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Environmental Cooperation - Asia (ECO-Asia) Contract Completion Report



December 2012

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Acronyms

ACE	Army Corps of Engineers
ADB	Asian Development Bank
AECEN	Asian Environmental Compliance and Enforcement Network
ASEAN	Association of Southeast Asian Nations
ASEAN ESC	ASEAN Environmentally Sustainable Cities Initiative
CNU	Chia Nan University (Taiwan)
DOE	Department of Environment
DMA	District Metering Areas
DONRE	Department of Natural Resources and Environment
ECAC	Environmental Compliance Assistance Centers
ECO-Asia	Environmental Cooperation-Asia
EIA	Environmental Impact Assessment
EPA	U.S. Environmental Protection Agency
GWOPA	Global Water Operators Partnership Alliance
HCMC	Ho Chi Minh City (Vietnam)
IGES	Institute for Global Environmental Strategies (Japan)
IWA	International Water Association
IWK	Indah Water Konsortium
IWRM	Integrated Water Resources Management
KMOE	Korea Ministry of Environment
K-Water	Korean Water Resources Corporation
LLDA	Laguna Lake Development Authority
LMB	Lower Mekong Basin
LWUA	Local Water Utilities Administration
MDGs	Millennium Development Goals
MJP	Maharashtra Jeevan Pradhikaran(India)
MOE	Ministry of Environment
MoNRE	Ministry of Natural Resources and Environment
MRC	Mekong River Commission
MWSS	Metropolitan Waterworks and Sewerage Administration
NGO	Non-governmental Organization
NMC	National Mekong Committees
NWS&DB	National Water Supply and Drainage Board (Sri Lanka)
OBA	Output-Based Aid
PBAPP	Penang Water Supply Corporation (Malaysia)
PCD	Pollution Control Department (Thailand)
PERPAMSI	Indonesia Water Supply Association

PHED	Public Health Engineering Department (Rajasthan, India)
PHILJA	Philippine Judicial Academy
PWA	Provincial Waterworks Authority (Thailand)
Ranhill	Ranhill Utilities Berhad (Malaysia)
RDMA	Regional Development Mission Asia
REO	Regional Environment Office
RSAT	Rapid Basin-Wide Hydropower Sustainability Assessment Tool
SADCO	Hai Phong Sewerage and Drainage Company
SAWUN	South Asia Water Utilities Network
SEA	Strategic Environmental Assessment
SEAWUN	Southeast Asian Water Utilities Network
SO	Strategic Objective
TbEIA	Transboundary Environmental Impact Assessment
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
WBPCB	West Bengal Pollution Control Board
WHO	World Health Organization
WMA	Wastewater Management Authority (Thailand)
WOP	Water Operator Partnership
WWF	Worldwide Fund for Nature

Executive Summary

Challenge

As the fastest growing region in the world, Asia faces unprecedented environmental challenges with disproportionate impacts on the urban poor and women. Over 60 percent of the region's population lacks access to clean water, and 70 percent lacks access to sanitation. Weak and uneven environmental law enforcement in Asia remains a significant barrier to the effective delivery of urban environmental services, management of natural resources, and protection of vital ecosystems. Transboundary environmental impacts have also become political flashpoints, and cross-border waters conflicts have significant implications for livelihoods and regional development.

USAID Response

In FY 2006 the USAID Regional Development Mission for Asia (RDMA)

Regional Environment Office (REO) adopted a strategic objective (SO) to create an improved response to environmental challenges in Asia through regional cooperation. To support achievement of this SO, RDMA awarded a seven-year (four-year base period with a three year option period), technical support services contract to AECOM International Development (AECOM) to implement the Environmental Cooperation-Asia (ECO-Asia) project by providing services in three areas:

- Improved access to clean water and sanitation for the urban poor;
- Cross-cutting initiatives to improve regional environmental governance and transboundary cooperation; and,
- Overarching program support.

Target countries included: Cambodia, China, India, Indonesia, Philippines, Sri Lanka, Thailand and Vietnam.

ECO-Asia Results at a Glance

- Targeted beneficiaries in eight Asian countries;
- Pioneered new model for regional replication of best practices via twinning partnerships and regional networking;
- Improved access to water and sanitation services for more than 1.5 million people;
- Strengthened the institutional capacity of nearly 800 environmental organizations;
- Established two self-sustaining regional networks: WaterLinks and AECEN;
- Leveraged over \$20M in non-U.S. Government funds.

Approach and Results

Sharing and replicating best practices through regional cooperation was at the heart of ECO-Asia. For both the Water and Sanitation and Environmental Governance components, ECO-Asia worked with government agencies, cities, water services providers and other partners to pioneer a new model for twinning partnerships that led to measurable results on the ground. With guidance from RDMA, ECO-Asia also worked with bilateral USAID missions and a range of regional development partners to collaborate on country and regional activities to amplify results through parallel programming and direct leveraged funding support.

Sustainability

From the outset of the project, ECO-Asia developed sustainability strategies that included identifying or establishing legacy institutions to continue the work of the project. ECO-Asia established WaterLinks as a non-profit organization registered in the Philippines to continue promoting access to safe water and sustainable sanitation through twinning partnerships. In addition, ECO-Asia established the Asian Environmental Compliance and Enforcement Network (AECEN) as a regional platform for promoting environmental compliance in Asia, and helped position AECEN within the Institute for Global Environmental Strategies (IGES) of Japan as a legacy institution.

ECO-Asia assisted the RDMA Regional Environment Office in achieving its strategic objective of an improved response to environmental challenges in Asia through regional cooperation.



Introduction

Under USAID contract number 486-C-00-05-00010-00, AECOM International Development (AECOM) implemented the Environmental Cooperation – Asia (ECO-Asia) Water and Sanitation / Environmental Governance project in support of the Regional Environment Office (REO) of the USAID Regional Development Mission Asia (RDMA). Through ECO-Asia, RDMA established an innovative international coordination mechanism for addressing transnational environmental challenges and strengthening regional environmental networks, organizations, and platforms. The ECO-Asia project had three major tasks:

- *Task 1:* Improved access to clean water and sanitation for the urban poor;
- *Task 2:* Cross-cutting initiatives to improve regional environmental governance and transboundary cooperation; and,
- *Task 3:* Overarching program support.

Task 1. In implementing Task 1, ECO-Asia collaborated with water services providers, cities, civil society partners and regional organizations and networks to catalyze improved access to safe water and sanitation for the urban poor. Through the establishment of WaterLinks as a regional network, ECO-Asia pioneered a new methodology for twinning partnerships

that replicated best practices and led to tangible results on-the-ground in terms of improved access to safe water and sustainable sanitation services.

Task 2. ECO-Asia worked with regional partner organizations and other development partners to promote improved environmental governance in two areas: (1) improved compliance and enforcement of environmental laws; and, (2) transboundary waters cooperation in the Mekong River basin. For improved enforcement, ECO-Asia established AECEN, and served as the network secretariat in implementing country and regional activities that led to improved policies and practices, and strengthened human and institutional capacity. As to the transboundary waters, ECO-Asia worked with the Mekong River Commission (MRC) and other basin partners to facilitate the adoption of improved policies, plans, and mechanisms on transboundary waters cooperation.

Task 3. ECO-Asia provided program support for Task 1 and 2 activities, including performance monitoring and reporting, communications support, and small grants and exchange programs. In addition, ECO-Asia provided support to REO by collecting and organizing performance monitoring information from other RDMA REO implementing partners. AECOM also provided communications support to REO,

Map: Areas of Implementation



“AECOM maintains top quality services in implementing activities under the contract. During this evaluation period, the contractor had moved to the next level in sustaining the impacts created by the first four years through the two prominent regional networks (WaterLinks and AECEN) that were created jointly by USAID, ADB and other regional partners.”

2011 CPAR

including compiling weekly updates from REO partners, creating and disseminating a quarterly eNewsletter of REO activities, creating and updating the REO website and editing and printing REO fact sheets, brochures and other communication products.

Period of Performance

The ECO-Asia contract base period was from FY 2006 through FY 2009. Based on the results of an independent evaluation, USAID exercised the contract option in 2009, extending the period of performance through FY 2012. USAID further extended the ECO-Asia contract through November 30, 2012 to complete Mekong activities.

Geographic Focus

While the original geographic scope of the contract included Cambodia, India, Indonesia, Philippines, Sri Lanka, Thailand and Vietnam, USAID added China in 2008. In supporting WaterLinks and AECEN as regional networks and in implementing twinning partnerships,

ECO-Asia also cooperated with Asian partners from Japan, Lao PDR, Malaysia, Nepal, Pakistan, South Korea, Singapore and Chinese Taipei.

ECO-Asia Implementation Approach

ECO-Asia was an innovative regional coordination mechanism for addressing transnational environmental challenges and strengthening regional environmental networks, organizations, and platforms. ECO-Asia’s overall implementation strategy was as follows:

1. Develop and implement twinning partnerships at the national or local level to demonstrate improved policies and practices, transfer expertise, and achieve tangible results on the ground;
2. Facilitate regional replication of best practices through regional activities, such as networking meetings, toolkits, websites and other knowledge products; and,
3. Establish or strengthen regional networks and organizations that address regional environmental challenges by helping to disseminate and replicate best practices.

Twinning Partnerships

For both the Water and Sanitation and Environmental Governance components, ECO-Asia worked with government agencies, cities, water services providers, non-profits and other partners to pioneer a new model for twinning partnerships that led to measurable results on the ground. The ECO-Asia process for facilitating the

establishment and development of twinning partnerships included identifying partners, developing partnership agreements and work programs, defining outcomes and cost share, coordinating activity implementation and reporting results. Many partnerships demonstrated effective strategies for south-south cooperation.

Establishing and Strengthening Regional Networks and Organizations

Sharing and replicating best practices through regional cooperation was at the heart of the ECO-Asia project. To ensure results beyond the life of the contract, at the outset of the project, ECO-Asia worked to develop sustainability strategies that included establishing or identifying legacy institutions to continue the work of ECO-Asia. As a result, ECO-Asia established WaterLinks and AECEN as self-sustaining legacy institutions, and provided targeted support to MRC to

build its human and institutional capacity. ECO-Asia also worked with the World Health Organization (WHO), Association of Southeast Asian Nations (ASEAN) and other key regional organizations.

Collaboration with Bilateral Missions and Development Partners

With guidance from RDMA, ECO-Asia worked with bilateral USAID missions and a range of regional development partners to collaborate on country and regional activities. At the country level, ECO-Asia worked to complement ongoing USAID programs, such as the Environmental Services Program (ESP) in Indonesia, the Philippine Sanitation Alliance (PSA) in the Philippines and the Financial Institutions Reform and Expansion-Debt (FIRE-D) project in India. Key development partners included the Asian Development Bank (ADB), World Bank, International Water Association (IWA), and U.S. Environmental Protection Agency (EPA).

Water and Sanitation



ECO-Asia expanded access to safe water and sustainable sanitation for over 1.5M people across Asia.

Background and Context

In Asia widespread migration to urban centers is placing tremendous stress on urban water and sanitation services. Across Asian cities, 340 million people lack access to safe water supply and more than 680 million do not have sustainable sanitation services, leading to increased risks of waterborne illnesses and lost economic productivity.

While decision-makers are working to achieve the U.N. Millennium Development Goals (MDGs) to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015, many water services providers in the region continue to face challenges related to outdated

infrastructure, inadequate skills development and limited investment.

Moreover, intensifying extreme weather events linked to climate change, such as the 2010 drought in Vietnam, the 2011 floods in Cambodia, and the 2011 typhoons in the Philippines, are further disrupting the adequate provision of urban water services, further impacting lives and livelihoods. As a result, water services providers are working to improve their planning processes and operations to reduce vulnerabilities and build their resiliency by considering climate change-related factors like water scarcity, degrading raw water quality, heavy flooding and sea water intrusion.

ECO-Asia Water and Sanitation Results at a Glance

- Nearly 1,000,000 people with improved access to safe water;
- Over 600,000 people with improved access to sustainable sanitation;
- More than 100 policies and model actions applied and replicated across Asia;
- Over \$13M in leveraged resources from non-U.S. Government sources;
- Nearly 6,000 people trained in improved water and sanitation practices;
- Establishment of the WaterLinks network as a sustainable regional platform and legacy institution.

Objective and Focus Areas

The objective of the ECO-Asia Water and Sanitation component was to support implementation of the Paul Simon Water for the Poor Act by improving access to safe water and sustainable sanitation in Asian cities by sharing and replicating regional experiences and best practices among water services providers, municipal and national governments, and communities. From 2006 to 2012, ECO-Asia undertook activities in five focus areas:

1. Enabling water services delivery to the urban poor;
2. Improving the performance of water services providers;
3. Demonstrating sustainable sanitation solutions;
4. Addressing climate change; and,
5. Increasing access to innovative financing for water and sanitation services.

Principal activities included: conducting pilot projects; facilitating twinning

partnerships; supporting regional replication initiatives, such as regional training, toolkits and knowledge management tools; and undertaking strategic studies and targeted communications efforts.



WaterLinks and Twinning Partnerships

Twinning partnerships and regional replication of innovations in urban water services delivery were ECO-Asia's primary implementation model. In 2008, ADB, IWA and USAID established WaterLinks as a regional network to support water operator partnerships (WOPs) between water services providers in Asia and the Pacific. WaterLinks has three key objectives:

1. To establish and facilitate twinning partnerships;
2. To strengthen service provider capacity through regional training and toolkits; and,

“One of the biggest challenges in the water sector is enabling intra-regional and international cooperation. WaterLinks is a vital step forward in unleashing this potential in Asia.”

Bert Diphorn, Global WOPs Initiative Lead, UN-HABITAT

3. To disseminate and replicate best practices via publications, events and a website (www.waterlinks.org).

ECO-Asia served as the WaterLinks secretariat and integrated all water and sanitation activities in support of the network. ECO-Asia also pioneered a twinning partnership model that received widespread recognitions as an innovative and cost-effective approach

for increasing access to services through south-south cooperation. The U.N. Global Water Operators Partnership Alliance (GWOPA), a global coordination body for twinning partnerships, recognized WaterLinks as the prominent regional network for Asia and the Pacific and invited WaterLinks to serve as a member of its Steering Committee.

In support of WaterLinks, ECO-Asia facilitated 40 twinning partnerships that resulted in over 1 million urban residents in Asian cities with improved or new access to water and sanitation services. ECO-Asia also leveraged more than \$13 million in funding from other development partners and services providers to WaterLinks. To ensure the sustainability of WaterLinks, in 2011 ECO-Asia helped establish

Water Operator Partnerships

Water operator partnerships (WOPs), or twinning partnerships, are proven catalysts for improving how service providers can better deliver safe water and sustainable sanitation services. These sustained, peer-to-peer relationships draw on direct engagement and exchange of practical knowledge. In a partnership, a resource partner service provider works with its recipient peer to identify and overcome service delivery challenges through a jointly defined work program. Lasting 12-24 months, typical partnership activities include technical consultation, specialized on-the-job training, technology demonstrations, peer review of procedures and systems, and information exchange.

Partnerships offer mutual benefits through cooperation. Recipients are able to improve operations and expand services, while resource partners enhance their skills by applying knowledge in new settings, and achieve corporate social responsibility goals. All partnerships under WaterLinks adhere to a set of principles and guidelines to ensure consistency.

WaterLinks as a non-profit organization based in the Philippines to continue carrying out twinning partnerships and regional replication of innovation.

Regional and National Partners

To support capacity building and to enable effective dissemination of best practices, ECO-Asia worked with a range of regional organizations, including the Association of South East Asian Nations (ASEAN). Through the ASEAN Environmentally Sustainable Cities (ASEAN ESC) Initiative, ECO-Asia helped implement its Clean Water Framework by facilitating twinning partnerships among member cities and their water services providers to improve the delivery of water supply and sanitation services. ECO-Asia facilitated nine twinning partnerships with ASEAN ESC cities, as presented in Table I.

Principal Activities and Outputs

What follows is a summary of key achievements and outcomes in the five focus areas. Annex I provides more detail on specific project successes.

Since national water associations represent important opportunities to replicate best practices, ECO-Asia worked to strengthen the capacity of national water associations to



implement twinning partnerships, including the Philippine Association of Water Districts (PAWD), Indonesian Water Supply Association (PERPAMSI) and the Vietnam Water and Sewerage Association (VWSA).

ECO-Asia's 10-Step Promotion Program Toolkit helps water service providers develop new programs that promote better hygiene across Asia.

Table 1. ASEAN ESC Partnerships

Recipient Partners	Resource Partner	Focus
Ha Long City, Vietnam	Putrajaya, Malaysia	Wastewater treatment management and operations
Phnom Penh, Cambodia	Ilollo City, Philippines	Sustainable sanitation awareness raising and planning
Krabi, Thailand	King County Wastewater Treatment Division, USA	Wastewater treatment operations and maintenance
Da Nang, Vietnam	Quezon City, Philippines	Water quality management
Medan, Indonesia	Putrajaya, Malaysia	Sustainable sanitation management and awareness raising
Medan, Indonesia	Quezon City, Philippines	Water supply expansion to the urban poor
Quezon City, Philippines	Putrajaya, Malaysia	Wastewater treatment management and operations
Palembang City, Malaysia	Penang Water Supply Company, Malaysia	Water supply reliability
Quezon City, Philippines	Palm Beach County Water Utility Department, USA	Climate change resilience building

I. Water Services to the Urban Poor

Connecting the urban poor is a challenge for many Asian urban water service providers. Misconceptions about the poor's willingness to pay and manage water systems, weak corporate governance on pro-poor policies and inappropriate service delivery models can limit adequate and effective service expansion to low-income communities. What follows is a summary of key achievements and outcomes of ECO-Asia's work in the sector.

Connecting the Urban Poor to Water Supply in Sri Lanka

In Sri Lanka in 2006, ECO-Asia collaborated with the National Water Supply and Drainage Board (NWS&DB) and civil society groups to support the development and application of water

supply policies that targeted the urban poor. ECO-Asia initially introduced the NWS&DB to innovative, community-managed water supply schemes for the urban poor through linkages with the Manila Water in the Philippines. Learning from this experience, NWS&DB piloted the conversion from standpipes to direct household connections in Negombo by setting up community-based organizations to manage the new water system.

Based on the results of the pilot in Negombo, ECO-Asia undertook a study on the willingness to pay and appropriate service delivery models for the urban poor. The study compared various pro-poor projects administered by the NWS&DB and funded by different development partners on their effectiveness, efficiency, impacts and

sustainability. Based on its findings, recommendations included strategies for mobilizing and involving targeted low-income communities, integrating infrastructure upgrade programs, converting stand posts to other models, and managing information to prioritize poor service areas. ECO-Asia relied on this study in developing a new project that converted stand posts to direct household connections in the Lunawa area in greater Colombo through promotion awareness raising initiatives.

Scaling-up Services to Poor Urban Communities in Surabaya, Indonesia

In Surabaya, Indonesia, ECO-Asia collaborated with the Surabaya Water Supply Company (PDAM Surya Sembada) to support Surya Sembada's efforts to expand water services to low-income communities supported by the World Bank's Output-Based Aid (OBA) and Indonesian government programs. ECO-Asia developed a poverty mapping tool that Surya Sembada adopted to better identify low-income households in its service area, and to apply for assistance through OBA and national programs. ECO-Asia also linked Surya Sembada with Manila Water, which shared best practices on direct household and communal master meter water supply systems, survey and registration methods, and decentralizing management operations. ECO-Asia's support helped Surya Sembada to

receive \$2.5 million through the OBA and national programs to subsidize piped water house connections for about 15,000 households that were classified as low-income.

Raising Awareness to Expand Water Services to the Urban Poor

In 2008, ECO-Asia developed the online 10-Step Promotion Program Toolkit to provide water services practitioners with a comprehensive methodology to design, implement, monitor and evaluate promotion and behavior change programs for water, sanitation, and/or hygiene activities (see www.10step-toolkit.org). The Toolkit provides guidance on how to develop a focused, audience-driven, research-based and creative campaign, and initiatives to change behavior. To facilitate scale-up of the Toolkit, ECO-Asia translated it into Bahasa Indonesia and Vietnamese and organized national workshops in Indonesia and Vietnam for water service providers, local governments, water

“The 10-Step Promotion Program Toolkit is an excellent tool. Its systematic approach is really helping us to develop a promotion program that is action-orientated, effective, economical and targeted, helping us to expand our water services to the urban poor.”

Norma Diarini, Finance Officer, PDAM Jombang, Indonesia



Experts from Penang, Malaysia and Palembang, Indonesia share experience on bringing continuous water supply to Palembang.

associations, NGOs and other organizations to share experiences and discuss opportunities for replication.

In Indonesia, ECO-Asia worked with six water service providers in Java to develop promotion campaigns targeted at first time water customers in the poorest communities, successfully providing over 50,000 people with piped water systems. In Vietnam, ECO-Asia worked with water supply companies in Bac Ninh, Hai Duong and Son Tay to develop promotion campaigns that increased demand and willingness to pay for piped water among the cities' urban poor, resulting in over 3,000 people receiving piped water supply for the first time.

In Sri Lanka, NWS&DB and ECO-Asia worked on replicating the lessons learned from the Negombo pilot to convert stand posts into direct household connections in the Lunawa area of Greater Colombo. ECO-Asia assisted the NWS&DB by applying the Toolkit in developing targeted promotion and community engagement activities that created demand for direct household water connections and promoted community savings. The Lunawa activity successfully enabled 6,000 people to have direct water connections to their homes.

Challenges and Solutions in Serving the Urban Poor

Connecting the urban poor is a challenge for Asian urban water service providers. Misconceptions about the poor's willingness to pay and manage water systems, weak corporate governance on pro-poor policies and inappropriate service delivery models prohibit adequate and effective service expansion to low-income communities.

In 2006 ECO-Asia conducted an Asia-wide study to identify key constraints in providing water services to the urban poor and innovative solutions to address them including:

- Informing and educating stakeholders about the potential economic, political and social benefits of connecting the urban poor;
- Creating new service delivery models that engage local community organizations and emphasize practical delivery mechanisms; and,
- Restructuring subsidies and finding alternative financing.

ECO-Asia worked with service providers, communities and local organizations to implement the solutions through twinning partnerships, targeted technical support, and small grants that ultimately connected more than 100,000 urban poor residents to water supply service for the first time.

2. Improving the Performance of Water Services Providers

Across cities in Asia, more than 340 million people lack access to safe water supply. Many water services providers in the region struggle to improve and expand their services due to outdated infrastructure, inadequate skills development and limited access to finance. In practice, these constraints lead to inefficient operations and inadequate delivery services that increase risks of waterborne illnesses and lead to lost economic productivity. Intensifying weather events linked to climate change further aggravate these challenges and disrupt services

provision. ECO-Asia worked with urban water services providers to improve their operational efficiencies, strengthen governance, and build resilience to climate change impacts through twinning partnerships, technical support, and capacity strengthening efforts. What follows is a summary of key achievements and outcomes of ECO-Asia's work in the sector.

A representative from the Danang Water Supply Company testing water quality as part of the company's new water safety plan developed with support from ECO-Asia.

Provision of Safe Water Supply Services

ECO-Asia facilitated twinning



Improving Gender Mainstreaming in Water Operations in Asia

ECO-Asia developed a gender scan methodology for water services providers to assess their performance and potential for developing and implementing gender friendly policies and practices and improving gender mainstreaming in their organization. ECO-Asia then assisted Thailand's PWA and the Davao City Water District in the Philippines to apply the gender scan to their operations.

partnerships and capacity building events to advance the provision of safe water by urban water services providers in coordination with the World Health Organization (WHO) based on WHO's water safety plan framework. Through ECO-Asia activities in support of the water safety plan development and implementation, more than 240,000 residents of cities in Indonesia, Philippines, Thailand and Vietnam have safer water supply.

In Vietnam, based on a national training workshop on water safety plans, ECO-Asia implemented WaterLinks twinning partnerships to implement water safety plans in both Da Nang and Nha Trang. In particular, ECO-Asia established linkages between the Da Nang Water Company and Manila Water from the Philippines, and between Nha Trang's Khanh Hoa Water Company and Macao Water from China. With ECO-Asia facilitation, Manila Water and Macao Water guided and trained their Vietnamese counterparts in cleaning pipe networks, upgrading water quality sampling and monitoring systems, enhancing reservoir maintenance, and



Women, as household managers, benefit the most from a safe and reliable household water connection, as they are then able to spend less time collecting and boiling water.



ECO-Asia helped facilitate more effective billing and collection of water services payments by enabling community-based organizations to cooperate with water services providers.

elevating residual chlorine in the pipe network to meet local and international standards. These partnerships helped protect more than 40,000 residents from waterborne diseases.

In Thailand and Indonesia, ECO-Asia pioneered the development and application of the water safety plans by the Thailand Provincial Waterworks Authority (PWA) in Nakorn Nayok and PDAM Tirta Khatulistiwa in Pontianak, respectively. ECO-Asia linked both water services providers with Malaysia's Ranhill Utilities, a leader in water quality management and monitoring. In the WaterLinks partnerships, Ranhill advised their counterparts on how to draft a water safety plan, and demonstrated practical methods to implement these plans through increased water treatment capacity, improved contaminant removal, better water quality monitoring and stabilized chlorine residuals in the pipe networks. ECO-Asia support resulted in over 80,000 inhabitants in Nakorn Nayok and Pontianak having better quality water.

Building on the success in Nakorn Nayok, ECO-Asia further helped PWA to scale-up the water safety plan implementation in Khon Khaen through a WaterLinks partnership with the Korea Water Resources Corporation (K-water). K-water worked with PWA to better remove turbidity, maintain adequate residual chlorine in the piped network and install a state-of-the art

water quality monitoring system, resulting in 100,000 residents in Khon Khaen having a cleaner and safer water supply. K-water also seconded and funded a full-time water treatment expert for one year to assist PWA with treatment facility upgrades and optimization. ECO-Asia supported PWA's efforts to institutionalize the water safety plan in all of its 230 waterworks throughout Thailand through a series of national training.

With ECO-Asia facilitation under the auspices of WaterLinks, K-water also partnered with the San Jose del Monte Water District in the Philippines to assist San Jose in undertaking actions identified in its water safety plan. K-water assisted San Jose in addressing water treatment inefficiencies, as well as deficiencies in laboratory and water quality monitoring that resulted in facility upgrades benefitting more than 100,000 residents served by San Jose's treatment plant.

Managing Water Loss to Improve Supply Reliability

Through twinning partnerships, ECO-Asia supported state- and city-level water service providers in converting from intermittent to continuous supply services using water loss management techniques, such as hydraulic modeling, dividing services areas into smaller more manageable zones (also called district metering areas or DMAs), customer



ECO-Asia implemented a two-year initiative to promote improved access to water and sanitation through the adoption of good practices in stakeholder participation in the People's Republic of China.

metering enhancements, and leakage detection and reduction. As a result, over 400,000 residents in cities in India and Indonesia received an increased and more reliable water supply, which led to reduced health risks and improved water conservation.

ECO-Asia created a WaterLinks partnership between the Maharashtra state water service provider, Maharashtra Jeevan Pradhikaran (MJP), in India, and Malaysia's Ranhill to help MJP develop and implement innovative water loss management techniques, which led to 24/7 continuous supply from 4-5 hours per day. With ECO-Asia facilitation, Ranhill offered practical training and advisory services for MJP

on GIS mapping, DMA establishment/management, leakage reduction, customer metering, and pressure management. Through this partnership, MJP delivered improved water supply continuity to more than 180,000 people in the towns of Badlapur and Amravati, and is continuing to scale-up the improvements with state funding.

Looking to replicate the MJP successes, the Rajasthan Public Health and Engineering Department (PHED) also partnered with Ranhill, as well as MJP, on water loss management in Jaipur, Kota, and Jodphur, where water supply was available only for 1-2 hours per day. With ECO-Asia facilitation, MJP shared its practical experiences with PHED while Ranhill provided technical guidance and training on applying the water loss reduction process. PHED's pilots in selected Rajasthan cities led to 30,000 residents with improved water services delivery.

In Indonesia, ECO-Asia facilitated a WaterLinks partnership between Palembang's PDAM Tirta Musi and Malaysia's Penang Water Supply Company (PBAPP) to assist Tirta Musi in a continuous water supply initiative. With ECO-Asia support, PBAPP worked with Tirta Musi to implement a step-by-step strategy for converting from intermittent to a continuous water supply by designing and managing DMAs, locating and addressing leakages, increasing pressure, redistributing water

flow, and better managing its overall assets. While initially enhancing supply reliability in one pilot DMA, Tirta Musi has expanded to more than 60 DMAs, resulting in improved services for more than 200,000 Palembang residents.

In Surabaya, Indonesia, ECO-Asia supported a WaterLinks partnership between PDAM Surya Sembada and Malaysia's Ranhill to strengthen water distribution and pressure management that ultimately led to increased water services continuity. With ECO-Asia facilitation, Ranhill demonstrated practical approaches for modeling water flow and for testing alternative water distribution schemes with Surya Sembada that resulted in over 15,000 residents with a continuous water supply.

Promoting Good Governance in Urban Water Services in the People's Republic of China (PRC)

From 2007 to 2010, ECO-Asia implemented water and sanitation pilot activities in PRC to promote the adoption of good governance practices in urban water services delivery. The overall objective of the initiative was to demonstrate and replicate best practices for improving the performance of water and sanitation service providers through open, transparent, and accountable governance systems. Through five pilot

“AECOM is deeply committed to customer satisfaction. The team takes the approach to understand program beneficiaries first, listen to their priorities and then advocate for responses available within their program resources. This beneficiary demand driven approach is also used effectively to USAID's satisfaction. AECOM listens well to issues raised across the region and synthesizes this information for joint decision-making with USAID staff who cannot maintain the same depth of contacts.”

2008 ECO-Asia CPR

activities, selected services providers developed improved governance policies and practices to promote affordable and equitable access to safe water and basic sanitation.

- *Stakeholder Demand Surveys and Focus Groups to Support Expansion of Water Supply and Sewers in Jiangsu Province.* ECO-Asia joined hands with the World Bank to design and conduct a demand and willingness-to-pay survey with potential water users in four municipalities. Since the survey showed that not all consumers would sign up for the service, Jiangsu was able to efficiently tailor its project design and loan terms to better match user demand.
- *Guideline for Participatory Planning in the Water Sector in Jiangsu Province.*



A representative from the Hai Phong Sewerage and Drainage Company in Vietnam explaining septic tank cleaning procedures to a new customer as part of the company's new outreach efforts developed with ECO-Asia assistance.

Also in Jiangsu, ECO-Asia developed participatory planning guidelines for the Township Water Aggregation and Improvement project that would engage all project stakeholders to ensure that the project would be technically feasible and economically viable, as well as socially acceptable

and beneficial to the local communities. The methodology was piloted in Yancheng City before being rolled out to other parts of Jiangsu Province.

- *Improvements to the Customer Service System and Customer Water Quality Monitoring and Information in Shenzhen.* ECO-Asia worked with the Shenzhen Merchants Water Supply Company and the WHO to scale up the use of water safety plans that focused on customer relations. ECO-Asia facilitated a WaterLinks partnership between Shenzhen and the Los Angeles Department of Water and Power to strengthen Shenzhen's customer outreach and water quality monitoring feedback system. Through the twinning partnership, Shenzhen developed a customer service system that linked customer feedback on water quality to service delivery improvements.
- *Improvements to Customer Water Quality Monitoring and Service Delivery in Yancheng.* ECO-Asia established a WaterLinks partnership between Yancheng China Water Company Limited in Jiangsu Province and the Philippine Metropolitan Waterworks and Sewerage System (MWSS), leading to the development of a customer feedback system on utility performance that serves as a model for other Chinese cities that contract for water services.

- *Stakeholder Surveys and Focus Groups to Support Sanitation Planning in Yunnan Province.* ECO-Asia partnered with the Yunnan Environmental Protection Bureau and the World Bank Water and Sanitation Program's Economics of Sanitation Initiative to conduct a study to help policymakers better understand the costs and

benefits of sanitation alternatives to support more efficient sanitation investments. The focus of ECO-Asia's efforts was to pilot a new process for obtaining stakeholder feedback to support sanitation project planning and decision-making.

3. Demonstrating Sustainable Sanitation Solutions

Despite gains in the past two decades, safe sanitation remains a public health and environmental crisis for many countries in Asia. An estimated 680 million people in Asian cities still lack access to improved sanitation. While access to sanitation is gradually increasing in the region, sanitation costs these countries a total of \$9 billion per year in the form of economic, health, and environmental losses. What follows is a summary of key achievements and outcomes.

Promoting Innovative Sanitation Treatment Solutions

In San Fernando, Philippines, ECO-Asia supported the development and commissioning of the first, decentralized wastewater treatment system for a public market, which provided more than 5,500 people with first time access to sanitation services. ECO-Asia introduced the innovative point-source

pollution treatment system and assisted with the technical design and feasibility review together with the city's engineers. In addition, ECO-Asia helped draft the city's 10-year sanitation plan that included promotion programs and plans for building treatment facilities for the city's slaughterhouse and septage system.

In Calamba, Philippines ECO-Asia facilitated a WaterLinks partnership

We have renewed our commitments to improve our septage services. Indah Water Konsortium's technical assistance not only made us realize our shortcomings, but also gave us the opportunity to excel in services delivery for our customers. This practitioner-to-practitioner exchange is a great way to strengthen our capacities."

Ir. Pian Sopian, Managing Director, Bandung Water Services Company

Rapid Assessment of Septage Management

To better understand septage management policy and practice in Asia, ECO-Asia conducted a rapid assessment of providers in India, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand and Vietnam. Key challenges identified included:

- Limited awareness of policymakers about septage management and the corresponding need for policy setting funding allocation and enforcement;
- Weak enforcement of construction codes;
- Poor infrastructure planning;
- Limited institutional and technical capacity to operate septage management programs; and
- Weak tariff structures.

Key recommendations based on the assessment findings included:

- Raise awareness of both policymakers and septic tank users;
- Establish and enforce clear national and local policies;
- Strengthen the capacity of implementing agencies and services providers;
- Enable private service providers in the scale-up of scheduled desludging;
- Increase funding and reform tariff structures; and,
- Participate in partnerships to build capacity on septage management.

between the Calamba Water District and Taiwan's Chia Nan University (CNU) to develop a constructed wetland to treat domestic wastewater, preventing direct discharge into Laguna Lake, one of Philippines' largest freshwater lakes. With ECO-Asia support, CNU guided Calamba and two neighboring local governments to prepare technical designs, operate the system and select proper areas for constructing the wetlands that would serve at least 50,000 people. To promote replication in the other cities surrounding Laguna Lake, ECO-Asia facilitated discussions between CNU and the Laguna Lake Development Authority.

Improving Septage Management Operations

Under WaterLinks, ECO-Asia collaborated with various service providers in Indonesia, Philippines and Vietnam to improve their septage management processes through separate twinning partnerships with Malaysia's Indah Water Konsortium (IWK), a regional leader in septage management. With ECO-Asia facilitation, IWK built the capacities of both Indonesia's Bandung City Water Services Company and Vietnam's Hai Phong Sewerage and Drainage Company to optimize current and expand septic tank desludging operations, which resulted in improved collection and

treatment of septage for more than 100,000 residents in the two large cities. Through the partnership, Bandung agreed to acquire new septage collection trucks and enhanced its management of outsourced collection services, while Hai Phong advanced its sludge collection rates in new service areas through better routing and delivery systems.

Through separate WaterLinks twinning partnerships with Baliwag and Cabanatuan Water Districts in the Philippines, IWK guided the design of septage treatment facilities and collection processes that led to the construction of Baliwag's pioneering wastewater treatment plant, and the acquisition of desludging trucks for both Baliwag and Cabanatuan. As a result, more than 50,000 inhabitants in Baliwag and Cabanatuan had access to improved sanitation.

In Marikina, Philippines, ECO-Asia facilitated the preparation and implementation of a city-wide septage management program that provided 40,000 residents with septic tank collection and treatment services. ECO-Asia also facilitated collaboration between Marikina city officials and Manila Water to accelerate its septage management operations in Marikina, which resulted in the purchase of additional desludging trucks and treatment of collected sludge at Manila Water's new septage treatment facility.



Strengthening Wastewater Treatment Operations

ECO-Asia assisted services providers in the Philippines, Thailand and Vietnam to strengthen the commissioning, operations and maintenance of wastewater treatment facilities through twinning partnerships. Through WaterLinks, ECO-Asia supported a partnership between Vietnam's Ha Long Urban Environmental Company and IWK to develop a step-by-step approach to optimize wastewater treatment facility operations at its Bai Chay plant, including wastewater sampling/effluent monitoring procedures and system

A sanitation worker in Nuwara Eliya, Sri Lanka working to desludge a household septic tank.

“Working with peers in the U.S. have helped us better understand how climate change can affect the way we provide and deliver water supply to Manila residents. We look to adopt these innovative tools and processes to improve our planning systems for the future”

Ms. Leonor Cleofas, Deputy Administrator, MWSS, Manila, Philippines

maintenance manuals that ultimately led to a 25 percent reduction in effluent levels.

In Thailand, ECO-Asia helped build the capacity of the Wastewater Management Authority (WMA) to operate and maintain its Krabi wastewater treatment facility through a WaterLinks twinning partnership between WMA and the King County Wastewater Treatment Division, Washington, U.S. King County assisted WMA in developing an operations and maintenance (O&M) manual that detailed procedures for system optimization, preventative maintenance, health and safety and overall plant management. King County offered hands-on training on assessing treatment capacities and developing O&M procedures.

In the Philippines, ECO-Asia established a WaterLinks partnership between Manila’s Maynilad Water and IWK to support planning and commissioning of Maynilad’s wastewater treatment plant.

With ECO-Asia facilitation, IWK worked closely with Maynilad to better select, design and commission wastewater collection networks and treatment systems, and to improve the tender document development process. IWK also shared its experiences in project management and construction oversight. Through the partnership, Maynilad proceeded with project design, construction and commissioning of over nine sewerage network and wastewater treatment facilities to serve more than 110,000 residents in metro Manila.

Promoting Access to Sewerage Services

In Medan, Indonesia, ECO-Asia supported the local water services company, PDAM Tirtanadi, in expanding its sewerage services by applying the 10-Step Promotion Program Toolkit to increase demand for sewerage services in target communities. Through a series of sanitation promotion programs, PDAM Tirtanadi was able to connect 15,000 residents to the sewerage system for the first time. Tirtanadi also adopted the Toolkit methodology to assist with its other service expansion efforts and to strengthen its customer outreach processes.

Enabling Conditions for Sustainable Sanitation

ECO-Asia strengthened the enabling environment for sustainable sanitation services in the region. In the Philippines,

ECO-Asia assisted the government in drafting septage management guidelines as required by the Clean Water Act and assisted Marikina City in preparing and instituting its septage management ordinance. In Nuwara Eliya, Sri Lanka,

ECO-Asia helped develop the city's first septage management ordinance based on the lessons learned from the Philippines and supported a pre-feasibility study for a decentralized wastewater system.

4. Addressing Climate Change

Climate change-induced effects in Asia can impact the delivery of urban water supply and wastewater management services. As a result, services providers in the region are working to understand how climate change could impact their operations and to define climate-change

related risks. They seek practical approaches to manage those risks and integrate climate factors in their long term plans in order to continue delivering effective services in a changing and increasingly uncertain environment. Many services providers are also

Readiness of Asian Water Services Providers to Address Climate Change Impacts

Potential climate-related impacts to the water supply, such as fresh water shortages due to drought conditions, water quality degradation, extreme rainfall and associated floods, and sea water intrusion from rising sea levels could disrupt water services in cities across Asia. To continue to provide effective services, water services providers must begin to consider climate change factors into their planning and operations.

To understand the “readiness” of regional water service providers to respond to climate change impacts, ECO-Asia surveyed 14 providers in Asia and Australia. Assessment findings showed limited readiness, with only few services providers having advanced processes to recognize and adapt to climate change impacts. To validate the findings and facilitate sharing of good practices in building resilience and readiness, ECO-Asia organized a workshop with participants from Asia, Australia and the U.S. Key recommendations to build resilience included the need to (1) increase understanding of climate science and potential climate-related impacts on operations and services delivery (e.g., by linking the scientific community with services providers to enable collaboration); (2) strengthen climate risk identification and mitigation approaches; (3) help integrate climate change into planning processes and systems and develop plans that address climate change impacts (e.g., by strengthening data collection, management and analysis processes for better decision-making); and (4) implement plans and activities that build adaptive capacities and resilience in-line with services delivery improvements (e.g., by improving no-regrets activities in water loss management, septage management, water quality monitoring, and others).



Cities and their water services infrastructure are particularly vulnerable to intensifying extreme weather events linked to climate variability and change

working to reduce greenhouse gas emissions in part by implementing energy efficiency measures.

Supporting Better Planning to Strengthen Resiliency to Climate Change Impacts in Manila

ECO-Asia helped build the climate resilience of Manila's water service providers through a WaterLinks twinning partnership with the U.S. Palm Beach County Water Utility Department and the U.S. National Center for Atmospheric Research. Through the partnership, Manila Water and Maynilad adopted innovative scenario planning tools, such as the Water Evaluation and Planning Systems software and the XLRM decision-making framework, that will assist them in anticipating changes to climate conditions and precipitation, water run-off and availability, and water

quality changes. Through the partnership, the Manila services providers were exposed to available technologies that will improve their planning processes. The partnership also created new linkages between the services providers and the Philippine Atmospheric, Geophysical and Astronomical Services Administration to enable better integration of climate data collection and analysis efforts.

Promoting Energy Efficient Operations

ECO-Asia promoted energy efficient operations for water service providers in Indonesia and the Philippines. With ECO-Asia technical support, four Indonesian water companies collaborated with Philippine energy practitioners to undertake energy use audits, plan for short- and long-term reductions in energy use, and implement energy savings measures that ultimately reduced their power consumption. In the Philippines, ECO-Asia implemented a WaterLinks twinning partnership between Metro Cebu Water District and the Las Vegas Valley Water District to reduce energy use in Metro Cebu's operations. In a pilot area, Las Vegas shared experience on practical means for optimizing pumping operations, reconfiguring piping networks, and improving water distribution that enabled Metro Cebu to reduce annual energy consumption by 4.2 percent.

5. Increasing Access to Innovative Financing

Many water services providers in Asian cities lack the financial standing or capability to access adequate financial resources to improve or expand water services. To address these limitations, ECO-Asia worked with water services providers, financial intermediaries, and other relevant organizations to develop and replicate innovative financing arrangements that allowed services providers to improve services provision.

In the Philippines, ECO-Asia worked with the Local Water Utilities Administration (LWUA) to enable approval of LWUA's first Efficiency Improvement Program loan contract with the Laguna Water District, which led to the financing of a range of efficiency improvement activities and 3,000 new house connections, as well as an improvement in Laguna's creditworthiness. The national government subsequently released \$3 million to enable nationwide scale up of the EIP loan facility. In San Fernando,

ECO-Asia facilitated a private loan through Dutch SNS REAAL Bank to fund construction of the city's slaughterhouse wastewater treatment facility, septage treatment and disposal facility, and civil works for the public market wastewater treatment plant.

In Indonesia, ECO-Asia assisted the Ministry of Finance in developing legislation and standard operating procedures for issuance of municipal bonds to finance infrastructure improvements, including in water and sanitation.

As a regional initiative, ECO-Asia partnered with the Association of Development Financing Institutions in Asia and the Pacific to develop business models for banks and other financial institutions for the water sector in Asian countries, and to promote the models in several events that involved development as well as private financing institutions.

Results Achieved

ECO-Asia met or exceeded its targets in relation to the project PMP with the exception of only three indicator targets. The target for climate change policies/agreement adopted was not met because two water operators did not finish drafting their policies by the contract completion date. The target for

people receiving training in climate change was short by 22 people due to a serious typhoon in the Philippines that prevented people from attending ECO-Asia's training workshop. The target for increasing the capacity of women in key organizations was not met because water operators sent fewer women than

Table 2. Water and Sanitation Results		
Description	Target	Result
SO: Improved response to environmental challenges in Asia		
Number of policies and model actions applied and replicated	105	109
Number of beneficiaries with improved environmental services	1,202,000	1,556,211
Number of sustainable regional platforms established	1	1
IR 1: Enabling Conditions Improved		
Number of improved water and sanitation policies, laws, plans or model actions strengthened, developed, adopted, and/or implemented	148	202
Number of laws, policies, agreements or regulations addressing climate change proposed, adopted or implemented as a result of USG assistance	4	2
Number of non-governmental stakeholders engaged in environmental governance	70	89
Amount of funds from non-USAID sources mobilized and applied	\$3,476,800	\$13,135,963
IR 2: Human and institutional capacity strengthened		
Number of key national and local institutions with increased capacity	198	271
Number of women in key national and local institutions with increased capacity	200	163
Number of institutions with improved capacity to address climate change as a result of USG assistance	15	20
Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance	10	18
Number of people trained in improved water and sanitation practices	3,649	5,570
Number of people receiving training in global climate change as a result of USG assistance	150	128
IR 3: Model actions demonstrated		
Number of people in target areas with access to improved drinking water supply as a result of USG assistance	746,000	925,928
Number of people in target areas with access to improved sanitation facilities as a result of USG assistance	519,500	633,193
IR 4: Regional platforms strengthened to catalyze and sustain change		
Number of regional environmental platforms created or strengthened	1	1

anticipated to ECO-Asia training events. Table 2 above presents a full summary of results achieved under

ECO-Asia's Water and Sanitation component.

Advancing Sustainability

Through WaterLinks, ECO-Asia has achieved its objective of establishing a legacy organization to carry on the

work of ECO-Asia's Water and Sanitation component. Through this process, ECO-Asia worked with a range of part-

ners to create an informal network, build brand recognition, attract development partner support, and ultimately create a self-sustaining organization.

Building WaterLinks Brand and Capabilities

In helping to develop the WaterLinks network, ECO-Asia served as its first secretariat. Beginning in 2008, ECO-Asia coordinated with ADB and IWA to prepare the network's founding principles and business plans to establish the network's operational framework. ECO-Asia led efforts to establish the WaterLinks brand through promotional materials and participation in global and regional networking events. ECO-Asia organized the regional annual WaterLinks Forum to showcase twinning partnerships and promote replication of innovation in urban water services delivery. ECO-Asia also developed and maintained the WaterLinks website and prepared key publications, such as toolkits, studies and WaterNotes twinning summaries, and the WOPs Facilitation Guidelines. ECO-Asia also led efforts to administer the annual WaterLinks Awards.

One outcome of these efforts was that WaterLinks became recognized as an important network for promoting twinning partnerships in Asia, and in 2010, the U.N.'s global coordinating body on twinning partnerships, GWOPA, designated WaterLinks as a strategic partner

for Asia and the Pacific.

WaterLinks Established as Independent Entity

Beginning in 2011, ECO-Asia helped establish WaterLinks as an independent, non-profit organization registered in the Philippines as the effective legacy institution to continue the work of ECO-Asia. ECO-Asia assisted with the establishment of a WaterLinks Board of Trustees, identification of an executive director, and implementation of outreach efforts to raise funds. ECO-Asia subsequently transitioned secretariat responsibilities to the newly established non-profit, and assisted the non-profit in establishing operations by co-organizing regional training efforts, and providing coordination assistance on several twinning partnerships. In the process, WaterLinks developed core skills and systems related to implementing partnerships and replicating innovation in urban services delivery, while ensuring long-term organizational sustainability.

Environmental Governance

The principal objective of the Environmental Governance component of the ECO-Asia project was to improve environmental governance and transboundary cooperation by promoting regional dialogue and cooperation to help share and replicate innovation across Asia. ECO-Asia achieved this objective by strengthening the capacity of regional partner organizations and networks to share and replicate best practices, innovation, and lessons learned. The Environmental Governance component consisted of two main tasks:

1. Improved enforcement of environmental laws; and,
2. Transboundary waters cooperation.

For improved enforcement, ECO-Asia established the Asian Environmental Compliance and Enforcement Network (AECEN), a regional network of national and sub-national Asian environmental agencies committed to improving environmental compliance and enforcement in Asia, and served as network secretariat until 2011. As to transboundary waters cooperation, ECO-Asia worked with the Mekong River Commission (MRC) to promote effective regional cooperation in the Mekong river basin by facilitating the adoption of improved policies, plans, and mechanisms, and building human and institution capacity.

Asia is the fastest growing region in the world and faces unprecedented environmental challenges with disproportionate impacts on the urban poor and women.



Asian Environmental Compliance and Enforcement Network

Background and Context

Asia is the most economically dynamic region in the world, yet is home to two-thirds of the world's poor. While Asia's recent economic progress has raised 270 million people out of poverty, it has triggered a decline in the region's natural capital – shrinking forests, declining biodiversity, disappearing water sources, and barren lands. Exploitation of natural resources, industrial production, and urbanization pose serious environmental challenges. In response, Asian countries have developed an array of environmental laws and judicial decisions that implement international principles, including the principle of sustainable development. Enforcement of the resulting legal requirements, however, remains weak and uneven, due in part to

limitations in financial resources, and human and institutional capacity.

To overcome these limitations, Asian governments have introduced innovative mandatory and voluntary approaches that leverage market and community forces, and are less resource-intensive than traditional command-and-control regulation. These innovative approaches often promote voluntary compliance by educating and assisting the regulated community, and providing opportunities to publicize good corporate citizenship.

To share experience related to these efforts, ECO-Asia worked with Asian governments and donor partners to establish AECEN, a regional network that promotes improved compliance with environmental legal requirements



AECEN Results at a Glance

- More than 20 policies and model actions applied and replicated across Asia;
- Over 50 improved policies, laws, regulations, and agreements related to pollution and urban environment adopted by member agencies;
- Nearly 4,000 people receiving training in environmental law, enforcement, public participation, and cleaner production;
- Over \$7.5 million in leveraged resources;
- Establishment of AECEN as a sustainable regional platform and legacy institution.

through regional exchange of best practices (www.aecen.org). AECEN's mission is to:

1. Promote the development and implementation of improved environmental policies, laws, regulations, and institutional arrangements;
2. Strengthen practitioner capacity through specialized training and skills development; and
3. Facilitate regional sharing of best practices and information on strengthening compliance and enforcement.

AECEN members include national or sub-national environmental agencies in Asia responsible for identifying, monitoring, and correcting non-compliance with environmental laws and other requirements. AECEN members include agencies from Cambodia, China, India, Indonesia, Japan, Korea, Lao PDR, Malaysia, Maldives, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam. To guide the network, AECEN established an executive committee composed of member agency representatives and sponsoring development agencies. The committee serves as the governing body of the network, setting network goals and policies, inviting members and approving annual work programs.

In implementing activities in support of AECEN, ECO-Asia worked with a range

of other development partners, including ADB, World Bank, United Nations Environmental Programme (UNEP), Organisation for Economic Cooperation and Development, U.S. EPA, Clean Air Initiative for Asian Cities, and the International Network on Environmental Compliance and Enforcement.

Principal Activities and Outputs

From 2005 through 2011, ECO-Asia served as the AECEN secretariat and undertook the following activities on behalf of the network:

- Prepared rapid assessments of country environmental compliance and enforcement programs;
- Provided technical assistance via pilot projects to help develop best practice case studies based on a set of agreed principles;
- Facilitated twinning partnerships between members to promote adoption of good policies and practices;
- Established the Asian Justices Forum on the Environment;
- Organized regional training workshops to build human and institutional capacity;
- Organized annual regional forums to share experience and promote regional replication of good practices;
- Undertook knowledge management, including developing a website



High nutrient levels in many Asia waterways have led to eutrophication, which reduces their provision of vital environmental services to people.

(www.aecen.org), promotional materials, and publications; and,

- Organized and presented an excellence award to acknowledge the contribution of an outstanding woman in the field of environmental compliance and enforcement.

What follows is a summary of key achievements and outcomes. Annex I provides more detail on specific project successes.

Rapid Country Program Assessments

To support in-country activities and regional sharing of experiences, ECO-Asia worked with member agencies to complete rapid assessment surveys of their national environmental compliance and enforcement programs. Based on a common framework of program factors, agency officials and other stakeholders

Enforcement of environmental laws remains weak in many Asian countries due in large part to technical, financial, and human resource limitations.



identified program strengths and weaknesses, as well as priority reform areas and opportunities for strategic interventions through improved laws, policies, and institutional strengthening. Completing these program assessments enabled cross-country comparisons and provided a basis for regional dialogue. ECO-Asia completed environmental compliance and enforcement program assessments for the following countries: India, Indonesia, Philippines, Sri Lanka, Thailand and Vietnam.

Principles of Environmental Compliance and Enforcement in Asia

To provide a foundation for network activities, ECO-Asia worked with members to develop a set of regional principles for improving environmental compliance and enforcement in Asia. The principles provide broad guidance to members related to institutional arrangements; planning, performance and evaluation; compliance monitoring, inspection and permitting; enforcement response; compliance promotion and incentives; and public participation.

Building Compliance and Enforcement Tools and Capacity

As the AECEN secretariat, ECO-Asia facilitated a range of regional consultations to identify member priorities. Based on these priorities, ECO-Asia provided technical assistance

in developing pilot projects, facilitated twinning partnerships and organized regional workshops aimed at helping members develop new compliance and enforcement tools.

Training environmental inspectors in Vietnam. With assistance from ECO-Asia and U.S. EPA, in 2007 Vietnam's Ministry of Natural Resources and Environment (MONRE) established an inspector training program for national and provincial inspectorates throughout Vietnam, focusing on textiles, food processing, cement manufacturing and mining sectors. As part of the program, MONRE formalized its environmental inspector qualification training program, including producing a national inspection manual, and developed standard operating procedures across a range of sectors to ensure consistent application of international best practices and reduce environmental pollution nationwide.

Adopting new environmental inspection policies in Indonesia. To strengthening environmental inspection capacity, in 2009 ECO-Asia facilitated a twinning partnership between the Indonesia Ministry of Environment (MOE) and the Singapore National Environment Agency (NEA). Through direct inter-agency collaboration, MOE and NEA engaged in gap analysis, policy formulation and technical training activities on inspection and investigation. As a result, Indonesia

incorporated new inspection procedures and requirements based on Singapore practice into amendments to the Environmental Management Act of 2009. Key elements included increased authority for inspectors, higher penalties for non-compliance, improvements in inspection planning, and criminal liability for government officials who fail to perform required duties.

Better tools to ensure compliance with EIA to accelerate sustainable hydropower in Nepal. With only about 15 percent of rural households having access to electricity, expanding hydropower is a top priority in Nepal. In 2010, ECO-Asia facilitated a twinning arrangement between the Malaysia Department of Environment (DOE) and the Nepal Ministry of Environment (MOE) to enable more rapid and effective approval of hydropower projects by developing a consultant registration scheme for environmental impact assessments (EIA), EIA enforcement standard operating procedures, and a comprehensive training program implemented by Tribhuvan University.

Ho Chi Minh City strengthens industrial environmental performance reporting. Ho Chi Minh City (HCMC) is the industrial heart in Vietnam, comprising both heavy industries and small and medium-sized enterprises. In 2011, ECO-Asia facilitated a twinning partnership

“Sharing of information to promote replication of compliance assistance centers in the Asian region enables small- and medium-sized enterprises to adopt environmentally sound treatment technologies, process technologies and innovations and improve environmental compliance.”

Dr. Rashid Hasan, Director, Government of India, Ministry of Environment & Forests

between the Department of Natural Resources and Environment (DONRE) of Ho Chi Minh City and the Department of Environment, Climate Change and Water of New South Wales, Australia to develop improved and standardized self-reporting procedures and guidelines for wastewater discharge to better manage industrial pollution.

Thailand develops community participation framework for watershed management. The Tha Chin River is recognized as one of the most polluted rivers in Thailand, due in large part to runoff from agricultural and livestock activities. Under AECEN, ECO-Asia facilitated a twinning between Thailand’s MONRE and New Zealand’s Ministry of Environment, which led to the development of a new community participation framework which includes mechanisms and tools to protect and restore water quality. The Waikato Regional Council of New Zealand led cooperation and technical exchange.

Establishing Compliance Assistance Centers in Asia

Environmental agencies have a range of tools available for assuring compliance with laws and regulations, including compliance assistance, incentives, monitoring and enforcement. To comply with regulations, regulated entities generally need to know and understand all the requirements that apply to their operations. Many small and mid-sized enterprises (SMEs), however, do not undergo routine inspection or compliance monitoring, and are not aware of legal requirements. Given the potential liabilities for ongoing and past activities, many SMEs are also reluctant to engage directly with government agencies to share information on their operations and compliance needs. As a result, in the U.S., the U.S. EPA and other agencies have established compliance assistance centers in partnership with universities, industry associations and other non-profit organizations to serve as intermediaries in promoting environmental compliance.

Through AECEN, ECO-Asia established a program to pioneer the establishment of environmental compliance assistance centers (ECACs) through pilot projects and twinning partnerships aimed at replicating best practices. Building on the experience of the U.S. EPA, ECO-Asia worked with partners in Thailand to pilot ECACs, which were then replicated through twinning partnerships in the Philippines and India.

Thailand establishes ECACs for swine sector. Through a partnership with the U.S. EPA facilitated by ECO-Asia, in 2007 Thailand's Pollution Control Department (PCD) established ECACs to promote compliance by pig farms in the Tha Chin and Bang Pakong River basins. PCD worked through a stakeholder-driven process to establish a virtual compliance assistance center anchored by a website with a comprehensive database of regulations and technologies targeting pig farmers. PCD also put in place new policies and practices to strengthen human capacity. Based on the success of this initial effort, PCD replicated the model in four other river basins.

Philippines creates ECACs for swine and slaughterhouse sectors. Through cooperation with counterparts in Thailand and the U.S. EPA, in 2008 the Laguna Lake Development Authority (LLDA), which oversees environmental protection of Laguna Lake South of Metro Manila, established physical and virtual compliance assistance centers targeting hog farms and slaughterhouses. The centers provide information on environmental regulation, best practices, technologies and financing, as well as targeted training through classroom efforts and toolkits.

West Bengal establishes ECACs in sponge iron sector. Through partnerships with counterparts in the Philippines and Thailand, in 2009 ECO-

Asia, through AECEN, assisted India's West Bengal Pollution Control Board (WBPCB) in establishing an ECAC in the sponge iron sector. Based on a consultative process, WBPCB established a physical center with a website, database and related outreach materials. With assistance from the World Bank, in 2010 WBPCB expanded operations and put in place plans to replicate this model for the small-scale chemicals and petrochemicals industries.

AECEN establishes task force to replicate ECACs. AECEN member representatives from India, Philippines, and Thailand established a task force under the auspices of AECEN to identify strategies and tools for regional replication and scale up of ECACs in Asia. During 2011, the ECACs Task Force, co-chaired by officials from India and the Philippines, guided the process to develop a toolkit for other agencies

Many Asian governments have introduced innovative voluntary approaches that leverage market and community forces and are less resource-intensive than traditional command-and-control regulation.



“Partnering with Korea through AECEN has introduced Vietnam to a wide range of new solutions for addressing contaminated soil. Our partners from Korea were extremely helpful in sharing their experience and showing us how policies and practices can be strengthened over time in line with development priorities and available resources.”

Dr. Le Ke Son, General Director of Office 33, Deputy General Director, Vietnam Environment Administration, Ministry of Natural Resources and Environment, Vietnam



Senior officials from Korea and Vietnam share experiences in addressing management of contaminated soil at the air field in Da Nang, Vietnam.

to establish, operate, manage, and evaluate the ECACs.

Promoting Effective Soil Contamination Management

Improper management of toxic and hazardous waste and other materials due in part to inadequate enforcement has led to an increasing number of contaminated sites in Asia. Many regulatory agencies lack the legal and institutional frameworks and necessary to manage contaminated sites. AECEN member agencies, therefore, identified soil contamination management as a top priority and ECO-Asia conducted a regional assessment and established two twinning partnerships.

Vietnam develops technical guideline on contaminated soil monitoring. Soil contamination management is a top priority of the Government of Vietnam, especially as relates to dioxin contamination hotspots at the Da Nang Airport, as well as Bien Hoa and Phu Cat. In 2011, with assistance from ECO-Asia, Vietnam MONRE and the Korea Ministry of Environment (KMOE) entered into an AECEN twinning partnership to develop a technical guideline on soil contamination monitoring, as well as enhance the technical capacity of MoNRE and other key agencies.

Thailand adopts new soil

contamination policy. In 2008, Thailand generated over 1.8 million tons of hazardous waste, and imported or produced nearly 30 million tons of hazardous chemicals. The Department of Public Health reported over 1,600 cases of patients seeking treatment for exposure to hazardous substances and hazardous waste. In 2009, ECO-Asia facilitated a twinning partnership between Thailand's PCD and the Ministry of the Environment Japan, leading to the establishment of a new framework for preventing soil contamination and rehabilitating contaminated land. During 2011, PCD conducted a nationwide training for core staff on contaminated soil management.

Addressing Climate Change through Better Enforcement and Compliance

Together with UNEP, ECO-Asia undertook country studies on strengthening the rule of law in support of national climate change policy to achieve a low-carbon economy in select Asian countries. Targeting China, India, Indonesia, Japan, Philippines, Thailand, and Vietnam, the studies reviewed the legal framework for addressing climate change in each country, explored how to improve each country's legislative framework, and evaluated enforcement of existing legislation to achieve a low-carbon economy/society and sustainable

development. Based on these studies ECO-Asia implemented a twinning partnership, and conducted two regional events on climate and compliance, including linkages to EIA and a regional forum.

China partners with Japan to build capacity in enforcing energy efficiency law. ECO-Asia facilitated a twinning partnership between China's Ministry of Environmental Protection and Japan's Ministry of the Environment to identify new institutional mechanisms and capacity building tools to support local Chinese regulatory agencies in better implementing China's laws on energy efficiency. The partnership identified new strategies for reducing urban and industrial energy consumption, and developed a training manual for officials and staff within the responsible local agencies.

“Our partnership with the Land and Environment Court over the years has been invaluable in providing practical insights into effective environmental adjudication. Environmental litigation is complex and now we have new draft rules and procedures that help protect individual rights and our natural resources.”

*Hon. Justice Prateep Chalermphatarakul, President,
Environmental Division, Supreme Court of Thailand*



According to the World Bank, water shortages and water pollution in China represent catastrophic consequences for future generations. Half of China's population lacks access to safe drinking water, and nearly two thirds of China's rural population uses water contaminated by domestic, agricultural and industrial waste.

Mainstreaming climate change adaptation in EIA in Asia. In 2011, ECO-Asia demonstrated thought leadership in Asia through a regional workshop exploring opportunities and constraints in using EIA to enhance climate resilience of projects, and sharing experience on innovative practices in incorporating climate change considerations in EIA.

Asian Justices Forum on the Environment

Asian courts have witnessed an increasing number of environmental cases as a result of rapid urbanization, industrialization and related problems. These cases typically stem from deterioration of water and air quality, dumping of hazardous waste, and deforestation. Key challenges facing environmental courts include: inflexible procedures that favor polluters, limited remedies for injured parties; and weak capacity of judges and courts. Recognizing these challenges, ECO-Asia established the Asian Justices Forum on the Environment, a regional platform dedicated to facilitating cooperation and sharing innovative approaches between judges and courts on strengthening environmental adjudication in Asia. Partners supporting the Asian Justice Forum on the Environment included the U.S. EPA, UNEP and the Asia Pacific Jurist Association. Through the forum, ECO-Asia organized a broad range of regional meetings, as well as country-

specific initiatives.

Establishing green benches in Thailand. Thailand's Supreme Court, with assistance from ECO-Asia, established "green benches" through cooperative engagement with counterparts from India, Australia and the U.S. The Court developed improved policies and procedures that enabled greater access to courts in resolving environmental disputes. Thailand has established environmental benches at the Supreme Court, appellate court and trial court levels. Senior justices and judges from Thailand also shared their experience with judicial counterparts from Indonesia and the Philippines to promote the establishment of environmental courts in those countries.

Establishing environmental courts in the Philippines. In 2007, with support from ECO-Asia, the Philippine Supreme Court and the Philippine Judicial Academy (PHILJA) developed policy options for establishing new green courts through regional dialogue. In January 2008, the Supreme Court of the Philippines passed a binding resolution to designate 117 courts for improved environmental adjudication. These courts are now handling all types of environmental cases. The Supreme Court and PHILJA are also conducting focused training for environmental and appellate court personnel in the designated courts.

Developing a judicial training and certification program in Indonesia. Through a twinning partnership with the Supreme Court of the Philippines, the Supreme Court of Indonesia developed a training program for judges in handling environmental cases and a framework for the judicial certification program on the environment. PHILJA also provided assistance to the Court with curriculum development, training and certification.

AECEN Award for Outstanding Service and Commitment by a Woman

ECO-Asia established an annual Award for Excellence to highlight outstanding service and commitment by a woman in the environmental compliance and enforcement field. The award recognizes women who, in their official capacity

either within AECEN national or sub-national environmental agencies or partner institutions have demonstrated an outstanding level of leadership, commitment and service, and have distinguished themselves by making exemplary and tangible contributions to environmental compliance and enforcement. Past awardees have included: Ms. Tang Xingqun, Deputy Director-General of the Chongqing Environmental Protection Bureau of the People's Republic of China; Dr. Monthip Sriratana Tabucanon, Principal Inspector General of the Thailand Ministry of Natural Resources and Environment; Dato' Rajah Rosnani Binti Ibarahim, former Director General of Malaysia's Department of Environment; and Ms. Yoko Maki, Planner and Senior Director of the Global Environment Knowledge Center of the Environment Bureau of the City of Kawasaki, Japan.

Results Achieved

As detailed in Table 3 below, ECO-Asia met or exceeded all AECEN targets except for the indicator related to the number of women in key institutions with increased capacity. This indicator

was 16 women (7%) below its target, attributed to the difficulty in getting ministries to nominate women to participate in technical trainings.

Sustainability

Recognizing the need for a regional approach for strengthening compliance and enforcement, in 2005 in Manila, Philippines, environmental agency leaders from 13 Asian nations

established AECEN, an informal member network dedicated to promoting improved environmental compliance and enforcement in the region. With support from USAID, ECO-Asia served

as the secretariat from 2006 through 2010. Beginning in 2010, ECO-Asia facilitated an offer by Japan's Institute for Global Environmental Strategies (IGES) to assume AECEN secretariat responsibilities. In 2011, IGES opened an office in Bangkok and began to assume AECEN Secretariat responsibilities. In 2012 IGES took over all responsibilities from ECO-Asia to become the AECEN secretariat.

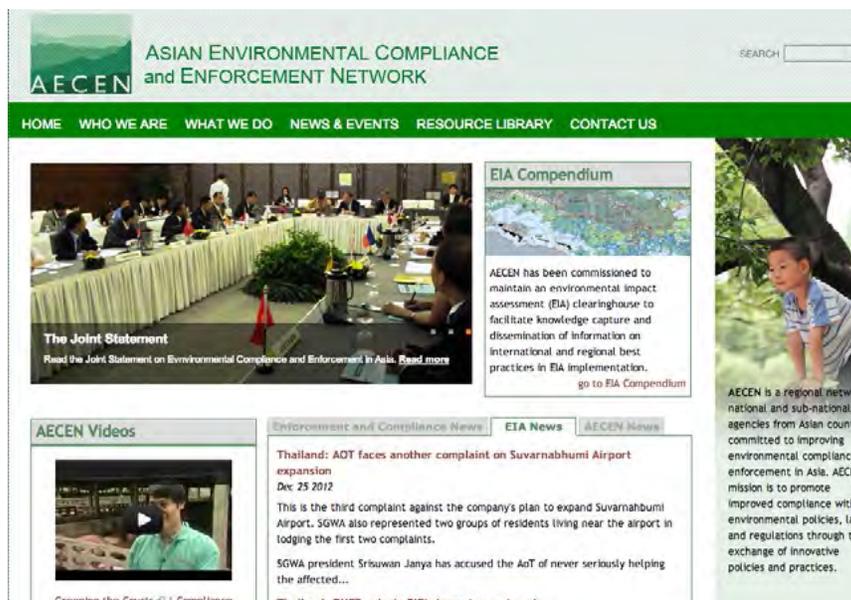


Table 3. Environmental Compliance and Enforcement Results Achieved

Description	Target	Result
SO: Improved response to environmental challenges in Asia		
Number of policies and model actions applied and replicated	14	21
Number of sustainable regional platforms established	1	1
IR 1: Enabling Conditions Improved		
Number of improved policies, laws, regulations, agreements related to pollution and urban environment drafted with USG assistance	51	58
Number of non-governmental stakeholders engaged in environmental governance	58	86
Amount of funds from non-USAID sources mobilized and applied	\$1,193,000	\$7,860,991
IR 2: Human and institutional capacity strengthened		
Number of environmental initiatives undertaken by civil society	5	6
Number of key national and local institutions with increased capacity	251	464
Number of women in key national and local institutions with increased capacity	230	214
Number of institutions with improved capacity to address climate change as a result of USG assistance	5	18
Number of people receiving USG supported training in environmental law, enforcement, public participation, and cleaner production policies, strategies, skills and techniques	2,530	3,997
IR 4: Regional platforms strengthened to catalyze and sustain change		
Number of regional environmental platforms created or strengthened	1	1
Number of new members in regional environmental platforms	16	18

Transboundary Waters Cooperation in the Mekong River Basin



Background and Context

With headwaters in Qinghai Province in China, the Mekong River flows for more than 4,800 kilometers through Cambodia, China, Laos, Myanmar, Thailand, and Vietnam, before discharging into the South China Sea at the Mekong Delta. Home to over 60 million people in the lower Mekong Basin, which covers parts of Cambodia, Laos, Thailand and Vietnam, the Mekong River is a vital resource in terms of agriculture, fisheries, hydropower, transportation and tourism.

Environmental degradation in the Mekong sub-region is caused by deforestation, erosion, population growth and pollution. Climate and environmental changes in the region also contribute to natural disasters, such as severe floods and droughts, which are occurring with increasing frequency. In

“The MRC is honored to work together with USAID to establish a new platform for strengthening regional cooperation in the Mekong River basin.”

Mr. Jeremy Bird, CEO, Mekong River Commission Secretariat

addition, as the Mekong sub-region develops, riparian countries have been constructing dams and irrigation and navigation waterways that significantly impact river livelihoods. Joint sustainable management of water-related resources to meet the needs of different sectors within each country, as well as regional interests, is a major challenge for Mekong countries.

In general terms, the relationships between the upstream and downstream countries in the Mekong River system is open to politicization, depending on ongoing and planned uses of the waterway. While Thailand views the Mekong as a source of relatively inexpensive energy through hydropower and Laos seeks to meet this need, Cambodia and Vietnam’s principal interests are to maintain the existing hydrological conditions to support fisheries and agriculture.

To overcome these challenges, Mekong River countries are working together to adopt and implement policies and practices that enable participatory and collaborative engagement for planning that both protects critical ecosystems and promotes economic and social



prosperity, while ensuring prevention, management and mitigation of conflict.

Established in 1995, the Mekong River Commission (MRC) is an advisory body which fosters inter-governmental cooperation among the four lower Mekong countries – Laos, Thailand, Cambodia, and Vietnam. The MRC and the National Mekong Committees (NMCs) have a mission to preserve the

natural resources and environmental quality of the river basin while promoting the inter-dependent and economic growth of the Mekong region. The MRC's goal is to achieve this mission through participatory and collaborative decision-making within and among the Mekong countries. The People's Republic of China and Myanmar participate in the MRC as "dialogue partners".

Over 48 million people in the Lower Mekong River Basin depend on the river for their livelihood.



The Lower Mekong Basin

In recent years, interest in hydropower development in the lower Mekong has led to the development of many new proposed projects by Mekong governments and the private sector, both on the mainstream and tributaries. Potential for impact on the environment, fisheries and livelihoods needs to be balanced with the economic priorities of MRC Member Countries. Under the Initiative on Sustainable Hydropower, the MRC is working with Mekong governments to develop coordinated and

integrated impact assessments, consistent and fair mitigation measures, and hydropower development strategies and policies.

Principal Activities and Outputs

ECO-Asia worked with the MRC and other partners, including the ADB and Worldwide Fund for Nature (WWF) to promote good transboundary water management in the Mekong river basin. Through a note of agreement between USAID and MRC signed in 2007, USAID ECO-Asia activities focused on developing tools and capacity for collaborative planning and decision-making, and integrated management of transboundary resources in the Mekong.

As is detailed in the activities below, the focus of ECO-Asia's activities shifted toward support on tools for sustainable hydropower development, which has become a potential source of conflict in the basin. Key activities and outcomes included:

Training and tools on conflict prevention and management.

From 2007 - 2009, ECO-Asia worked with the MRC Secretariat and Member Countries to strengthen capabilities to prevent and manage transboundary conflict through training initiatives as well as stakeholder consultations. Together, the MRC and ECO-Asia organized stakeholder consultations to identify country needs, and defined the role of the MRC in addressing country differences and potential disputes. One key outcome included a training for country practitioners on collaborative decision-making process for addressing transboundary issues. The U.S. Army Corps of Engineers (ACE) and Oregon State University helped prepare and deliver the training program. To enable improved communication, ECO-Asia also developed a glossary of terms and definitions on conflict management in the four riparian languages.

Transboundary EIA. In 2009, ECO-Asia completed a report on "Establishing a Transboundary Environmental Impact Assessment Framework for the Mekong River Basin" (TbEIA). The report,

conducted by the U.S.-based Environmental Law Institute, assisted the MRC and its riparian members to complete a framework for undertaking transboundary environmental impact assessments.

Transboundary hotspots and MOU between Cambodia and Lao PDR. Based on the ECO-Asia training, tools and consultation, the MRC identified a number of transboundary “hotspots” in the basin. In 2010 ECO-Asia collaborated with the MRC and WWF in addressing one hotspot by strengthening the capacity of Lao PDR and Cambodia to manage a transboundary wetland area between the Champasak and Strung Treng Provinces to protect the habitat of fish species and the rare and endangered Irrawaddy dolphin. One key outcome of this work was the signing of a memorandum of understanding on transboundary fisheries collaboration between Lao PDR and Cambodia in September 2010.

Rapid Basin-wide hydropower sustainability assessment tool (RSAT). In a collaborative effort with the MRC, ADB and WWF, in 2010 ECO-Asia helped develop a tool known as the Rapid Basin-wide Hydropower Sustainability Assessment Tool (RSAT) to enable practitioners and dialogue partners to rapidly assess river basin-wide considerations for hydropower

“[AECOM] responded quickly to the mission’s request to conduct a technical analysis of the impacts of proposed hydropower developments in the mainstream Lower Mekong River. The report has become a credible academic paper which is widely referenced by other donors and non-governmental partners in the region.”

2011 CPAR

sustainability. The tool is designed for a wide range of users including governments and line agencies, hydropower developers, development banks, the MRC, river basin commissions, etc. While the tool was developed in the context of the Mekong River, it is applicable elsewhere and is being promoted for international adoption through collaboration with the International Hydropower Association. In 2011, ECO-Asia supported trialing of the tool in target sub-basins in the four lower Mekong countries in partnership with ADB, MRC and WWF. ECO-Asia also supported the MRC in convening a regional workshop to consolidate results from the four trials and discuss a strategy to update the tool for wider adoption.

Assessment of costs and benefits of water resource development scenarios. In 2011 through the ECO-Asia project, Portland State University of the United States and Mae Fah Luang



USAID engages Mekong stakeholders in developing new policies for addressing critical transboundary waters issues.

University of Chiang Rai, Thailand developed a report entitled “Planning Approaches for Water Resources Development in the Lower Mekong Basin in consultation with the MRC. The purpose of the report was to support better water resources planning in the Mekong basin by building on the work of the MRC’s Basin Development Plan (BDP) and the Strategic Environmental Assessment (SEA) of the proposed mainstream dams. The report assesses additional aspects of the costs and benefits of water resources development including hydropower in the mainstream Mekong by conducting sensitivity analysis of the losses and gains of key ecosystem services. The report also applies a broader range of methods to deal with the valuation of these services and of projected benefits of development in order to shed more light on potential risks and uncertainty. Apart from providing additional information for policy makers in the region, the report aims to assist the MRC by offering methodological suggestions for consideration by the MRC in planning the third phase of the BDP programme.

Capacity building in decision-making and IWRM. Building on findings of the Planning Approaches for Water Resources Development in the Lower Mekong Basin (LMB) report, in June 2012, ECO-Asia organized a workshop with the MRC and ACE on strategic scenario planning for integrated

water resources development in the Lower Mekong Basin in Bangkok, Thailand. Attended by over 70 participants from LMB country governments and the MRC, the workshop supported the implementation of the Integrated Water Resources Management (IWRM)-based Basin Development Strategy and the subsequent update and broadening of the existing basin-wide development scenarios, using the new knowledge generated through the implementation of the Strategy. As a next step, ECO-Asia, ACE and MRC organized a training workshop in November 2012 on alternative decision making process for water resource management for 30 stakeholders from the Nam Kam River Basin in Thailand’s Sakhon Nakhon Province. The training workshop introduced a participatory process and a customized, computer-based model for achieving a common vision for the river basin development. Representatives from national and local governments, universities, development partners and businesses from the Basin learned to develop strategic scenarios and a shared vision plan using ACE’s Shared Vision Planning approach. ACE provided practical examples of methods to develop potential scenarios, understand risks associated with each scenario, and use scenario planning to make informed decisions.

Table 4. Transboundary Waters Management Results Achieved

Description	Target	Result
IR 1: Enabling Conditions Improved		
Number of USG-supported initiatives/mechanisms designed to reduce the potential for violent conflict over the control, exploitation, trade or protection of natural resources	14	14
Amount of funds from non-USAID sources mobilized and applied	\$271,250	\$479,789
IR 2: Human and institutional capacity strengthened		
Number of key national and local institutions with increased capacity	27	50
Number of women in key national and local institutions with increased capacity	20	28
Number of people trained in conflict prevention and management in transboundary waters	450	453
IR 4: Regional platforms strengthened to catalyze and sustain change		
IR 4.1 Number of regional environmental platforms created or strengthened	1	1

Results Achieved

As detailed in Table 4, Mekong activities met or exceeded all targets per the project PMP. Results for the indicator capturing the number of key institutions with increased capacity nearly doubled from the original target due to greater than expected participation by NMCs in the final scenario planning workshop.

Similarly, there was substantial buy-in by regional partners, such as the ADB, WWF, etc, in Mekong activities, which led to an almost doubling in leveraged funds from non-U.S. government sources.

Sustainability

Through the ECO-Asia project, USAID increased the human and institutional capacity of the MRC through technical trainings, regional tools and counterpart exchanges between NMCs, communi-

ties and other stakeholders. As a result of these efforts the MRC is better positioned to address complex transboundary waters issues in the Mekong river basin.



ECO-Asia worked directly with Lower Mekong Basin countries to develop new tools to enable better planning of water resources management projects that have significant potential impacts for the environment and economic development.

Overarching Support

Under the ECO-Asia project, AECOM provided overarching program support both for technical project areas in water supply and sanitation and environmental governance, as well as for REO's other regional programs. Overarching program support for the water and sanitation and environmental governance components included developing performance reports, publications, outreach materials, and website content, as well as implementing a small grants program and a regional exchange program. Overarching support for other REO partners included: collecting and organizing performance monitoring information; supporting preparation of communications materials; compiling and disseminating an REO quarterly e-Newsletter, maintaining the overall REO environment program website and supporting a small-scale technical exchange program.

“AECOM has consistently provided high quality goods and services to USAID. Project reports and communication deliverables demonstrate attention to details and are presented in a highly professional manner.”

ECO-Asia CPR 2008 Quality of Product or Service

Small Grants Program

ECO-Asia's small grants program provided assistance to organizations working in Asia to strengthen their capacity in water and sanitation, and environmental governance. ECO-Asia awarded a total of 31 small grants to 22 partner organizations. The maximum grant amount was \$25,000 and the period of performance was approximately one year. AECOM disbursed \$711,795.51 in total grants, \$77,152 of which were for the China activities. Annex 3 provides a summary of ECO-Asia grants.

Regional Exchange Program

In support of REO programs, ECO-Asia implemented an exchange program that enabled individuals in Asian governments, businesses, and NGOs to undertake overseas travel and interact directly with counterparts and experts from Asia, the U.S. and other regions to obtain practical knowledge, experience, and technical know-how. The regional exchange program facilitated Asia-to-Asia exchanges, both to strengthen regional initiatives and to better utilize program resources, and was fundamental to the success of twinning partnerships under WaterLinks and AECEN, as well as ECO-Asia activities in the Mekong river basin. Table 5 below provides an

overview of ECO-Asia's exchange program.

Communications and Knowledge Management

ECO-Asia provided knowledge management support to RDMA and program partners in developing regional systems for sharing information about activities and results. Information sharing activities included:

Websites. ECO-Asia developed and maintained four websites throughout the contract. The overall ECO-Asia website reflected REO implementing partner programs and activities and was developed in conjunction with REO. ECO-Asia also developed websites for AECEN and WaterLinks, which provided dynamic resources for twinning partners and others to access information on



twinning partnerships and technical resources. Both websites were transitioned to legacy secretariat organizations. Finally, ECO-Asia developed a website dedicated to the 10-Step Promotion Program Toolkit, allowing users to follow a step-by-step

ECO-Asia small grants had direct benefits for communities across Asia.

Table 5. Summary of ECO-Asia Exchanges

	Number of Exchanges	Participants					
		Total	Men	Women	WATSAN	AECEN	MRC
FY 2006	15	150	110	40	122	27	1
FY 2007	64	359	317	42	264	95	0
FY 2008	40	166	121	45	72	41	24
FY 2009	61	305	222	83	155	100	50
FY 2010	38	230	158	72	118	106	6
FY 2011	56	441	335	106	361	80	0
FY 2012*	35	373	306	77	142	72	159
Total	309	2,024	1,569	465	1,234	521	240

* Includes two Mekong exchanges from November 2012

interactive process to create a promotion campaign to increase access to water, sanitation and hygiene services. The 10-Step Promotion Program Toolkit is now being maintained by WaterLinks.

ECO-Asia promotional materials.

Under the direction of REO, ECO-Asia helped develop and print promotional materials (e.g., folder, inserts, brochure) to support outreach efforts by REO on their programming initiatives. ECO-Asia updated and added new materials over the life of the project.

Weekly updates. On a weekly basis, ECO-Asia compiled and edited project successes and activity information provide by REO implementing partners. REO disseminated this information via a Weekly Update e-mail distribution.

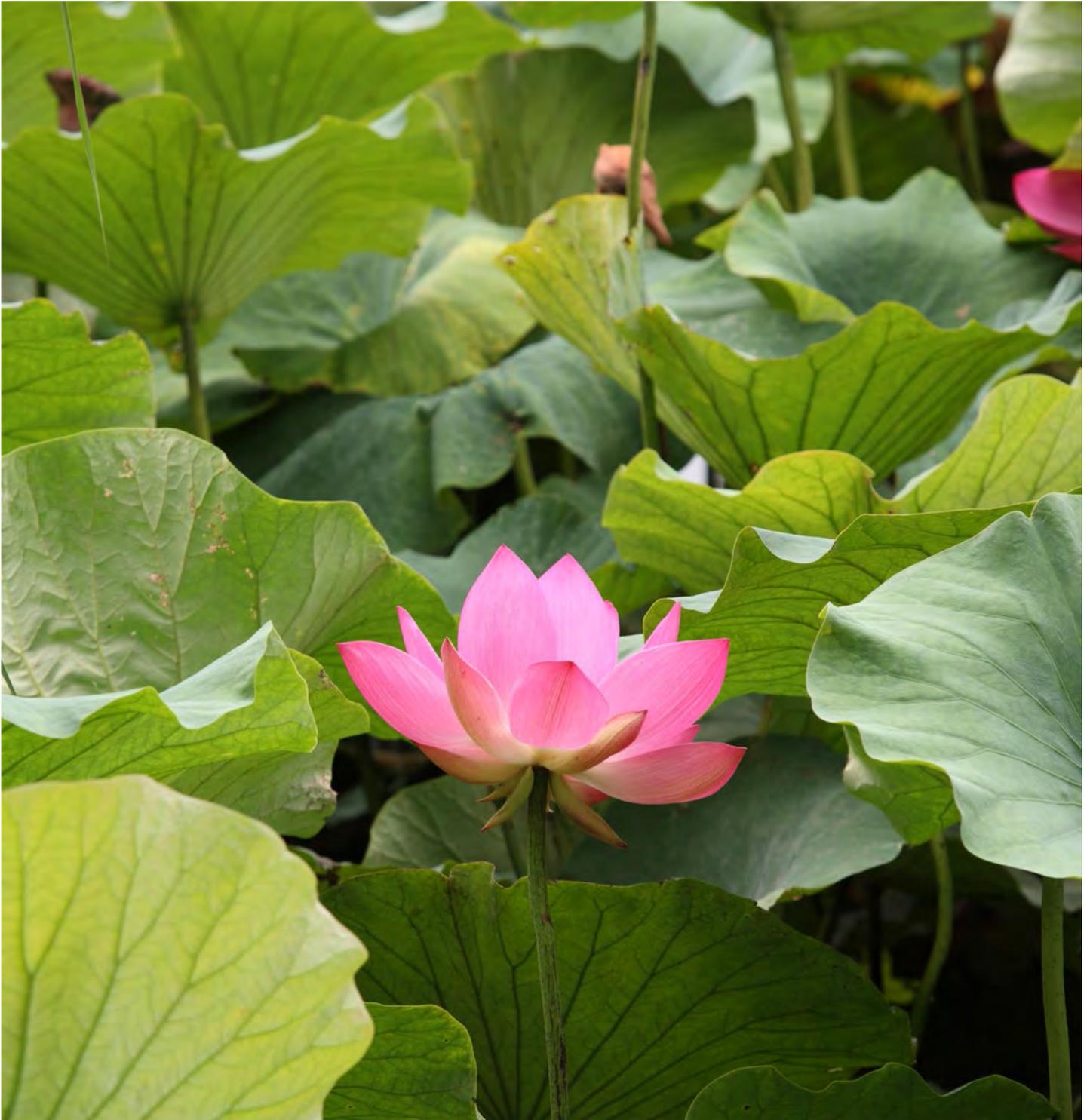
prepared and disseminated a quarterly e-Newsletter showcasing REO program activities each quarter. This e-Newsletter captured the most relevant REO successes for each quarter.

Other Support to REO

ECO-Asia supported REO by collecting and organizing performance monitoring information from other RDMA environmental contractors, grantees, and other partners and synthesizing information into performance report and operation plans.

Quarterly e-newsletters. ECO-Asia

The screenshot shows the USAID Environmental Cooperation-Asia website. At the top, there is a banner for 'Sustainable Coastal Livelihoods (SCL)' with a background image of a coastal scene and a map of Asia. Below the banner is a navigation menu with categories: Water and Sanitation, Biodiversity Conservation, Clean Development and Climate, Environmental Governance, and Economic Recovery. The main content area is titled 'CATALYZING CHANGE THROUGH REGIONAL COOPERATION' and includes a brief description of the program. Below this, there are two columns: 'ECO-Asia Quarterly eNewsletters' and 'ECO-Asia Weekly Updates', each with a description of the content and links to read the latest issue or subscribe to the newsletter. The footer contains the USAID logo and navigation links: Home | About | Programs | Partners | Tools & Resources | Contact | Privacy Statement & Disclaimer.



ECO-Asia provided strategic communications support to the Regional Environment Office to enable better achievement of its regional programming objectives.

Annexes

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2. List of Activities 2006 - 2012
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CASE STUDY

Building Climate Resilient Water Operators in Manila, Philippines

U.S. - Philippine twinning partnership brings innovative solutions to strengthen climate resiliency and adaptive capacities of Manila water services providers



U.S. and Philippine water operators collaborating to pilot a water resources model using new software and results analysis tools that take into account climate change

"Working with peers in the U.S. have helped us better understand how climate change can affect the way we provide and deliver water supply to Manila residents. We look to adopt the innovative tools and processes to improve our planning systems for the future"

- Ms. Leonor Cleofas, Deputy Administrator, Metropolitan Waterworks and Sewerage System (MWSS), Manila, Philippines

U.S. Agency for International Development
www.usaid.gov

Challenge

Manila, the Philippines, has recently experienced intensifying climate change-related events such as increased precipitation, flooding, and drought that affect urban water supply and wastewater management services delivery. Manila's water services provider, the Metropolitan Waterworks and Sewerage System (MWSS), and its two concessionaires – Manila Water and Maynilad Water – are working to improve their understanding on how future climate change impacts affect their operations and are identifying new approaches for better integrating climate change-related risks in their planning systems.

Initiative

To support these efforts, in 2011 the USAID Environmental Cooperation – Asia (ECO-Asia) project, through the Waterlinks network, created a partnership between MWSS, Manila Water and Maynilad Water, and Palm Beach County Water Utility Department of Florida and the U.S. National Center for Atmospheric Research (NCAR), leaders in climate change adaptation and climate-proofing. Through the year-long partnership, Palm Beach and NCAR worked with their Manila peers to apply an innovative software system, the Water Evaluation and Planning System (WEAP), and a decision-making framework to analyze how climate variability could impact operations and water services delivery. Palm Beach and NCAR provided hands-on training in the U.S. and Manila and gave remote assistance to pilot the model and evaluate results.

Results

MWSS, Manila Water and Maynilad are adopting the new systems and in the process have strengthened linkages with relevant government agencies to acquire better climate and weather information. They plan to integrate WEAP into their own business and investment planning systems, which will ultimately ensure their operations are climate-resilient, so that more than 8 million Manila residents will have sustained and improved access to water services.



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CASE STUDY

Indonesian Water Companies Connect Urban Poor

Indonesian water service providers use USAID services promotion toolkit to help expand water supply to 50,000 low-income urban residents



Staff from PDAM Jombang test services promotion leaflets with target community.

"After we were trained in the 10-Step Toolkit the result of our promotion and outreach campaigns have been much, much better. I believe that the Toolkit is very helpful in organizing a promotion campaign and marketing PDAM products. Now we have a standardized method to do all of our promotion and outreach activities."

– Budiyanto, Director, Director, PDAM Jombang, East Java.

U.S. Agency for International Development
www.usaid.gov

Challenge

Over 50 million urban poor in Indonesia lack access to safe drinking water. Water service providers, or PDAMs, are continuously working to expand their coverage in urban areas but face difficulties in getting poor households to connect to the piped water system. In many cases, the lack of new customers relates more to a lack of awareness of new service availability, rather than customer inability or unwillingness to pay for the services. To successfully expand their coverage and engage the urban poor as true customers, the PDAMs seek better, locally adaptable approaches.

Initiative

A well-designed services promotion program can be an effective way for PDAMs to better connect with the urban poor and bring about positive behavior change related to water services. Through the WaterLinks network, USAID's ECO-Asia project has developed a *10-Step Promotion Program Toolkit* to help water service providers, especially PDAMs, develop targeted and tailored promotion efforts that not only strengthen outreach, but also builds stronger rapport with the urban poor as their customers. Through a step-by-step approach, six PDAMs throughout Java developed new tools and systems to develop targeted outreach campaigns that reflected the specific conditions and needs of their target audience.

Results

Using the Toolkit the six PDAMs in Java created leaflets, local plays and radio spots focused on expanding services to the urban poor. As a result of the targeted promotion campaigns, the PDAMs gained over 9,000 new household customers in the first six months of the campaigns, providing nearly 50,000 people with first-time water access. All six PDAMs are now integrating the Toolkit process into their other promotion and outreach activities.



CASE STUDY

Piloting New System to Deliver Safer Water in Nha Trang, Vietnam

Twinning partnership with Macao improves water quality for more than 35,000 residents.



Khanh Hoa and Macao Water work together to improve water testing procedures and analysis.

NT Dam, ECO-Asia

"We had difficulty in determining the solution for our residual chlorine problem. Partnering with Macao Water made it easier to understand the complexities of our distribution system and helped us identify practical approaches to fix the shortcomings, ultimately to protect our customers from unwanted hazards."

- Mr. Tran Van Huy, Director, Khanh Hoa Water Supply and Sewerage Company, Nha Trang

Challenge

Rapid growth in Nha Trang city in Vietnam poses challenges for its recently corporatized water supply company, the Khanh Hoa Water Supply and Sewerage Company. Residents in newly developed areas on the fringes of the city are complaining about contaminated tap water, and as a result Khanh Hoa completed a Water Safety Plan in 2010 to help assess operations and identify public health hazards and risks. Based on that plan, Khanh Hoa seeks practical methods to reduce risks by improving water quality monitoring and management in the distribution network.

Initiative

In 2011, Environmental Cooperation – Asia (ECO-Asia), a project of USAID, through the WaterLinks network established a twinning partnership between Khanh Hoa and Macao Water, an operator recognized for advanced water quality management systems. Through their 14-month partnership, Macao Water shared practical approaches for assessing and cleaning water supply reservoirs, and strengthening water sampling and analysis procedures. It also helped develop a pipe-flushing program and guided Khanh Hoa in piloting an in-line chlorine booster for areas where residual chlorine levels were inadequate. Macao Water hosted technical visits by Khanh Hoa to demonstrate the application of advanced technologies for monitoring water quality and managing a piped network, and advised Khanh Hoa on leakage detection.

Results

Through the partnership, Khanh Hoa invested in new equipment and systems to ensure safe water provision for at least 35,000 people in a pilot area. It procured new water quality monitoring devices and an in-line chlorine booster pump to maintain chlorine in the far end of its piped network at levels that will remove contaminants. Khanh Hoa also plans to upgrade water storage systems. Having safeguarded its customers in the pilot area, Khanh Hoa will soon expand the improvements in other services areas throughout Nha Trang.

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SUCCESS STORY

Bandung, Indonesia Expands Sanitation Services Delivery

Partnership with Malaysia improves septage management service delivery, benefiting more than 18,000 residents.



Jay Tescan/ECO-Asia

IWK and Bandung jointly review septage desludging operations.

"We have renewed our commitments to improve our septage services. Indah Water Konsortium's technical assistance not only made us realize our shortcomings, but also gave us the opportunity to excel in services delivery for our customers. This practitioner-to-practitioner exchange is a great way to strengthen our capacities."

— Ir. Pian Sopian, Managing Director of the Bandung Water Services Company

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The water services company in Bandung, Indonesia's third largest city, implements a septic tank desludging and septage treatment program that does not yet reach all customers. As a result, a top priority of Bandung's Water Services Company is to increase its capacity to accommodate more customers by expanding and improving the current program, including operations and maintenance.

In 2011, Environmental Cooperation-Asia (ECO-Asia), a project of USAID, facilitated a partnership through the WaterLinks network between Bandung's water services company and Indah Water Konsortium (IWK), Malaysia's national wastewater operator. IWK has extensive experience in managing and implementing wastewater and septage systems. As part of this year-long partnership, IWK and Bandung worked together to strengthen Bandung's septage management program and help optimize services delivery to support expansion plans. Partnership activities included classroom and hands-on training in Bandung as well as technical visits to IWK operations in Malaysia to better understand septage management practices and technologies.

IWK also reviewed Bandung's operations and collaborated with the water company to strengthen its desludging practices. The partners worked on improving collection and disposal of septage sludge, monitoring of outsourced services, upgrading its customer database management and developing annual targets and budgets. In addition, they focused on establishing better operations and maintenance of desludging vehicles and the sludge treatment facility.

With IWK support, Bandung's water company has successfully re-launched a more efficient septage management program, immediately benefiting 18,000 people who have already paid for services. The water company is also investing in an improved septage collection system, and will expand service coverage for the entire city to ensure a cleaner, healthier Bandung.



SUCCESS STORY

Palembang Delivers Continuous Water Supply, A First.

More than 65,000 residents in Palembang, Indonesia have 24/7 supply through partnership with Penang, Malaysia.



Experts from Penang, Malaysia review PDAM Tirta Musi's plans to initiate increased water flow in the pilot area.

"Our partnership with Penang not only helped build our capacity but also our confidence to provide continuous water supply effectively. We are planning to improve service delivery for all of Palembang residents"
- Ir. H Syaiful
Managing Director, PDAM Tirta Musi

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In Palembang, Indonesia's oldest city, water supply services are intermittent, due in part to poorly managed water distribution system. For PDAM Tirta Musi, the city's water operator, this constraint not only reduces its operational efficiencies and financial standing, but also poses potential health risks to residents as contaminants could enter system pipelines as a result of intermittent service.

In 2010, with assistance from the Environmental Cooperation-Asia (ECO-Asia) project, USAID facilitated a water operator partnership between PDAM Tirta Musi and Penang Water Supply Co. (PBA), a Malaysian water operator known for providing continuous supply through robust water loss reduction and water distribution management. In the 18-month partnership, facilitated under the WaterLinks network, PBA worked with PDAM Tirta Musi to implement a step-by-step strategy for converting from intermittent to continuous supply.

Partnership activities included classroom and hands-on training and technical visits, focusing on readily applicable methods for achieving continuous supply. PBA helped PDAM Tirta Musi to design and build a pilot zone, and test supply increase from 12 to 24 hours per day. PBA shared experiences on managing pressure, distributing water flow, and addressing leakages. To ensure long-term service reliability, PBA also guided PDAM Tirta Musi to improve its infrastructure procurement processes that highlight quality materials and workmanship. More than 50 PDAM Tirta Musi staff visited PBA to attend specialized training and observe innovative methods in operating continuous water supply zones and managing assets.

With PBA support, PDAM Tirta Musi has successfully reduced water losses in the pilot area by 20 per cent and enabled continuous supply. Building on this success, it has scaled-up its efforts to 15 additional zones to benefit more than 65,000 residents with continuous water supply. PDAM Tirta Musi's approach serves as a model for other water companies in Indonesia, and it is planning to share its practical experiences with other water operators.

Arie Istandar/ECO-Asia



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CASE STUDY

Safeguarding Public Health in Khon Khaen

Thailand Water Operator Removes Contaminants from Water Supply through Partnership with Korea



Arie Istandar/ECO-Asia

PWA and K-Water partnered to review pre-treatment facilities and discuss potential improvements to remove turbidity.

"PWA remains committed to supply clean water to our customers. With K-Water's help, we are delivering this commitment to residents of Khon Khaen. We are looking to replicate these improvements in water quality management to our other waterworks"
– Mr. Wiset Chamnarnwong, PWA Governor

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Challenge

The Provincial Waterworks Authority of Thailand (PWA), which operates 228 water works across Thailand, is increasingly facing deteriorating water supply quality. Its Khon Khaen waterworks, one of the largest in its network, experiences turbid treated water and irregular residual chlorine in the pipe network. Khon Khaen also lacks proper water quality monitoring systems to detect system breakdown, which pose public health risks for residents, especially if contaminants remain in the distribution system.

Initiative

With support from the Environmental Cooperation – Asia (ECO-Asia) project, USAID created a WaterLinks water operator partnership between PWA and the Korea Water Resources Co. (K-Water), an established national water services provider for South Korea, to help PWA ensure safe water supply provision in Khon Khaen. With assistance from K-Water, PWA assessed and analyzed in detail its water treatment and distribution operations. Using these results and with guidance from K-Water, PWA optimized pre-treatment and filtration mechanisms to better manage turbidity, and put in place a booster pump for the pipe network to sustain adequate residual chlorine for use in eliminating contaminants. K-Water also helped PWA to design an automated monitoring system to relay and administer real-time information on water quality and treatment processes.

Results

With the ongoing Khon Khaen facility upgrades, PWA is effectively removing high turbidity levels in raw water and stabilizing chlorine residual levels in its pipe network to well within required standards for destroying harmful contaminants. Its advanced monitoring system will provide early warning for treatment failures. Once in place, these improvements will ensure safe water supply for more than 80,000 Khon Khaen residents. PWA considers this facility a model and plans to replicate the innovations for its other waterworks in Thailand.



SUCCESS STORY

Vietnamese City Develops Model Urban Sanitation Program

Hai Phong improves septage services with Malaysian counterpart's assistance



Experts from Indah Water Konsortium, Malaysia's national wastewater services provider, help their Vietnamese partners review Hai Phong's treatment facility's design and operations.

"IWK introduced us to many best practices that will help us improve our services, which in turn will build customer trust and willingness to fund wastewater programs."

- Mr. Nguyen Minh Tuan
Director of Hai Phong Sewerage and Drainage Company

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Residents of Hai Phong, Vietnam's third largest city, depend for their sanitation needs on septic tanks, which is the most common form of sanitation in Vietnam. Hai Phong's Sewerage and Drainage Company (SADCO) is among the first urban services provider in Vietnam to develop collection and treatment infrastructure for septage, or the sludge that accumulates in septic tanks. At its current scale of operations, however, SADCO serves less than five percent of residents each year, leading households to rely on private collectors, some of which illegally dispose of septage, resulting in high levels of water pollution.

To help SADCO address the barriers to scaling up service – including funding limitations, absence of local regulations and inefficient operations – in 2010 USAID's Environmental Cooperation-Asia program facilitated a water operator partnership between SADCO and Indah Water Konsortium (IWK), Malaysia's national wastewater operator, through the WaterLinks network. Drawing on its 20 years of experience with septage management, IWK observed and evaluated SADCO's treatment facilities and operations, and provided hands-on training. As a result, SADCO upgraded its recordkeeping and database systems, evaluated equipment efficiency, and for the first time, tested effluent quality to determine the facility's treatment efficacy. In 2010, SADCO desludged some 5,500 septic tanks, benefiting over 27,000 people.

With assistance from IWK, SADCO also drafted a regulation that mandates proper septage collection and treatment, requires household acceptance of desludging services, and requires private collectors to demonstrate sound recordkeeping in order to be issued a city permit. Once adopted by the city, the policy will obligate Hai Phong to allocate adequate funding for SADCO to conduct regular desludging for all properties.

With a regulation, management system and collection and treatment infrastructure in place, SADCO is on its way to becoming a model for septage management in Vietnam. ECO-Asia is working with the Vietnam Waterworks and Sewerage Association to replicate these best practices nationwide.



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SUCCESS STORY

Expanding Water Services Through Outreach

USAID's *10-Step Promotion Toolkit* helps to expand services to 20,000 in Indonesia, Philippines and Vietnam



J. Kowalski/ECO-Asia

Staff from the Hai Phong Sewage and Drainage Company in Vietnam register new households for septic tank desludging during promotion campaign.

"The 10-Step Promotion Program Toolkit is the best. Its systematic approach is really helping us to develop a promotion program that is action-orientated, effective, economical and targeted, helping us to expand our water services to the urban poor."

- Norma Diarini
Finance Officer
PDAM Jombang, Indonesia

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As Asia's urban populations expand, water services providers are continually investing in infrastructure to anticipate the increased demand for services, especially for new or underserved communities. Yet, as these new or expanded systems come online, services providers are finding there is lag in consumer connections. Without new customers, utilities and cities face challenges not only in repaying their investment costs, but also in maintaining their newly installed infrastructure. In many cases, the lack of new customers relates more to a lack of awareness of new service availability, rather than customer inability or unwillingness to pay for the services. When potential customers learn about new services and the associated health and economic benefits, the vast majority apply and regularly pay for new services.

To assist water service providers in expanding services connections, USAID's Environmental Cooperation-Asia (ECO-Asia) project developed a *10-Step Promotion Program Toolkit* that enables water services providers to design, develop, implement and evaluation services promotion campaigns that increase public awareness. Through a step-by-step approach, services providers develop new tools and systems to develop targeted outreach campaigns that reflect specific conditions and needs on the ground. This targeted approach ensures that the provider's message is relevant and understandable to the target audience, increasing the likelihood of new connections.

In FY 2010, ECO-Asia worked with four water services providers in Indonesia, Philippines and Vietnam to develop and implement promotion campaigns to expand water and sanitation services. As part of this effort, ECO-Asia also facilitated linkages between providers to share know-how and experience through WaterLinks twinning partnerships. As a result of these promotion campaigns, providers are better positioned to connect over 20,000 new people, including in underserved urban areas. In 2011, ECO-Asia will expand promotion activities and significantly expand efforts in target countries and improve and update the Toolkit.



CASE STUDY

Campaign Increases Sewer Connections in Medan, Indonesia

Partnership with Malaysia raises demand for sanitation services



Muhammad Yagji/ECO-Asia

Residents from the neighborhood of Kelurahan Sidodadi read brochures on the benefits of sewer connections at Medan's promotion campaign launch.

"We are glad to have shared our experience and that citizens of Medan have benefited from our experience."

-- Ir. Haniffa Hamid, General Manager of IWK

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Challenge

Each year inadequate sanitation and wastewater treatment costs Indonesia an estimated \$600 million through impacts to health, the environment, and the economy. Yet, public awareness of the need for proper sanitation and wastewater treatment is very low, leading to low willingness to connect to sewer lines and to pay for wastewater services. The City of Medan, Indonesia's third-largest city with over two million residents, currently has only 11,500 sewer connections, which generate one-third of the city's treatable volume. To increase connections, the city's water company, PDAM Tirtanadi (Tirtanadi), sought to develop a promotion campaign that would raise public awareness of sanitation challenges, and strengthen community leader support for improvements.

Initiative

Under the WaterLinks network, USAID's Environmental Cooperation-Asia (ECO-Asia) program facilitated a twinning partnership between Tirtanadi and Indah Water Konsortium (IWK), Malaysia's national sewerage services provider. Over the course of the 10-month partnership, practitioners from IWK trained Tirtanadi staff to design and undertake a sanitation promotion campaign using USAID's *10-Step Promotion Program Toolkit*, and building on IWK's practical experience in public outreach and sanitation promotion. As part of the partnership, Tirtanadi staff also visited Malaysia to learn how IWK conducts outreach.

Results

On August 17, 2009, Indonesia's Independence Day, Medan launched its promotion campaign in two zones of the city. Following public outreach, 750 households representing nearly 4,000 people signed up for new sewer connections. Medan plans to expand this campaign in other areas of the city. Resulting increases in household demand for new connections will enable Medan to access additional national wastewater funds, which in turn will allow the city to continue to expand its sewerage network.



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SUCCESS STORY

Thailand and U.S. Partner on Wastewater Management

King County assists Thai authority on improving facility operations nationwide



Watcharee Limanon/ECO-Asia

A delegation of managers from Thailand's Wastewater Management Authority tour King County's wastewater treatment plant in Seattle, WA.

"By strengthening relationships with Thailand... we have the opportunity to not only share our collective knowledge... but also to better understand and serve our own communities."

-Ron Sims, Former King County Executive

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Over the past 20 years, the Royal Thai Government has constructed and transferred over 85 wastewater treatment plants to local governments. Due to the lack of local capacity and funding, however, more than 75% of these systems are not fully operational. To address this situation, the Wastewater Management Authority of Thailand (WMA) is helping local governments rehabilitate facilities, improve billing systems, and build the capacity of local staff.

To assist WMA in undertaking this effort, USAID's Environmental Cooperation-Asia (ECO-Asia) program facilitated a twinning partnership between WMA and the Wastewater Treatment Division of King County, a leading utility in Washington State, USA. King County has established an effective model for setting standard operating procedures for its regional and satellite wastewater facilities. Through their twinning partnership, WMA and King County assessed facilities, discussed challenges, and shared ideas on developing improved operations and maintenance (O&M) capabilities.

WMA piloted this capacity initiative at the wastewater treatment plant in Krabi Municipality, an ASEAN Environmentally Sustainable City known for its coastal beauty. King County assessed the Krabi facility, and conducted training sessions both in Krabi and at its Seattle facilities on preventative maintenance, health and safety tests, and plant documentation. The partners then developed a toolkit that led to the development of an O&M manual for the Krabi facility.

At its 2009 annual meeting, WMA shared the toolkit and manual with over 150 staff, and plans to use it to develop standard operating procedures for every facility in the country. With these guidance tools in hand, local operators will be able to more sustainably operate wastewater treatment facilities and promote cleaner waterways in Thailand.



CASE STUDY

Yunnan Consults with Stakeholders on Better Sanitation

Large-scale survey introduces good governance principles and practices



Luke Duggieby/ECO-Asia

The eutrophication of this river near Kunming, China illustrates the impacts of untreated sewage.

"The results of the study will be used to advocate that policies be disseminated among stakeholders in order to integrate feedback into the decision-making process of the provincial and central governments."

-Na Qi, Chairman of the Yunnan Academy of Social Sciences

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Challenge

To improve sanitation in Yunnan Province, which lags behind many other Chinese provinces in sanitation services, the provincial government has made significant investments in both urban and rural sanitation infrastructure, such as sewerage systems, biogas digesters, and urine diversion dry toilets. The Yunnan government, however, typically does not obtain feedback from stakeholders either during the project planning and construction phases, or during system operations.

Initiative

In 2009, USAID, through its Environmental Cooperation-Asia (ECO-Asia) program, collaborated with the Yunnan provincial government agencies and the Yunnan Academy of Social Sciences (YASS) to evaluate the effectiveness and sustainability of the province's sanitation projects as part of the World Bank's Economics of Sanitation Initiative. The focus of ECO-Asia's efforts was to pilot a new process for obtaining stakeholder feedback to support sanitation project planning and decision-making. Researchers interviewed over 900 residents in rural, urban, and peri-urban communities, and conducted research on health and economic costs, water quality and project impact.

Results

In implementing this study and introducing good governance principles and practices, Yunnan governmental agencies tested a process for obtaining feedback from stakeholders to ensure more effective sanitation services. Conclusions and recommendations centered on engaging stakeholders at all stages of project development, creating a participatory project evaluation system, developing an interagency coordination group, and enabling more informed government decision-making through the provision of better data. In reviewing the results of the initiative, provincial decision-makers agreed to incorporate the recommendations on good governance into Yunnan's next Five-Year Plan.



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CASE STUDY

China Consults Communities on Water Sector Plans – A First

Jiangsu develops innovative participatory planning guidelines



Shang Kai/Hohai University

Community stakeholders from Yancheng, China, discuss a water infrastructure project plan.

"The participatory planning guidelines have really helped us to know more about the needs of the local communities and, with that, we can better serve the communities,"

-Li Jincheng, Deputy Director of the Yancheng Project Management Office.

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Challenge

To support water and sanitation services expansion along the Yangtze River, in 2008 the World Bank and Jiangsu Province began preparation of an urban development loan for water and wastewater investments in Jiangsu's five main cities. As with virtually all other water infrastructure projects in China, Jiangsu decision-makers did not plan to consult directly with communities and other stakeholders to ensure that project designs adequately reflected user needs and interests.

Initiative

With support from USAID through its Environmental Cooperation-Asia (ECO-Asia) program and Hohai University, a local university, Jiangsu developed the *Guidelines for Participatory Planning of Township Water Aggregation and Improvement Projects*, which provides an innovative approach for engaging stakeholders in water services project planning. ECO-Asia pilot tested and improved the guideline in the city of Yancheng during preparation of the World Bank water and sanitation loan. After the pilot testing the guidelines, ECO-Asia and the World Bank organized a workshop and training session to help replicate the approach in other cities implementing water projects in the province.

Results

The first of its kind in China, the Jiangsu participatory planning guidelines provides a framework and relevant tools and techniques to enable stakeholder participation in the water services project planning process, from design to implementation. As a result, stakeholder participation in the Jiangsu project helps to ensure that project plans are not only technically feasible and financially viable, but also guarantees that the project is socially acceptable and brings benefits to local communities. Cities in Jiangsu now have the tools to engage new stakeholders and better meet community water services needs through efficient and effective water and sanitation systems.



CASE STUDY

Customers in China Help Ensure Clean Water Supply

Shenzhen adopts new customer feedback system through partnership with Los Angeles



Yang Zhikai/SMWSC

Assistant General Manager of the Shenzhen Merchants Water Supply Company, Zhu Sihong (second from left), listens to Los Angeles Department of Water and Power's Customer Service Director John Chen explain how customer phone calls are immediately linked to the water quality monitoring system.

"We value our customers' involvement in water quality management since their active response can help us to understand our water quality status in real time."

-Zhu Sihong, Assistant General Manager, Shenzhen Merchants Water Supply Company

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Challenge

Faced with water scarcity and severely degraded water quality caused in part by rapid urbanization, the Chinese government has imposed more stringent drinking water quality standards for water services providers. While significant technological advances in water treatment and distribution processes have led to improved water supply services delivery, an important resource for water companies – their customers – is often overlooked. Feedback from customers on provision of service enables a water company to continuously improve and increase the efficiency of its operations. Serving 250,000 people in southern China, the Shenzhen Merchants Water Supply Company (SMWSC) recognized the importance of customer feedback to its business, and wanted to develop a system for monitoring water quality through customer feedback.

Initiative

Through its Environmental Cooperation-Asia (ECO-Asia) program, USAID facilitated a twinning partnership between SMWSC and the Los Angeles Department of Water and Power (LADWP), a utility serving over 680,000 residents, to help SMWSC develop a customer feedback system for water quality monitoring. As part of the partnership, customer service staff from SMWSC and LADWP made visits to each other's water companies to share ideas and experience. Staff from SMWSC were able to observe first-hand the operations of the LADWP customer call center, and learned how the center handles customer calls and communicates with customers on water quality issues.

Results

Through the twinning partnership, SMWSC established a customer feedback system through a centralized call center that responds to customer concerns and water quality complaints. The first of its kind in China, the call center enables SMWSC to better safeguard water quality through closer linkages with its customers.



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SUCCESS STORY

China Adopts Water Customer Feedback System

Partnership with Manila boosts user-oriented service



Jay Teeson/ECO-Asia

A representative from the Philippines explains the customer survey process to the Director of Customer Service from the Yancheng China Water Company.

"Customers are now our important judge for water and service quality."

-- Zheng Feng
Director of Customer Service
Yancheng China Water Company

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Water customers in Yancheng, China were unable to provide feedback on their water provider's service. As with many utilities in China, the water company based business decisions primarily on government directives and had limited information on customer needs and interests. With the support of USAID, through its Environmental Cooperation-Asia (ECO-Asia) program, the Yangcheng China Water Company (YCWC) developed a new customer feedback system to help provide the city's new water concessionaire with tools to better meet the needs of customers, improve water quality, and further protect public health.

In 2009, under the WaterLinks network, ECO-Asia helped establish a twinning partnership between the city of Yancheng and YCWC, with the Philippine's Metropolitan Waterworks and Sewerage System (MWSS) and its two concessionaires. Since 2002, MWSS has applied a customer feedback system across its service area to assess concessionaire performance. The twinning initiative provided the city of Yancheng with ways to evaluate and improve water service delivery through YCWC, as well as provide YCWC with the necessary tools to structure its planning based on government directives and the needs of its consumers.

After receiving training from the MWSS, YCWC tailored the system for local conditions. Throughout the training process, customer service staff learned how to review their daily operations and service performance level, as well how to correctly monitor customer feedback.

YCWC plans to introduce the public survey results to the Yancheng Municipality to demonstrate the need for more effective regulations on meeting service standards. Meanwhile the customer feedback system, which gives YCWC a tool to closely monitor customer satisfaction, will lead to service quality improvements and reduce risks to public health.



BEFORE & AFTER

Connecting the Urban Poor to Piped Water

Engaging community organizations to bring water service into homes in Negombo, Sri Lanka

Connecting the urban poor remains a significant challenge for national and municipal decision-makers in Sri Lanka. Until recently, Dupatah, an urban community of about 400 people in Negombo, relied on a public standpipe.

USAID's ECO-Asia Water and Sanitation Program worked with local and national authorities to supply piped water to Dupatah through a "master meter scheme" where a bulk meter and small piped distribution network replace the public standpipe. A community organization manages the pipe network between households and the water authority, helps maintain the water distribution network, and arranges more flexible payment options for users.

Encouraged by the success of the pilot, water authorities are replicating this approach in other parts of Sri Lanka. According to Negombo's mayor, "We can now invest our own funds for implementation of similar master meter schemes in other poor settlements in Negombo."

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Luke Dugleby/ECO-Asia

BEFORE Residents in Dupatah, an urban community in Negombo, Sri Lanka, used to collect water from a public standpipe. The standpipe supplied water for only two hours each day.



Luke Dugleby/ECO-Asia

AFTER After implementing a "master meter scheme" with assistance from USAID, households now have access to water directly in their homes. Local organizations work with the water authority and residents to maintain the distribution network.



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CASE STUDY

Sewage is Not a Dirty Word in Marikina

Leading the Way to Sustainable Sanitation in the Philippines



ECO-Asia Photo

WASH day campaigns and similar efforts promote sanitation and hygiene, resulting in more willingness to pay for sanitation services.

"Our program is more than just pumping septic tanks. It includes a new ordinance for the design and installation of septic tanks and a plan to service every septic tank in the city.

*- Mayor Ma. Lourdes Fernando,
Marikina*

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Challenge

In the Philippines, more than 55 people are estimated to die each day from water-borne diseases. A major cause of water-borne disease is groundwater contaminated by poorly treated or untreated human waste. According to a recent USAID study, only 3 percent of urban dwellers in the Philippines are connected to sewers. While about 85% of residents have on-site septic tanks, most are only desludged when they overflow, and the resulting septage is often dumped without treatment, leading to public health risks and environmental damage.

Initiative

USAID's Environmental Cooperation-Asia (ECO-Asia) program worked with Marikina and Manila Water Company to develop sanitation solutions that included improved septage management, infrastructure development and citizen awareness. Marikina passed a septage management ordinance requiring proper septic tank design and desludging of all septic tanks once every 3-7 years. To promote sewage treatment, USAID facilitated cooperation between Marikina and Manila Water, which will build an interceptor collection system and three wastewater treatment plants along the Marikina River, the first system of this kind in the country. USAID also raised awareness of good sanitation by training community leaders in community education and hygiene promotion, including organizing WASH (water, sanitation and hygiene) days.

Results

Manila Water now operates 4 trucks cleaning 92,000 Marikina septic tanks once every 5 years. By January 1, 2008, 11,000 septic tanks had been desludged, benefiting more than 55,000 people. Manila Water plans to spend \$57.8 million for new sewage treatment plants in 2009. "Our program is more than just pumping septic tanks. It includes a new ordinance for the design and installation of septic tanks and a plan to service every septic tank in the city," says Mayor Ma. Lourdes Fernando. USAID is using Marikina's experience as a model for other cities in the Philippines, and throughout the region.



SUCCESS STORY

A Model for Practical Septage Management

Nuwara Eliya Develops Septage Manual for All of Sri Lanka



ECO-Asia Photo

Regular pumping of septic tanks and treatment of septage reduces health risks from contamination of groundwater and surface water in densely populated urban areas.

"We hope the success of the program in Nuwara Eliya will lead to many other such efforts throughout the country."

- Rebecca Cohn, Mission Director, USAID Sri Lanka

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Ideally, in the crowded areas of Asian cities where many poor live, homes would be connected to piped sewer systems that lead to efficient treatment plants. That is not the case. Most cities in Asia do not have conventional centralized sewerage systems, due to high investment costs, and construction and operations challenges. Instead, most households pipe domestic waste into individual septic tanks, which often overflow, leading to ground water contamination and a risk of water-borne diseases. To address this challenge, USAID's Environmental Cooperation-Asia (ECO-Asia) Program demonstrated that intermediate solutions like improved septage management can help reduce environmental pollution and health risks.

USAID began its pilot efforts on septage management in the Philippines, where it had good success in Marikina City, a part of metro Manila. USAID transferred lessons learned from Marikina to the upland community of Nuwara Eliya in Sri Lanka, which also faced sanitation challenges. By setting up a "twinning" partnership linking Marikina City and Nuwara Eliya, USAID helped replicate best practices developed in the Philippines city to Nuwara Eliya. A basic manual on septage management was created and further developed with support from Sri Lanka's Central Environmental Authority (CEA). The manual provided key information on how to safely collect, transport and treat septic tank sludge. Within a short time, city trucks employed new and improved solutions for pumping out long-clogged septic tanks and transporting the sludge for treatment.

Showcasing this experience, Nuwara Eliya and Marikina City led a national workshop, sponsored by USAID and Sri Lanka's CEA, and introduced over 25 local authorities to best practices in septage management. The manual outlines the steps that should be followed to effectively manage septage with particular focus on septic tank maintenance, desludging and the use of vacuum trucks for collecting and transporting septage for safe disposal. Lessons learned in Nuwara Eliya can now be applied throughout Sri Lanka.



CASE STUDY

Water Flows 24/7: “Badlapur has changed!”

64,000 Residents to Receive Continuous Water Supply



Mr Y.G. Datar, a long-time Badlapur resident responds when asked about the new continuous water supply: “Badlapur has changed!”

“MJP seeks to improve its institutional capacity in achieving and managing the conversion process on sustainable basis, starting with the Badlapur water scheme.”

-From Memorandum of Understanding between MJP and Ranhill

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Challenge

The urban poor of Badlapur, India, a town of 160,000 near Mumbai, live in overcrowded slums. While most have household water connections, until recently they received water only four hours each day. The Indian State Water provider, Maharashtra Jeevan Pradhikaran (MJP), was attempting to increase hours of water supply, but needed technical help to eliminate water losses and improve system efficiency.

Initiative

USAID’s Environmental Cooperation – Asia (ECO-Asia) Program arranged a “twinning” partnership between MJP and Ranhill Utilities Berhad, a Malaysian utility with significant experience in improving system efficiencies to sustain 24/7 service. With facilitation assistance from USAID, Ranhill began providing technical guidance and hands-on training for MJP engineers and plant operators on managing continuous water supply zones, or District Metering Areas (DMAs). Ranhill conducted water treatment process audits and recommended ways to optimize treatment operations, eliminate water losses, ensure safe water quality and upgrade plants to accommodate future increases in water demand. By creating DMAs and controlling water loss, MJP brought the benefits of continuous water supply to eight of Badlapur’s 34 wards.

Results

MJP is now investing in upgrades at treatment plants, replacing equipment, and improving DMA design in eight wards. It plans to continue this pioneering effort by bringing continuous supply to the remaining wards in the city, ultimately benefiting all 160,000 residents. The utility also plans to replicate the continuous service model in 25 other cities throughout Maharashtra. Uninterrupted supply also yields other benefits, such as improved health and productivity. Recently, when MJP checked citizen opinion of the water supply situation in the pilot zone, an elderly resident responded with conviction, “Badlapur Badal Gaya!” (translation: “Badalpur has changed!”). Every person gathered around the surveyor agreed.



CASE STUDY

User Demand Drives China Water Planning

Good Governance Leads to Efficient Use of Water Resources



[ECO-Asia Staff]

Hohai University surveys local communities in Jiangsu Province on water needs and willingness to pay for improved services.

"USAID helped us in understanding the importance of user inputs during project planning and design. Through the user survey and our new planning guidelines, we will have a more efficient system."

-- Mr. Dong Weigong, Provincial Project Management Office, Jiangsu Province

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Challenge

Over the past 20 years, demand for water in China has been increasing by over 7 percent per year in urban areas. To meet growing demand, Jiangsu Province is developing an improved water distribution system to better serve municipalities along the Yangtze River in part by aggregating existing systems. To support this effort, the World Bank is working with the province to provide a \$150 million loan. In packaging this project, the provincial government and the World Bank wanted to ensure that the proposed system would match customer needs, but did not have a methodology in place for capturing and evaluating user needs.

Initiative

Through its Environmental Cooperation-Asia (ECO-Asia) project, USAID works throughout Asia to promote good governance in the water sector by facilitating stakeholder participation in water project design and development. Based on a method developed in Surabaya, Indonesia, USAID partnered with Hohai University in Jiangsu Province to design and conduct face-to-face interviews with potential water users in four municipalities. Since many households already had access to water from a variety of sources, the survey determined the number of potential new users, and whether they had the willingness and capacity to pay for the planned service.

Results

User surveys conducted in early 2008 revealed that 81 percent of the households in the target areas favored access to improved and more reliable water supply, and were willing to pay for new services. Since the survey showed that not all consumers would sign up for the service, Jiangsu was able to efficiently tailor its project design and loan terms to better match user demand. As a next step, USAID is working with Jiangsu to develop a new participatory planning guideline for use by individual municipalities in facilitating civil society involvement in the design of the municipal distribution networks.



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FROM THE AMERICAN PEOPLE

CASE STUDY

New Loan Product Enables Utilities to Expand

USAID Leverages \$3 Million for New Water Investments



Jay Teeson/ECO-Asia

Most urban poor in the Philippines rely on water vendors. LWUA PDEIF loans enable water districts to extend piped connections to these communities.

"We will match LWUA's loan with US\$200,000 in equity to finance a range of efficiency improvement activities and 3,000 new connections that we identified with the help of ECO-Asia."

---Tally Tabanao, General Manager
Laguna Water District, Philippines

U.S. Agency for International Development
www.usaid.gov

Challenge

Local water districts in the Philippines were caught in a vicious circle. They wanted to extend piped water to urban poor neighborhoods, which would improve quality of life and provide new revenue to the utilities, but their shaky financial status prevented many of them from obtaining necessary financing. The main source of financing for the 600 local water districts, the Local Water Utilities Administration (LWUA), had a government mandate to lend only to less creditworthy districts. The catch was that, at the time, LWUA had no loan products for such districts and no experience in structuring such loans.

Initiative

USAID's Environmental Cooperation-Asia (ECO-Asia) program helped LWUA develop an innovative financial product for pre- and semi-creditworthy water districts. The Project Development and Efficiency Improvement Fund (PDEIF) offers water district short-term loans to upgrade their operational efficiency and demonstrate their ability to repay. These upgrades improve districts' financial and operational performance. Moreover, with greater creditworthiness established, districts become eligible for new loans to expand their infrastructure network even further. To demonstrate this process, ECO-Asia helped two water districts prepare applications for efficiency improvement loans.

Results

LWUA issued its first PDEIF loan (US\$200,000) to the Laguna Water District in southeast Metro Manila. The district put up \$200,000 of its own money to match the loan, and used the funding to finance efficiency improvements and establish 3,000 new house connections. The Philippine government gave the program a vote of confidence by injecting US\$3 million into the loan fund. The program is rapidly growing, and 10 other districts are short-listed to receive funding. In sum, USAID has helped LWUA create a new loan product that allows riskier utilities to climb up the creditworthiness ladder. This success will mean improved water access for many Philippine communities.



SUCCESS STORY

WaterLinks: Expanding Asia Water Partnerships

Pioneering Utility Twinning Program Leads to Donor Agreement



Amy Leung (ADB), Paul Reiter (IWA), and Jacqueline Shafer (USAID) signed an MOU for WaterLinks on August 19, 2008 during Stockholm Water Week.

“One of the biggest challenges in the water sector is enabling intra-regional and international cooperation. WaterLinks is a vital step forward in unleashing this potential in Asia.”

***—Bert Diphorn
Global WOPs Initiative Lead
UN-HABITAT***

U.S. Agency for International Development
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Many water and wastewater utilities in Asian cities struggle to provide adequate services for residents due to technical, institutional, and financial challenges. Since 2007, USAID’s Environmental Cooperation-Asia (ECO-Asia) project has been helping urban utilities expand or improve services by fostering utility-to-utility “twinning” partnerships that facilitate the adoption of best practices. Building on those successes, in 2008 ECO-Asia expanded its twinning program with 10 new partnerships, including connecting the urban poor to water supply, reducing water loss, improving water quality, ensuring continuous water supply, promoting customer relations, and improving wastewater services delivery.

To further expand its twinning efforts, USAID reached out to the International Water Association (IWA) and Asian Development Bank (ADB) to join together to establish WaterLinks, a regional network for developing and facilitating twinning partnerships, also known globally as Water Operator Partnerships (WOPs). IWA and ADB quickly agreed, and on August 19, 2008, the three new partners signed a Memorandum of Understanding establishing WaterLinks. Through this arrangement, WaterLinks has become the Asian regional network for the Global Water Operators Partnerships Alliance, led by UN-Habitat. The objectives of WaterLinks are to: broker and facilitate twinning partnerships; strengthen utility capacity through regional training and toolkits; and disseminate best practices via publications, events and the WaterLinks website, www.waterlinks.org.

Each development partner supporting WaterLinks contributes resources in line with its comparative advantages. USAID, through its ECO-Asia project, develops and facilitates partnerships, strengthens regional capacity and manages the WaterLinks knowledge hub. ADB supports regional capacity building initiatives, and coordinates with USAID on jointly facilitating selected twinning partnerships. IWA supports knowledge sharing and outreach, and helps promote establishment of new partnerships through its member network.



USAID | **ASIA**
FROM THE AMERICAN PEOPLE

CASE STUDY

USAID Joins Hands with ASEAN For Clean Cities

Cooperation Helps Achieve ASEAN Water and Sanitation Goals



[Photo by Jay Tecson/ECO-Asia]

Water, sanitation and health, or "WASH", campaigns target school children to promote sustainable sanitation.

"All [cities] face similar problems, but if we can network and share experiences among them, we can tackle a whole range of problems by focusing on capacity building. ...this is what we want to create"

- Dr. Raman Letchumanan, Head of the ASEAN Environment Unit.

U.S. Agency for International Development
www.usaid.gov

Challenge

Cities in ASEAN countries face similar water and wastewater challenges, including inadequate sewerage and drainage infrastructure, water supply shortages, and limited access to safe water supply and sanitation services. USAID's Environmental Cooperation-Asia (ECO-Asia) Water and Sanitation Program supports the ASEAN Environmentally Sustainable Cities Initiative (ESC) to implement the ESC's Clean Water Framework by sharing best practices to improve access to safe water and sustainable sanitation services.

Initiative

USAID and ASEAN worked with 19 ASEAN cities to develop a regional strategy to implement the ESC Clean Water Framework, which includes: (1) raising citizen awareness of water supply and sanitation, especially for the urban poor; and (2) promoting good governance to ensure adequate public involvement, and enhanced human capacities, policies and financing. Based on the strategy, ECO-Asia is establishing and facilitating city-to-city "twinning" partnerships that enable the transfer of information, best practices and expertise on water and sanitation. For example, Iloilo, Philippines is sharing experience with Phnom Penh, Cambodia on innovative strategies for raising the awareness of residents on improved sanitation services, initially targeting a single city district. In Halong, Vietnam, USAID linked the Halong Urban Environmental Company with Indah Water Konsortium, a Malaysian utility, to strengthen the Halong's capacity for effectively operating its wastewater treatment plants.

Results

According to Dr. Raman Letchumanan, Head of the ASEAN Environment Unit, "all [cities] face similar problems, but if we can network and share experiences among these cities, then we can tackle a whole range of problems by focusing on capacity building. At the regional level, this is what we want to create." USAID and ASEAN are replicating city-to-city twinning initiatives with other ESC member cities, including linking Putrajaya's Indah Water Konsortium and with the Tirtanadi Water Supply Company in Medan, Indonesia on increasing demand for sanitation services.



SUCCESS STORY

Cleaning Up Thailand's Rivers

USAID Improves Pig Farm Compliance with Environmental Laws



Jarulok Shyepthai/ECCO-Asia

Many pig farms in Thailand are located near major waterways and directly discharge untreated pig waste and other agricultural run-off, significantly impacting the health and livelihoods of downstream users.

"PCD has committed to fund the development of compliance assistance centers in four additional river basins—the Chao Praya River in 2009, Songkhla Lake in 2010, Lam Ta Klong River in 2011, and Ping River in 2012."

-- Dr. Wijarn Simachaya, Director, Environmental Quality and Laboratory, Thailand Pollution Control Department

U.S. Agency for International Development
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Challenge

The Bang Pakong River flows through a large pig farming area in Thailand. The runoff from those 830 farms and their 667,660 pigs has made the Bang Pakong one of many severely polluted rivers in the country. Other waterbodies polluted by pig farm runoff include the Tha Chin, the Chao Praya, the Lam Ta Klong, and Songkhla Lake. Thailand's Pollution Control Department (PCD) turned to USAID for help with the problem.

Initiative

To address runoff from pig farms, the USAID-supported Asian Environmental Compliance and Enforcement Network (AECEN) worked with PCD to initiate a program for establishing centers that promote compliance with environmental regulations in the swine sector. The focus of the initial centers was pig farms in the Tha Chin and Bang Pakong River basins. PCD and AECEN organized workshops with pig farmers to get feedback on a model for the centers, training on agricultural best practices and outreach materials. AECEN also facilitated a peer exchange between PCD staff and a compliance assistance center in Taiwan. To help pilot a virtual compliance assistance center, AECEN provided support to Kasetsart University, a leader in the sector, in working with PCD to create a database of environmental requirements, a website, and training materials.

Results

PCD established a virtual center anchored by a website with a comprehensive database of regulations and technologies targeting pig farmers in the Tha Chin and Bang Pakong River basins (<http://thaiyecac.net/>). PCD also established two new policies on compliance assistance centers, and trained over 150 stakeholders. Demonstrating its commitment to the program, PCD has allocated over \$500,000 over the next five years to develop new centers in four additional river basins—the Chao Praya River in 2009, Songkhla Lake in 2010, Lam Ta Klong River in 2011, and Ping River in 2012. Through this success, AECEN has catalyzed development of a similar center addressing industrial pollution in West Bengal, India.



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SUCCESS STORY

Thailand Develops Landmark Policy Framework on Soil Contamination

Japan provides technical assistance via AECEN twinning partnership.



PCD Photo

In 2008, Thailand generated over 1.8 million tons of hazardous waste, and imported or produced nearly 30 million tons of hazardous chemicals.

"Soil and groundwater contamination has become a growing concern in Thailand, and as yet we do not have a legal or financial mechanism for tackling the problem effectively. We are determined to solve this problem in partnership with AECEN member agencies."

— Dr. Supat Wangwongwatana, Director General, Thailand Pollution Control Department

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Challenge

After decades of unprecedented industrial growth, Thailand is facing a worsening crisis in addressing the health and environmental impacts of improper management of hazardous waste and hazardous substances. In 2008, Thailand generated over 1.8 million tons of hazardous waste, and imported or produced nearly 30 million tons of hazardous chemicals. The Department of Public Health reported over 1,600 cases of patients seeking treatment for exposure hazardous substances and hazardous waste. According to the Pollution Control Department (PCD), only one of several agencies dealing with hazardous waste, there were 29 reported accidents related to improper handling and illegal dumping. Key challenges for hazardous waste management include: lack of a policy framework; ineffective coordination among regulatory agencies; and an inadequate management systems.

Initiative

To create a draft policy framework, AECEN established a twinning partnership between Thailand's PCD and Ministry of Environment Japan (MOEJ). With facilitation support from Japan's Institute for Global Environmental Strategies (IGES), PCD led a national effort to establish a new framework for preventing soil contamination and rehabilitating contaminated land. PCD and IGES worked closely to coordinate a series of technical exchanges and consultative meetings that engaged a broad range of experts and stakeholders from government and the private sector. PCD and IGES also prepared a synthesis report providing analysis and recommendations on soil contamination management.

Results

Based on experience and good practices from Japan, Thailand has prepared a draft policy framework on soil contamination with buy-in from a range of stakeholders. In 2010, PCD and IGES continued cooperation in preparing a draft national soil contamination law, and in developing a capacity building program for PCD officers that included a comprehensive training curriculum on soil contamination investigation, risk assessment and remediation.



SUCCESS STORY

Thailand Develops New Framework for Community Watershed Management

Partnership with New Zealand key to addressing pollution in Tha Chin River Basin



Photo by Watcharee Limanon.

Senior officials and community leaders from the Waikato and Tha Chin river basins share experience on community participation in watershed management.

“Our partnership with New Zealand has been invaluable in helping Thailand to strengthen and consolidate our understanding of the role of communities in river basin management. Our new framework for cooperation will set the stage for increased cooperation, and drive new partner support.”

— Suwan Nanthasarut, Director, Regional Environment Office 5, Ministry of Natural Resources and Environment, Thailand

Challenge

According to the *2009 Annual Report on Water Quality Management* prepared by Thailand’s Pollution Control Department (PCD), over the last 10 years the water quality in Thailand’s waterways has continued to worsen. To address this situation, PCD’s Water Quality Management Bureau works with local stakeholder organizations to develop action plans to improve water quality in the target river basins of the Chao Praya, Tha Chin, Bang Pakong, Lam Takong and Songkhla. Action plans include components on community and public participation in water quality management.

Initiative

In September 2010, the New Zealand Ministry for the Environment (MfE) and Thailand’s Ministry of Natural Resources and Environment (MoNRE) signed an MOU linked to a bilateral trade agreement. Building on this MOU, ECO-Asia, through support for the Asian Environmental Compliance and Enforcement Network (AECEN), facilitated a twinning partnership between MoNRE and MfE to develop new tools and capabilities in public participation and pollution control in the Tha Chin River. With technical leadership from the Waikato Regional Council (WRC), MoNRE and MfE implemented a series of partnership activities with counterpart community groups.

Results

As a result of the AECEN twinning partnership, Thailand developed a new community participation framework that both consolidates past efforts in the Tha Chin River, and builds on New Zealand’s experience. The framework identifies effective mechanisms and tools related to community engagement in policy formulation, awareness raising, watershed restoration and monitoring. Practitioners from New Zealand also developed and delivered training programs for community leaders and government officials based on New Zealand’s successful work on LandCare.



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CASE STUDY

Thailand Develops New Framework for Community Watershed Management

Partnership with New Zealand and key to addressing pollution in Tha Chin River Basin



Photo by Watcharee Limanon.

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CASE STUDY

Indonesia to Certify Environmental Judges

Indonesia Supreme Court partners with Philippine counterpart to strengthen environmental adjudication



Photo by Wang Ballesteros

Members of the Indonesian working group on the certification program visited the Philippine Supreme Court to share ideas and experience.

"Sharing experience with the Philippines and learning from approaches of other courts within the region will help in understanding what environmental judicial activism could mean for Indonesia..."

*-Justice Paulus Effendi Lotulung,
Vice Chief Justice, Supreme
Court, Indonesia*

Challenge

Over the last decade, court systems across Asia have been working to strengthen institutional arrangements and to build capacity to cope with the increasing number of environmental cases. In Indonesia, the Supreme Court and the Ministry of Environment signed a Memorandum of Understanding (MOU) in June 2009 outlining broad cooperation between the two institutions to work towards developing a mechanism for certifying environmental judges and strengthening the capacity of the judiciary.

Initiative

With facilitation and funding support from USAID's ECO-Asia program, the Supreme Court of Indonesia and the Supreme Court of the Philippines engaged in a twinning partnership under the auspices of the Asian Environmental Compliance and Enforcement Network (AECEN). Focus areas of the partnership included guidelines for handling environmental cases, as well as a curriculum for training judges under the environmental certification program. The Philippine Supreme Court shared their experience in developing their own Rules of Procedure for Environmental Cases, and the Philippine Judicial Academy shared training materials and enabled Indonesian counterparts to observe actual conduct of environmental training for judges in the Philippines. In addition, the U.S. Environmental Protection Agency shared guidance documents (penalty policies, natural resource damage calculation policies, etc.) and engaged in the dialogues between the courts and partners.

Results

Building on experience from the Philippines, the Supreme Court of Indonesia drafted a training program for judges in handling environmental cases and a framework for the judicial certification program on the environment. The Court conducted a pilot training in Jakarta in December 2011, and is planning a Trainers Convention for early 2012 to further strengthen the curriculum. The Supreme Court will finalize the guidelines and commence implementation of the certification program in 2012.



CASE STUDY

Vietnam Works to Better Manage Contaminated Soil

Partnership with Korea leads to adoption of new guidelines for contaminated soil monitoring



Photo by Watcharee Limanon.

Senior officials from Korea and Vietnam share experience in addressing contaminated soil at the air field in Da Nang.

“Partnering with Korea through AECEN has introduced Vietnam to a wide range of new solutions for addressing contaminated soil. Our partners from Korea were extremely helpful in sharing their experience and showing us how policies and practices can be strengthened over time in line with development priorities and available resources.”

— Dr. Le Ke Son, General Director of Office 33, Deputy General Director, Vietnam Environment Administration, Ministry of Natural Resources and Environment, Vietnam

Challenge

Across Asia, countries are working to adopt new policies and technologies to remediate harm from contaminated soil. Leaders in the region include Japan, South Korea, Singapore, and Taiwan, which have developed more comprehensive regulatory systems, while Malaysia and Thailand are actively developing new legal and policy frameworks. Soil contamination management is also a top priority of the Government of Vietnam. As indicated in the 2009 report, *Comprehensive Assessment of Dioxin Contamination in Da Nang Airport, Vietnam*, the area around the Da Nang Airport, as well as Bien Hoa and Phu Cat, remain contamination hotspots posing significant health and environmental risks to the local population.

Initiative

Vietnam’s Ministry of Natural Resources and Environment (MoNRE) is working to develop policies, practices and tools to strengthen its soil contamination management capabilities, including soil contamination monitoring. In 2006, MoNRE established procedures and a handbook on monitoring and soil analysis. In 2009, MoNRE put forward draft regulations of soil monitoring, though these regulations have not been formally approved. Building on the existing MOU between MoNRE and the Korea Ministry of Environment (KMOE), ECO-Asia through support from the Asian Environmental Compliance and Enforcement Network (AECEN), facilitated a twinning partnership between the two countries to assist Vietnam to improve its policy framework and technical capabilities to promote effective contaminated soil monitoring.

Results

Through technical exchanges and observational programs in both Vietnam and Korea, the working group organized under the auspices of MoNRE’s Office 33 developed a new draft guideline for monitoring contaminated soil based on experience from Korea. Senior officials from Vietnam also expanded their knowledge and skills base on available policy and technology solutions.



CASE STUDY

Thai Court Develops New Rules on Environmental Adjudication

Partnership with Australia Key to Drafting New Court Rules and Procedures on the Environment



Supreme Court of Thailand Photo

Senior justices from Thailand visited Land and Environment Court of New South Wales to better understand court policies on adjudicating environmental cases.

"Our partnership with the Land and Environment Court over the years has been invaluable in providing practical insights into effective environmental adjudication. Environmental litigation is complex and now we have new draft rules and procedures that help protect individual rights and our natural resources."

— Hon. Justice Prateep Chalermparakul
President, Environmental Division, Supreme Court of Thailand

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Challenge

Over the last decade, court systems across Asia have been working to strengthen institutional arrangements and to build capacity to cope with the increasing number of environmental cases. As one approach, countries have established specialized courts, specialized court divisions (also known as "green benches"), independent tribunals, ombudsmen or special commissions to resolve environmental disputes. Through the Asian Environmental Compliance and Enforcement Network (AECEN), with funding support from USAID, Thailand's Courts of Justice has established green benches at the Supreme Court and Court of Appeals, though are still faced with implementation challenges due to outdated court procedures and policies and limited judicial capacity.

Initiative

To help develop new policies and procedures to support green benches, the Courts of Justice and Supreme Court of Thailand established a "twinning" partnership with the Land and Environment Court of New South Wales of Australia with coordination assistance from AECEN and funding assistance from USAID. Over the last two years, both courts have engaged in a series of technical exchanges and court visits to support the formulation of new court policies and practices for the environment in Thailand.

Results

Through their partnership with the Land and Environment Court of New South Wales, the Thai Courts of Justice developed a new draft legal framework on environmental adjudication, and new draft rules on expert witnesses and on mediation for environmental adjudication. While the Thai courts studied the Australian experience in detail, they adopted procedures that reflect needs in Thailand. To finalize their new policies and practices, the Supreme Court organized a meeting of judges from a range of countries – Australia, China, India, Indonesia, Japan, New Zealand, Philippines and the United States – to gather feedback and share ideas on Thailand's proposed approach. Thailand will formally adopt the new policies and procedures in 2011.



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CASE STUDY

Vietnam Improves Environmental Performance Reporting

Peer-to-peer exchanges between Vietnam and Australia strengthen industry self-reporting in Ho Chi Minh City



Government officials from New South Wales, Australia share experience with environmental officials from Ho Chi Minh City, Vietnam on regulating pollution from industrial enterprises.

"We highly appreciate the knowledge and information gathered during the observational program. Many principles and ideas can be taken back to inform the reform efforts at DONRE"

– Mr. Dao Anh Kiet, DONRE Director

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Challenge

Ho Chi Minh City (HCMC) is the industrial heart in Vietnam, comprising both heavy industries and small and medium-sized enterprises. While the local government has constructed 14 industrial parks in the city, most industries are still located within densely populated residential areas, and have the potential for significant impacts to the environment and human health. To better manage the industrial pollution, the Department of Natural Resources and Environment (DONRE) of HCMC promulgated regulations which require industrial enterprises to self-monitor pollution discharges and report to DONRE, but enforcement remains a major challenge.

Initiative

Through its support to the Asian Environmental Compliance and Enforcement Network (AECEN), USAID's Environmental Cooperation-Asia (ECO-Asia) project facilitated a "twinning" partnership between DONRE and the Department of Environment, Climate Change and Water (DECCW) of New South Wales, Australia with assistance from the Australasian Environmental Law Enforcement and Regulators Network (AELERT). Through the partnership, DONRE and DECCW counterparts engaged in technical exchanges, including a visit by DONRE decision-makers to Sydney to observe first-hand DECCW practices for implementing an industry environmental performance monitoring and reporting program.

Results

Based on experience and good practices shared by Australia, DONRE has drafted an improved and standardized self-reporting form and guideline for wastewater discharge for use by priority industries in HCMC. In 2011, DONRE will continue to improve self-monitoring, self-reporting and recordkeeping procedures and tools with support from DECCW through technical exchanges and training. USAID will continue to support the twinning partnership and explore opportunities to replicate the improved reporting practice to other cities in Vietnam.



CASE STUDY

Nepal Strengthens EIA Practices to Speed Sustainable Hydropower

Malaysia partners with Nepal to help develop consultant roster and establish new training program



USAID

Nepal faces an ongoing challenge in bringing hydropower projects on line. Power outages in Kathmandu can be as much as 18 hours a day.

Challenge

With only about 15 percent of rural households having access to electricity, expanding hydropower is a top priority in Nepal. To develop new or expanded hydropower systems, the Nepal Ministry of Environment (MOE) is working to strengthen its systems and capabilities for conducting environmental impact assessments (EIA). Priority challenges of the Ministry include: (1) improving the quality of EIA reports; (2) processing EIA reports within the stipulated time frame; (3) creating accurate baseline data; (4) ensuring quality of consultants; and (5) building human resource capabilities.

Initiative

To strengthen current EIA policies and practices in Nepal, the Asian Environmental Compliance and Enforcement Network (AECEN), with support from the USAID Environmental Cooperation-Asia (ECO-Asia) project, facilitated a twinning arrangement between the Malaysia Department of Environment (DOE) and MOE. The World Bank is also collaborating in the partnership under their Nepal Strategic Environmental and Social Assessment of the Hydropower Sector (SESA) initiative. Under this partnership, Nepal MOE and Malaysia DOE partnered to develop an EIA consultant registration scheme based on DOE's experience in running a similar program. The twinning partnership included consultation workshops, exchanges of information and materials and a comprehensive, intensive training conducted by the Environmental Institute of Malaysia (EIMAS) for senior officials from relevant agencies from Nepal.

Results

As a result of the dialogue and training, in 2010 Nepal developed draft criteria for registration of EIA consultants and a proposed orientation and training program for EIA practitioners under the registration scheme. Both drafts have been presented in a broad stakeholder consultation and have been endorsed to all relevant ministries for further discussions and refinement. In 2011, through continued AECEN twinning with Malaysia and cooperation under SESA, experts from Tribhuvan University will assist the Nepal MOE in developing the related manuals and materials to fully implement the scheme and build critical capacity.



USAID | **ASIA**
FROM THE AMERICAN PEOPLE

CASE STUDY

China Builds Capacity in Energy Efficiency

China and Japan share experience to improve energy efficiency at the local level in China.



ECO-Asia Photo

Local officials and experts from Kawasaki City in Japan share experience on energy efficiency with counterparts from China.

U.S. Agency for International Development
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Challenge

Rapid industrialization and urbanization has led to increasing energy consumption and escalating greenhouse gas emissions across Asia, including in Japan and in the People's Republic of China. Both countries have made continuous efforts to promote energy conservation and efficiency. In China, the Law on Energy Conservation (LEC), adopted in 1997 and revised in 2007, provides mechanisms and incentives to ensure energy efficiency targets are met. Effective implementation and enforcement of the LEC remains a national priority, however, as China works to strengthen the capacity of national and local authorities.

Initiative

Under the Asian Environmental Compliance and Enforcement Network (AECEN) twinning program, China's Ministry of Environmental Protection (MEP) and Japan's Ministry of Environment (MOE) established a bilateral dialogue to identify new institutional mechanisms and capacity building tools to support local Chinese regulatory agencies in better implementing the LEC. Facilitated by Japan's Institute for Global Environmental Strategies (IGES), the Chinese Society of Environmental Scientists (CSES) and Tsinghua University, the partnership linked officials from Shanghai, Baoding and Dunhuang, China with counterparts in Kawasaki City, Japan to identify capacity challenges and solutions.

Results

Through technical exchange, site visits and city consultations, counterparts from Dunhuang and Kawasaki City identified new strategies and approaches for reducing urban and industrial energy consumption. Partners are consolidating best practices into a new training manual for officials and staff within the responsible local agencies. Subject to feedback from stakeholders, the manual will be piloted in a selected municipality, and then disseminated and replicated in other cities across China by Tsinghua University.



CASE STUDY

Indonesia to Combat Pollution through Better Inspection

Singapore provides technical assistance via twinning partnership.



ECO-Asia Photo

Government officials from Indonesia and Singapore share experience on environmental inspection.

“Cooperation with Singapore provides an opportunity for first-hand observation on what works in practice. We highly value these linkages, and believe this is just the beginning of our technical partnership on environmental compliance with Singapore.”

- Mr. Ilyas Asaad, Deputy Minister for Environmental Compliance, Indonesia Ministry of Environment

Challenge

Effective inspection of polluting facilities remains a continuing challenge in Indonesia. Despite issuance of a national decree and associated guidelines on industrial monitoring and inspection, overall compliance is low. According to the Indonesian Ministry of Environment, compliance of the manufacturing sector alone has been decreasing by 2 percent each year since 2003. Causes for ineffective environmental inspection and poor compliance are: absence of an integrated licensing system, weak interagency coordination, lack of standardized procedures and practices, limited technical skills of inspectors and inadequate capacity to manage information.

Initiative

To strengthen inspection capacity, USAID’s Environmental Cooperation-Asia (ECO-Asia) program, in support of the Asian Environmental Compliance and Enforcement Network (AECEN) established a twinning partnership between the Indonesian Ministry of Environment (MOE) and the Singapore National Environment Agency (NEA). Through inter-agency collaboration and consultation, MOE and NEA engaged in policy formulation and technical training activities on inspection and investigation with assistance from the Indonesian Center for Environmental Law and Singapore Environment Institute.

Results

As a result of the twinning partnership, Indonesia incorporated new inspection procedures and requirements based on Singaporean practice into the amended Environmental Protection and Management Act. Key elements include increased inspector authority, higher penalties, improvements in inspection planning, and criminal liability for government officials. MOE will also develop detailed guidelines for inspection and enhanced local inspector capacity.



CASE STUDY

India Promotes Voluntary Compliance with Environmental Laws

West Bengal establishes compliance assistance center for sponge iron sector



ECO-Asia Photo

West Bengal launched its first Environmental Compliance Assistance Center for Sponge Iron Sector in September 2009.

"As we formally launch the ECAC website and inaugurate the Centre, we sincerely hope that the ECAC will soon evolve as an independent center shepherding the Indian industry towards improved environmental performance by not only stretching beyond mandatory regulatory compliance, but also by helping the entrepreneurs to achieve other voluntary national and international standards."

- Hon. Sailen Sarkar, Minister-in-Charge, Department of Environment, West Bengal

U.S. Agency for International Development
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Challenge

As the world's largest producer of sponge iron, an intermediary product in steel production, India generates approximately 10 million tons annually. Pollution discharges from the more than 250 plants, however, result in thick black smoke, contaminated water, and reduced agricultural yields, all of which have significant impacts on human health and the environment. Across India, there are protests against the industry, which is classified as a "red-category" highly polluting industry by the Ministry of Environment and Forests. Key challenges for addressing pollution from the sponge iron sector include: limited governmental enforcement capacity and weak compliance by sponge iron units in submitting self-monitoring reports.

Initiative

To address these challenges, the West Bengal Pollution Control Board (WBPCB) decided to promote voluntary industry compliance with sector standards by establishing an environmental compliance assistance center (ECAC) dedicated to sharing information on available technologies and regulatory requirements. To help establish the center, USAID's Environmental Cooperation-Asia (ECO-Asia) program, in support of the Asian Environmental Compliance and Enforcement Network (AECEN), facilitated linkages with counterpart agencies in the Philippines, Thailand and the United States that have experience establishing and operating compliance assistance centers that have resulted in pollution reductions. WBPCB coordinated a comprehensive stakeholder consultation process to leverage private sector support and define center functions, activities, and operational requirements.

Results

In September 2009, the WBPCB inaugurated the first ECAC, which includes a physical center, website, database and outreach materials. In 2010, WBPCB will draw on the World Bank India Capacity Building for Industrial Pollution Management Project to expand ECAC capabilities, including expanded office infrastructure and staffing, training, technology fairs and sector studies and other publications. In 2010, West Bengal will replicate this model by establishing an ECAC for the small scale chemicals and petrochemicals industries.



SUCCESS STORY

Philippines Establishes “Green Courts”

Specialized Courts Help Judges Resolve Environmental Disputes



ECO-Asia Staff

Chief Justice Reynato S. Puno of the Philippines Supreme Court led efforts to designate 117 environmental courts to better protect public health and the natural environment.

“...environmental courts will be manned by ‘green judges’—skillful judges who not only master environmental laws, but also understand the philosophy of environmentalism.”

—Philippines Supreme Court Chief Justice Reynato S. Puno

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On January 28, 2008, the Supreme Court of the Philippines passed a binding resolution to designate 117 courts for improved environmental adjudication. These courts will handle all types of environmental cases. The Supreme Court and the Philippine Judicial Academy (PHILJA) will also conduct focused training for environmental and appellate court personnel in the designated courts.

The new court designation is a product of USAID’s ECO-Asia program, which promotes environmental justice through the Asian Environmental Compliance and Enforcement Network (AECEN), an organization of 12 environmental agencies from 10 countries. Asian courts have witnessed an increased number of environmental cases as a result of rapid urbanization, industrialization, and related environmental problems. In response to AECEN’s leadership, courts in the region are developing “green” benches and environmental courts, and are initiating new capacity building programs.

With USAID support through AECEN, the Philippine Supreme Court and PHILJA developed policy options for establishing new green courts and organized the Asian Justices Forum on the Environment in Manila in July 2007 to share recommendations with judges from Australia, India, Indonesia, Sri Lanka, Thailand, and the US. Discussion centered on strategies for strengthening the Philippine Supreme Court’s human and institutional capacity to adjudicate environmental cases. As a result, the Supreme Court formally established specialized trial-level environmental courts. AECEN leveraged resources from other institutions, including the United Nations Environment Programme, US Environmental Protection Agency, United Nations Development Programme, Haribon Foundation and Asia Pacific Jurist Association.

AECEN is continuing to facilitate dialogue among Asian judges, including strengthening capabilities in assessing and remedying damages to natural resources. The benefits of establishing specialized environmental courts and training judges are clear to Philippine Chief Justice Puno who stated, “All efforts will be undertaken so that the newly designated environmental courts will be manned by ‘green judges’—skillful judges who not only master environmental laws, but also understand the philosophy of environmentalism and ecologism.”



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FROM THE AMERICAN PEOPLE

CASE STUDY

Vietnam Jump-Starts Pollution Monitoring

Inspectors Learn from Regional and US Counterparts



ECO-Asia staff

An inspector from Japan with her counterpart inspector in Vietnam discussing best practices for pollution monitoring.

"MONRE highly appreciates USAID/AECEN's support and cooperation in achieving one of the Ministry's highest priorities – improving capacity for MONRE inspectorate."

—Chief Inspector Le Quoc Trung, MONRE

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Challenge

Vietnam's Ministry of Natural Resources and Environment (MONRE) needed more trained inspectors to address increasing industrial pollution. With only a few trained inspectors, MONRE needed additional expertise and improved policies to help reduce serious environmental pollution across the country. One of MONRE's principal tasks is to provide guidance on inspection laws and specialized monitoring to provincial level inspectorates. MONRE turned to the Asian Environmental Compliance and Enforcement Network (AECEN), an organization of environmental agencies from 10 Asian countries supported by USAID, for help.

Initiative

With support from USAID, MONRE held the first AECEN training for 35 key inspectors in December 2006 in partnership with the U.S. Environmental Protection Agency. It dealt with principles of environmental compliance and inspections, which could lead to enforcement actions. In July 2007, AECEN and the trained inspectors conducted three separate trainings for 136 inspectors from MONRE and provincial inspectorates throughout Vietnam, focusing on sectors like textiles, food processing, cement manufacturing and mining. AECEN arranged for counterpart inspectors from Japan, Philippines and Singapore to play key roles in these trainings and to share best practices and experiences on environmental inspections.

Results

With USAID help, MONRE has formalized its environmental inspector qualification training program, including producing a national inspection manual. In addition to training over 170 personnel in Vietnam's 59 provinces on environmental inspection and law enforcement, MONRE has developed standard operating procedures across a range of sectors to ensure consistent application of international best practices and reduce environmental pollution nationwide.



SUCCESS STORY

Protecting the Philippines Largest Lake

Promoting Environmental Compliance through Online Centers



LLDA Photo. Used by Permission

Laguna de Bay commercial fishing is one of the industries benefitting from increased environmental compliance by slaughterhouses and pig farms.

“The establishment of the compliance assistance centers is a pioneering initiative to improve environmental compliance within the Laguna de Bay region.”

- LLDA General Manager Edgardo Manda

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As the largest fresh water lake in the Philippines, Laguna de Bay is a vital natural resource and home to over 10 million Filipinos. The Laguna Lake Development Authority (LLDA) oversees environmental protection of the lake and its watershed in coordination with 14 cities and 47 municipalities within Metro Manila and five nearby provinces.

Over a decade ago, LLDA put in place a pollution charge system, a community participation initiative and an enforcement program that has led to significant reduction in pollution loading in the watershed. Despite these innovative policies and practices, environmental compliance still lags in some sectors, particularly among small- and medium-sized enterprises, such as slaughterhouses and commercial pig farms. Of the 67 slaughterhouses monitored in 2006, less than half complied with environmental standards. Of the 201 farms in the commercial pig sector, only 26% were in compliance.

To reach these enterprises, LLDA decided to develop new mechanisms for raising awareness and understanding of environmental regulations, and turned to the USAID-supported Asian Environmental Compliance and Enforcement Network (AECEN). By linking LLDA with the U.S. Environmental Protection Agency (EPA), AECEN exposed LLDA to U.S. experience operating compliance assistance centers, including “virtual” centers established on the internet.

In April 2008, LLDA officially launched virtual compliance assistance centers targeting hog farms (www.hogfarmcac-phil.org) and slaughterhouses (www.slaughterhousecac-phil.org). The centers provide up-to-date information on environmental policies, regulations, best practices, technologies and financing. LLDA has trained over 100 practitioners on compliance promotion and assistance; leveraged over \$13,000 of non-USAID funds; developed a manual to guide day-to-day operations; and enhanced coordination among concerned institutions, including national government agencies, industry associations and universities. As a next step, LLDA will establish physical compliance assistance centers, most likely in Rizal province.



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FROM THE AMERICAN PEOPLE

CASE STUDY

Report Informs Policy Dialogue on Mekong Water Resources Planning

Report supports improved analyses for Basin Development Plan at Mekong River Commission



Photo by ECO-Asia

Lower Mekong Basin countries are planning new hydropower projects that have significant potential impacts for the environment and economic development

"We have been using the study's findings in our arguments related to the risks of building the Xayaburi and other mainstream dams."

- Ame Trandem, SE Asia Program Director International Rivers

Challenge

Water resources planning in the Lower Mekong Basin (LMB) is complex. In developing the basin's water resources, LMB governments face decisions that involve trade-offs between economic, environmental and social costs and benefits related to ongoing and proposed developments in multiple sectors. As an advisory body to LMB governments, the Mekong River Commission (MRC) was mandated by its 1995 agreement to develop a Basin Development Plan (BDP) to promote the coordinated water resources development at the basin level using the principles of integrated water resources management (IWRM). The BDP is among key planning tools to support LMB policy makers in reaching balanced decisions. While these tools have provided valuable inputs to the ongoing policy dialogue, analyses can be strengthened in several key areas, including sensitivity analysis of cost-benefit analysis (CBA), ecosystem services valuation, and social impacts assessment.

Initiative

In February 2011, ECO-Asia commissioned Portland State University's Institute for Sustainable Solutions, in collaboration with Mae Fah Luang University in Thailand, to produce a report entitled, *"Planning Approaches for Water Resources Development in the Lower Mekong Basin."* The report demonstrates relevant analytical approaches to better integrate risk and uncertainty and ecosystem services valuation in a cost-benefit analysis for water resources planning. The report also provides recommendations on how MRC planning efforts can incorporate new approaches to be more integrated in future versions.

Results

Since its release in July 2011, the report has been widely quoted by organizations and practitioners, making an impact in the policy debate especially on hydropower development in LMB. Apart from raising awareness of staff, the report also generates an interest at the MRC to further collaborate with USAID on innovative approaches for scenarios assessment and integrated planning. In May 2012, USAID will organize a follow-on capacity workshop on these subjects at the MRC in collaboration with the U.S. Army Corp of Engineers.



CASE STUDY

Mekong Countries Assess Basin-Wide Impact of Hydropower Dams

USAID and partners develop rapid hydropower sustainability assessment tool for the Mekong



Linda Shi/ECO-Asia

At least 12 hydropower schemes are currently being studied by private sector developers for the mainstream of the lower Mekong River.

“The challenges of today require us to think and work at a basin level to cooperate in promoting sustainable outcomes that recognize the interests of all stakeholders. The RSAT is designed with that objective in mind - and not to be overly complicated.”
— Mr. Voradeth Phonekeo, Manager MRC Initiative on Sustainable Hydropower

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Challenge

The Mekong River is the world's largest inland fishery, accounting for up to 25% of the global freshwater catch. It is also the second most bio-diverse river in the world and provides critical livelihoods for at least 60 million people. The most urgent threat to the people and environment of the Mekong River is the planned development of multiple, large-scale hydropower projects on the lower mainstream.

Existing hydropower project planning tools focus on assessing impacts of a single dam in a river basin. Given the challenge facing the Mekong from potential cascades of dams in a trans-boundary setting, there is a need for a practical tool to assess the basin-wide sustainability impacts of multiple dam projects.

Initiative

In a collaborative effort with the Asian Development Bank (ADB), Mekong River Commission (MRC), and Worldwide Fund for Nature (WWF), USAID Environmental Cooperation-Asia (ECO-Asia) project developed a tool known as the *Rapid Basin-wide Hydropower Sustainability Assessment Tool (RSAT)*, which enables practitioners and dialogue partners to rapidly assess basin-wide considerations for hydropower sustainability.

Results

The first of its kind, the RSAT is designed for use at a desktop level and assesses the sustainability of a single hydropower project and its relationship to a sub-basin; or of an existing or proposed cascade of dams or multiple dams within a sub-basin. The tool also enables project developers and dialogue partners to evaluate transboundary impacts, which is critical for the Mekong. In 2010, Mekong stakeholders, including the MRC's Technical Review Group and the National Mekong Committees, endorsed the tool, which was trialed in the Sekong, Sesan, and Sre Pok basins. In 2011, USAID will continue to collaborate with ADB, MRC and WWF to support further field trials and promote application of the RSAT in the Mekong.



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FROM THE AMERICAN PEOPLE

SUCCESS STORY

Mekong Countries Engage in Cross Border Dialogue on Wetland

Cambodia and Lao PDR establish transboundary committee to oversee wetland issues.



Pollution in the Mekong River has pushed freshwater dolphins to the brink of extinction. Only an estimated 70 dolphins remain.

"Formal establishment of a transboundary committee on fisheries and other wetland issues that includes affected communities and other stakeholders is a novel development for the Mekong."

- Mr. Roger Mollot, ComFish Project Advisor, WWF

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As the Mekong sub-region develops and countries move from subsistence farming to diversified, market-based economies, cross-border trade and infrastructure development is on the rise. Over the last decade, countries in the watershed have been constructing dams and irrigation and navigation waterways that can lead to adverse downstream impacts, and transboundary conflict.

In partnership with the Mekong River Commission (MRC), the USAID Environmental Cooperation-Asia (ECO-Asia) program is working to promote effective regional cooperation among the Member Countries of Cambodia, Lao PDR, Thailand, and Vietnam. In 2008, ECO-Asia and the MRC worked with a range of Mekong River stakeholders to develop an inventory of existing or potential transboundary "hotspots" or critical areas of potential conflict in the basin.

One transboundary area identified by MRC was the Strung Treng-Champasak wetland site on the Cambodia-Lao border. Key issues include: illegal and destructive fishing; threats to the critically endangered Irrawaddy dolphin; environmental pollution and tourism.

To gain cross-border consensus on addressing these transboundary issues, ECO-Asia provided training on a collaborative decision-making approach for pilot application at the the Strung Treng-Champasak wetland. Conducted in partnership with the Worldwide Fund for Nature (WWF), the activity brought together representatives of the two riparian countries along with other identified stakeholders to apply collaborative decision-making tools and mechanisms to for effective transboundary management of the wetland.

One significant outcome of the initiative was the establishment of a Transboundary Committee composed of stakeholders from both countries who will work to identify equitable solutions to wetland issues. In FY 2010, ECO-Asia and WWF will increase the capacity of the committee, and create a more formal institutional framework for cooperation.



SUCCESS STORY

Policies for Mekong Transboundary Dialogue

Addressing Conflicts related to Dams and Other Development



USAID involves Mekong stakeholders in developing new policies for dialogue in addressing critical issues, and provides training in consensus building.

"Regional cooperation is at the heart of our work at the MRC."

- Mr. Jeremy Bird, CEO,
Mekong River Commission
Secretariat

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With more than 1,500 species of fish, the Mekong River basin is the world's largest freshwater fishery, and an important food source for the over 48 million people who depend on the watershed for their day-to-day livelihood. Due to the unsustainable pace of the construction of dams and other development projects in the watershed, the fishery is under threat, with annual catches declining by up to 50%.

Composed of the member countries of Cambodia, Lao PDR, Thailand and Vietnam, the Mekong River Commission (MRC) works to alleviate poverty while protecting the environment. USAID, through its Environmental Cooperation-Asia (ECO-Asia) program, cooperates with the MRC in developing new policies and practices for addressing transboundary water conflict caused by dams and other development projects that affect river livelihoods.

In 2008, USAID worked with MRC to develop new recommendations for its sustainable hydropower program by helping to facilitate a stakeholder consultation. Over 180 participants offered guidance for addressing the regional impacts on riparian livelihoods caused by planned or proposed hydropower projects.

With support from USAID, the MRC has adopted a new method for building consensus in addressing transboundary "hotspots" or critical areas in the watershed. USAID and MRC are applying this new collaborative decision-making approach at a pilot site on the border of Cambodia and Lao PDR where unsustainable development is threatening the Giant Catfish and Irrawaddy Dolphin. MRC countries chose the pilot project from a list of seven critical issues identified by USAID and the MRC. Stakeholders engaged in the pilot also undergo special training on conflict management. Mekong countries will apply lessons learned from the pilot to the full range of transboundary issues.

USAID is also assisting MRC in reviewing and finalizing its framework and guidelines for transboundary Environmental Impact Assessment (TbEIA) which provides new mechanisms for country cooperation in addressing potential new developments throughout the basin.



USAID | ASIA
FROM THE AMERICAN PEOPLE

CASE STUDY

Tools for Regional Cooperation in the Mekong

Building Country Capacity to Manage Transboundary Conflict



ECO-Asia Photo

Over 48 million people in the Lower Mekong River Basin depend on the river for their livelihoods.

"The MRC is honored to work together with USAID to establish a new platform for strengthening regional cooperation in the Mekong River basin."

- Mr. Jeremy Bird, CEO,
Mekong River Commission
Secretariat

U.S. Agency for International Development
www.usaid.gov

Challenge

Over 48 million people in the Lower Mekong River Basin depend on the river for their day-to-day livelihoods. As the sub-region develops, countries in the watershed have been constructing dams and irrigation and navigation waterways that can lead to adverse downstream impacts, and transboundary conflict. The Mekong River Commission (MRC), composed of four member countries (Cambodia, Lao PDR, Thailand and Vietnam), needed to find ways for lower Mekong countries to work together to undertake necessary development projects that promote economic prosperity, while minimizing downstream impacts on river livelihoods and the environment.

Initiative

Through a cooperative program with USAID, the MRC Secretariat and Member Countries are developing the capabilities to prevent and manage transboundary conflict. Together, the MRC and USAID have organized stakeholder consultations to identify country needs, and define the role of the MRC in helping to address country differences and disputes. USAID has also developed a range of capacity building tools, including a comprehensive training program for decision-makers and technical officers through strategic linkages with the U.S. Army Corps of Engineers and Oregon State University.

Results

The MRC has elevated regional cooperation on transboundary waters as a core strategic goal for the organization. As for specific tools, USAID helped MRC develop an initial inventory of "hot spots" or critical issues – such as planned dams, threatened fisheries and critical wetland areas – to heighten decision-maker awareness and help prioritize MRC and country resources. To support effective dialogue, Mekong member countries also developed a glossary of conflict prevention and management terms and definitions in their native languages and in English. USAID has also trained over 130 people on conflict management and prevention.



Children practicing good hand-washing as part of Phnom Penh's first WASH day, co-organized with ECO-Asia assistance

Annex 2: List of Activities 2006-2012

Table 7. Activities 2006-2012		
Location	Name of Activity	Partners
FY 2006		
Bandung, Indonesia	Developing water supply systems in low-income areas	PDAM Kota Bandung, University of Padjajaran, Yayasan Pesat, USAID ESP project
Pune, India	Enabling continuous water supply to urban poor areas	Pune Municipal Corporation
Negombo, Sri Lanka	Supporting innovative service models for the urban poor	Negombo Municipality, National Water Supply and Drainage Board, Coastal Environmental Conservation Foundation
Thailand	Reducing water losses and improving water distribution system management	Provincial Waterworks Authority, Ranhill Utilities Berhad
Bac Ninh, Vietnam	Reducing water losses and improving customer relations systems	Bac Ninh Water Supply and Sewerage Co., CEFACOM, Ranhill Utilities Berhad
Indonesia	Promoting energy efficient water treatment facilities	PDAM Kota Bandung, PDAM Kota Surabaya, PDAM Gresik, PDAM Kota Bogor, Energy Management Association of the Philippines, USAID ESP project
San Fernando, Philippines	Supporting septage and wastewater management	San Fernando City government
Marikina, Philippines	Supporting septage and wastewater management and low-income sanitation systems	Marikina City government
Nuwara Eliya, Sri Lanka	Supporting septage and wastewater management	Nuwara Eliya Municipal Council, Palm Foundation
Regional	Establishing center of excellence for water utility managers	Asian Institute of Technology
Regional	Organizing regional workshop on enabling services delivery for the urban poor	Various
Regional	Supporting regional events to promote sustainable sanitation	Various
FY 2007		
Phnom Penh, Cambodia	Supporting development of sub-national sanitation strategies and awareness raising	Phnom Penh Municipal government, Ilollo City Department of Environment and Natural Resources
Surabaya, Indonesia	Enabling water supply expansion to the urban poor	PDAM Kota Surabaya, ITS, Shelter Associates

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Bandung, Indonesia	Developing water supply systems in low-income areas	PDAM Kota Bandung, USAID ESP project
Negombo, Sri Lanka	Supporting innovative service models for the urban poor	Negombo Municipality, National Water Supply and Drainage Board, Dilmah Tea Corporation, Meril J Foundation
Pune, India	Enabling continuous water supply to urban poor areas	Pune Municipal Corporation
Ha Noi, Vietnam	Assessing arsenic contamination in water supply	Ha Noi Water Supply Company
Bac Ninh, Vietnam	Facilitating partnership to reduce water loss and improve customer services	Bac Ninh Water Supply and Sewerage Co., CEFACOM, Ranhill Utilities Berhad
Suphanburi, Thailand	Facilitating partnership to reduce water loss	Provincial Waterworks Authority, Ranhill Utilities Berhad
Vietnam	Training on water quality management through water safety plan	World Health Organization
Ha Long, Vietnam	Improving wastewater treatment operations	Ha Long Urban Environmental Company, Indah Water Konsortium
Marikina, Philippines	Developing septage management program	Marikina City government
San Fernando, Philippines	Supporting development of sanitation plans and strategies	San Fernando City government
Nuwara Eliya, Sri Lanka	Supporting development of septage management policy and implementation	Nuwara Eliya Municipal Council, Palm Foundation, Philippine Dumaguete City
Philippines	Supporting development of policy tools for improved sanitation services	Department of Health
San Fernando, Philippines	Facilitating investment loan for constructing sanitation facilities	San Fernando City government, SNS REAAL Bank
Philippines	Developing new loan products to finance water services delivery improvements	Local Water Utilities Administration
Indonesia	Assisting development municipal bonds issuance to finance water services improvements	Ministry of Finance
Regional	Developing regional strategy on accessing financing for water services improvements	Association of Development Financing Institutions in Asia & the Pacific
Regional	Organizing regional workshop on improving water services in ASEAN cities	ASEAN, Bangkok Metropolitan Administration
Regional	Supporting development of knowledge products on sanitation	World Bank Water and Sanitation Program

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
FY2008		
Surabaya	Water for the Poor	PDAM, Surabaya
Bandung	Conversion of Public Tap Into Small Distribution Network	PDAM, Bandung
Negombo	Conversion of Public Tap Into Small Distribution Network	NWS&DB and Negombo Municipality
Regional	Disseminate and replicate Best Practices in Pro-Poor Water Services Delivery	SEAWUN, SAWUN, ASEAN-IESC
San Fernando City	City Sanitation Improvements	San Fernando Municipality
Marikina	City Sanitation Improvements	Marikina City Government
Nuwara Eliya	City Sanitation Improvements	Nuwara Eliya Municipal Council
Halong City	Bai Chay Centralized Sewerage and Wastewater Treatment Systems	Halong City (CPC)
Halong City	Decentralized Wastewater Treatment System for Slaughterhouse	Halong City (CPC)
Phnom Penh	Community-based Water, Sanitation and Hygiene Pilot	Phnom Penh Municipality
Philippines & Indonesia	Regional Sanitation Policy Dialogue	National Government Agencies
Regional	Disseminate and Replicate Best Practices for Sustainable Sanitation Solutions	ASEAN-IESC, Citynet
Thailand	Operational Efficiencies Improvements	Provincial Waterworks Authority
Bac Ninh	Operational Efficiencies Improvements	Bac Ninh Water Supply and Sewerage Company
Pune	Continuous Water Supply	Pune Municipal Corporation (PMC)
Maharashtra	Twinning MJP and Ranhill Utilities Berhad	Maharashtra Jeevan Pradhikaran (MJP)
Krabi	Wastewater Management Authority (WMA)	Wastewater Management Authority (WMA)
Jiangsu	Community Participation in Water-Services Planning	Jiangsu Provincial Government
China	Stakeholder Participation in Water Safety Plan Development	Chinese Water Utilities
China	Oversight for Private Sector Participation in Water and Wastewater Supply	Ministry of Construction-PRC
Hanoi, Vietnam	Hanoi Water Business Community Strengthening	Hanoi Water Business Company
Regional	Replication and Dissemination of Best Practices in Improving Utility Performance	SEAWUN, SAWUN, ASEAN-IESC

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Philippines	LWUA Loan Packaging	Local Water Utilities Administration (LWUA)
Regional	Disseminate and Replicate Best Practices in Water Sector Financing	ADFIAP
Indonesia	Environmental Compliance and Enforcement Assessment	Ministry of Environment
Sri Lanka, Colombo	Wastewater Discharge Fee Program	Central Environment Authority
Laguna de Bay Region, Philippines	Promoting Compliance Assistance	Laguna Lake Development Authority
Bangkok, Thailand	Promoting Compliance Assistance	Pollution Control Department, MONRE
West Bengal, India	Promoting Compliance Assistance	West Bengal Pollution Control Board (WBPCB)
Vietnam	Inspector Training Program	Ministry of Natural Resources and Environment
Regional	Strengthening AECEN through Regional Activities	AECEN members and stakeholder participants
Regional	Asian Justices Forum on the Environment	Various Courts
Mekong River Basin	Transboundary Conflict Management and Prevention	Mekong River Commission
FY 2009		
Medan, Indonesia	WaterLinks: Delivering Water Supply to the Urban Poor in Medan, Indonesia	PDAM Tirtanadi, Medan Govt, Maynilad
Sri Lanka	WaterLinks: Replication of Pro-Poor Service Delivery in Sri Lanka	National Water Supply and Distribution Board (NWS&DB) and SANASA
China	WaterLinks: Economics of Sanitation Initiative (ESI) Study Yunnan Province, China	Yunnan Environmental Protection Bureau (YEPB), World Bank Water and Sanitation Program
Medan, Indonesia	WaterLinks: Sanitation Promotion Campaign in Medan	Medan, Medan Water Company, IWK, Iloilo City
Various	WaterLinks: Disseminate and Replicate Best Practices on Septage Management	ASEAN, IWK
Various	WaterLinks: Community Participation in Water Services Planning – Jiangsu Province	Jiangsu Provincial Government, Yancheng City Government
Yancheng	WaterLinks: Customer Feedback System for Concessionaire Performance – China	Metropolitan Waterworks and Sewerage System, Yancheng Municipality
Surabaya	WaterLinks: Enabling and Sustaining Continuous Water Supply Service in Surabaya	PDAM Kota Surabaya, Ranhill Utilities Berhad
Maharashtra	WaterLinks: Enabling Continuous Water Supply Service in Maharashtra State	Maharashtra Jeevan Pradhikaran, Ranhill Utilities Berhad,
Nakorn Nayok	WaterLinks: Improving Operational Efficiencies – PWA, Thailand	Thailand Provincial Waterworks Authority (PWA), Ranhill Utilities Berhad (Ranhill)

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Danang	WaterLinks: Improving Water Quality in the Distribution System in Danang, Vietnam	Danang Water Supply Company, Manila Water Company
Various	WaterLinks: Oversight for Private Sector Participation in Water and Wastewater Supply	Ministry of Housing and Urban/Rural Construction
Various	WaterLinks: Stakeholder Participation in Water Safety Plan Development	Shenzhen Water Company and U.S. Utility
Various	WaterLinks: Wastewater Treatment Plant Rehabilitation – Thailand	Wastewater Management Authority (WMA) and King County (USA)
Various	WaterLinks: LWUA Loan Packaging – Philippines	Local Water Utilities Administration (LWUA)
Various	WaterLinks: Disseminate and Replicate Best Practices in Water Sector Financing	Association of Development Financing Institutions in Asia and the Pacific
Various	WaterLinks: Developing and Pre-Testing Water and Sanitation Promotion Toolkit	ASEAN, IWK, IWA
Various	WaterLinks: Regional Gender Activities in the WATSAN Sector	TBD
Various	WaterLinks : Replicating Best Practices through Water Operator Partnerships in Asia	ADB, IWA
West Bengal	AECEN: Promoting Compliance Assistance in West Bengal, India – Pilot Project	West Bengal Pollution Control Board (WBPCB)
Laguna de Bay Region	AECEN: Promoting Compliance Assistance in the Philippines – Pilot Project	Laguna Lake Development Authority
Indonesia	AECEN: Strengthening Inspection Capacity in Indonesia – Twinning	Indonesia Ministry of Environment, Singapore National Environment Agency
Colombo, Sri Lanka	AECEN: Wastewater Discharge Fee Program in Sri Lanka – Twinning	Central Environmental Authority; Laguna Lake Development Authority
Thailand	AECEN: Strengthening Natural Resource Damages Assessment in Thailand – Twinning	Pollution Control Department, Thailand and Ministry of Environment/IGES, Japan
Regional	AECEN: Regional Forum, Training, Award, Knowledge Sharing and Secretariat	AECEN members and stakeholder participants
Regional	AECEN: Regional Capacity Building Initiatives	AECEN members and stakeholder participants
Regional	AECEN: Asian Justices Forum on the Environment	Various Courts

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Mekong River Basin	Transboundary Conflict Management and Prevention	Mekong River Commission
Regional	PROGRAM SUPPORT: Communications	RDMA REO
FY 2010		
Sri Lanka	Guidelines for Expanding Pro-Poor Water Services in Sri Lanka	National Water Supply and Drainage Board of Sri Lanka (NWSDB) Centre for Poverty Analysis (CEPA)
Medan, Indonesia	Delivering Water Supply to the Urban Poor in Medan, Indonesia	DAM Tirtanadi, Municipality of Medan, Maynilad, JKM
Surabaya, Indonesia	Delivering Water Supply to the Urban Poor in Surabaya, Indonesia	PDAM Surabaya, Manila Water Company, Inc (MWCI)
Palembang, Indonesia	Achieving Continuous Water Supply in Palembang, Indonesia	PDAM Tirta Musi Kota Palembang (PDAM), Penang Water Supply Corporation (PBAPP)
Hue, Vietnam	WaterLinks: Promoting Energy Efficient Water Services in Vietnam	Yokohama Waterworks, Hue Water Supply Company (HueWACO), Vietnam Water Supply and Sewerage Association (VWSA), Japan Water Works Association (JWWA)
Khon Khaen, Thailand	WaterLinks: Improving Safe Water Supply in Thailand	Thailand Provincial Waterworks Authority (PWA), Korea Water Resources Corporation (K-Water)
Regional	Sharing Knowledge on Safe Water Provision	Ranhill, Manila Water Company, Inc. (MWCI), Korea Water Resources (K-Water)
Jaipur, India	Replicating Continuous Water Supply Service in India	Public Health Engineering Department (PHED) of Rajasthan, Maharashtra Jeevan Pradhikaran (MJP), Ranhill Utilities Berhad (Ranhill)
Thailand	Constructed Wetlands for Wastewater Treatment	Wastewater Management Authority (WMA), Taiwan's Environmental Protection Administration, Chia-Nan University of Pharmacy & Science (CNU)
Manila, Philippines	Sanitation Promotion Campaign	Maynilad Water Services, Inc., Indah Water Konsortium (IWK)
Regional	Promoting Replication of Septage Management Good Practices in Asia	Hai Phong Drainage and Sewerage Company (HPDSC), Indah Water Konsortium (IWK)
Philippines	Expanding Sewerage Services in Manila, Philippines	Maynilad Water Services, Inc., Indah Water Konsortium (IWK)
Regional	Expanding Use of the 10-Step Promotions Toolkit	TBD
Regional	Promoting Gender Mainstreaming in Water Utilities through Gender Scans	Gender and Water Alliance
Regional	Supporting Replication through National Water Association Strengthening	International Water Association (IWA), Philippines Association of Water Districts (PAWD), Indonesian Water Supply Association (PERPAMSI) and Vietnam Water and Sewerage Association (VWSA)

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Regional	WaterLinks: Secretariat Support	Asian Development Bank (ADB), International Water Association (IWA)
West Bengal, India	Replicating Compliance Assistance Centers in West Bengal, India	West Bengal Pollution Control Board (WBPCB)
Thailand	Thailand-Japan: Strengthening Soil Contamination Policy in Thailand	Pollution Control Department (PCD) of Thailand and Ministry of Environment/IGES, Japan
China	Japn-China: Strengthening Implementation of China's Energy Efficiency Law	Ministry of Environment Japan, the China Ministry of Environmental Protection, Chinese Society of Environmental Scientists (CSES)
Nepal	Malaysia-Nepal: Strengthening EIA Practices for Hydropower Sector in Nepal	Nepal Ministry of Environment (MOE), Malaysia Department of Environment (DOE), World Bank
Ho Chi Minh City, Vietnam	Vietnam-Korea: Strengthening Self-monitoring and Self-reporting in Ho Chi Minh City	Korea Ministry of Environment (KMOE) and Ho Chi Minh City Department of Natural Resources and Environment (DoNRE)
Regional	Sharing Good Practices in EIA in Asia	Asian Development Bank (ADB), World Bank, Equator Principle Banks
Regional	Regional and National Replication of Best Practices	Asian Development Bank (ADB), World Bank, IGES, International Association of Women Judges
Regional	Asian Justices Forum on the Environment	Asian Development Bank (ADB), U.S. Environmental Protection Agency (EPA), Vermont Law School, IGES, various courts
Regional	Regional Forum and Award	AECEN members and stakeholder participants
Regional	Secretariat Support	AECEN members and other partners
Mekong River Basin	Mekong Transboundary Waters: Sharing Good Practices on SEA	Asian Development Bank (ADB)
Stung Treng, Cambodia & Champassak, Laos	Mekong Transboundary Waters: Collaborative Decision Making in Addressing Transboundary Conflict	Mekong River Commission (MRC), Worldwide Fund for Nature (WWF)
Mekong River Basin	Mekong Transboundary Waters: Environmental Considerations for Sustainable Hydropower Development	Mekong River Commission (MRC), Asian Development Bank (ADB), Worldwide Fund for Nature (WWF)
Bangkok, Thailand	Program Support	Regional Development Mission for Asia, Regional Environment Office
Sri Lanka	Sri Lanka-China: Strengthening EIA Practices in Sri Lanka	China Ministry of Environmental Protection, China Appraisal Center for Environment and Engineering, Sri Lanka Central Environmental Authority
Hanoi, Vietnam	Vietnam-Korea: Promoting Effective Soil Contamination Management in Vietnam	Korea Ministry of Environment and Vietnam Ministry of Natural Resources and Environment

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Thailand	Thailand-New Zealand: Improving Water Pollution Control through Public Participation in Thailand	New Zealand Ministry for the Environment and Thailand Ministry of Natural Resources and Environment
Indonesia	Strengthening Environmental Adjudication in Indonesia	Indonesia Supreme Court, Philippine Supreme Court, Thailand Supreme Court, U.S. Environmental Protection Agency
Indonesia	Improved Enforcement Capabilities in China and India through EPA Partnerships	India Ministry of Environment and Forests, China Ministry of Environmental Protection, U.S. Environmental Protection Agency
Regional	Regional Replication of Best Practices	World Bank, IGES and TBD
Regional	Secretariat Support	AECEN members and the Institute for Global Environmental Strategies
Mekong River Basin	Trialing the Rapid Basin-wide Hydropower Sustainability Assessment Tool	Mekong River Commission, Asian Development Bank, WWF
Lower Mekong Basin	MRC: Assessing Costs and Benefits of Hydropower Development in the Mekong	Mekong River Commission, U.S. Army Corps of Engineers, Portland State University, Mae Fah Luang University, Aus-AID
FY 2012		
Regional	Expanding Access to Services through Promotion	Mother Earth Foundation, Manila Water Corporation, Inc., Sri Lanka NWSDB
San Jose Del Monte, Philippines	Improving Water Quality in the Philippines	San Jose del Monte Water District and Korea Water Resources Corporation
Pontianak, Indonesia	Improving Water Quality Management in Indonesia	PDAM Tirta Khatulistiwa, Ranhill Utilities, Indonesia Water Supply Association
Nha Trang, Vietnam	Improving Water Quality Management in Vietnam	Khanh Hoa Water Supply & Sewerage One Member Ltd Co., Macao Water Supply Company,
Palembang, Indonesia & Yavatmal, India	Supporting Continuous Water Supply Provision in Asia	PDAM Tirta Musi, Penang Water Supply Corporation, Ranhill Utilities, Maharashtra Jeevan Pradhikaran
Cebu, Philippines	Promoting energy Efficiency in the Philippines	Metropolitan Cebu Water District, Las Vegas Valley Water District
Manila, Philippines	Promoting Climate Change Adaptation for Water Operators in the Philippines	Palm Beach County Water Utility Department, Manila Water, Maylinad Water, Manila Water Supply and Sewerage System Administration, National Center for Atmospheric Research
Regional	Supporting Water Operators to Adapt to Climate Change Impacts	Water operators in Asia, Australia and the US, Stockholm Environment Institute, U.S. National Center for Atmospheric Research; ASEAN
Calamba, Philippines	Developing Natural Wastewater Treatment Systems around Laguna Lake	Chia Nan University, Calamba Water District, Laguna Lake Development Authority, Local Governments of Lucban and Angono

Table 7. Activities 2006-2012

Location	Name of Activity	Partners
Baliwag & Manila, Philippines	Replicating Septage Management Practices in the Philippines	Indah Water Konsortium, Maynilad Water; 5 Philippine Water Districts- Baliwag, Cabanatuan City, Metro Cebu, Laguna and Calamba, Philippine Association of Water Districts
Jakarta & Bandung, Indonesia	Improving Septage Management Services in Indonesia	Indah Water Konsortium, PD PAL Jaya Jakarta, PDAM Kota Bandung, WATSAN Network, USAID IUWASH, ADB
Regional	WaterLinks Support	Asian Development Bank, International Water Association
Vietnam	Vietnam-Korea: Promoting Effective Soil Contamination Management in Vietnam	Korea Ministry of Environment and Vietnam Ministry of Natural Resources and Environment
Thailand	Thailand-New Zealand: Improving Water Pollution Control through Public Participation in Thailand	New Zealand Ministry for the Environment and Thailand Ministry of Natural Resources and Environment
Indonesia	Strengthening Environmental Adjudication in Indonesia	Indonesia Supreme Court, Philippine Supreme Court, Thailand Supreme Court, U.S. Environmental Protection Agency
Regional	Strengthening Capacity to Incorporate Climate Change Impacts and Adaptation in Environmental Impact Assessments in Asia	The Asia Pacific Adaptation Network (APAN), Institute for Global Environmental Strategies (IGES).
Regional	Secretariat Support	AECEN members and the Institute for Global Environmental Strategies
Regional	2012 Regional Forum	AECEN members and the Institute for Global Environmental Strategies (IGES)
Mekong River Basin	Strengthening MRC Capacity in Scenario Assessment and Integrated Planning for Water Resources Development in the Mekong Basin	Mekong River Commission, APEC Center for Technology Foresight
Mekong River Basin	Trialing the Rapid Basin-wide Hydropower Sustainability Assessment Tool	Mekong River Commission, Asian Development Bank, World Wide Fund for Nature
Bangkok	Program Support	Regional Development Mission for Asia, Regional Environment Office



Water quality testing in Danang Vietnam

Annex 3: Summary of ECO-Asia Grants

Table 8. Summary of ECO-Asia Grants

	Partner	Task	Objective	Country	Performance Period	Amount Dispersed
1	Indonesia Center for Environmental Law	A	To complete an AECEN program assessment	Indonesia	May 2007 – Mar 2008	\$15,046
2	Asian Institute of Technology (AIT)	W	To draft the curriculum for a Water Utility Leadership Class aimed at senior managers of water services providers in Asia	Regional	June 2007 – April 2008	\$10,359
3	Philippine Judicial Academy (PHILJA)	A	To support the establishment of green benches in the Philippines	Philippines	Aug 2007 – Aug 2008	\$14,356
4	Department of Animal Science, Faculty of Agriculture, Kasetsart University	A	To establish a pilot compliance assistance center for swine facilities located in the Tha Chin and Bang Pa Kong River Basins	Thailand	Sept 2007 – Apr 2008	\$21,370
5	Association of Development Financing Institutions in the Asia-Pacific (ADFIAP)	W	To develop a regional strategy for accessing financing for water services improvements/expansion	Philippines	July 2008 – July 2009	\$23,000
6	Indah Water Konsortium (IWK)	W	To support capacity building activities in improving sanitation management in Asia through twinning partnerships and workshops	Regional	Aug 2008 – July 2009	\$25,000
7	Laguna Lake Development Authority (LLDA)	A	To strengthen the compliance promotion efforts for slaughterhouse and hog farm industries in the Laguna Bay region in the Philippines	Philippines	Sept 2008 – Aug 2009	\$16,321
8	Institute for Global Environmental Strategies (IGES)	A	To support the development of national policies and institutional arrangements for preventing and rehabilitating soil contamination in Thailand	Thailand	Oct 2008 – Oct 2009	\$25,000
9	Ranhill Utilities Berhad	W	To implement a twinning partnership to improve water quality management in Nakorn Nayok, Thailand	Thailand	Nov 2008 – Sept 2009	\$20,732
10	Environmental Law Institute (ELI)	M	To provide a legal analysis of MRC transboundary environmental impact assessment (TbEIA) guidelines	Regional	Jan 2009 – Mar 2009	\$15,000
11	West Bengal Pollution Control Board (PCB)	A	To support the establishment and operations of an environmental compliance assistance center in West Bengal, India	India	Nov 2008 – Oct 2009	\$17,500

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11	West Bengal Pollution Control Board (PCB)	A	To support the establishment and operations of an environmental compliance assistance center in West Bengal, India	India	Nov 2008 – Oct 2009	\$17,500
12	Manila Water International Solutions (MWIS)	W	To implement a twinning partnership to improve water quality in Da Nang, Vietnam	Vietnam	Jan 2009 – Sept 2009	\$20,602

Table 8. Summary of ECO-Asia Grants

	Partner	Task	Objective	Country	Performance Period	Amount Dispersed
13	Indonesian Center for Environmental Law (ICEL)	A	To strengthen inspection capacity in Indonesia	Indonesia	Jan 2009 – Aug 2009	\$22,835
14	Yunnan Academy of Social Sciences	W	To provide assistance with the Economics of Sanitation Initiative in Yunnan Province	China	Mar 2009 – Nov 2009	\$59,152
15	China Society of Economic Research (CSER)	W	To provide policy research on regulating private sector participation in urban water services delivery	China	Apr 2009 – Nov 2009	\$18,000
16	Manila Water Company, Inc	W	To implement a twinning partnership to expand water services to the urban poor in Surabaya, Indonesia	Indonesia	Dec 2009 – Sept 2010	\$21,516
17	Penang Water Supply Corporation	W	To implement a twinning partnership to improve operational efficiencies in Palembang, Indonesia	Indonesia	Jan 2010 – Jan 2011	\$21,676
18	Gender and Water Alliance (GWA)	W	To develop a gender scan methodology that could be applied by water service providers to improve gender mainstreaming	Regional	Mar 2010 – Jan 2011	\$16,288
19	Ranhill Utilities Berhad	W	To implement a twinning partnership to enable continuous water supply in Jaipur, India	India	Apr 2010 – Apr 2011	\$24,548
20	Institute for Global Environmental Strategies (IGES)	A	To improve implementation and enforcement of energy efficiency laws and regulations	Regional	Jan 2010 – Dec 2010	\$25,000
21	West Bengal Pollution Control Board	A	To promote improved environmental compliance in the selected industrial sub sectors	India	Apr 2010 – Mar 2011	\$14,935



Annex 4: Cost of Efforts

Table 9. Cost of Efforts	
CLIN	Anticipated Costs as of December 31, 2012
CLIN 1	\$10,675,033
CLIN 2	\$4,780,596
CLIN 3	\$2,848,543
CLIN 4	\$634,644
CLIN 5	\$1,526,881
CLIN 6	\$6,495,062
CLIN 7	\$1,397,867
TOTAL	\$28,358,626

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