

DM 2003 Project Completion Report

[03/17/2005]

To ensure accountability and to share lessons learned from the implementation of DM-funded projects with the public, we would like to ask you to fill out this Project Completion Report within three months of the completion of the funding period. Per our usual procedures, we will ask each Project Liaison to review the Report and will post it on the Development Marketplace website at www.developmentmarketplace.org

If you would like to provide information that should be off the record, you may do so in section VI. Information provided in this section will be handled as confidential without public exposure.

In addition, in accordance with Paragraph 3.1.1 of the Project Agreement, please attach a statement of account showing the use of the entire amount of the fund. Please also provide a one-page summary of your project, which includes 1) brief background of the issue(s) addressed by your project, 2) major achievements during the implementation, and 3) envisaged next activities and involvement of new partners. We will use this material to continue to disseminate your project idea to interested development partners.

I. Background Information

DM Project Number and Title	000407 – Arsenic Biosand Filter: Sustainable Implementation of an Appropriate Household Drinking Water Filter for Rural Nepal
Report Author's Name (if different from Team Leader)	Tommy Ngai, Susan Murcott, and Roshan Shrestha
Funding Period	January 2004 to January 2005
Total Award Amount	US\$ 115,000

II. Project Achievement and Impact

i) Now that your team has completed a full project cycle, rate and describe your project's overall success. To describe the level of success, be sure to make reference to the milestone objectives that were negotiated with your Project Liaison at the beginning of the implementation.

Overall Success Rating:

- Not Successful (0-49% overall accomplishment)
- Somewhat Successful (50-69% overall accomplishment)
- Successful (70-79% overall accomplishment)
- Highly Successful (80-100% overall accomplishment)
- Beyond Expected Achievement (over 100% overall accomplishment)

Description:

We have successfully completed all of our milestones according to our schedule. For example, we have established good partnerships and received support from various local, national and international organizations to promote the Kanchan™ Arsenic Filter (KAF) in Nepal. We have developed printed materials such as a training manual, promotional stickers, posters, brochures, and booklets for information dissemination. We have monitored more than 1,000 filters twice in one year, and compiled monitoring data into an Access database.

In some cases, we have exceeded our original expectation. For example, we planned to conduct workshops in

25 VDCs, to distribute 1000 filters, to reach 10,000 beneficiaries. We exceeded this plan. We conducted 30 VDC-level workshops and 178 ward-level workshops, teaching health, water, hygiene, and filter information to over 6000 direct participants. Currently, over 2,000 filters are in operation, serving more than 15,000 people.

Also, we planned to conduct one workshop to teach our entrepreneurs in filter construction. We exceeded this plan. We, in collaboration with Center for Affordable Water and Sanitation Technology of Canada, conducted a second workshop for our established local entrepreneurs in Birgunj. 20 participants from 15 organizations shared their experience with KAF, and learned advanced skills in business promotion and management. The entrepreneurs will continue to promote, construct, and sell filters in a financially and organizationally sustainable manner. ENPHO will act as advisor and coordinator of future KAF implementation efforts.

Moreover, we generated interests among local universities on further research and development of the KAF. We have assisted a three students from Kathmandu University and one student from Tribhuvan University on research related to the KAF.

Furthermore, we have presented our findings in 17 national/international conferences or workshops on five continents, far exceeding our original plan. Over 1,000 conference participants learned about the KAF and this project.

Therefore, we believed that this project's overall success rating is "Beyond Expected Achievement".

ii) Were there any unrealized activities stated in the Project Agreement?

Yes No

If Yes, how did these unrealized activities affect the overall impact of the project?

iii) What were the major challenges your team faced during the implementation? What, if any, adjustments or changes did you make to your original business plan in order to overcome the challenges?

Challenges:	Adjustments or Changes:
Due to unexpected administrative at MIT, there was a delay in signing the Final Contract. Thus, the first payment of \$23,000 (due date January 31, 2004) and the second payment of \$46,000 (due date March 31, 2004) were not released until the end of May 2004.	The delay in funding slowed down certain activities. Both MIT and ENPHO had to acquire/borrow funds from other accounts in order to start the project in January, 2004. Some staff (e.g. Tommy Ngai, Kalawati Pokharel) were not paid until 6-12 months later than originally intended
The current unstable political and security situation in Nepal caused unexpected delays and inconvenience in our work. Several times, scheduled meetings and training workshops were cancelled because of the general strike (<i>bandha</i>). Field work progress has also been slowed due to the difficulties of traveling to field sites, especially those in the Western Districts	The project focus has shifted to the Central and Eastern Districts where there is less tension and fewer security problems. We work closely with local neutral organizations such as the Parsa, Bara, and Rautahat chapters of the Nepal Red Cross Society, Save the Environment Nepal of Rautahat, and others, who are unaffected by the ongoing security situation, to implement our project activities. We have extended the project duration for 3 months, until Jan 31, 05. We hired extra field workers to speed up our field work progress in order to meet our deadlines.

The U.S. dollar has fallen in value to \$1 to 70 NRs during most of the project duration, as compared to \$1 to 74 NRs at the start of the project. The reduced exchange rate meant there was insufficient fund to perform all activities as originally planned.	ENPHO had to revise their original budget allocation to each activity to compensate for the reduced exchange rate. ENPHO has successfully cut back on certain expenses (e.g. filter mould) and merged certain activities (e.g. monitoring and evaluation and health survey) to reduce costs.
We were unable to obtain a work visa for Tommy Ngai due to unexpected complications and regulations from the Nepali government. Tommy's travel plan to Nepal was delayed for 4 months.	Tommy returned to Nepal in Dec 04 instead of Aug 04. During that 4 months, Tommy managed the project from Hong Kong through phone calls and email communications. Tommy also attended and presented project findings at four conferences during this time.
There is no mechanism at the Nepali government to approve/accredit water filtration technologies. The lack of certification hampers the promotion of this technology.	We presented our scientific research and filter performance findings at the National Arsenic Steering Committee (NASC). We have also trademarked the name "Kanchan Arsenic Filter".

iv) How did the obstacles and the adjustments affect the overall success of the project?

Effect on Success:

The main effect of the above obstacles is a delay in carrying out activities on time. For example, some field activities were delayed because we either did not have the funds to proceed, or because the security situation did not allow us to proceed. Thanks to the flexibility of the World Bank Development Marketplace project managers in Nepal and Washington DC, we were allowed us to extend our project for three extra months, which enabled us to complete all project objectives. We are thankful that the World Bank granted us the additional time. The extra time not only allowed us to successfully meet our original objectives, but also let us achieve beyond our expected results.

v) What were the key activities of your project (column 1)? What were the most significant immediate impact of these activities and how have you measured them (column 2)? In other words, have there been changes in the beneficiary's attitude, status, knowledge, or skills? How do these outcome address problems in the society and what are the effect of the project's outcomes on the larger community (column 3)? In other words, what development objective have you achieved?

Key Activities:	Significant Outcomes:	Social Impact:
Established a KAF reference center at ENPHO to coordinate research & implementation activities	<ul style="list-style-type: none"> Created a database to store detailed information of 2,000+ filters distributed by various organizations. Educational and promotional information are available at the reference center Training in filter construction is available to all interested individuals/organizations 	<ul style="list-style-type: none"> KAF research, implementation & promotion by various agencies (e.g. donors, universities, NGOs) can be coordinated through ENPHO to minimize conflicts and to maximize efficiency and benefits to affected communities Detailed information about the KAF technology and project activities are available to the general public

Trained 15 local entrepreneurs from highly affected districts in KAF construction and business techniques	<ul style="list-style-type: none"> • KAF can be purchased from these entrepreneurs who are located in various Terai districts • Built capacity among these entrepreneurs towards self-reliant safe water provision 	<ul style="list-style-type: none"> • The KAF technology is available at the grassroots level to provide arsenic-free drinking water • Affected communities can immediately purchase a KAF to improve their health. • Job creation at the local level, contributing to local economy
Conducted health awareness workshops in 30 VDCs	<ul style="list-style-type: none"> • 500 VDC representatives, health officials, local teachers, and/or other policy-makers learned about water, health, hygiene, treatment options, and KAF information. • One promotional KAF was given to either the health post of a local school of each VDC 	<ul style="list-style-type: none"> • VDCs realized the importance of safe water and may allocate resources towards safe water provision to their communities. • School students learned about the KAF from their teachers and from direct experience with the KAF.
Conducted health awareness workshops at 178 villages (wards). Over 6,000 participants attended these workshops.	<ul style="list-style-type: none"> • Villagers learned about water, health, hygiene, sanitation, diseases, and treatment options. • Villagers learned proper operation and maintenance procedures for the KAF • Villagers learned where to obtain a KAF • Two promotional KAF were given to each ward. 	<ul style="list-style-type: none"> • Increased health awareness relative to arsenic-contaminated water led to informed decisions on obtaining safe water. • Increased health awareness led to the use of KAF technology. This, in turn, reduced exposure to arsenic contaminated water and contributed to an expected (but not documented) improvement in health, worker productivity, and poverty alleviation
Established partnerships with numerous national and international organizations	<ul style="list-style-type: none"> • Received direct support and recognition from stakeholders. • The Nepal Red Cross Society, Filters for Families, Nepal Water for Health, and Save the Environment Nepal have adopted the KAF as the best available household treatment option, and are actively disseminating this technology in their project areas. • CAWST will provide technical and professional assistance for further development and promotion of the KAF in Nepal and abroad. 	<ul style="list-style-type: none"> • Quick dissemination of KAF information to the development community through our project partners • Quick provision of KAF to affected households.

III. Ancillary Achievement

i) Dissemination of your project's outcomes and findings plays a key role to attract funding and implementation partners to take the project to the next level. Were you successful with disseminating your project's information during the project cycle?

Yes No

If Yes, please specify how and with whom you have shared the knowledge with.

Newspapers:

All of the major newspapers in Nepal (Kantipur , Himalayan Times, Annapura Post, The Rising Nepal, Kathmandu Post, Samachar Patra, Rajdhani Daily, etc) have published at least one article on the Kanchan™ Arsenic Filter.

Some US newspapers (e.g. Dallas Morning Daily, Christian Science Monitor) also published articles on the Kanchan™ Arsenic Filter.

Newsletters/ Magazines:

Tommy Ngai and Susan Murcott were interviewed by various university newsletter groups such as the MIT Public Services Center Newsletter, MIT Dept of Civil and Environmental Engineering Newsletter, MIT Tech Talk, University of Toronto Engineering Faculty Skulematters Magazine, University of Toronto Dept of Chemical Engineering Newsletter. At least one article was published in each of the above newsletters/magazines.

Radio:

Information about the KAF, based on interviews with Roshan Shrestha and Tommy Ngai, were aired on Sagarmatha FM radio of Nepal and Taiwan National Radio.

TV:

Roshan Shrestha was interviewed on Nepal One TV station and British Broadcasting Corporation TV station about the KAF technology and implementation.

Conferences:

We have presented the KAF technology and implementation project at over 20 national and international conferences/workshops on five continents. Countries include Nepal, Bangladesh, Thailand, China, Japan, USA, Canada, Chile, Italy, England,, Kenya, etc. Participants include high-ranking government officials, policy-makers, WHO, UNICEF, World Bank, development agencies, universities, prominent NGOs, health authorities, business community, etc.

Website:

A website has been setup to provide the most up-to-date information about this project including technology details and project progress. <http://web.mit.edu/watsan>

ii) How has your relationship with the original partners, as specified in the final proposal, evolved?

The relationship between MIT (lead agency) and ENPHO (primary partner) is now stronger than ever. Tommy Ngai of MIT worked closely with ENPHO for one year to assist the implementation of this project. Throughout the duration of the partnership, both parties had excellent communications and mutual understanding of each other's working style. Each partner has its own strengths, and we took advantage of this to produce synergies. As a result, we implemented a very successful project. The current deep level of mutual trust and understanding allows us to plan future activities accordingly. MIT and ENPHO will continue to work together in the future.

Although MIT had further enhanced its excellent relationship with RWSSSP (secondary partner) under this DM project, RWSSSP no longer existed as of December 31, 04. Their entire program has terminated.

iii) Has your organization allied with new funding, implementation, or in-kind partners and/or do you have any prospective partners to carry on the project beyond the DM's funding period?

Yes No

If **Yes**, specify the name of the partner, type of the organization, type of partnership, and monetary amount of support.

Partner's Name	Type of the Org	Type of Partnership (financial, implementation, in-kind)	Amount Funded or Committed (in US\$)
Filters for Families, USA	INGO	Financial, Implementation	\$3,000 during the project period. Another \$5,000 for the next two years.
Nepal Red Cross Society (NRCS) local districts chapters including Nawalparasi, Parsa, Bara, and Rautahat.	NGO	Implementation, In-kind	N/A
Nepal Water for Health (NEWAH), Nepal	NGO	Implementation	N/A
Asia Arsenic Network (AAN), Japan	INGO	Implementation, Research	N/A
Research Group of Applied Geology (RGAG), Japan	Private consultant	Research	N/A
Kathmandu University, Nepal	University	Research	N/A
Center for Affordable Water and Sanitation Technology (CAWST), Canada	NGO	Financial, Implementation, In-kind, Research	Under discussion

IV. Future Business Plan

i) Have you prepared a business plan for the coming year?

Yes No

If **Yes**, please list key activities planned for the coming year and tell us who will support the activities.

Four MIT Sloan Business school students (MBA students) came to Nepal in March 2004 to prepare a business plan for the promotion of the *Kanchan*TM Arsenic Filter. The report is available at World Bank Kathmandu.

One business school student from Stanford University will come to Nepal in May 2005 to assist us to update the business plan to promote the filter.

ii) Do you have any concerns about continuing this project for the next couple of years?

Yes No

If Yes, what are the concerns and how do you plan on addressing them?

Security – The ongoing unstable security situation may continue to cause frequent disruption to our activities. We need to work with neutral organizations at the grassroots level in order to avoid conflicts. We also need to focus our work in less affected areas.

Funding – We have been unsuccessful so far to attract further funding to expand this project to under-served areas. We will continue to network and discuss with potential funding sources.

Quality Control – We need to develop mechanism for filter quality control in anticipation of growing sales and to reduce unproven and inferior “copy-cat” technologies in the market.

Certification – There is currently no mechanism within the Nepali government to certify and accredit water filtration systems. We need to clarify the role of the government.

Financing – Although the filter is inexpensive compared to other safe water options in Nepal and internationally, many of the poorest villagers cannot pay full price. There is a need to either partially subsidize or collaborate with micro-financing institutions to provide filter loans such that villagers can reap health and economic improvements immediately.

Awareness – Many villagers in Nepal are still unaware that drinking contaminated water can cause water-borne diseases. Also, many people are still unaware of the KAF technology. We need to continue to convince health authorities and/or agencies working in the public health sector to incorporate water, sanitation, hygiene AND household water treatment messages in their agenda.

V. Other Comments/Information Update

- i) What advice would you give to a new DM winner to help them be successful in implementing their projects? Any tips on setting realistic milestones, overcoming bureaucratic obstacles, leveraging the PL and other DM resources, reaching target beneficiaries, establishing effective partnerships, or anything else?

- ii) Do you have any comments or recommendations on the overall process and support provided by the DM Team and Project Liaison? Feel free to add any other information you would like to bring to our attention.

- ii) If your contact information has changed, please provide us with the new information.

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VI. Confidential Report

Please provide, if any, sensitive comments or requests in the box below. Information provided in this section will be handled as confidential and will not be publicly posted on the DM website.

VII. Project Expenses Report

Please attach an expenses report as an Appendix to this report.

VIII. One-Page Project Summary

We would like to create a one-page summary of your project so that we can share your project's idea and achievement with our development partners. There is no set format for the summary; however, please be sure to include 1) a brief background of the issue addressed by your project, 2) major achievements during the implementation period, and 3) anticipated next steps and involvement of new partners. You may attach the report as an Appendix to this report.

Thank you for your time to fill out this report. It was truly a great pleasure to serve your team in the past year. Please keep us posted on your new challenges and success. We wish you every success in your activities.

See attached.

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