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# AN INCENTIVE REBATE APPROACH TO GROWING PRIVATE WATER SYSTEMS: LESSONS FROM A CAMBODIAN EXPERIMENT

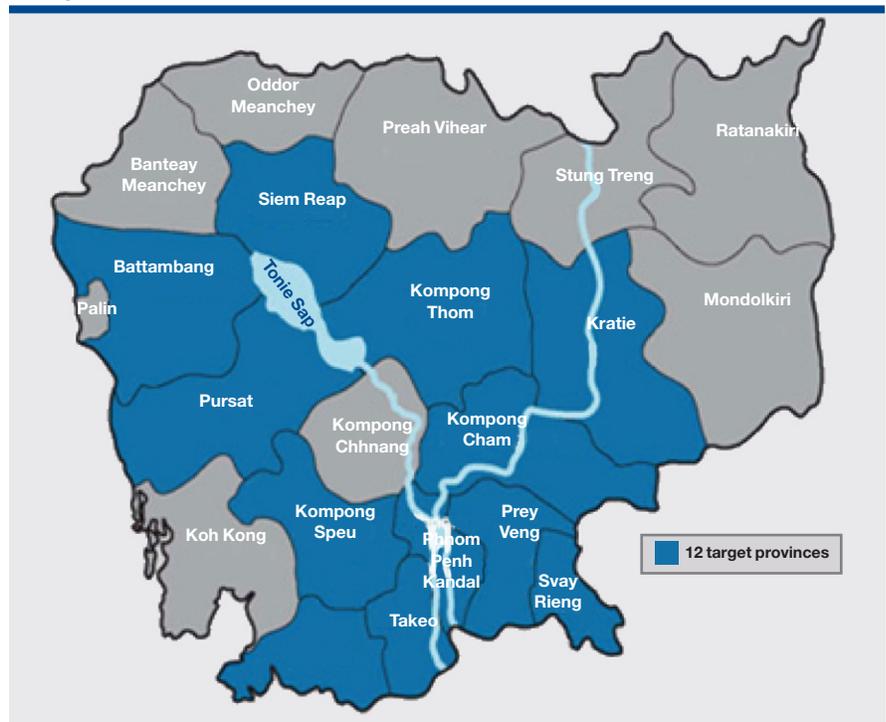
In October 2008, the Cambodia Micro, Small, Medium Enterprise (MSME) Project received funds from the U.S. Agency for International Development (USAID) to provide at least 10,000 houses with safe, clean drinking water. The money came with a Congressional “use it or lose it” deadline of September 30, 2010. The 20-month deadline and ambitious target gave rise to the MSME Water Investment Strategy (WIS), a simple, robust, and entrepreneur-driven approach that quickly exceeded the project’s targets and may find broader application in Cambodia and other countries. This paper describes how the WIS works, and what the project team has learned from the approach for expanding household access to clean, piped water in a rapid, sustainable manner.

The team knew that many Cambodian rural towns had existing private water service providers (WSPs). While these WSPs were frequently small, the initial research found they often were profitable and had good foundations for rapidly extending water services—but were constrained. While virtually every WSP interviewed expressed interest in network expansion, all faced two significant issues: 1) Limited customers, and 2) Low cash flow. Most WSPs charged high connection fees to help quickly recover their initial capital investments in treatment and distribution systems. These high connection fees posed a significant barrier for many potential customers, especially poor households.

In turn, the lack of customers limited cash flow for the WSPs as well as their capacity to self-finance further system expansions. Commercial banks in Cambodia were not financing options for most WSPs since they charged high interest rates, only offered short-term loans, and required very high collateral.



**FIGURE I. TARGET PROVINCES OF THE USAID CAMBODIA MSME PROJECT**





Meeting such terms would require WSPs to raise their water rates to levels that many customers could not afford. Thus, the high connection fees charged by the WSPs in order to recoup most of their upfront investment costs led to slow business growth and left thousands of potential customers without access to clean water.

The project successfully solved this problem by focusing directly on the capital constraints faced by most WSPs. The team designed the WIS to include pre-set, investment rebates for private WSP owners who expanded and/or improved the delivery of safe water to homes. The project based rebates on a fraction of the average expected costs to expand water treatment capacity, extend piped networks and connect households, regardless of actual costs. To get the rebates, WSPs had to develop their own expansion plans, use their own money, and work at their own risk.

## The Water Investment Strategy Is Left in Control of the WSP

Using an implementation-oriented process, the WIS set clear expectations, built trust, and provided fixed rebates that WSPs could expect once they had connected new homes to piped clean water. WSPs had to front the costs of expanding their systems and deal with all the business and regulatory risks. The amount each WSP received in rebates was based

on the specific investments required to achieve their specific targets: new pipes in the ground, additional homes connected, and improved or expanded water treatment capacity. The contracts were simple and focused on one verifiable result: homes connected to safe drinking water, nothing else. Rebates were easily scalable—the participating 26 WSPs received rebates ranging from \$10,000 to \$200,000.

**By the time the ink was dry, the WSPs knew the project was for real and they knew exactly what they had to do to get the rebates offered to them. The entire project was designed to keep the WSPs focused on expanding safe water to more homes, and to enable them to reach their own, self-defined expansion goals.**

The project only worked with owners of existing systems—never with contractors, thus there was no incentive to cheat on costs. As contracts were linked to the WSPs' long-term plans, this also removed any incentive to cheat on quality or performance; to do so would have meant cheating themselves. Politicians, bureaucrats, and lawyers were kept out of the process. The project team was reasonable and flexible in approving changes, as long as they did not compromise water quality and system performance. Finally, USAID's "use it or

lose it” time constraint was passed onto the WSPs, which agreed to ambitious, but feasible, schedules for meeting targets.

This approach overcame the financial barriers faced by many WSPs and households. By covering a portion of the system expansion costs, the participating WSPs were able to offer discounted connection fees that, in turn, enticed many new customers to connect to their systems. The investment rebate approach relied on WSPs’ business judgment on how best to expand their water services. The WSPs, not the project, drove business expansion plans. Each WSP independently planned, designed, financed, and executed their water service expansions. They managed all regulatory and business risks and all relations with communal or provincial authorities.

**Using the MSME WIS approach, the project has exceeded its initial goal of 10,000 households connected within 20 months by more than 40 percent; more than 14,000 homes in and near poor rural towns now have clean, piped water, thanks to USAID’s financial support.**

The project offered on-the-job training and workshops and other tools to assist participating WSPs to meet their self-set goals, sharpen their business acumen, and operate their systems efficiently. In the project-sponsored public forums and workshops, WSP owners and staff exchanged information, met new services suppliers, and formed networks amongst themselves.

**For many WSP owners, this was their first time to independently analyze consumer markets, develop water service expansion plans, execute sustainable business plans, and meet colleagues from similar businesses.**

## Details of the MSME WIS

The rest of this report describes in greater detail the:

- MSME WIS approach—how and why it has worked;
- How this approach differs from other approaches taken by many donors to expand safe water services in Cambodia and elsewhere; and
- The results and lessons learned thus far.

The MSME team believes this approach presents a promising way to augment and expand existing water services in Cambodia, and elsewhere, where profitable and competent (or at least willing and trainable), but capital-constrained private WSPs are springing up to fill needs unmet by public investment. The approach’s robustness and well-aligned incentives make it particularly appropriate for post-conflict countries where trust has been shattered, or for places where the rule of law is weak, and relationships are what really matter to get business done.

## Barriers to the Expansion of Private Water Services

Private WSPs in Cambodia face three main barriers to growth:

### Access to Finance

Water systems require significant upfront capital investments. To finance these investments, most Cambodian WSPs rely on their own savings or seek support from donor programs. Very few borrow from local banks because the terms are not suited to water supply businesses: interest rates of between 18 and 40 percent, loan periods of less than three years, and collateral requirements of up to 350 percent of the amount borrowed. Banks rarely accept the value of piped networks in the collateral calculations.

### High Connection Charges

WSPs charge high connection fees to finance the upfront system construction costs. WSPs surveyed at the beginning of the project charged households connection fees of \$40 to \$120. This represents one month’s income or more for many poor households, and while they want to connect to the piped water system they cannot afford this high upfront



cost. As a result, most poor households rely on ponds, shallow wells, and rainwater during the rainy season. During the dry season, they often purchase water from vendors at rates 15 times higher than piped water in rural towns and as much as 35 times higher in urban areas. Many poor households know they could save money if they connected to the piped water systems, but the high connection fees present a significant barrier.

### Limited Access to Technical Information and Know-How

Many of the current WSP owners started their businesses because they saw a tremendous need and business opportunity, not because they knew the water business. Some of the better WSPs started with the assistance of donor-funded programs; others had to learn through trial and error. All discovered there is a shortage of good technical engineering or business support services available and their limited technical expertise constrains business growth and can compromise system performance and quality.

**The MSME WIS began with the assumption that WSPs know their markets better than consultants, and will invest in network expansions where they are confident of securing the most connections and optimizing their own and USAID's investments.**

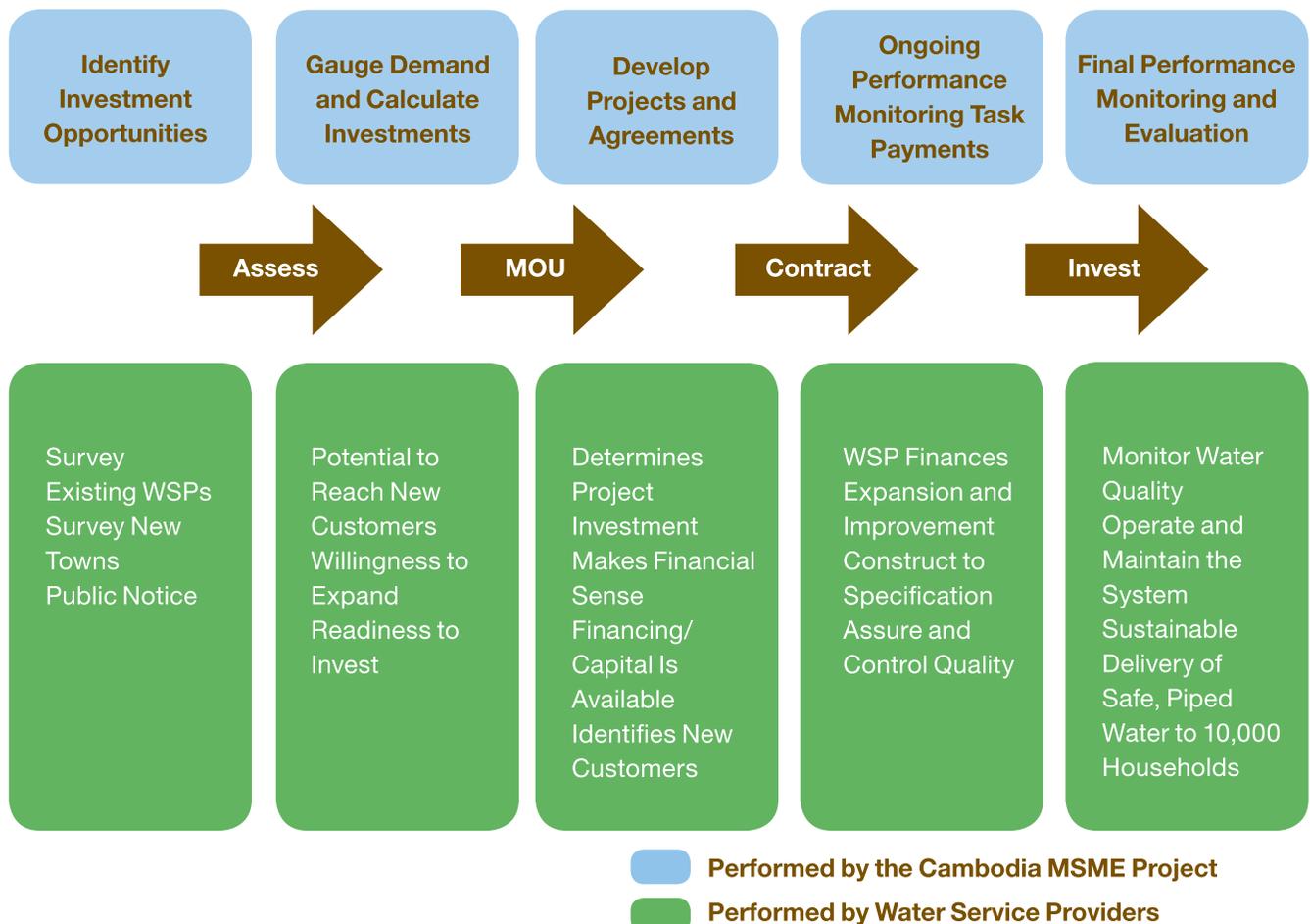
### Overcoming Barriers through the Water Investment Strategy

The MSME Water Investment Strategy and its elements are described in the following sections.

#### The WIS Process

The WIS process divides responsibilities between the MSME Project and the WSPs, with the WSPs shouldering all responsibility for successfully carrying out the expansion plans.

**FIGURE 2. THE MSME WATER INVESTMENT STRATEGY PROCESS**



While most donor-funded water projects in Cambodia channel assistance to NGOs or government agencies, USAID encouraged the MSME Project to work directly with private WSPs. This approach fit within the project’s objective of strengthening the capacity of rural businesses.

**1. Initial Assessment**

The project conducted two surveys to better understand the market; one of existing private WSPs and another of towns without piped water services. These surveys confirmed there were many active and profitable or potentially profitable private WSPs and a large, unmet demand for clean water in many rural towns. The project advertised nationally its interest in working with private WSPs; more than 50 WSPs responded.

**2. Steps to the Memorandum of Understanding with Potential WSP Partners**

The project adopted a three-stage process to screen the initial respondents to the national advertisement.

**a. Pre-qualify Potential Partners**

The team visited each interested WSP to discuss the project’s guidelines and assess the capacity and interest of the WSPs in expanding water services. Pre-qualified WSPs were then asked to complete a short Memorandum of Understanding (MOU) application.

**b. Review and Select Potential Partners**

The Project team reviewed all the MOU applications and selected 31 according to the criteria listed in Figure 3.

**c. Sign MOUs with Selected WSPs**

The team signed MOUs with each of the 31 selected WSPs. The MOU formed a non-binding agreement between the project and the WSP to proceed with investment planning. The WSPs that signed were asked to develop specific investment and financing plans that described how they planned to expand their systems and

how they planned to finance the expansions. The MOU period lasted 12 weeks, during which time the project team met with each WSP to discuss their plans and answer any questions concerning the WIS approach.

**3. Contracting with WSPs for System Expansion**

At the end of the MOU process, 17 WSPs initially signed contracts with the project, and another nine subsequently signed contracts. The MOU and contracting processes were designed to build trust and to maximize information exchange.

The contract had two main components: First, it described in detail the expansion plan and specified the number of households to be connected, the materials to be used, the fee schedule and total payment, and specified the required quality standards for both construction and water to be delivered to homes. Second, it divided the expansion plan into discrete tasks with milestones and specified a timetable



**FIGURE 3. CRITERIA USED TO SELECT WATER SERVICE PROVIDERS FOR MSME SUPPORT**

Selection Criteria	Description	Weight
<b>Socio-Economic Priority</b>	<b>Arsenic or flood zone, Target poor households</b>	<b>20%</b>
<b>Increased Access at Good Value</b>	<b>Reasonable total investment per household, Focused expansion</b>	<b>20%</b>
<b>Business Experience</b>	<b>Years of experience, Licensed, Own and operate multiple systems</b>	<b>15%</b>
<b>Business Operations</b>	<b>Current operations, Maintenance, Service to customers, Administration</b>	<b>15%</b>
<b>Sustainable Growth and Real Results</b>	<b>Expansion size that the business can handle, Readiness to expand, Have existing capacity, Expansion within licensed area, No competitors, Year-round raw water access</b>	<b>30%</b>

for completion. The total payment and fee schedule were based on these milestones, and the rebates calculated using a “building block” rebate method described later.

#### **4. Responsibility for System Expansion Shifts to the WSP**

With signed contracts in hand, the responsibility for implementing the expansion of water services fell entirely on the WSP owner. Rebates were only paid when the WSP met the contract’s milestones. The contracts provided for periodic inspections to assess construction progress against agreed plans and deadlines. Through on-site visits, the Project team verified that WSPs delivered safe water at a proper pressure throughout the distribution networks. Final payments were

made only after the WSPs passed all water quality and household connection inspections by the project team.

### **Entrepreneur-Driven Water Investment Strategy**

Two key elements of the WIS approach enabled it to achieve its targets: being entrepreneur-driven; and using a simple, flexible, and efficient contracting process. These elements motivated participating WSPs to rapidly expand their services to reach more than 14,000 poor households during the first 16 months of the MSME Project’s WIS initiative.

### **The “Building Block” Rebate Structure**

**The MSME Water Investment Strategy gave rebates to WSPs based on pre-set construction and equipment costs. To establish those costs, the project team conducted a study of actual construction costs nationwide and designed rebates to reimburse WSPs for about 40 percent of typical and expected costs to expand networks, connect households, and expand treatment facilities. The project allowed combinations of activities depending on what the WSP needed to meet its objectives.**

**While actual materials and construction costs might vary, the contracts were based on the fixed amounts the project would pay once the WSP achieved specific milestones. This encouraged and created incentives for the WSPs to be efficient in their designs and implementation. The project asked WSPs to report on their actual costs, which were only used for future reference purposes. All WSPs received rebates according to the following formulas.**

- **New Household Connections**

**Rebates were determined by the number of households connected to clean water multiplied by the fixed rebate per house. WSPs were free to decide how much of this rebate they would pass on to households. However, as the contract payment scheme was tied to successful house connections, WSPs had strong incentives to decrease connection costs and increase hookups. This led many WSPs to decrease connection fees by 50 to 80 percent to maximize the number of households that would quickly connect.**

- **Water Treatment**

**Rebates for building new treatment facilities or improving existing facilities were based on the size of the new water treatment facility, in terms of cubic meter per day capacity, multiplied by the number of houses connected to clean water.**

- **Pipe Extension**

**The project rebated approximately 50 percent of the cost to purchase and install high-quality pipe to extend transmission and distribution systems.**

**This “building block” approach encouraged the project and WSPs to tailor expansions and determine the total value for each contract. All rebate payments were tied to the number of houses connected. For example, if the first milestone included 20 percent of the new houses connected, then only 20 percent of the installed piping and/or treatment rebate would be paid. This kept pressure on the WSPs to connect houses.**

The MSME Project's value chain and business linkage strengthening model focuses on strengthening local ownership of all phases of business planning, financing, and operations. Following this approach, the WSPs were encouraged to drive the expansion of systems to reach more households.

### Entrepreneurs Ascertain Business Risk

Unlike many donor-funded household water projects, the WIS required service providers to assess the economic viability of system expansions and upgrades. No donor-funded consultants were hired to conduct feasibility or market studies to assess or design network expansions and economic viability and no projects were put out to bid to deliver turnkey systems.

Instead, the WIS placed responsibility on the WSPs to determine where they should extend systems. Since the WSPs are advancing construction costs and contributing more than 50 percent to the system expansion costs, they are the best positioned to know their business and assess risks better than an external consultant.

The WIS provided incentives that address the principal barriers to business growth while placing all responsibility for meeting specific performance targets on the WSPs. If the WSPs failed to meet expected targets, they did not receive the rebates.

### Entrepreneurs Drive the Planning—Within MSMEWIS Guidelines

Entrepreneurs independently drafted all design plans. As advisors, the MSME Project team helped the businesses understand the difference between well and poorly engineered plans, but made them responsible for final plans. The project provided guidelines and, as an advising partner to the WSPs, worked closely with them to test assumptions, assess market risks, and plan system expansions, but neither supplied initial draft plans nor packaged designs. Alongside the WSP, the team also reviewed plans, implementation schedules, and the materials selected to ensure quality and sometimes suggested revisions to improve implementation, investment performance, and longevity.



Final plans included detailed implementation schedules and materials lists, including the make and model number of equipment to be purchased and installed.

These final plans, including the equipment and materials lists and implementation schedule were incorporated into the contract between the MSME Project and the WSP. This entrepreneur-led approach helped forge a professional partnership between the project and the WSPs.

The MSMEWIS approach also strengthened business relationships between WSPs and local engineers, materials suppliers, and construction companies, and established locally appropriate standards for building well-priced systems capable of delivering clean piped water.

**This entrepreneur-led approach strengthened the ability of WSPs to use their own family and investor networks, present potential backers with good quality financial plans and projections, answer any questions about their expansion plans, and facilitated due diligence by potential lenders.**

### Entrepreneurs Arrange Financing

Armed with a carefully analyzed planning framework, the WSP could develop an effective financing plan. The project did not establish a special credit facility nor guarantee any loans.

Since the entrepreneurs received no funds until they had met specific completion milestones, the project team worked alongside the WSPs to review their financial assumptions and required each WSP to certify that it could secure the capital required to carry out the planned work. This limited due diligence by the project initially seemed quite risky, but it helped establish a trust-based relationship with the WSPs.

The process of applying for and signing the MOU, developing detailed plans, and signing a contract with clearly defined milestones and rebates led to the self-selection of committed WSPs that could arrange sufficient financing to carry out their plans. While the planned rebates significantly reduced financing risk, they still required the entrepreneurs to use their own savings or arrange financing from families and/or financial institutions to extend their networks. This approach has three principal advantages.

1. WSPs had strong incentives to achieve the contract milestones that triggered rebates. Since they invested their own money in their own plans, default would only hurt them, not the project.
2. The rebates lowered investment risk sufficiently to stimulate significant interest among those WSP entrepreneurs looking to expand their networks.
3. The approach required the WSPs to judge their own business risks, make their own business calculations, and sell their ideas and plans to their financial backers.

### **Entrepreneurs Manage All Political and Regulatory Risks**

The MSMEWIS shifts all regulatory risks to the WSPs. The project team was confident that WSPs are best-placed to judge their business environment. The project placed the entire responsibility for expanding water systems in the hands of the WSPs, requiring them to negotiate water supply agreements with the commune officials, manage relations with regulatory agencies, plan for and negotiate any compliance-related issues that construction required, and manage the regulatory risks inherent in infrastructure construction.

This hands-off approach kept the project out of transaction-level discussions with WSPs, let the Cambodians strike their own arrangements and enabled rapid implementation and achievement of project objectives.

### **The MSME WIS Approach Reached the Poor**

**Some donor approaches focus on intricately designed criteria to determine who is poor and should benefit from a new water project. This often leads to many months spent by international and local consultants and government counterparts to appraise and define beneficiaries. The case of the Ms. Srey On, pictured below, is a common result of these processes.**

**While the initial appraisals conducted by the international consultants and local authorities deemed her “poor,” she was ultimately excluded as a project beneficiary because she had received some support from another donor project. Consequently, she could not afford the full cost connection fee when the WSP installed its new piped water system.**

**Today, three years later, she finally connected when the WSP was able to lower the connection fee with support from the USAID MSME Water Investment Strategy.**



## Simple, Flexible, and Efficient

The MSMEWIS promotes a simple, flexible, and efficient approach built on a partnership between the MSME Project and the WSPs. Throughout the MOU, planning, and contracting process, the MSME team clearly communicated the project's expectations to minimize misunderstandings.

The WIS approach imposed relatively few requirements, allowing the project team and WSPs to design contracts that responded to each WSP's unique situation and expansion needs. For example, the WIS:

- Worked with all types of WSPs, requiring only that the WSP have local authority approval for their operations.
- Concentrated WSP attention on connecting houses. As a result, the project worked with a diverse range of WSPs, some with few connections and limited operating experience and others with more than a thousand connections and several years of operating experience. Regardless of their operating history or number of connections, participating WSPs shared a common objective: expanding the number of homes connected to safe, clean water.
- Supported WSP investment plans that met local market and business needs. WSPs sought the project's rebates for different reasons. Some had insufficient water treatment capacity, while others needed to extend their transmission and distribution networks. All WSPs needed to connect more customers to grow. The rebate schedule allowed WSPs to craft their investment plans according to their market and business needs.

### Straight-Forward Contracting Process

The MSMEWIS performance-based contracts are straightforward. They reimburse fixed rates based on average market costs for households connected, length of pipe installed, and treatment capacity expanded. This building block approach to pricing rebates expedited expansion by linking payments to specific targets completed by a pre-set schedule, and minimized ambiguities between WSPs and the MSME team.

Finally, the contracts had a maximum value of \$200,000, so the opportunities could be spread across a greater number of WSPs. This simple, flexible, and efficient approach encouraged and enabled WSPs to rapidly connect poor households to their network.

## The Sophorn Rattanak Water Company Profile



**Hout Sophorn and his wife own and operate the Sophorn Rattanak Water Company located in Kampong Cham. Mr. Sophorn built the water utility with assistance from the World Bank's Design-Build-Lease (DBL) program in 2005.**

**While the company has a capacity to serve 3,000 households, as of 2010, Mr. Sophorn only had 916 customers. As a result, the company faced significant challenges recouping its investment.**

**With the MSME Project's support, the company added 1,200 more households to its network and lowered household connection costs from \$50 to \$15 per house with a net household savings of \$42,000.**

**"I am grateful to USAID for their help" he says. "Without this support it would have taken five or six more years to achieve a sustainable business.**

**The Sophorns' business experience is not unusual. The high costs of infrastructure, combined with the difficulty of credit, often constrain water service providers.**

**In 2008, USAID challenged the MSME Project team to design a sustainable approach that could rapidly deliver safe piped drinking water to large numbers of poor families. The WIS did just this.**

## Bringing Clean Water to the Poor

With only 5 percent of Cambodia’s rural households having clean piped water, USAID challenged the MSME Project team in 2008 to design an approach that could rapidly deliver safe drinking water to large numbers of poor families.

The initial survey conducted by the project identified many private WSPs with potential customers who could not connect because of the high connection fees. However, once connected, these poor households could afford the monthly charges for piped clean water. Most of these households already paid for trucked or carted water of questionable quality at two to three times of the cost of piped water. However, the high connection fees proved too great a barrier for most poor households that in turn limited the number of potential customers for the WSP.

The MSMEWIS helped WSPs address the high connection price issue and, in the process, enabled the expansion of piped water to many poor, rural areas. The WIS’s simple offer—rebates for households connected—encouraged WSPs to significantly lower the connection fees.



While the specific rebates were calculated based on pipe installed, households connected, and treatment capacity expanded, WSPs only received the rebates once they had connected households.

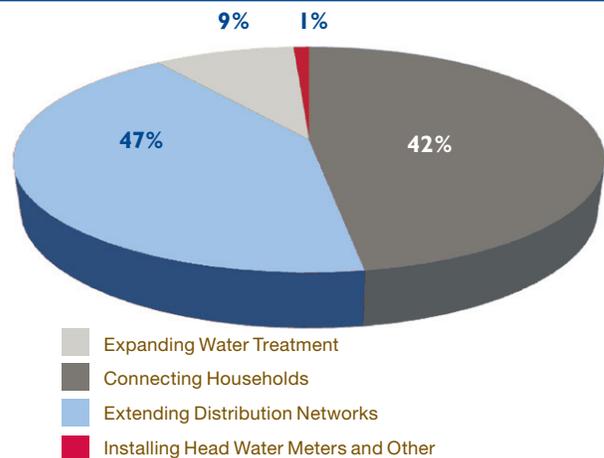
The WIS allowed the WSPs to tailor investments to their specific needs. With each WSP still investing more than 50 percent of the total cost, there remained a strong incentive to get new customers connected quickly.

In areas where the WSPs had operated for several years, the only way they could add more customers was to extend their networks into poorer neighborhoods and more rural communities, areas they had previously considered too risky due to concerns that few households would connect. In other cases, it required WSPs to structure connection fees to encourage more customers to connect to existing distribution networks.

Since the WSPs knew their neighbors’ needs, they could tailor approaches far better than an external donor. The MSME Project encouraged the WSPs to be creative in attracting more households to connect to their networks. This led some WSPs to lower the connection fee to a flat \$10 for all households. Others offered tiered discounts that provided a strong incentive for the first customers to sign up. In one case, more than 200 new customers signed up within two days.

Where families could not afford even the discounted connection fees, some WSPs opted to further reduce the connection fee on a case-by-case basis, and many began offering installment plans that allowed households to repay the connection fee over several months.

**FIGURE 4. WHAT WSPS INVESTED IN**





## RESULTS TO DATE

The MSME Water Investment Strategy has delivered impressive results in a short time. It has benefited customers, WSPs and the Royal Government of Cambodia.

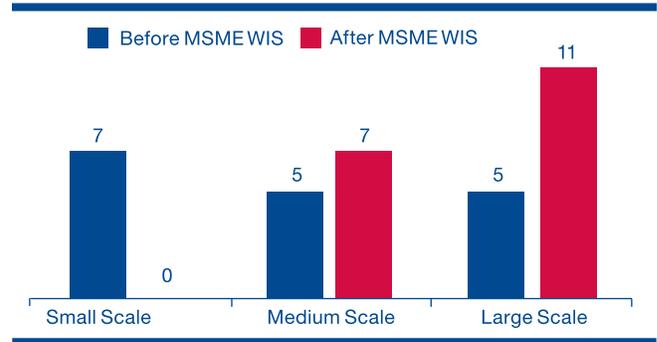
### Customers

Since August 2009 when the first contracts were signed, more than 14,000 mostly poor households, or an estimated 65,000 people, now have access to clean piped water as a result of USAID's investment.

The rebates provided through the WIS enabled WSPs to reduce connection fees by half or more, making clean water more accessible and affordable for poor households. On average, the project rebated the WSPs about \$70 for every household connected, or approximately 46 percent of their total investment in extending piped networks, expanding water treatment capacity and connecting houses.

In addition to the new connections, another 70,000 people now benefit from operational improvements—including improved water purity—undertaken by the WSPs during the course of their contracts.

**FIGURE 5. THE WATER INVESTMENT STRATEGY'S IMPACT ON PROVIDER SCALE OF OPERATIONS**



### Water Service Providers

The project helped many participating WSPs to significantly expand their customer bases. With USAID's investment, all providers grew in terms of customers and cash flow.

For example, of the first 17 WSP contracts completed, all WSPs now have more than 500 connections. Eleven that started with less than 500 customers now have more than 1,000.

This growth has significantly improved WSP cash flow, enabling many to use their increased incomes to continue expanding and improving systems and services.

### Royal Government of Cambodia

The Royal Government of Cambodia supports the emergence and growth of private WSPs as one element of its strategy to expand access to safe water to meet millennium development goals. The estimated 300 private WSPs already operating around the country provide an excellent foundation for expanding access to safe water, especially in rural towns.

The MSME Project has worked with 26 WSPs in six provinces. In 2008, these six provinces had 1.3 million households of which only 95,000, or 7 percent, reported having piped water. The number of homes in these six provinces now connected to safe piped water has increased by 14,000 with more to be connected in the coming year.

Since the WIS is tailored to work within and comply with existing regulations and practices, the Royal Government of Cambodia can use this approach to harness local entrepreneurial energy and capital to rapidly expand access to safe water for many more households across Cambodia.

## CONCLUSION

The MSMEWIS has several unusual characteristics. It is entrepreneur-driven, simple, and flexible. It has shown that WSPs can, with the right incentives and support, rapidly expand access to safe, clean water in a short time. Based on the experience under the MSME Project, the WIS approach holds real promise to expand access to safe water to large numbers of Cambodian households while strengthening the capacity, financial, and operational performance of WSPs.

The simple and efficient WIS approach merits consideration in other countries, especially where profitable and competent, or at least willing and trainable, but capital-constrained private WSPs are engaging to fill needs unmet by public investment. The approach's robustness and well-aligned

incentives makes it particularly appropriate for post-conflict countries where trust has been shattered, or for places where the rule of law is weak, and relationships are what really matter to get business done.

Going forward, the project will continue strengthening WSPs by facilitating their learning from each other through cross-provincial visits and study tours, strengthening relationships with other value chain members that can provide technical and business training and support, and by helping the WSPs to engage the Royal Government of Cambodia in discussions about regulatory issues that impede investor confidence or limit future expansion.

The project also will continue supporting public forums involving the Royal Government of Cambodia and WSPs to promote the value of safe water and improved relationships between the private and public sectors.

## Authors

**David Hill** is an environmental engineer specializing in water and sanitation design and construction management. Mr. Hill has developed projects from initial assessments and alternative analysis to design, permitting, construction, and handover. His professional experience includes large municipal projects in the United States and small rural/semi-urban projects in Southeast Asia and Latin America. Areas of experience include design and construction of rural community water supply, on-site household sanitation, water and wastewater treatment plants, pumping stations, pipelines, and water resources management.

**Curtis Hundley** is a recognized leader in rural economic development in Southeast Asia and has successfully applied international best practices in value chain development to the unique context of Cambodia. Mr. Hundley has served as the Chief of Party and Value Chain Team Leader on the \$5 million Strengthening Micro, Small and Medium Enterprises in Cambodia project, leading a handpicked team of more than 20 Cambodian professionals with expertise in agriculture, fisheries, business, and community development. He is also an expert in promoting technology at the enterprise and national levels and in overcoming informational market failures—key aspects to upgrading MSMEs. He assisted the German Technical Cooperation Agency in the design of two project components supporting rural SME development and establishing information technology-enabled business services through partnerships with public agencies, private sector businesses, nongovernmental organizations, and donors.

**Del McCluskey**, an environment and natural resources specialist, is currently DAI's Managing Director for its Environment and Energy Sector. Since joining DAI in 2004, he has designed and supported the implementation of innovative programs to improve water and natural resources management and water and sanitation service delivery in Asia, Africa, and Latin America. Prior to joining DAI, Mr. McCluskey spent more than 20 years designing and directing environment, clean energy, agriculture, and economic development programs for the U.S. Agency for International Development (USAID). He held long-term overseas assignments for USAID in the Dominican Republic, Honduras, and the Philippines, and led USAID's re-engagement in Vietnam, Thailand, Laos, Burma, and Pakistan.

**Paul Dodds** is a corporate attorney and regulatory policy advisor. In Cambodia, he has focused primarily on improving the business-enabling environment for small- and medium-scale enterprises. He worked extensively in Eastern Europe supporting the implementation of privatization programs for the German government, USAID, and the World Bank. His early career included several years as general counsel to a Boston-based engineering and project management company. Drawing on this diverse experience base, Paul helped the DAI team to craft an approach that put entrepreneurs in charge of project implementation, effectively aligned incentives, and fit seamlessly into Cambodia's existing legal and political framework for water service provision.