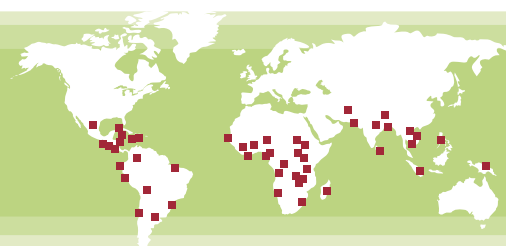


2007 Annual Report



Centre for Affordable
Water and Sanitation Technology



Highlights

	JUNE 2007	JUNE 2006	JUNE 2005	DETAILS
People Impacted	1,125,000	985,000	590,000	People with improved water
Families using Household Water Treatment	187,000	164,100	98,800	Families served by CAWST's network
Client Countries	49	43	36	Geographic reach of past and current clients
Individuals Trained	2,443	1,204	709	Cumulative individuals trained by CAWST
Client Organizations	371	306	84	Organizations using CAWST's services
Implementing Organizations	172	92	50	Organizations implementing water and sanitation programs
Community-based Organizations	1,102	602	175	Local organizations working directly with implementers
Funds Expended	\$3,385,000	\$2,110,000	\$1,261,000	Cumulative funds expended by CAWST since 2001
				* Please see notes in the Key Performance Indicators section

Vision & Mission

Our Vision is a world where people have the opportunity to succeed because their basic water and sanitation needs have been met.

Our Mission is to provide technical training, consulting, and to act as a centre of expertise in water and sanitation for the poor.

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Message from...

...the Chair

For CAWST, the past year has been one of growth, accomplishment and challenge.

The following pages present a compelling case for significant global investment in improved access to clean water and sanitation, particularly for the poor. CAWST's role in this challenge is to offer solutions that are affordable, sustainable and scalable. We build capacity "on the ground" for self-improvement and development.

CAWST continues to increase the number of people impacted by our solutions, the number of clients served and networking activities with peer organizations around the world. In doing so, CAWST makes an important contribution toward meeting this global challenge.

CAWST's finances are managed prudently. Raising sufficient revenues from a variety of sources to fund CAWST's programs is an ongoing challenge. Donors to CAWST – and we invite you to become one – have the assurance that your donations will have a significant impact on a real human need.

CAWST is blessed with an active and growing network of supporters and volunteers – those who contribute the time, energy and financial resources for CAWST to function. Quite simply, without these supporters and volunteers CAWST could not deliver solutions to the global need for improved water and sanitation. We thank each one of you.

The Board also acknowledges the significant contribution of the CAWST staff. Their enthusiasm, dedication, professionalism and plain hard work lead directly to the successes during the year.



Chris Read
Chair, Board of Directors

...the President & CEO

CAWST started with the belief that the poor in the developing world need improved access to clean water and sanitation. And if we are ever going to break the cycle of poverty there are many actions that people can take to start the movement. What is needed is a way to get the skills and knowledge to these people to galvanize them into action.

We also believe that the place to start is by teaching people how to treat water in their homes. This will improve their health immediately. It is also a good entry point for discussions about water contamination, ways to reduce or eliminate disease transmission, and the relation between water, hygiene, sanitation and good health.

As a result of our activities since 2001, small household water treatment projects have sprouted up in 49 countries; millions of people have greater knowledge about water; and over one million people have improved water and consequently a better chance at being healthy.

In many ways, I believe that we are at "the end of the beginning." Many projects are starting and growing. Our relationships with our clients are getting stronger. We plan to achieve greater sustainability and scale by establishing local centres of expertise that will deliver services like CAWST. We have a core of well qualified staff and a dedicated Board of Directors. And support from our own local community grows stronger every year.

Now that we have progressed beyond "proving the concept", the next three years we plan to hold steady at about 24 staff to enable us to develop sustainable funding sources and optimize the quality of our service provision.

On behalf of the people in developing countries who now have a better understanding of water and ways to improve it, I thank you for your support. And I assure you that we will do our best to continue to earn your confidence.



Camille Dow Baker
President & CEO

Water & Sustainable Development

Water gives life to everything, including human development and human freedom.

– United Nations Human Development Report 2006

Following is a brief summary of the United Nations Human Development Report 2006, “Beyond scarcity: Power, poverty and the global water crisis.” The report sends a clear message – the water crisis must be a priority globally and the world must act now.

Water is the foundation for human development that enables people to have a quality of life that they value, empowering them to realize their potential as humans. The current gaps in this foundation affect a large section of humanity and if left unchecked, will hold back human development and derail the attainment of the Millennium Development Goals (MDGs) – the targets adopted by governments as part of a global partnership for poverty reduction. The roots of the global water crisis are anchored by poverty, inequality, uneven power relationships and flawed water management policies that exacerbate scarcity. With respect to water, *“the business as usual alternative is to tolerate a level of avoidable suffering and loss of human potential that all governments should regard as ethically indefensible and economically wasteful.”*

The report makes the case for global public priority in water and sanitation in the following ways:

1. Water and sanitation is a catalyst for public health, education and poverty reduction.
2. It is a proven solution. Water purification explains almost half of mortality reduction in the United States in the

first third of the 20th century, however water provision and sanitation must go hand in hand. (See Figures 1 and 2 below.)

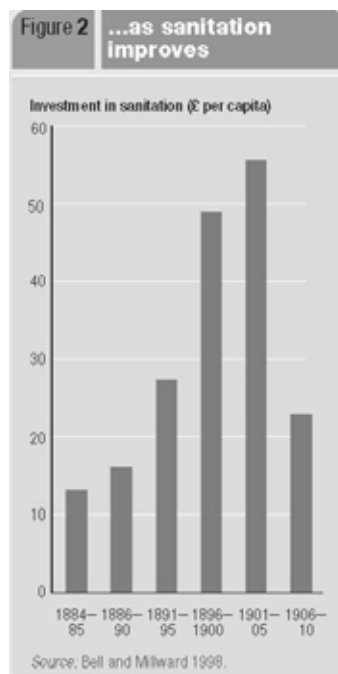
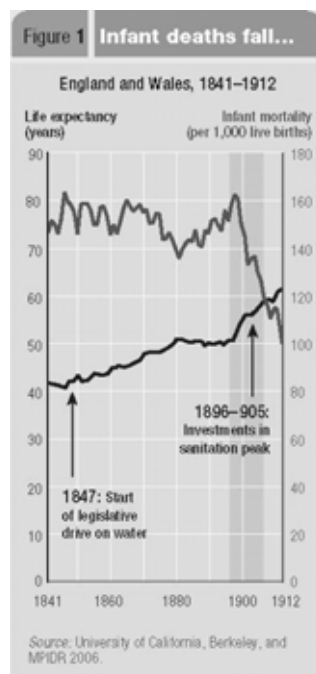
3. The water crisis is worse than actually stated because of systemic data under-reporting. The official water data suggests that more than 1.1 billion people lack access to an “improved” water source within one kilometre of their household, and 2.6 billion people have no access to “improved” sanitation. However,

- An “improved” water source is not necessarily a safe water source.
- The poor are miscounted because they live in areas not officially recognized by governments.
- Access to water is a partial indicator, which does not account for fluctuations in demand resulting in long queues, fluctuations in service resulting in out-of-order standpipes and fluctuations in supply during wet and dry seasons.

- Sanitation metrics count access to a latrine but not necessarily the disposal and treatment of waste.

4. Water and sanitation is a good investment. For example the report indicates that one dollar invested in water and sanitation generates \$8 of economic return.

5. The water crisis is primarily a crisis for the poor; women in particular.



6. Public providers of water and sanitation will continue to play a key role because poor people cannot afford to pay for the services required; water provision is a natural monopoly; and the overall record of privatization programs has not been encouraging.
7. Public investment in water and sanitation is insufficient to meet the Millennium Development Goals in many countries.

To address the water crisis, the report makes the following recommendations:

- Make water a human right;
- Draw up national strategies for water and sanitation;
- Support national plans and international aid in water and sanitation; and
- Develop a global action plan and a global fund similar to the global initiatives that have spearheaded the movement on HIV/AIDS.

“It is absolutely amazing the tremendous effects that the installation of water filters provide for people who have no access to clean water even though they are totally surrounded by river water. I spent two months down in Brazil with the project we established there and heard story after story of its healthful effects upon whole families and whole villages. Thanks for the continued work that you and your colleagues are doing to improve life for those who, in many cases, cannot afford to help themselves.

— Jim Stevenson, Xingu, Brazil

Just the Facts

Allowing the water and sanitation deficit to continue would cost more than nine times the cost to resolve it.

In developed countries, at the end of the 19th century, water and sanitation accounted for ¼ of local government debt.

At any given time close to half the people in the developing world are suffering from one or more of the diseases associated with inadequate provision of water and sanitation.

Slums pay 5-10 times more for water than the city average.

Water related diseases cost 443 million school days every year.

In Latin America, less than 14% of human waste is treated. In China, less than 20% of municipal waste is treated.

Ensuring that all people have access to the most basic technologies would result in 600,000 fewer child deaths annually by 2015.

(Source: United Nations Human Development Report 2006)

Water & Sustainable Development



Vietnam water source (photo by Nguyen Chitruong)

CAWST's Founding Beliefs

1. As a fundamental necessity for life, all persons have the right to a safe and secure supply of water.
2. Recognizing the universal right to clean water, all members of the global community have a responsibility to create or support institutions, economic systems, and social structures that can fulfill this necessity.
3. Developing the capacity of local populations to meet their own needs is the only sustainable solution for provision of basic services.
4. Not-for-profit agencies provide leadership in improving the living conditions of the poor and development of civil society worldwide.
5. Democratic governing processes and systems are an essential component of (CAWST's) organizational success.
6. Leadership by example is essential.

Strategies

While the United Nations water strategies are directed at governments and global organizations, CAWST's strategy is directed at generating grassroots action. CAWST motivates and catalyzes action on water and sanitation implementation by providing subsidized training, open source training programs and curriculum, and technical consulting in water and sanitation suitable for a wide spectrum of people. Most of the people CAWST reaches are not water and sanitation professionals.

CAWST's major strategies are to:

- Make knowledge about water "common knowledge";
- Build the capacity of public sector organizations, both non-governmental organizations (NGOs) and government agencies;
- Focus on household water treatment (HWT);
- Lead with education and training; and
- Identify barriers to implementation of water and sanitation and ways to overcome them.

Since 2001, CAWST has trained 2,443 individuals, 80% of them in CAWST's HWT program. The remaining 20% attended workshops in community health promotion,

product manufacturing, project planning, water quality testing and rainwater harvesting for domestic use.

CAWST has delivered training in 31 countries and the organizations trained are implementing projects in 49 countries.

Countries Where CAWST Delivered Training

Latin America

Bolivia	Haiti
Brazil	Honduras
Dominican Republic	Mexico
Ecuador	Nicaragua
El Salvador	Peru
Guatemala	

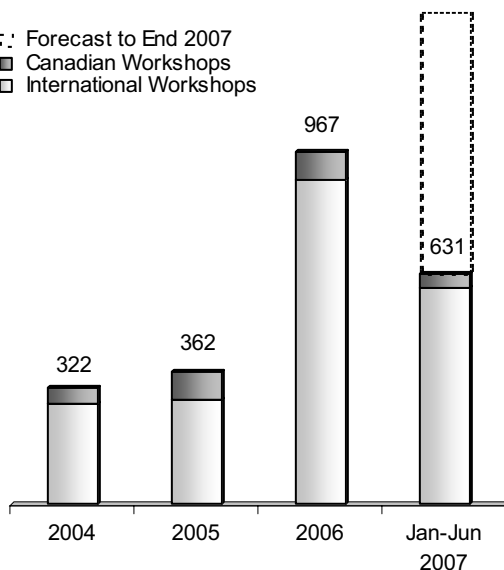
Africa

Angola	Namibia
Equatorial Guinea	Nigeria
Ghana	Sudan
Kenya	Uganda
Malawi	Zambia

Asia

Bangladesh	Nepal
Cambodia	Pakistan
India	Philippines
Indonesia	Sri Lanka
Lao PDR	Vietnam

Number of Workshop Participants, Total



Training women masons in the Dominican Republic

Strategies

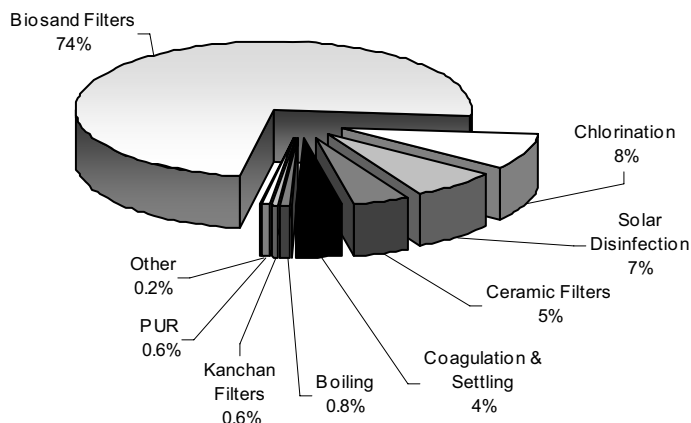
From 2003 to 2005, CAWST's focus was on creating demand for services and training many organizations in order to identify those that would take action and implement household water treatment (HWT) projects. During the last year, CAWST:

- Followed up with trained individuals and organizations, helping them to move towards HWT implementation;
- Expanded its client base;
- Increased its ability to respond to client needs after training; and
- Targeted its marketing to attract workshop participants who are more likely to act after the training.

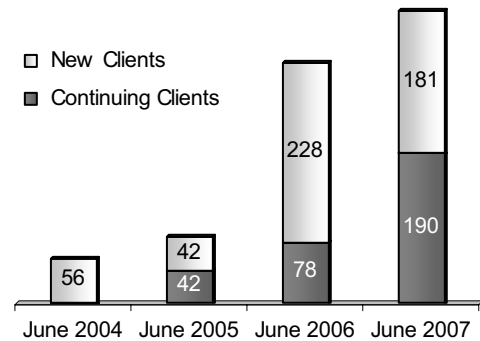
CAWST has now reached the stage where many small projects have started and will require support to scale up.

CAWST's implementer network is expanding and relationships with clients are getting stronger. All indications suggest that CAWST is having success in catalyzing HWT projects for the poor and is now prepared to take the next step.

Treatment Technologies Used by Implementers, Shown as a Percentage of Households Impacted

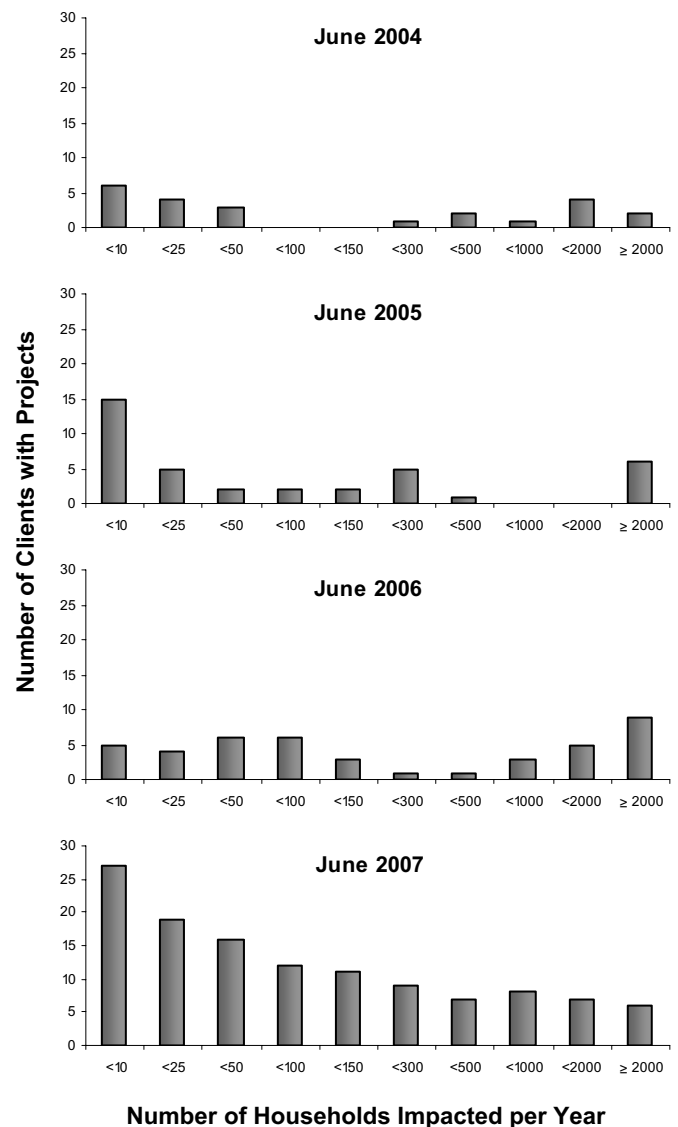


Active Clients: New & Continuing



Note: Active clients are those which use CAWST's services at least once in a given year.

Global Progression in Implementation: 2004 – 2007, Escalation in Number of Client Projects and Scale



The Next Step

“We would not be able to do what we do without internet communication and the wider availability of low cost air travel.”

– Camille Dow Baker, President & CEO,
CAWST

CAWST’s long term plan has always been to transfer training programs and project management expertise and practices to local training organizations, however, to date CAWST has focused on delivering direct training to motivate implementing organizations to act.

The next step is to support five local organizations who are capable and motivated to fulfill the direct training and consultation role. These local centres of expertise in water and sanitation include: Development of Humane Action (DHAN) Foundation in India, Environment and Public Health Organization (ENPHO) in Nepal, Seeds of Hope International Partnerships (SHIP) in Zambia, A Single Drop for Safe Water (ASDSW) in the Philippines and Programme d’Appui aux Initiatives du Développement

Humain (PAIDEH) in Haiti. This is a critical step in CAWST’s long term strategy for sustainability, efficiency and effectiveness.

CAWST will:

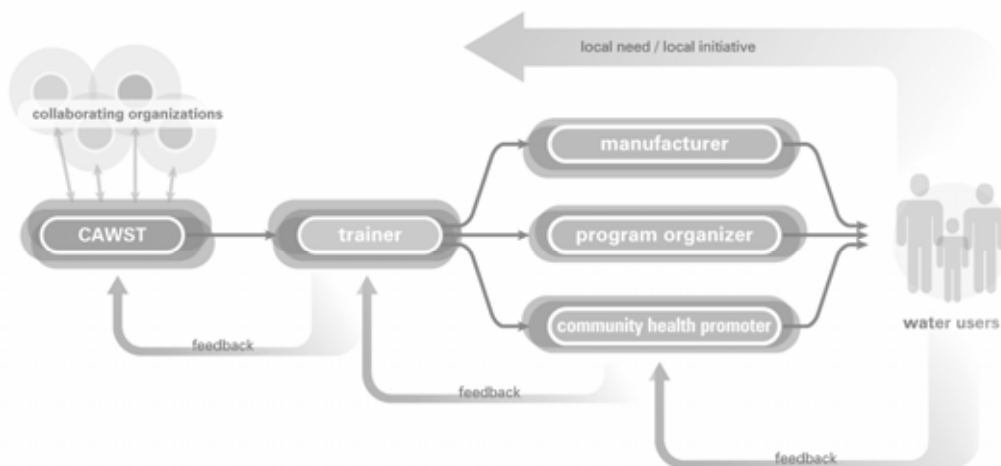
- Slowly shift its focus to helping develop local centres of expertise in water and sanitation and enhancing their ability to provide services, employing strategies and governance practices similar to CAWST.
- Continue to promote HWT globally. CAWST plans to expand its client base and deliver services required to implement HWT, such as training in community health promotion, product manufacturing, project planning, monitoring, evaluation and water quality testing.
- Focus on helping clients to remove barriers to implementation, particularly, consulting support for obtaining funding; project planning; advice and capacity building on technical issues; and sharing of best practices.

Expected Impact: 24 Million People

The impact of CAWST’s efforts around the world greatly depend on the number, size and scope of projects planned by existing implementers; the number of new clients directly reached by CAWST; and the number of new implementers reached by the local centres of expertise under development.

Given these factors and current projections based on CAWST’s growth plans, the global network of HWT implementers will impact an estimated 24 million people with improved water by 2015.

CAWST Technology Transfer Model



Clients

CAWST is a non-profit engineering consultancy, providing services to client organizations which enable them to take independent action.

CAWST has a permit to practice from the Association Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA).

An active client is an organization or individual who has had contact with CAWST in the last year to receive services or advice and is planning or implementing a project; or uses CAWST's training materials to train others. CAWST divides its clients into five major segments. These groups are different from one another, in terms of the services they request from CAWST, the rate of program implementation and the communication channels which CAWST uses to connect with them.

Clients are:

Indigenous Organizations: NGOs, for-profit organizations, community groups and research institutions initiated in-country and operated by local people.

Non-indigenous Organizations: NGOs, for-profit organizations and community groups based in-country but were initiated by and have strong funding connections to organizations based in a developed country.

Organizations Based in a Developed Country: primarily individuals, service clubs, NGOs and faith-based

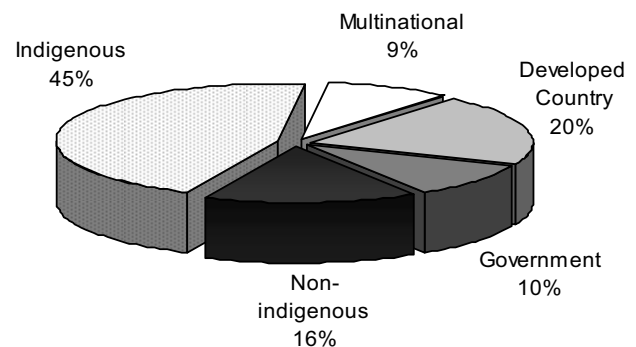
groups headquartered in developed countries. These organizations do not have a permanent presence in a developing country but spend several months each year managing projects in-country.

Multinational Organizations: large NGOs and agencies with numerous bases of operation in multiple developing countries. These organizations have a permanent presence in all countries and project management is often coordinated locally.

Government Agencies: including local Ministries of Health or Ministries of Rural Development.

Government clients have increased over the past year, including at a national level, the Institute for Water and Environmental Health (Lao PDR), the Institute of Hygiene and Public Health (Vietnam) and the National Institute of Health Sciences (Sri Lanka); and local district governments in Bolivia.

Client Segmentation



"I feel that I was a part of something that in the future will have far-reaching benefits for the people of Equatorial Guinea. This project brought together for the first time many of the NGOs that had previously worked independently and allowed them to work together, share ideas and focus on a solution to a problem of great concern to all – access to clean water."

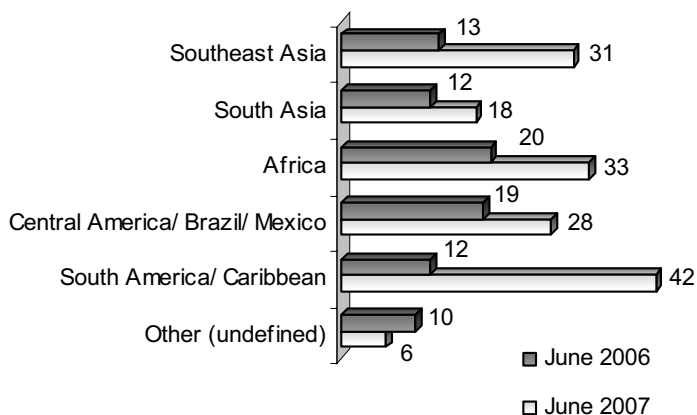
– Henny King, volunteer community mobilizer, Equatorial Guinea

Results: Key Performance Indicators

The following six Key Performance Indicators (KPIs) measure the ongoing performance of CAWST and its global network. They are compiled from Audited Financial Statements and CAWST's survey on household water treatment implementation completed by the global client network. The survey also provides CAWST with information on implementation barriers and what clients need to help them eliminate these barriers.

For KPIs 1 through 4, CAWST uses cumulative totals. Organizations that responded to the survey in previous years and did not respond in 2007 have been included in the cumulative total. In 2007, 158 organizations working in 36 countries responded to the survey, almost double the respondents from 2006.

Survey Respondents, 2006 and 2007

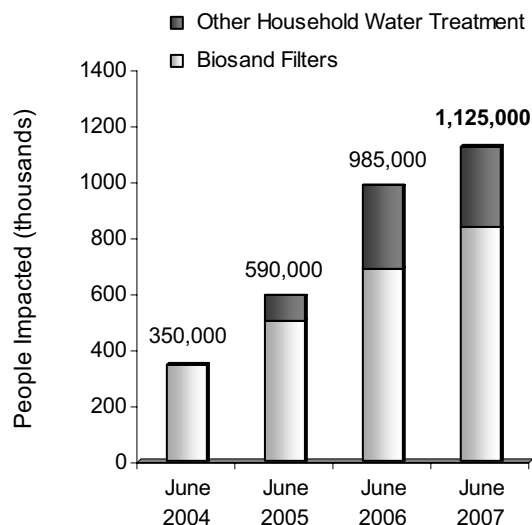


1. Number of People Impacted

1,125,000 people have access to improved water as a result of the efforts of the network of implementers accessing services from CAWST. This is a 14% increase since last year, which is lower than the 60% growth between June 2005—June 2006. This diminished growth is the result of three factors. First, CAWST relies on implementers to respond to the survey. One of the major implementers that responded in previous years did not respond in 2007. Secondly, some of the growth in 2006 was the result of clients reporting on treatment methods other than

the biosand filter, including solar disinfection, chlorination and ceramic filters. Thirdly, many of these household water treatment methods have lower year-over-year retention rates than the biosand filter. CAWST uses published studies to calculate the retention rate for each household water treatment method, thereby reducing the cumulative impact carried forward to 2007.

While the cumulative impact of CAWST's network is significant, it is also very likely understated due to the challenges of obtaining data through many layers and networks of implementing organizations.

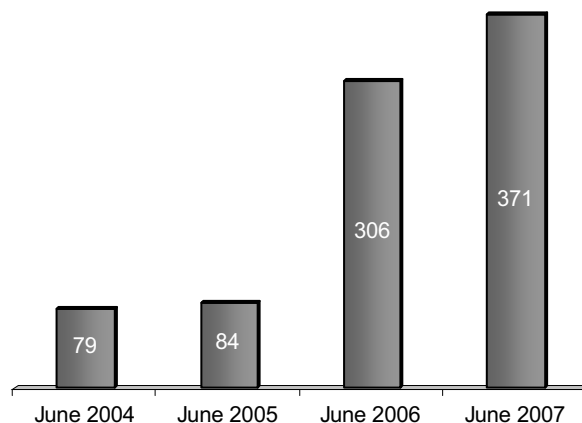


Results: Key Performance Indicators

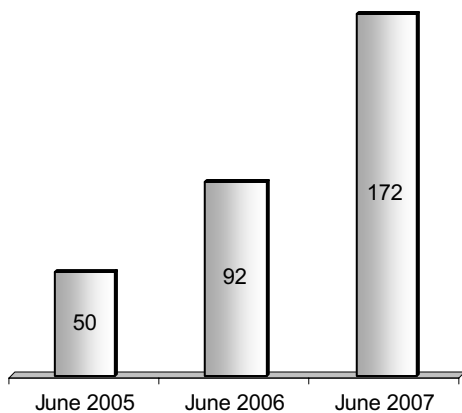
2. Number of Active Clients

The number of active CAWST clients grew 21% over 2006. (See definition of “client” on page 8.) More importantly, the number of clients implementing projects almost doubled to 172; up from 92 in 2006. This reflects CAWST’s ability to attract clients capable of taking action following the training, and CAWST’s focus on follow-up and ongoing client support over the past year. Also, the number of organizations using our training materials to train others is doubling annually.

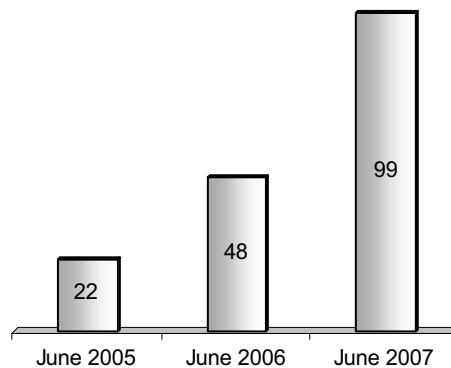
Number of Active Clients, Total



Number of Clients Implementing Projects



Organizations Using CAWST Materials to Train Others

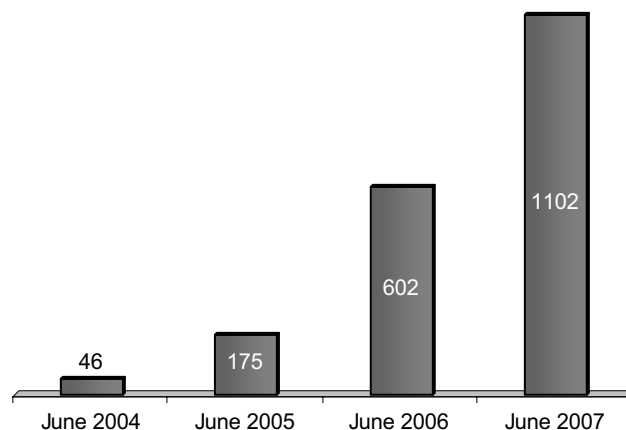


A family with their new biosand filter in Namibia

3. Community-based Organizations Working with Clients

Many clients do not work directly in the community every day themselves. They train and support smaller community based organizations (CBOs) to implement and monitor the water and sanitation programs. CBOs are typically indigenous community groups that are instrumental in community outreach as promoters, educators, leaders and program facilitators in water and sanitation. The number of CBOs working with CAWST's clients increased 83% since 2006. This total is under-reported because a number of established implementers that collectively reported hundreds of CBOs in 2006 did not quantify the number in 2007, and consequently were not counted.

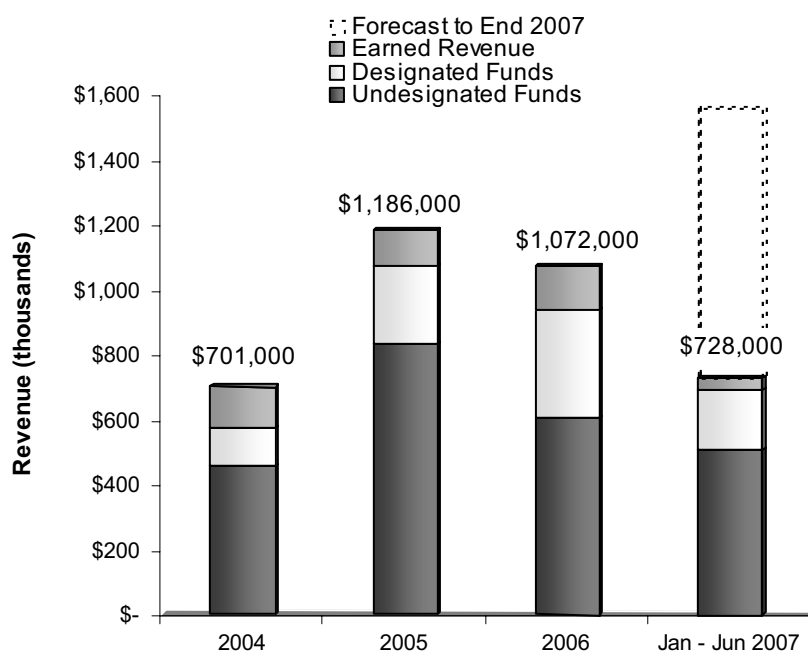
Number of Community-based Organizations



4. Revenue

There was a 10% decline in revenue received in 2006 compared to 2005, from \$1.19 million to \$1.07 million. This is due primarily to a shift by CAWST's initial major donors from large, one-time gifts to investments spread over multiple years. This was partially offset by an in-

crease in designated funding from the Canadian International Development Agency (CIDA) and a larger base of smaller donations. Also, future funding commitments have increased. Committed funds for the second half of 2007 to 2010 total approximately \$800,000.

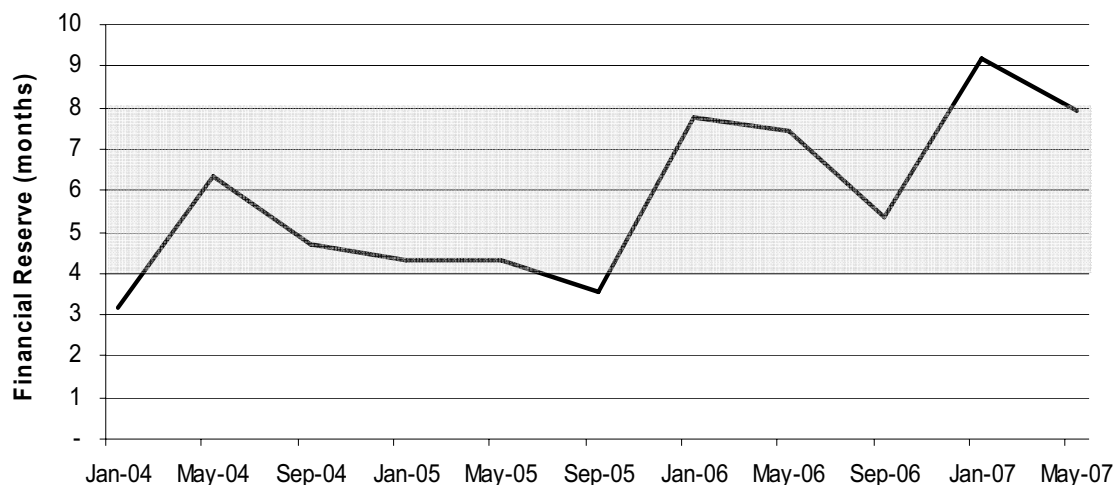


Notes: 2007 represents January to June actuals and a forecast for July to December. Undesignated funds are those not specified by the donor to be allocated to a specific project. Designated funds are those allocated to certain projects. Earned revenue includes invoiced project consulting and training course fees. All figures are reported in Canadian Dollars.

Results: Key Performance Indicators

5. Financial Reserve

CAWST monitors its financial viability by keeping track of the length of time that its current cash reserves would last given current monthly expenditures. From January 2005 to June 2007, CAWST maintained financial reserves between 4 and 8 months of expected future monthly expenses.

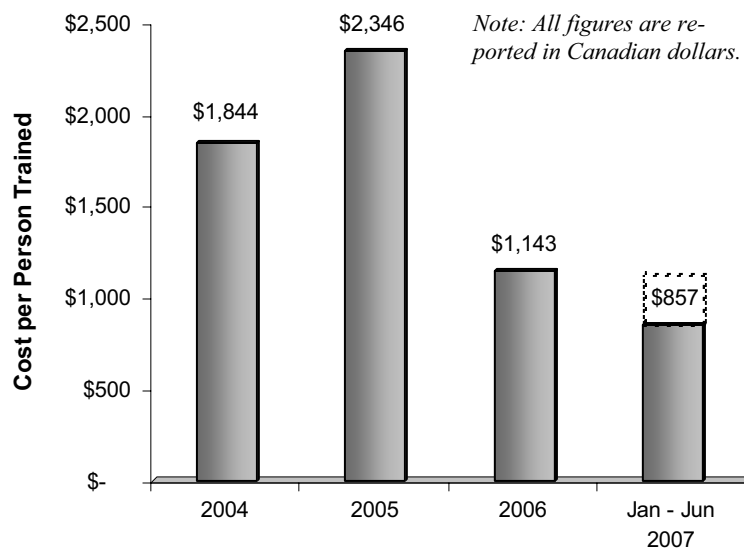


6. Cost per Person Trained

The cost per person trained in 2006 was \$1,143, which is less than half the cost in 2005. It is expected that this cost will be approximately the same by the end of 2007. This sustained efficiency is the result of CAWST's development of:

- A strong complement of International Technical Advisors proficient at delivering CAWST's services;
- Relationships with established host organizations that are able to manage all in-country logistics;
- Systems and processes to streamline training preparation and follow-up; and
- Funds needed to immediately respond to training requests.

As a result, CAWST delivered more international training and therefore recorded more people trained.



Sudan, Canada and Uganda collaborate to help Sudanese refugees

Client: Enviro-Stewards Inc.

Sudan has spent the last 20 years at war. Most people in south Sudan are “Internally Displaced People” (IDP) and live in camps in Uganda and Kenya. After a peace treaty in 2005, people from the IDP camps are returning to south Sudan. They want to be “home” but are not going back to their original villages because of the trauma associated with those villages. New communities like Wudu have sprouted up, with no infrastructure whatsoever to support the needs of the community. The people survive on hope of a better life.

“In January 2004, we noticed that the widows from an orphanage in Wudu were walking three miles to fetch water for the orphans from a borehole well,” says Bruce Taylor, Enviro-Stewards Inc. “So Enviro-Stewards donated a biosand filter to treat water from a small stream located adjacent to the orphanage.”

By January 2006, the orphanage was filled to capacity and a group from the local church asked Enviro-Stewards for help learning how to construct the biosand filter. “We contacted CAWST to see how to get started,” says Bruce.

CAWST provided training to 17 Sudanese villagers in February 2007, and since then there has been much collaboration for the initial start-up of a project. Two Sudanese technicians were trained for an additional two months by a Canadian NGO, Africa Community Technical Service (ACTS) in Southern Uganda. And, another Ugandan project “Connect Africa” has provided the first working mold and ongoing technical support.

Enviro-Stewards has also engaged other Sudanese organizations to provide project support. JBP Mechanical Technologies trained two Sudanese people on welding the molds needed for constructing the filters. Enviro-Stewards donated a solar powered laboratory and Veolia Water trained two people how to test the microbiological quality of water. These individuals have been retained to test the quality of every drinking water source in Kajo Keji county.

“Thank you for your assistance launching this program. The training provided was outstanding,” says Bruce. “We look forward to providing our indigenous staff with the next level of training so that they can train others themselves.”



With the \$14,000 raised through fundraisers hosted by Calgary churches and schools, CAWST will be providing additional training and consulting in Sudan in 2007, both for the original Sudanese students and other organizations working in water and sanitation

Pakistani governments support Household Water Treatment programs

Client: Koshish Welfare Society, Sialkot, Pakistan

Following is an excerpt from an interview CAWST held with Arshad Baryar, Director, Koshish

There were many problems with water quality in the villages. We contacted South Asia Partnership (SAP) for information on water treatment, and were invited to an SAP-hosted CAWST workshop on household water treatment (HWT). After the workshop Koshish built five demonstra-

tion filters in the village of Khanawali. Staff of the Ministry of Social Welfare saw the filters and contacted Koshish for further information. After discussions, the ministry then gave Koshish a grant of 100,000Rps to implement a pilot project. The ministry also held a workshop on HWT and the biosand filter for donors and other organizations, which generated a lot of interest and publicity. The National Rural Support Program and Federal



Gravel-washing at a Koshish workshop; Koshish plans to provide biosand filters to the whole population of Punjab in Pakistan

Minister Jahangir Tareen also supported Koshish in developing and installing larger filters to be used for community supply in areas of Lodhran.

Koshish then co-facilitated training workshops with CAWST in Karachi and Mithi, and installed filters in Vehari and Islamabad at the request of another organization. Within the government and the different actors, awareness of the filters continued to grow and support was given by the communities and different political players. Further small grants were received from different sources, and Saba Sabiq, Special Advisor to the Chief Minister of Punjab, visited the project and gave moral and financial support.

The CAWST model and methodology has been closely followed. The only differences have been modifying the filter to use ready-made concrete pipes for the filter body; introducing community-sized filters; and involving the political leadership of the Province of Punjab, Federal Government, and the local leaders.

The first five filters were built with Koshish money. Subsequently financing was received from different sources, usually for specific projects, which has also covered the administrative and operating costs associated with the filters. Filters are now 2/3 subsidized with the actual cost of the filters varying from 1,500 to 2,000Rps.

Raising awareness is very important, as health perception and knowledge of health issues is extremely low in some communities. There is some resistance to change, but acceptance is good as people are very satisfied and perceive that the water quality has

improved a lot. Sustainability is also good as people are consistently using the filters. Requests continue to pour in, but we need to limit our response to what can be managed effectively.

Another major challenge is to decide how to deal with the questioning of the effectiveness of the filters by other organizations. We need to decide whether or not to tackle this head on by running more controlled testing of water quality.

Our long term objective is to cover the whole population of Punjab; 40 districts out of the 110 districts of Pakistan suffer acute problems with water supply and/or quality. We need to reach all

The Koshish Approach to Community Engagement

Our first step into the community is to meet with the supervisor of the village health workers at the Union Council level. Each Union Council usually comprises 20-25 villages and each village has 1-3 female health workers. Training is provided for the female health workers in each village, and an agreement is made that the health workers will receive a biosand filter free of charge in exchange for promoting the technology, facilitating the installation of at least 20 filters, training the users and following up on the operation and maintenance of installed filters in the village. Users receive a guide to assist them in maintenance and troubleshooting. Health workers and a technical person, usually a mason, also assist if problems arise. As a last resort, there is a telephone "hotline" that users can use to call Koshish for advice and assistance. If necessary a Koshish staff member will visit and fix the problem.

of them. We will concentrate on the villages in our area and, at the same time, we will train civil society organizations working in other areas to disseminate the technology and reach the other districts. We also plan to investigate how to start business-based dissemination through entrepreneurs constructing and installing filters.

Youth in action: Lyndsey Rosevear

Client: Youth in Action, Nicaragua

Lyndsey Rosevear ... fire service worker, masters student in Peace and Conflict studies and Co-Executive Director of Project Nicaragua for the University of Calgary Rotaract Club. It was this last role that brought her to CAWST.

“Water is a basic human right. Every individual deserves the access to clean and affordable drinking water,” she says. Lyndsey was first introduced to CAWST in Nicaragua in 2005 where she met David Gullette, whose NGO (Newton Sister City Project) had training from CAWST. Back in Canada she took the Program Implementer for the Biosand Filter Workshop with CAWST and after many late nights of brainstorming, the seed for Project Nicaragua was planted.

“By introducing composting toilets, water filters and economic stoves Project Nicaragua will try to eliminate as many health and sanitation problems as possible,” says Lyndsey. The successful project recently won Rotary International’s 2007 Outstanding Project of the Year Award.

“I am really excited to be part of this and hope CAWST is excited to have been a huge part of our successes,” she says. “CAWST’s training is an integral part of any successful filter project. They brilliantly teach the tools for those wanting to change the world’s water situation.”

Her advice to other people wanting to get involved, “Reach out to those that have done it before. The biggest thing that I have learned is not to do it all yourself.”



Lyndsey Rosevear delivering training in Nicaragua has advice for others wanting to get involved: “Make a difference in ONE person’s life and inspire others to do the same.”

Unique partnership removes implementation barrier

Clients: Rotary La Paz Miraflores and Rotary Club of Cochabamba, Bolivia

A unique collaboration between four Rotary Clubs in Canada and Bolivia, a Canadian company, and a number of indigenous Bolivian NGOs became the catalyst for an innovative biosand filter implementation start-up strategy, known as the “mold library”.

The biggest challenge for indigenous groups wanting to start a biosand filter project is the cost of materials, tools and steel molds for production. One mold can cost upwards of \$300 US, even when local labour is used for fabrication. CAWST’s International Technical Advisor, Diana Frost, found a solution by connecting her local Rotary Club partners in Edmonton, Canada to Rotary representatives in Bolivia who could manage a small project start-up fund.

CAWST delivered its first two workshops in the cities of La Paz and Cochabamba, hosted by CECI-Uniterra, the Rotary Club of La Paz Miraflores, and the Universidad Mayor de San Simon’s Centro de Agua y Saneamiento Ambiental (UMSS-CASA). The molds used in the workshops were then donated to the local Rotary Clubs (La Paz Mira-

flores and Cochabamba) to loan out to trainees as they began their pilot projects.

Funding provided by Rotarians from the Canadian company AON was used to establish this “mold library” consisting of the four sets of molds and equipment. Bolivian NGOs could then borrow them for their pilot projects. The goal was to share resources and stimulate demand for filters without

the typical delays associated with capital acquisition.

The program has been hugely successful, with eight organizations submitting applications to borrow the molds in the first year.

In total 150 filters were implemented in households

and schools. Many of the participating NGOs now have their own molds and are planning to scale up production in 2007 and 2008.

What makes the Bolivia program so special is how quickly a large number of small projects got started thanks to the involvement of Canadian and Bolivian Rotary Clubs.

– Diana Frost, CAWST

Rotary involvement, north and south, has been pivotal to removing implementation barriers for CAWST’s clients in Bolivia



Rotarians creating examples of how to reach beyond borders

Client: South Asia Pure Water Initiative Inc., India

South Asia Pure Water Initiative, Inc. (SAPWI) was started by a husband and wife team, Mike Lipman and Cathy Forsberg, both certified public accountants from the U.S. Mike was trained in biosand filter implementation through CAWST in 2005 and, with a start-up grant from a foundation in Connecticut, established a small biosand filter factory in Kolar, Karnataka, India less than a year later. The filters have had an overwhelming initial acceptance in the Kolar region of India and since November 2005 approximately 1,500 filters have been installed.

“We have a great product that is the nexus of our success but the real magic is creating a program that gets the filters into the hands of poor rural villagers and schools,” says Mike. “This is where relationships and partnerships are essential.”

Their connection with Rotary has brought them in touch with the area’s leading citizens. “We now have a network of influential people in south India who know all about the biosand filter and our programs. Most of these leaders have filters in their homes and know first-hand the benefits to be derived from using filtered water.”

Over time these influential users have become SAPWI’s biggest promoters. The local Rural Development Director has been instrumental in approaching village “Self-Help Groups” to adopt the filter technology and a local bank Vice-President has supported the project by making micro-financing available to villagers interested in the filters.

Back in the U.S., SAPWI brainstormed with a local water committee to create the “Adopt-A-Village Partnership” concept to make it easy and very personal for local civic or church groups and individuals to make a tremendous impact on the health and well being of an Indian village.

“The Adopt-A-Village Partnership is a package program that delivers up to 90 household filters to the most needy people in the village,” says Mike. “It also includes filters for village schools and early childhood learning centers so the kids can have clean water at home and at school. We pro-

vide a hygiene and sanitation educational program and train a ‘Community Steward’ from the village to help the villagers use the filters properly. To encourage hand washing, each child in the village gets a bar of soap.”

Key Learnings

The educational portion of SAPWI’s program is very important. It is as important as manufacturing a good filter and will be a point of emphasis going forward with our project.

SAPWI has developed user manuals in several languages. However, with illiteracy rates of 70% in the target population, they have to use other methods to get the message to them. One of those methods is to hire a troop of singers and actors to conduct a cultural event in the village. They sing songs and put on skits that emphasize good hygiene and clean water.

“The ‘Community Stewards’ are a focal point for disseminating clean water information to the villages. We conduct monthly meetings for the stewards and bring in health professionals to speak on sanitation and hygiene topics,” says Mike. “All this information is brought back to the villages and transferred to the filter users.”

A joint effort with Rotary District 7980 in southern Connecticut to finance over 1,000 filters for 411 schools and 120,000 children in Kolar District and a similar program for schools in the Bangalore area involving 500 filters with financing from the Rotary District Governor in Bangalore are among SAPWI's successes.

"We have surpassed our wildest dreams with this project which has at times left us breathless," says

Mike. "We are now actively seeking partners in India and around the world to expand the biosand filter project throughout India. As individuals, we do not have the capacity to fundraise to support more workshops like ours. However, there are NGOs in India and around the world that can support workshops using our success as a template for their own project."



Mike Lipman (second from left) with some of the staff of SAPWI in India

School profile: Hillhurst Community School

School Partner, Canada

Hillhurst Community School reflects the power of school spirit.

“Many people are ignoring water issues and if we don’t take action upon it, it will continue to get worse,” says a student from the school. Hillhurst’s grade 4, 5 and 6 students ran a fundraiser to send CAWST to Namibia in 2006 to provide training to local people on the implementation of biosand filters.

The students chose CAWST’s program in Namibia because, according to the school, “It is based on sustainability and access to basic education for children in developing countries.”

Hillhurst got involved in 2006 after CAWST was invited to present at the school. Since then, they have hosted many events to raise awareness, including a long-distance conference call with CAWST staff all the way from Namibia. Students also learned the science and construction of the biosand filter and created original art work for CAWST’s Open House art auction.

“The water filtration systems will have a massive impact,” says one student. “It will lead to more income and more developing and those people ... will live easier lives and be happy, and that’s the main goal we are trying hard to achieve.”



Hillhurst students learn more about household water treatment from Tal Woolsey, International Technical Advisor

Volunteer Profile: Mahbuba Khanam

Community Partner and Volunteer, Canada/Bangladesh

In 2005, Mahbuba Khanam, a Registered Social Worker in eastern Canada, heard about the biosand filter. Shortly after, she met CAWST's President & CEO, Camille Dow Baker.

"As I learned more about biosand filter I found some possible answers to the water issues of Bangladesh where people have been dealing with pathogens, iron and arsenic," says Mahbuba. "I support CAWST because the organization has been transferring the skills and technologies with a goal to benefit poor communities around the world."

Mahbuba is now a very dedicated volunteer translator, interpreter and training assistant at workshops conducted this past year in Bangladesh. As a Bangladeshi Canadian, she understands both cultures, speaks both languages and can bring both perspectives to her volunteering. "It's a great advantage to have somebody with such experience helping us," says Rachel Peletz, International Technical Advisor. "Her con-

nections are also helping CAWST reach more people within the region."

Mahbuba's advice for others: "Make people informed and conscious about water issues. Possible solutions to this grave situation are available. Find out what expertise and technologies exist. Let's get connected and share ideas and support people who are working in the field. This is a global issue. We will have to save ourselves and generations ahead of us or else we would be held accountable for not being advocates of a universal human right."

Mahbuba Khanam applied her deep understanding of local culture and language and knowledge of household water treatment to her work as a volunteer Training Assistant in Bangladesh



Program to reach 14 provinces across Lao PDR

Client: Nam Saat, Center for Environmental Health and Water Supply, Ministry of Health, Lao PDR

Nam Saat is at the start of delivering one of the first government-led household water treatment programs in the world. Their three-year program seeks to introduce household water treatment options to rural people in 14 provinces of Lao PDR, using Nam Saat's existing "community dialogue" approach. This approach involves meeting with the community; identifying best practices in water, sanitation and hygiene; presenting technology options; and letting people choose what is most appropriate for their own needs. The entire program takes advantage of the spirit and willingness towards collaboration among Lao orga-

In 2006, the World Health Organization's (WHO) Southeast Asia office helped CAWST to introduce Household Water Treatment (HWT) to health agencies in Lao PDR and Vietnam by arranging introductory meetings in Lao PDR and facilitating the hosting of one day HWT seminars in Vietnam. This has resulted in the formulation of HWT pilot projects by health agencies in both countries.

nizations. Projects will be completed by a combination of NGOs, government agencies and the private sector.

CAWST's assistance to Nam Saat included technical training on the various technologies; support in project planning,

proposal writing and securing funding; and consultation on project monitoring and evaluation. Initial funding for implementation came from UNICEF.

Included in the three-year program is the development and implementation of a nationwide monitoring program for household water treatment.

Nam Saat's monitoring program is based on recommendations from the WHO's Guidelines for Drinking Water Quality which recommend that focus should be directed towards operational monitoring (checking all procedures between the water source and transportation, treatment, storage) supported by periodic verification using water testing.

CAWST's work in Lao PDR and other countries of southeast Asia has been strongly supported by the Canadian International Development Agency (CIDA) and Trident Exploration Corporation Youth (TEC-Y).



Training workshop in Lao PDR that is part of Nam Saat's plan to bring household water treatment options to 14 provinces

Meeting at the World Water Forum in Mexico leads to collaboration in Bangladesh

Client: LEDARS, Bangladesh

Mohon Kumar Mondal, Executive Director of LEDARS (the Local Environment Development and Agricultural Research Society) and Shauna Curry, CAWST's Director of International Services first met in 2006 while accepting awards at the 4th World Water Forum in Mexico City as Top 10 Finalists for the Kyoto World Water Grand Prize.

The meeting was timely as Mohon was looking for solutions to their communities' water issues and CAWST was seeking new partners in Bangladesh. More than 28 million Bangladeshis drink arsenic contaminated water. In 2006 and 2007 LEDARS participated in arsenic mitigation seminars presented by Tommy Ngai, CAWST's Research Associate, in Nepal and Bangladesh.

LEDARS agreed to partner with the Massachusetts Institute of Technology (MIT) and CAWST to apply for certification of the Kanchan Arsenic Filter within the Bangladesh Environment Technology Verification – Arsenic Mitigation (BETV-AM) process.

Although technology approvals were not expected until late 2008 or early 2009, Mohon was eager to train his staff and

involve local partners so that the project could hit the ground running when approval of the Kanchan Arsenic Filter, an adaptation of the biosand filter, was received. As such, LEDARS hosted a CAWST training workshop in southwest Bangladesh in April 2007.

LEDARS plans to develop a training centre while working with CAWST to increase staff proficiency in training. In the long term LEDARS hopes to provide more workshops, seminars and demonstration projects on household water treatment and arsenic removal technology options.



LEDARS training “graduates” will play an important role bringing the Kanchan Arsenic Filter to Bangladesh

Making headway in Haiti

Client: Clean Water for Haiti, Haiti

Following is an excerpt from a letter written by Chris and Leslie Rolling, Executive Directors, Clean Water for Haiti

Clean Water for Haiti (CWH) was founded by Tal and Adele Woolsey in 2001 as a faith based humanitarian mission. After taking Biosand Filter Technician training through CAWST in Calgary, Tal and Adele moved to Haiti to start implementing the technology. Initially CWH installed filters in schools, orphanages and churches. In these institutions filters were made available to multiple users. But over time it became apparent that community systems do not work well in Haiti because no one individual wants to take responsibility for the filter. We began to focus on households and started seeing better results. Each household is responsible for filter maintenance and proper usage, and it is easier to facilitate sanitation and hygiene education to a smaller group.

Through Rotary grants and other large donations we were able to start a subsidized filter program. At start up, we gave the filters away, but because there was no personal investment the filters were not valued and often fell into disrepair or were not used. We now charge approximately \$5 US to recipients and have found this to be a key factor in the success of our program. The amount charged in no way

covers the cost of the filter, but it gives recipients a sense that they are doing something to improve their own health rather than waiting for foreigners to do it for them.

Our greatest challenge at this point on a project level is to follow up on all of the filters that have been installed. We need to visit them again and ensure that users have proper user education. Because our program has grown fairly quickly in a short period of time – over 6,000 filters in a six

year period – we are now in the position of needing to focus more attention on following up on installed filters. We currently have 9 full time technicians and a full time educator, and have the capacity to be manufacturing up to 20 filters a day.

Aside from small changes based on our experience with materials and so on, we follow the CAWST's construction and installation procedures, have involved "Community Stewards" who support filter users, and we use

CAWST's education materials for follow up with users. Our training classes are based on the CAWST model with additional material that we have developed. Clean Water for Haiti also re-designed the original filter mold to reduce the size of the filter from 300 lbs finished to 160 lbs. The lighter size made delivering filters much easier and required less construction material.

Visible Health Improvements

We do not have the equipment, manpower or expertise to do water testing on filters that have been in the field for an extended period of time. But because there is extensive malnutrition due to water borne disease here, we are able to see visible improvements in the health of community members over time, especially in communities where a saturated installation has occurred, usually 50+ filters in a short period of time, within 6 months.

Clean Water for Haiti also runs a training school to train others to start filter programs. At start up we attempted to teach a small business model where Technicians would sell the filters in their communities at cost. We taught this model for two years and saw no successful businesses emerge from it. We are now encouraging community focused projects rather than the small business model. For several years many of the people that came for training were having a hard time starting successful projects. So we

added a Project Implementation section. Where we may have previously seen a 10-20% success rate after training we are now seeing about an 80% + success rate from our students. We also try to resource other projects by sharing experiences, as well as manufacturing and selling molds, diffusion plates and tubes for constructing the filters at cost.

Generally speaking, we measure the success of our project by the number of filters we are able to install and follow up on in any given year, and satisfaction level of the users. We try to set a goal of about 100 filters installed every month and are close to reaching that target consistently.

Haiti is a country in a state of insecurity. There is little infrastructure and consistency in how things work. It is challenging to work in those conditions but we are learning and adapting to the country. We are seeing an improvement in



Chris Rolling at Clean Water for Haiti's biosand filter manufacturing shop and training centre in Haiti

the state of the country from three years ago and things are slowly becoming easier.

We have become a leader in Haiti and have made it a goal to pass our knowledge on to others that are starting projects so that they might have a faster start up time and eliminate some of the problems that we encountered. We are excited to see the interest in the Biosand Filter spreading in Haiti. Through recent students we are now seeing filters installed in all of Haiti's prisons with support from the Humanitarian division of the United Nations.

Public Health Inspectors of Sri Lanka embrace biosand filter technology

Client: MA-International, Sri Lanka

In November 2006, Bryan Fofonoff, CAWST's International Technical Advisor, visited Sri Lanka for the first time on the invitation of MA-International (MAI), and conducted a Biosand Filter Project Implementer workshop at the National Institute of Health Sciences (NIHS). Twenty five participants trained under this workshop including Medical Officers of Health, Public Health Tutors and Public Health Inspectors (PHI).

"Mr. Fofonoff's presentation and training skills were so impressive, and effective enough to arouse an enormous interest among the participants, including the Director of NIHS and the Deputy Director of Field Services," says Susil Somasiri, President, MA-International.

"Having consulted with them at the end of the workshop, MAI committed itself to implementing a pilot project and to invite Mr. Fofonoff in six months to see the results."

As promised, a pilot project was implemented subsequently with Mr. P.D.C. Erandana and the Public Health Inspectors of Gamagoda, where filters are now in use in 30 households. "The householders seem to be extremely satisfied with the performance of their filters. It has made a significant change in the lives of the householders."

Working with NIHS, MAI again organized a series of workshops for three groups of Public Health Inspectors from the Matara, Galle, Kaluthara and Rathnapura districts and in May 2007 CAWST conducted three workshops to over 70 Public Health Inspectors, and one more workshop to 35 Engineers and Technical Officers of the Community Water Supply and Sanitation Project (CWSSP) representing a number of districts. Under Bryan's guidance, MAI also played a major role in delivering the workshops.

Community Acceptance

The householders seem to be extremely satisfied with the performance of their filters. It has made a significant change in the lives of the householders.

"What transpired at the project planning session was interesting. It was revealed that serious water contamination problems existed in the majority of PHI areas and CWSSP water schemes for which no

solutions have been found so far," says Susil.

"The participants saw the biosand filter as the only solution that they can easily adopt to provide affected communities with access to clean water. However, it was also revealed that there were many areas in Sri Lanka where excess fluorides are present in drinking water for which a proper solution needs to be developed."

Some PHI have already made arrangements to commence building filters using the few molds made available by CAWST for the workshops.

NIHS also has now given its consent to train all of the 2,000 inspectors working in the field, and it has incorporated the biosand filter into its training curriculum for new inspectors.

MAI is now exploring avenues available for funding. “Already we have been given a green light by a Swiss NGO to secure 15 molds to facilitate

construction of 2,000 filters in Matara district. We are committed to expanding this valuable project to millions of rural population all throughout Sri Lanka, and hoping to commence two other projects in the district of Galle and Kaluthara in the near future.”



Training workshop with MA-International in Sri Lanka, with financial support from the Canadian International Development Agency (CIDA) and Trident Exploration Corporation Youth (TEC-Y) group, which has been pivotal to CAWST's entry into the region

Asociación Agua Viva starts small, aims big

Client: Asociación Agua Viva, El Salvador

Following are excerpts from a letter written by René Martínez, Director, Biosand Filter Program, Asociación Agua Viva (now Living Water International)

I was initially trained in biosand filter production by Samaritan's Purse in Nicaragua. With initial financial support from Samaritan's Purse, Canada, I returned to El Salvador and started by training two people in filter construction. We did our first installation in a community called Hacienda Astoria, a short distance from our workshop. One of our main sources of motivation happened when we saw how the filter removed the suspended solids. We started reading up more on the method and figured out all of the construction and material preparation.

We have since switched from centralized construction to community construction, where the users come and build their own filter, as well as prepare their filtration media. This allows us to remain in the community for the period necessary to have community involvement. CAWST's main contribution to the program since I met Andrea Roach [International Technical Advisor] in 2005 is its education manuals. We appreciate that they are adapted to work with any population segment, and that adds value to our actions. The construction

method has not changed since the first training but we have reinforced the way we prepare our materials, and we involve users more by discussing problems and solutions with the community so that they will appreciate the filter.

Everything has been a school for us since three years ago. We didn't know the different ways of treating water, which we know now because of CAWST. We consider the biosand filter the most appropriate option for the reality of El Salvador.

The Impact

There is no way of measuring the economic impact for the family but they are sure that something has changed. The people get sick less, don't need to buy bottled water and are using their own sources of water.

I think that the CAWST technology transfer model is right. The biggest challenge to overcome was always the education part, because the bigger the program gets, more effort and resources are needed.

Every year Asociación Agua Viva has installed

more filters than the year before and we expect the program to grow exponentially in the future. What started out as a small Salvadoran organization, Asociación Agua Viva has now incorporated into Houston-based Living Water International and the networking that resulted from our involvement with biosand filtration at that first CAWST-sponsored training promises to bear fruit in other Living Water operations.

What Makes CAWST Different

CAWST is unique; its grassroots approach to mobilization through water literacy differentiates the organization from almost all other international actors in the field. CAWST, however, has commonalities with other types of organizations that provide services and support in water and sanitation for the poor in developing countries.

With International Service NGOs like the Red Cross and Plan International, CAWST shares the same humanitarian drive, global presence and is largely funded by the public in developed countries. CAWST is different in that its service provision is specifically for water and sanitation and is directed to other organizations (NGOs and government), whereas other International Service NGOs provide services which are generally directed to communities for a broad range of community development activities.

With International Centres of Excellence, specific to water and sanitation in developing countries, such as the IRC International Water and Sanitation Centre in the Netherlands, the UNESCO-IHE Institute for Water Education and the Water Engineering and Development Centre (WEDC) in the UK, CAWST shares many similarities in types of services provided. However, CAWST differs from them in the following ways:

- CAWST's training is aimed at generating "water literacy" in the average citizen whereas these institutes are targeted to professionals working in the water and sanitation sector;
- CAWST proactively seeks out clients who are able to apply the training and sends trainers to diverse and often remote locations to deliver the training directly to the people;



It's "all hands on deck" for a community education program in the Philippines delivered with A Single Drop for Safe Water

What Makes CAWST Different

- CAWST provides continuous services, keeping in contact with organizations it has trained, and helping them overcome barriers to implementation;
- CAWST's success is measured in terms of numbers of people with improved water and sanitation;
- Capacity building is directed at specific activities required for successful and replicable implementation of water and sanitation programs;
- CAWST focuses on services for water and sanitation implementers, not policy developers; and
- CAWST encourages and supports universities and others to conduct research that would be useful to CAWST's clients, not on conducting research projects directly.

With International Promoters of Low Cost or Appropriate Technologies like Practical Action and International Development Enterprises (IDE), CAWST shares a focus on water and on the implementation of appropriate technologies. CAWST differs, in that almost all resources are devoted to the transfer of technologies to others on a broad scale.

With Promoters of Household Water Treatment like the World Health Organization (WHO) Network to Promote Household Water Treatment and Safe Storage, the Centers for Disease Control (CDC), Eawag-Sandec, Switzerland, and Procter and Gamble, CAWST shares the belief that household water treatment is a viable solution for providing clean water to the poor. CAWST's approach, however, is to share knowledge to stimulate demand for options as compared to direct marketing of specific products or technologies or to direct involvement in pilot or demonstration projects.

With United Nations Agencies, like UNICEF, the WHO and UN Habitat, CAWST shares a belief in the importance of clean water for human development and poverty alleviation, and have acted as intermediaries for the introduction of household water treatment to different countries. However, the entry points to countries for UN organizations are primarily at the central government level whereas CAWST has initiated activities in countries at many levels: local government, national government, national NGOs, community NGOs and individuals.

In summary, CAWST's approach differentiates the organization from almost all other international actors in the field.

“Collaborating with CAWST has proven to be a very valuable experience. I was immediately impressed by an approach that transfers contextually meaningful technology into the hands of local actors, alongside information and exercises that build their capacity as well as acknowledge their existing capacity to implement it.”

– Curtis Stefaniuk, Skill Links for Self Employment Project, Namibia



*"I'd like to say, again,
thank you for a terrific
seminar! You certainly
know your stuff, and you
present it in a way that
makes learning, as a stu-
dent, quite easy. Well
done!!"*

Gregory A. Beard,
Alumni

*Pictured, left, participatory
training workshop in Equatorial
Guinea*

Plans 2007–08

“The objective which CAWST pursues is laudable. I participated in two workshops with Andrea, and I became enthused with the biosand filter and its results. I manufactured a few and then trained some people to use them. Two people who were working in the construction decided to dedicate themselves full-time to making filters.”

– Jesús Antonio Cuéllar Jiménez, Soleil Énergie Éternelle, Mexico

CAWST has defined its core areas of activities to better reflect the responsibilities and activities for each area.

International Services is responsible for training and consulting services internationally and in Canada, including identifying new clients, liaising with governments, donors and partners in country; sharing best practices among clients; and developing promising clients into centres of expertise;

Education Program Development is responsible for developing CAWST’s education programs and materials.

Research Learnings includes monitoring and encouraging new research through direct interaction with researchers, and condensing and analyzing applicable research findings for use by CAWST staff and clients;

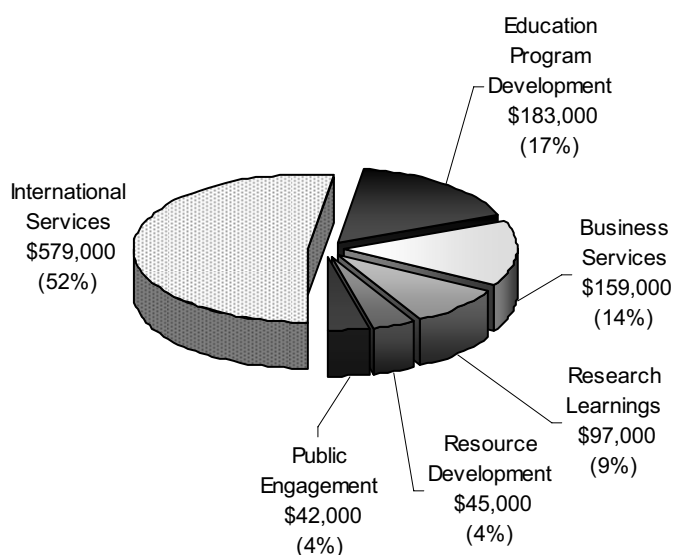
Public Engagement is responsible for activities directed at informing and motivating public action in water and sanitation;

Resource Development is responsible for generating the financial and volunteer resources needed to sustain the organization; and

Business Services is responsible for accounting, information technology and general office management, and ensuring that the organization conducts itself in accordance with the governance processes set by the board.

Allocation of resources among each of CAWST’s core areas was roughly the same as 2005 to 2006, with approximately 80% of resources going to direct service delivery, education program development and encouraging and disseminating research.

Resource Allocation, 2006



The Business Services allocation was overstated in 2006 because of incorrect time allocations. This was corrected in 2007

International Services

CAWST's focus will slowly shift from direct delivery of training to implementing organizations, toward assisting the development of centres of expertise in water and sanitation and delivering services through them. Over the next year, CAWST expects that 40% of its services will be directed to the centres of expertise, 50% to direct training of implementers and trainers that CAWST believes have a high potential for impact, and 10% to current commitments and funded projects.

Geographically, 57% of International Services time will be spent in Asia; 22% in Latin America; 17% in Africa; and 4% in North America.

Education Program Development

The main priorities for this department are to:

- Continue to develop technical specifications and recommendations on the biosand filter production and use, including sand media preparation, optimum flow rates and other operating conditions; and communicate these recommendations broadly across the CAWST network;

"I cannot say enough positive things about CAWST. Without your support, we could not do what we do. You have always been responsive when I have questions (via email) and I do not have to wait long to get a response. Typically, the responses are very thorough and provide information beyond what I normally expect."

- Forrest Kendall, Servants 4 Him, Guatemala

- Complete training courses currently under development including courses for program monitoring, project evaluation, project planning, water quality testing, hygiene, community health promotion, sanitation and rainwater harvesting for domestic use;
- Test new courses initially in Calgary and then through the centres of expertise in India, Nepal, Philippines, Zambia and Haiti;
- Move forward with the development and application of "competency validation" programs to help ensure that training practitioners have attained a set level of competence to perform required functions; and
- Evaluate the impact of more customized organizational training and capacity building against the standardized training that CAWST traditionally practices.



Local trainers teaching the community about biosand filter use and maintenance in Namibia

Plans 2007–08

In 2003, CAWST approached Dr. Mark Sobsey of the University of North Carolina (UNC) to help to verify the performance of the biosand filter technology. CAWST actively supported the UNC laboratory testing, and introduced Dr. Sobsey to many of the individuals in the Dominican Republic with whom he conducted his field research. In 2007, Dr. Sobsey published data that showed that use of the biosand filter results in a 30 to 40 % reduction in diarrhoeal disease.

Research Learnings

In the coming year, CAWST will:

- Support Tommy Ka Kit Ngai, CAWST's Research Associate, in the execution of his PhD research at the University of Cambridge in England on the wide-spread implementation of household water treatment. This research is almost fully funded by the Cambridge Trust, the University of Toronto Thomas Hogg Fellowship and the Cambridge engineering department;
- Work with the Institute of Technology of Cambodia and the Ministry of Rural Development in Cambodia to test the applicability of the Kanchan Arsenic Filter (a biosand filter adapted for arsenic removal) for use in Cambodia. This project recently qualified as a finalist in the Mondialogo Engineering competition;
- Shepherd the Kanchan Arsenic Filter through the Bangladeshi Environmental Technology Verification process, in conjunction with the Massachusetts Institute of Technology (MIT), LEDARS, a Bangladeshi NGO, and ENPHO, a Nepali NGO;
- Encourage research at the University of Victoria on the optimization of the sand media for the biosand filter;
- Continue active involvement in the WHO's International Network to Promote Household Water Treatment and Safe Storage. In 2007 CAWST attended the Network introduction of household water treatment in Kenya, and plans to attend conferences in Ethiopia and Ghana;

Recent Publications by CAWST Staff

Baker, D and Dr. Bill Duke (2006). Intermittent Slow Sand Filters for Domestic Use, Presented at the Biofiltration Conference, Germany.

Bhandari, B. and Grant M. (2007). User Satisfaction and Sustainability of Drinking Water Schemes in Rural Communities of Nepal, Journal of Sustainability: Science, Practice and Policy, 3 (1):12-20.

Bhandari, B. and Grant M. (2007). Analysis of Livelihood Security: A Case study in the Kali-Khola Watershed of Nepal, Journal Environmental Management, 85:17–26.

Bhandari, B., Grant M. and Curry, S. (2006). Willingness to Pay for Maintenance and Operation of Rural Drinking Water Schemes in Nepal, Published on the proceedings of the 32nd WEDC conference of Sustainable Development of Water Resources, Water Supply and Environmental Sanitation, Colombo, Sri Lanka.

Ngai, Murcott, Shrestha & Dangol, Development and dissemination of Kanchan Arsenic Filter in rural Nepal, Water Science & Technology (2006): Water Supply Vol 6 No 3 pp 137–146.

- Deliver a presentation and workshop at the “Streams of Knowledge” conference in Mombasa, Kenya in September 2007;
- Serve as a member of the Track Support Group for the Sustainable Development theme for the World Water Congress in Austria in 2008; and
- Continue to encourage the University of Delaware to conduct research on viral removal in biosand and ceramic filters.

Public Engagement

CAWST’s public engagement activities are focused on engaging youth, professionals, churches and service organizations, such as Rotary Clubs, in the Calgary region. During 2006 and the first quarter of 2007, CAWST reached out to 2,100 youth through 14 school and community presentations and two World Water Day Youth Summit events. As a result, 24 youth teams developed action plans to address water issues. In addition, we delivered 20 presentations to corporations, churches and community groups. CAWST plans to grow the youth engage-

In 2004, with financial support from the Canadian International Development Agency (CIDA), CAWST trained NGOs from Nigeria, Ghana, Uganda and Pakistan in Biosand Filter Program Implementation in Canada. One of these organizations, RAWDP of Nigeria, later modified the filter by adding a layer of paste made from a coagulant known as “Moringa Oleifera” to the top of the sand. In 2006, RAWDP received a World Bank Development Marketplace prize for this “Mor-sand” filter.

ment program over the coming year and will work with the DHAN Foundation to deliver a youth engagement program in India. With financial support from Petro-Canada, CAWST will deliver a Youth Summit in Fort McMurray, Alberta to coincide with the next Calgary Youth Summit in fall 2007.



Delegates learn about power dynamics at the 2007 World Water Day Youth Summit

Plans 2007–08

“I am a proud member of TEC-Y (Trident Exploration Corp – Youth). We are focused currently on Sri Lanka and sent Shauna there to start the project in 2005. As I learned more about Sri Lanka, I thought about how luxurious my life is and I felt I could help. The other people in TEC-Y and myself have now raised money by fund raising in the office, a knitting club, school bake sale, donating personal coin collections, organizing a haunted house, collecting bottles and creating a school magazine. Because we are educating people about the issues that CAWST and Light up the World are working on, we have had great support from companies and individuals donating to our effort. We want kids in the world to have clean water like we as Calgarians do. We make a difference! TEC-Y and CAWST rule!”

– Jocelyn, TEC-Y youth member, Calgary, Canada

Resource Development

CAWST continues to rely on the generosity of individuals, who currently provide 60% of organizational funding. To develop more sustainable sources of funding, CAWST will employ the following strategies:

Nurture and expand our relationships with existing donors and volunteers, many who have been supporting CAWST over multiple years.

Maintain a high public profile as a professional and competent humanitarian organization so that individuals or organizations are encouraged to make the initial first contact with CAWST.

Increase project funding by defining and matching projects with potential corporate, foundation, government and community-based funders. CAWST had some success in this area over the past year and plans to allocate additional resources to this effort.

Encourage and facilitate third-party awareness events and fundraising among community organizations, churches, services clubs, youth and individuals. In the last year, these groups have hosted birthday and holiday parties, golf tournaments, talent shows and other special events raising almost \$100,000 in donations.

Market CAWST as a social investment opportunity to centres of influence such as advisors, influencers and validators, and offer a variety of investment options.

CAWST’s case is strong to market as a valid social investment. According to David O’Brien, Chairman of several prominent Canadian corporations, and donor to CAWST, “Based on all the measures that a donor looks at, CAWST ranks at the highest levels in terms of efficiency and effectiveness. An investment in CAWST provides ‘bang for the buck’ and a high social return. It is a remarkable story of success.”

CAWST’s fundraising target for 2007 is \$1.5 million, and \$2 million for 2008. CAWST has raised 49% of its 2007 target as of June 2007.

Business Services

This year CAWST introduced a staff group Benefits Plan and hired its first office administrator. CAWST also signed a five-year lease for our Calgary office space, which was recently renovated to accommodate new staff. In 2007 and 2008 CAWST will institute a database to manage contact information and key performance data, and will also refine internal project and client management systems.

People

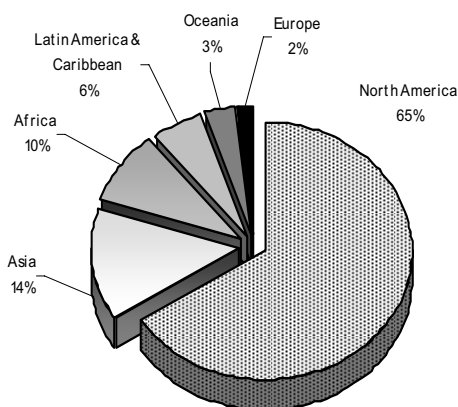
"CAWST is its people: they keep us strong, compassionate and connected."

– Camille Dow Baker, President & CEO,
CAWST

Members

As of June 2007 CAWST signed up its 1,000th Member. CAWST's members come from around the world, with steady membership growth coming from developing countries. Members are the equivalent of shareholders in a public corporation, each having voting status.

CAWST Membership, 2007



Board

Since our last Annual Report, the following four people joined the Board.

- **Fred Claridge** is the founder and former CEO of Komex International. Komex is an environmental engineering consultancy that recently merged with WorleyParsons of Australia.
- **Evan Hazell** is a Managing Director within Citi's Global Investment Bank and is responsible for the

Canadian upstream energy sector. He began his career in the oil and gas industry as an engineer in 1980. For the last 15 years, Evan has been an energy investment banker serving a wide variety of Canadian and international clients.

- **Mike Quinn** is the former CIO of Bissett Investment Management. Mike participated in the process of taking Bissett public in 1998, and in the sale of the company to Franklin Templeton in 2000.
- **Laura Tupper** is the Senior Vice President and Practice Leader for Natural Resources for Hill & Knowlton, a major communications firm. She is based in Ottawa.

After three years of service, Tripat Mangat resigned from his duties as a director. The Board thanks Tripat for his strategic counsel and support.

Board of Directors

Chris Read (Chair)	Sheila O'Brien
Camille Dow Baker	Mike Quinn
Dan Boivin	Greta Raymond
Fred Claridge	Barry Stewart
Bruce Fenwick	Laura Tupper
Evan Hazell	Bill Warden
Eric Holden	Ora Zabloski

Staff

CAWST's staff has shown tremendous loyalty, dedication and passion for their work and are active members of the local community. CAWST has experienced no attrition over the past year, which is particularly compelling given the competitive employment market in Calgary. CAWST's staff have gone above and beyond expectations, often working in excess of a typical work week and volunteering a total 1.3 person years of time in 2006.

People

As the organization matures, individual roles and responsibilities become clearer. Four directors currently report to the President & CEO, Camille Dow Baker.

Director, International Services, Shauna Curry, P.Eng, is responsible for all aspects of CAWST's professional service delivery overseas.

Director, Education Program Development, Ron Lentz, P.Eng, is responsible for the development of CAWST's education programs and materials and for the delivery of training and consulting in Canada.

Director, Technology, Derek Baker, P.Eng (volunteer), is responsible for monitoring and evaluating the use and performance of household water treatment, sanitation and domestic water supply technologies. This role also provides technical assistance and support to the other areas as needed.

Director, Research Learnings is responsible for monitoring, encouraging, and condensing and analyzing applicable research findings for use by CAWST staff and clients. The responsibilities of this position are currently filled by the President and CEO, Camille Dow Baker, and by the Director, Technology, Derek Baker. Tommy Ka Kit Ngai is expected to assume this role in late 2009, upon completion of his PhD.

Director, Public Engagement, Resource Development & Business Services, Alison Pidskalny, BA, Communications, is responsible for coordinating the development and management of financial and volunteer resources, engaging the public in support of "the cause"; and ensuring that the organization conducts itself in accordance with its governance principles.

Volunteers

Volunteers continue to be the engines of growth for CAWST, and its strongest advocates in the community. For every hour that CAWST invested in volunteer engagement, volunteers donated 50 hours back to CAWST. In total, volunteers contributed 5.3 person years of time in 2006, slightly more than 2005. CAWST recruits volunteers for clearly defined, specific tasks and functions.

Donors

CAWST's donors come from all walks of life: from Girl Guides selling cookie dough on CAWST's behalf to wealthy individuals and corporations. CAWST values every dollar received.

Unlike many traditional "Centres of Excellence" in water and sanitation, CAWST is an independent charity, not

associated with any government, university or religious body. Much of CAWST's funding comes from the public, which means CAWST must engage and be accountable to the community. Grassroots support is growing and CAWST's supporters are not only committing over the longer-term but they are choosing to become more involved — hosting fundraisers, attending CAWST events, volunteering and becoming members. CAWST thanks you for your support!



Staff at the CAWST office in Calgary, Canada

Thank You

“Water will soon be a problem to the whole world and we should do something now – in our own community and around the world. Do more to help conserve water for future generations. Raise awareness and educate”

– Youth Delegate, World Water Day Youth Summit

To those who give of their time, energy and personal resources, thank you for helping CAWST Make Waves! Some outstanding examples from the last year...

Will Biggart, volunteers’ volunteer...for investing your time to serve the volunteers at CAWST

Márcio Botto, assistant trainer...for volunteering your time, connections and energy to help get CAWST’s programs rolling in Brazil and Mexico

Sheila Duke, level-headed traveler...for your willingness to travel to any corner of the world to assist with training workshops

Bill Jewett, hands-on trainer...for lending your organizational skills and facilitating the hands-on portion of the workshops in Ghana and Malawi

Mahbuba Khanam, social networker...for assisting with the training, doing translation and helping CAWST build its program in Bangladesh

Kate Murray, mentors’ mentor...for coordinating the team mentors at the World Water Day Youth Summit

Cheryl Rector, administrative gem...for your willingness to roll up your sleeves on some tough administrative projects

Curtis Stefawiuk, assistant trainer...for lending your time and energy to support CAWST’s training programs in Namibia and Ghana

Jerry Tatarkiewicz, superstar supplier...for your can-do attitude on 11th hour printing jobs

Adriana Torrico, community mobilizer...for rallying communities in Bolivia around household water treatment

Silvia Vargas & Carlos Rincon, translators...por haber traducido un sin fin de documentos del Inglés (...for translating countless English documents)

Fred Weinberger, master renovator...for helping make CAWST’s space such a great place to work

Adele Woolsey, renaissance volunteer...for making CAWST’s office a more artful place to be, and assisting with training preparation and delivery in Calgary and in the field



Workshop graduates in Brazil celebrate the end of training

Statement of Financial Position

December 31, 2006 and comparative figures for 2005

	2006	2005
Assets		
Current assets:		
Cash	\$ 89,501	\$ 364,407
Term deposits	1,030,000	251,260
Marketable securities	-	99,055
Accounts receivable	65,404	32,877
Prepaid expenses	9,829	8,972
	1,194,734	756,571
Equipment	86,436	68,341
	\$ 1,281,170	\$ 824,912
Liabilities and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 46,395	\$ 59,039
Deferred revenue	371,416	116,661
	417,811	175,700
Deferred contributions related to equipment	11,675	14,671
Deferred revenue	250,000	-
Net assets:		
Invested in equipment	74,761	53,670
Accumulated operating surplus	526,923	580,871
	601,684	634,541
	\$ 1,281,170	\$ 824,912

Statement of Operations

Years ended December 31, 2006 and comparative figures for 2005

	2006	2005
Revenues:		
Donations	\$ 939,214	\$ 1,072,621
Project consulting	54,033	71,719
Training courses	54,812	33,037
Interest income	24,198	5,882
Gain of sale of marketable securities	(206)	2,136
	1,072,051	1,185,395
Expenses:		
Salary and benefits	617,894	410,901
Travel	112,590	99,483
Office and administration	90,605	68,030
Consulting	66,311	111,738
Rent and utilities	49,697	47,174
Meals and entertainment	49,686	19,273
Materials and lab supplies	37,007	26,713
Insurance	22,815	9,048
Audit	16,127	12,198
Training and conferences	12,461	25,812
Loss on disposal of assets	1,856	-
Write-down of marketable securities	-	635
Depreciation	27,859	18,353
	1,104,908	849,358
Excess of revenue over expenses	\$ (32,857)	336,037

Audited Financial Statements and notes are available at www.cawst.org

Donors 2006 - June 2007

INDIVIDUALS • David Allen • Ian & Gillian Anderson • Marion Andreassen • Giulliana Arevalo & Luis Horna • Douglas & Gail Ayotte • Derek & Camille Baker • David L. Barss • Christopher Bassett • Dianne Bassett • Lucy Batycky • Sean & Megan Beattie • Donna & David Becchetti • Wayne Bell • Michelle & John Bergen • Teresa Black • Tracey Boc & Rory Rotzoll • Dan & Carolynne Boivin • Don & Marion Boucher • Laure & Simon Bower • Jill & Douglas Bowron • Broadfoot Family • Karen Bromby • Keith & Elizabeth Brownell • Mark & Amanda Brownlie • Brian & Claudia Buk • David & Carol Byler • Francis Calon • Patricia Calon • Manuella Cappelletto • Florence Cecere • Alison & Dalton Chen • Merv Chia • Frederic Claridge • Paul & Bernice Clark • Paul & Janice Clegg • Catherine & Trevor Coghlan • Paula Corbeil • Jessie & Shauna Cox • Elizabeth Crosby • Lynne Cunningham & Witold Siemieniuk • Shauna Curry • Lisa Date • Mike & Laura de Jonge • Bev DeLong • Aaron & Mary Dommasch • Lyle & Ann Dunsmore • Douglas & Donna Eby • Janice Eby • Janice Eliasson • Kathleen Everest • Bruce & Sheila Fenwick • Ron Fleischer • O. Jacquelin Fleming • Debbie Flynn • Tanya C. Forde • Ralph & Linda Garrett • Piotr & Barbara Gebka • Ron Gitter • Hazel Gillespie • Karen Girard • Randy & Charlene Goldman • Barb Gosling & Derek Small • Shirley Gould • Flint Graeme • Joanna Gray & Richard Lock • Michael & Sherry Greenfield • Mark & Sarah Greenwood • Dennis & Diane Gregory • Joanne & Gordon Grudgfield • Merly Guenette • Karen Guichon • Shirley Hande • Jim & Wendy Hanley • Richard (Dick) & Lois Haskayne • Bonnie Haynes-Lipka • Janice Heard • Barbara Louise Henn • Barb & Wilfred Hennebery • Robert & Sally Hodges • Cornelius & Michelle Hoogveld • Loretta & Perry Hooper • Deidre Horn & Yves Choiniere • Terry Horne • Chris & Gayle Horvath • Grant Huston • Steven Ibbotson • Anthony (Tony) Johnson • L. Johnson • Bert Joines • Bryce Jones • Patricia Jordan • Patricia Jovin • Steve Kaczmer • Sandy Kendall • William Tang Kong • Nettie Kost • Jeff Kushner • Deirdre & Allan Lane • Chris Lashmar • K. Lefroy (Dewar) • Roland Leitner & Elleonora Jilek • Michael & Hedy Lemiski • Harry & Rosalie Lillo • Brad & Barb Lind • Greg Lindsay • C. Brad & Susan Lowell • Abotonia Lu Sia • Tin Yick Lung • Siebold Machielse • Wallace MacInnes • Anthony Madic • Anthony & Laurel Madro • D. Blair & Marlene Mason • Mary Maxim • Patrick & Sherri McAndless • Brian & Dale McCarthy • James & Marnie McCormack • Frances McDonald • Rob McDonald • Elizabeth McLeod • Allison McPherson • Jane McQuitty • Randy & Mary Meikle • Michael & Margaret Miller • Rachel Mok • Joan Morrison • Alicia Motuz • Rick Mueller • Jeannette Murrell • Kevin & Lori Nabholz • Michael & Gloria Narmie • Randy Neely • Ted & Joanne Nieumierzycki • Claire Nissen • Linda & Ian Nyeste • David & Gail O'Brien • Michael O'Brien • Janice & Rick Odegaard • Valynne & Sean O'Donovan • Howard & Mildred Olsen • Nicholas Pappas • Fiona & Theodore Paradis • Christopher Patience • Marge Patipatanakoon • Joseph & Constance Peller • Dave & Nanette Perrott • Alison Pidskalny • Ron & Jacky Pidskalny • Lorelei Elizabeth Piotto • Alfred & Mary Potter • Dave Putt • Greta Raymond • Chris & Helen Read • Marc Renaud • Jim & Alex Robertson • Cheryl Robinson • Lia Robinson • Maxine Robinson (Reid) • Barbara Ross • Leor Rotchild • Gordon & Sheri Rouse • Peter Samuels & Diana Warry • Kevin & Michelle Screpnechuk • Richard & Kathleen Sendall • Gianni Sgambaro • Bonnie Shahin • Duane & Jacqueline Sharratt • Gerald Simon • Don & Mary Lou Simpson • Joyce Slaney • John Philip Smith • Robert & Christine Sparrow • Dieter & Linda Stamm • Theresa Steele • Staave Stevenson • Pat & Barry Stewart • Brent & Joan Stuart • Dave & Dawn Stuart • Lori & Jerry Sturko • Gordon & Margaret Swann • Chet & Heather Szpala • Julie & Jeff Taylor • Mark Terrill • Rosemeen Thawer • Heather Thompson • Peter & Wendy Thompson • W. & David Thompson • Preston Thorn • Ron & Angie Timmons • Beth & Jerzy Tobiasz • K. Tong • Victor & Kathleen Tousignant • Sylvie Tran • Carl & Anna Tremblay • Bradley Turner • Arman Vahdaty • Peter Van Dyk • Linda Van Gastel • Bill Warden • Margaret Watt • Wayne & Susan Wells • Ronald & Norma Westcott • Allan & Robyn White • H.M. Nina White Baillie • Catherine Williams • Darlene Williams • Jack Williams • James & Carla Williams • John & Tracy Williamson • Barry & Lesley Wilmot • Hendrik & Cidnee Wind • Shirley (Mickey) Wolfe • Betty Wong • Glenn & Peggy Wong • Lorna Wright • Roy & Susan Wright • Wendy Lynne Wu • Fiona Young • Tom & Sandra Young • Emily Zhang •

ORGANIZATIONS • Acumen Capital Finance Partners Ltd. • African Community Technical Service • Alberta Environment • Arbonne International • Associate Clinic Physio & Massage • Avenue of Nations Rotary Club • Bishop Grandin High School • Bishop O'Byrne High School • Bow Valley College • Calgary Foundation • Canadian International Development Agency • Catherine E. Heimbach Professional Corporation • Cedarbrae Elementary School • Charles B. Newmarch • Church of St Laurence • Cindy Johnson Royer Fund • City of Calgary • Collingwood Elementary School • Credit Suisse First • D. Kim Fuhrman Professional Corporation • D.R. Ashford Fund • Doug & Nancy Craig Fund • Dr. Glenn D. Gould Professional Corporation • Ecole Edwards Elementary School • EnCana Corporation • Environmental Careers Organization of Canada • Girl Guides of Canada, 72nd Girl Guides • Glenmore Audi • Grace Presbyterian Women's Fellowship • Hillhurst Community School • Holy Nativity Anglican Church • IMV Projects • Indian Canyon Investments Ltd. • Kensho Developments • Killarney Elementary School • Klango Animation Studios • KPMG Foundation • Matibabu Foundation • Middletown Rotary Charitable Trust • MJS Mechanical Ltd. • Nexen Inc. • Nulli Secundus Inc. • Osterman & Company • Pambria Enterprises Ltd. • Penn West Petroleum Ltd. • Petro-Canada • Presbyterian Women • Probus Club of Calgary • R. Ross Beattie Senior Public School • Rainmaker Energy Corp. • Rotary Club of Calgary • Rotary Partners of Calgary • Rubicon Fund • SNC Lavalin Group Inc • Spectrum Fitness • St Barnabas Anglican Church • St Benedict Elementary School • Stollery Charitable Foundation • Suncor Energy • TEC-Y • Tom Baines School • Trident Exploration • Valley View Family Practice Clinic • Vincent Massey Junior High School • Wanklyn Family Fund • Wild Rose Foundation • Women's Canadian Club of Calgary

www.cawst.org

Centre for Affordable Water and Sanitation Technology

Charitable Registration Number
863751616RR0001 (Canada)

Phone: +1 403 243-3285

Fax: +1 403 243-6199

Email: cawst@cawst.org

APEGGA Registration Number P-8757

Bay 12, 2916 5th Avenue N.E.
Calgary, Alberta, CANADA
T2A 6K4

Testimonials

"I have been very impressed by the professionalism of the CAWST staff and the seriousness they take in their work. They don't see their work as a job, they see it for what it is: a key part of making the world a better place."

– Chris Rolling, Clean Water for Haiti, Haiti

"I know that the world is not always the place that it is for me. But with CAWST's hard work, I'm sure it will be the place it was meant to be."

– Elementary School Student

"What impressed me the most is CAWST's success in tackling a global dilemma at the grass-root level through small scale operations"

– Tin Lung, Donor

"Your teaching method provoked learners' inspiration and helped them grasp concepts and knowledge and apply in practices. I appreciate your efforts to employ different teaching aids and funny testing methods to help learners."

– Giac Tam, Nong Lam University, Vietnam

"CAWST not only delivers consulting services, but provides training to local organizations so that they may become independent of the need for these services as soon as possible."

– Frederic B. Claridge, Worley Parsons
Komex, Board Member, Volunteer

"We feel that CAWST is doing a wonderful job, and we are very much in favor of their philosophy of giving by teaching as opposed to just giving."

– Keith Siggins, Bob Cruikshank & Don
Hudson, Holy Nativity Church,
Community Donor

"Biosand filters are one solution of the project area we are targeting in order to provide households with clean water. What CAWST is doing is very good."

At least, we have an alternative for people in areas without safe/protected water sources. More importantly, the technology is affordable and can be applied nearly anywhere."

– Simeon Zgambo, Programme for
Sustainable Rural Development, Zambia

"Your words inspired me to take action. I have become a member of CAWST via your website and I'm learning a lot from the resources there. I believe wholeheartedly in your cause and hope to become more involved."

– Sue Willems, Fluor, Member

"Because of your commitment to helping us educate Haitians about the devastating effects of contaminated water, the lives of ten newly certified Haitian technicians have been changed forever. They will also change the lives of untold numbers and save lives by educating their communities about an affordable clean water system, improved personal hygiene and environmental responsibility."

– Bishop Judy Fisher, Mercy Outreach
Ministry, Haiti

