusAID
2.	Andrew Dollimore	Infrastructure Mgr.	AusAID

Mercy Corps.

1.	Sean Granville-Ross	Country Director	Mercy Corps
2.	Paul Jeffery	Senior Program Mgr.	Mercy Corps
3.	Michelle Kooy	Urban Dev. Advisor	Mercy Corps

Embassy of the Kingdom of the Netherlands

1.	Jaap vander Velden	First Secretary	Embassy of Netherlands

Bremen Overseas Research and Development Association (BORDA)

1.	Frank Fladerer	Regional Director Indonesia - Philippines	BORDA

Environmental Services Program (ESP)

1.	Foort Bustraan	Municipal Water Services Advisor	ESP - Jakarta
2.	William J. Parente	Chief of Party	ESP -Jakarta
3.	Reed Merrill	Deputy Chief of Party & Watershed Mgmt. Advisor	ESP - Jakarta
	Russ Dillts	North Sumatra Advisor	ESP North Sumatra
4.	Julian Syah	Community Based Watsan Spec	ESP North Sumatra
5.	Bertha Nababan	Health Communications Spec	ESP North Sumatra
6.	Ferry Boyke	Municipal Watsan Specialist	ESP North Sumatra
7.	Ricky Pasha Barus	Community Participatory	ESP North Sumatra
8.	Agus Hernadi	East Java Regional Coordinator	ESP East Java
9.	Syarif		ESP East Java
10.	Ristina Aprilia	East Java Community Based Watsan Spec	ESP East Java

Health Services Program (HSP)

1.	Reginald Gipson	Chief of Party	HSP - Jakarta
2.	Laurel MacLaren	Deputy Director	HSP- Jakarta
3.	Glory Islamic Muchtar	Regional Office Director	HSP – East Java
4.	Renee Manoppo	Finance & Admin. Mgr.	HSP – East Java
5.	Rambey	Program Management Spec.	HSP North Sumatra
6.	Dr. Masroel Siregar	Regional Office Director	HSP North Sumatra

Safe Water System (SWS)

1.	Rob Ainslie	Chief of Party	SWS
2.	Deni Andayuni	Area Coordinator North Sumatra	SWS North Sumatra
3.	Sri Armiyati Jakarsi	Area Coordinator East Java	SWS East Java

APPENDIX 5: ILLUSTRATIVE EXAMPLES OF CLUSTER OF PDAMS AND CORRESPOINDING POPULATIONS[4]

No	PDAM	total pop.	present pop. with connections	present coverage	potential increase in number of people served (5 yrs) total	potential increase in number of people served (5 yrs) poor people (assuming 22% of total)
1. Greater Medan Area (Mebidang):						
1	Medan (city)	2,500,000	1,640,000	66%	350,000	77,000
2	Binjai (city)	300,000	55,000	18%	20,000	4,400
3	Langkat (district)	900,000	75,000	8%	15,000	3,300
4	Karo (district)	350,000	80,000	23%	10,000	2,200
	Sub-totals:	**4,050,000**	**1,850,000**	**46%**	**395,000**	**86,900**
5	Deli Serdang (district)	**This PDAM is also a potential member of the Greater Medan area cluster, but population data is not immediately available.**				
2. Greater Surabaya Area (GERBANG KERTOSUSILA):						
6	Surabaya (city)	3,000,000	1,920,000	64%	500,000	110,000
7	Gresik (district)	1,000,000	290,000	29%	75,000	16,500
8	Sidoarjo (district)	1,300,000	390,000	30%	75,000	16,500
	Sub-totals:	**5,300,000**	**2,600,000**	**49%**	**650,000**	**143,000**
9	Lamongan (district)	**These PDAMs are also potential members of the Greater Surabaya area cluster, but population data is not immediately available.**				
10	Bangkalan (district)					
3. Greater Malang Area:						
11	Malang (city)	800,000	440,000	55%	75,000	16,500
12	Malang (district)	500,000	340,000	68%	40,000	8,800
13	Batu (city)	150,000	50,000	33%	10,000	2,200
	Sub-totals:	**1,450,000**	**830,000**	**57%**	**125,000**	**27,500**
4. Greater Bandung Area:						
14	Bandung (city)	2,700,000	700,000	26%	50,000	11,000
15	Bandung (district)	2,000,000	250,000	13%	25,000	5,500
16	Subang (district)	1,400,000	125,000	9%	20,000	4,400
17	Sumedang (district)	550,000	140,000	25%	20,000	4,400
	Sub-totals:	**6,650,000**	**1,215,000**	**18%**	**115,000**	**25,300**
5. Greater Yogya/ Magelang Area (KARTAMANTUL):						
18	Yogyakarta (city)	550,000	170,000	31%	15,000	3,300
19	Sleman (district)	600,000	90,000	15%	10,000	2,200
20	Magelang (city)	150,000	115,000	77%	10,000	2,200
21	Magelang (district)	250,000	185,000	74%	17,500	3,850
22	Temanggung (district)	600,000	125,000	21%	12,500	2,750
	Sub-totals:	**2,150,000**	**685,000**	**32%**	**65,000**	**14,300**
23	Bantul (district)	**This PDAM is also a potential member of the Greater Yogya/ Megalang area cluster, but population data is not immediately available.**				
TOTALS FOR ABOVE FIVE CLUSTERS OF PDAMS, including only the population data for the 19 PDAMS for which such data is included above:		**19,600,000**	**7,180,000**	**37%**	**1,350,000**	**297,000 people (59,400 connections)**

[4] *Source for this data: Interview with Foort Bustraan, Mun. Water Services Advisor via DAI, USAID-Indonesia*