Development Marketplace 2003 – Blank Full Proposal Form (for Finalists)

All questions marked by an asterisk are must be answered.

SECTION I. YOUR CONTACT INFORMATION

[Please enter the information below. NOTE: YOU MUST ENTER THE PROPOSAL NUMBER THAT THE DM TEAM HAS PROVIDED FOR YOUR PROJECT. This number will be used to track your proposal throughout the entire process.]

Contact Info

A. YOUR CONTACT INFORMATION	
Proposal Number: *	**000407**
Your Name: *	**Susan Murcott**
Your Title:	**Lecturer, Principal Investigator**
Your Organization: *	**Massachusetts Institute of Technology, Department of Civil and Environmental Engineering, Master of Environmental Engineering Program**
Your Unit Within Organization:	**Water and Sanitation Projects in Developing Countries (includes the MIT Nepal Water Project)**
Classify Your Organization:*	**Academia**
Organization Website:	**http://ceemeng.mit.edu/~water/index.html**
Address: *	Massachusetts Institute of Technology; Department of Civil and Environmental Engineering 77 Massachusetts Avenue
City: *	Cambridge
State/Province:	Massachusetts
Country (Please select from the provided list): *	United States
Postal Code:	02139
Describe Your Organization: (word limit 50)*	
Massachusetts Institute of Technology is among the preeminent science and engineering universities in the world. The Master of Engineering Program is unique in offering "Water and Sanitation in Developing Countries" projects, a professional practice experience comprised of team projects and individual thesis research, engaging students with pressing water needs worldwide.	

B. PRIMARY PARTNERING ORGANIZATION'S CONTACT INFORMATION	
Partner Contact Name: *	Dr. Roshan Shrestha
Partner Contact Title:	Executive Chairperson
Partner Organization: *	Environment and Public Health Organization (ENPHO)
Classify Partner Organization (Please Select): *	Non Governmental Organization (NGO)
Partner Website:	www.enpho.org
Partner Address: *	Environment and Public Health Organization (ENPHO) Thapagaon, New Baneshwor, Kathmandu, Nepal
Partner City: *	Kathmandu
Partner State:	N/A
Partner Country (Please select from the provided list): *	NEPAL
Partner Postal Code:	N/A
Describe Partners' Responsibilities (word limit 50)*: * **ENPHO, with their technical expertise, will establish "Arsenic Biosand Filter Technology Centers" for comprehensive training and education of water supply implementers. ENPHO will also establish a network to coordinate in-country implementation efforts, communicate findings with interested agencies, and encourage them to join the network to expand our project.**	

ADDITIONAL PARTNERS: **Do you have additional partners beyond the one listed above?** **Yes_X_ No___**	
Partner 2 Contact Name:	**Mr. Heimo Ojanen**
Partner 2 Contact Title:	**Team Leader**
Partner 2 Organization:	**Rural Water Supply and Sanitation Support Programme (RWSSSP), Nepal**
Classify Partner 2 Organization (Please Select):	**Bi-lateral Development Agency**
Partner 2 Responsibilities (25 words): **RWSSSP will strengthen the capacity among the rural poor towards long-term, self-reliant, user-participatory safe water provision, involving training of local women, entrepreneurs, teachers, authorities, etc.**	
Partner 2 Website:	**None**
Partner 2 Country (Please select from the provided list):	**NEPAL**
Partner 3 Contact Name:	
Partner 3 Contact Title:	
Partner 3 Organization:	
Classify Partner 3 Organization (Please Select):	
Partner 3 Responsibilities (25 words):	
Partner 3 Website:	
Partner 3 Country (Please select from the provided list):	

SECTION II. PROJECT PROFILE
[Please enter the information below. NOTE: ONE QUESTION HAS BEEN ADDED TO THIS SECTION from the earlier proposal form.]

Project Profile

SECTION II. PROJECT PROFILE:	
Title of your project proposal: (15 words or less)*	**Arsenic Biosand Filter: Sustainable Implementation of an Appropriate Household Drinking Water Filter for Rural Nepal**
Proposed title for your project banner at the Marketplace: (50 CHARACTERS or less including spaces)*[1]	**Arsenic Biosand Water Filter for Rural Nepal**
Region of Implementation (Please select from the provided list in Annex A in the Proposal Submission Instructions): *	South Asia
Country of Implementation (Please select from the provided list in Annex B in the Proposal Submission Instructions): *	Nepal
Primary Sector (Select one from the provided list in Annex C in the Proposal Submission Instructions): *	Water and Sanitation
Secondary Sector (Select one from the provided list in Annex C in the Proposal Submission Instructions):	Rural/ Agriculture Development
Project Duration (in number of months only) *	8

[1] The DM Team reserves the right to edit the title of your project banner to meet our space and design requirements.

Project Details

A. Project Summary
Please summarize your project (250 words maximum). This summary will be used in publications to describe the project, and in any information provided to the jury, reviewers, and other potential funders.[2]
Nepal is one of the least developed countries in the world. Millions of impoverished villagers in the rural Terai region lack access to safe drinking water services. It is estimated that 25+% and 40+% of all tube wells are contaminated with arsenic and pathogens respectively, causing severe health consequences such as cancer and stunting. MIT and two local partners (ENPHO and RWSSSP) developed an award-winning, innovative household water filter (Arsenic Biosand Filter, or ABF) for simultaneous arsenic and pathogen removal, constructed using available local labor and materials. The design is optimized based on the socio-economic conditions in rural Terai. Pilot study shows high user acceptance and excellent technical performance. Prominent NGOs in Nepal consider the ABF as the best among all household filters available. The DM funding will provide startup capital to pilot a technology transfer network, consists of MIT, ENPHO, RWSSSP, and potential new partners. We will establish an in-country technology dissemination and implementation center. We will also build local capacity among the poor towards long-term, self-reliant, user-participatory safe water provision, involving training of local women, entrepreneurs, trainers, teachers, and authorities in 25 villages, targeting 10,000 populations. Our simple and flexible pilot network is both financially and organizationally sustainable because of the independent roles of each partner utilizing their expertise. The model can easily be scaled up to serve new areas as new partners join our network. Beside health benefits to the users, this project stimulates village development, and contributes to the World Bank's country-specific goal of poverty-alleviation.

[2] The DM Team may edit your project summary for errors and to enhance readability/comprehension.

Question 1

What is/are the problem(s)/issue(s) you are addressing? What are the causes of the problem? (300 words maximum) *

Although access to safe drinking water is a basic human right (WHO, 2003a), millions of Nepali are denied this right. Nepal is the 12th poorest country in the world, where 45% of its 24 million people live below the poverty line (World Bank, 2002; UNICEF, 2003). In the rural Terai region, basic safe water and health services are often unavailable. About half of the population suffers from diseases related to unsafe water supply and sanitization. The infant and under-five mortality rates are very high at 66/1000 and 91/1000 births respectively (UNICEF, 2003). 51% of the children suffer from stunting on account of water-borne diseases (UNICEF, 2003).

It is estimated that 90% of the rural Terai population receives their drinking water supply from tube wells, but 20+% and 40+% are arsenic and microbially contaminated (ENPHO, 2003). In some places, arsenic concentration is over 100 times higher than the WHO guidelines (MIT, 2002). Arsenic is a poison that causes skin diseases and cancers (WHO, 2002). Water-borne pathogens can cause diarrhea, cholera, and stunting.

Despite growing recognition of the immediacy of this crisis, many previous aid projects have failed in rural areas (UN, 2002). This is because many of the available technologies have serious drawbacks, including complex production methods, high maintenance, high costs, insufficient filtration rate, and/or reliance on materials unavailable in remote villages. In addition, most technologies treat arsenic and pathogens independently, resulting in complicated treatment operations. Implementation deficiencies including ineffective technology transfer, confusing NGO responsibilities, organizational non-sustainability, lack of user education and contribution, and inadequate long-term maintenance and monitoring capacity are other major causes of the water crisis.

Currently many villagers have no choice but to drink contaminated water. Often women and children are most vulnerable to these preventable water-borne diseases.

Question 2

What is your idea? How does it address the theme of this year's Development Marketplace of *Making Services Work for Poor People*? (500 words maximum) *

To provide safe water and health improvement for millions of poor in the Terai, MIT, ENPHO and RWSSSP developed an innovative, award-winning filter (Arsenic Biosand Filter, or ABF) for simultaneous arsenic and pathogen removal. The filter design is optimized based on five years of research, thorough field assessments of the socio-economic conditions in the Terai, extensive field experiments and comparison with competing technologies available in Nepal, Bangladesh, India, Haiti, Nicaragua, and other countries.

The ABF technology is robust and highly adaptable. The contaminant removal process is based on simple chemistry. The entire ABF can be easily constructed by trained local labor using locally available materials (sand, gravel, iron nails, buckets, concrete, bricks). Three alternative designs exist to allow the users to choose a model that fits best their own conditions.

An extensive 2002-2003 pilot study in 4 villages showed high user demand of the ABF and excellent arsenic and pathogens removal. The users like the high filtration rate, simple operation, minimal maintenance, and clean-looking good-tasting water. Prominent NGOs in Nepal consider the ABF as the best among all household filters available.

The DM funding will provide startup capital to a pilot technology transfer model. A technology dissemination network will be established, involving MIT, ENPHO, RWSSSP. Each will play a unique role according to their expertise. MIT will take the lead role in managing this project among partners, and will develop a monitoring and evaluation system. ENPHO will establish ABF technology centers for enhanced training and research, and will outreach and coordinate in-country ABF implementation efforts. RWSSSP will build capacity in local villages toward safe water provision through training and education of users, technician/ entrepreneurs and authorities.

Our idea can effectively "*Make Services Work for Poor People"* in four ways:

First, the users are provided with information about their water and health such that they can make decisions about the technology and service level that best fit their needs, having a clear understanding of the costs and responsibilities of each option. Our experience, as confirmed by a 1997 UNDP/World Bank study, showed that this "demand-responsive" approach significantly increases water system sustainability.

Second, we emphasize self-reliance among the local and the poor for water service provision. The combination of inexpensive construction materials easily obtainable by the poor, simple construction method easily learned by the often uneducated poor, and the active participation of local authorities and entrepreneurs will ensure long-term sustainability requiring minimal external support.

Third, the innovative ABF treats arsenic and pathogens simultaneously at a high flow rate, producing significant time savings and user convenience. The easy operation and maintenance is suitable for women and children. Furthermore, the filtered water is clean-looking and good-tasting, free of color and odor. These favorable "observable" water qualities promote quick acceptance and high demand of ABF among the poor.

Finally, our project is realistic and achievable. Our proposed activities enhance the capacity of current social-economic infrastructure, as opposed to a major overhaul of the economic structure, therefore minimizing unnecessary negative impacts to the existing rural life.

Question 2b (for biodiversity-oriented proposals ONLY):

Describe how your idea will contribute to the conservation of biodiversity? (300 words maximum) *

Question 3

How will you implement your idea? Describe in detail each of the activities/steps that your project will undertake to meet its objective(s)? Please provide a corresponding timeline if possible. (500 words maximum) *

MIT will supervise its partners in the dissemination of the ABF to the poor. ENPHO will become the in-country coordinator of all ABF implementation efforts. RWSSSP will establish community-based programs that encourages self-reliance. Beyond the DM funding period, MIT will give ENPHO and RWSSSP full control to continue their work.

Our planned activities (may change based on actual conditions):

Month 1-2 (e.g. Feb-Mar 04)

MIT

- Purchase equipment.
- Setup web page for project updates.
- Arrive in Nepal, meets with ENPHO and RWSSSP to coordinate logistics.

ENPHO

- Establish an ABF Technology Center for enhanced research and training to water implementers and authorities such as District Development Committees (DDCs).
- Prepare a comprehensive ABF technology manual, and all relevant training materials.

RWSSSP

- Develop all relevant education materials for village programs.
- Begin health awareness activities.
- Select 25 villages based on prior water testing results.
- Hire a medical doctor.

Month 3-7

RWSSSP and MIT

- Conduct village programs with existing local Village Development Committee (VDC), consisting of several visits:

  First Visit:

  - Establish baseline conditions by water testing, health screening, and villagers interviews.

  Second visit:

  - Morning village-wide (men and women attendance) health education workshop.
  - Afternoon demonstration of construction, O&M, and features of the three ABF versions (two concrete and a plastic version), and inform about the cost and responsibility.
  - Distribute simple construction, O&M module with self-explanatory pictures.
  - Provide necessary training and equipments/ materials to local entrepreneurs/ technicians (*Mistri*) to assist villagers to build their own filters. Well-off villagers may alternatively choose to purchase ABF from *Mistr*i.

  Third visit (begins 2-4 weeks after workshop)

  - Build VDC management and monitoring capacity.
  - Train local teachers about health.
  - Conduct regular monitoring visits, including water testing, community discussion and question/answer meetings.

  Fourth visit (4-5 months after workshop)

  - Interview villagers to evaluate participation rate, satisfaction, women involvement, filter quality and quantity, new initiatives to build more filters, etc.
  - Discuss the future role of VDC.

ENPHO and MIT

- Coordinate project and manage database.
- Outreach to potential organizations (water implementers, entrepreneurs, health agencies, women motivators) for new partnerships to expand ABF project into new areas.
- Communicate with network partners and interested parties (e.g. through the National Arsenic Steering Committee) to discuss findings, progress, and to facilitate mutual support.
- Centralize feedback from partners to improve filter design if necessary. New filter ideas will be carefully tested to ensure performance and quality.
- Provide training and education at ABF Technology Center.
- Establish mobile ABF information center.
- ENPHO staff is available to travel to implementer's site to provide technical assistance.

Month 8 and beyond:

MIT

- Publish papers, present at conferences, maintain website, etc.
- Communicate to development community to help seed similar schemes in other places.

ENPHO

- Promote, coordinate, and disseminate the ABF technology centrally.

RWSSSP and new partners

- Implement in additional villages beyond the DM-funded 25 villages.

VDC and Mistri

- Assume all future monitoring and education responsibilities.

Question 4

How is your idea innovative or different from existing approaches that are addressing the problem(s)/issue(s) described in question one? Why did you choose this particular approach? To your knowledge, what on-going efforts exist in this area that address this problem? Has your idea been implemented elsewhere or in a different context? If so, where? What specific characteristics of your project idea demonstrate that you are applying a novel/pioneering approach? PLEASE REFER TO THE "TYPOLOGY OF INNOVATION" in Annex D in the Proposal Submission Instructions, to identify your type of innovation in your idea. (500 words maximum) *

The design and implementation of our ABF project is innovative in many respects:

New Combination of Existing Ideas – Sustainable Development & Rural Water
We applied the idea of systems thinking (e.g. iterative and multi-disciplinary) inherent in the concept of sustainable development to the design of a rural water filter. The ABF was designed on-site in arsenic and pathogen-affected villages, as opposed to many technologies designed in first-world laboratories far removed from the users (Murcott, 2001; 2002; 2003). We place technological design within social, economical, and political constraints of Nepal, according to the Sustainable Development theory. Our innovative approach results in a sustainable rural water technology that is simple in design and production, low in cost, produced by the users from local materials, and with rural focus (Schumacher, 1973).

New Combination of Existing Technologies – Arsenic and Pathogens Removal
The simultaneous removal of arsenic and pathogens is a rarity among existing technologies. The ABF design combines the strengths of two proven technologies – Three Kolshi Iron Filing Technology from Bangladesh for arsenic removal, and Biosand Technology from the University of Alberta for pathogens and iron removal. By combining these two technologies, the ABF delivers significant advantages over existing technologies, including exceptional arsenic and pathogens removal, high flow rate (20+L/hr) sufficient to supply a large family according to new water needs recommendations (WHO, 2003), aesthetically pleasing water (excellent removal of iron, turbidity, color, odor), and trouble-free O&M (20 minutes of cleaning every 3 months).

New Geographical Area – Arsenic in Nepal
The development and implementation of safe rural water in Nepal is relatively slow compared to neighboring countries. The ABF is among the first successful rural arsenic technologies, and is optimized under actual field conditions.

New Delivery method – Long-term Self-reliance
Instead of relying on a remote central authority and/or complicated top-down distribution networks that are often ineffective in reaching the rural poor, we will strengthen the capacity of existing local authorities like Village Development Committee (VDC) to support responsible self-reliance. Locals will be provided with all necessary hardware (i.e. tools) and software (i.e. knowledge) to construct and maintain ABFs using materials available even in remote villages, ensuring long-term sustainability.

New Delivery Method – Participatory Approach from Men and Women Users
Our implementation scheme adheres to the Dublin sustainable water development guidelines of "participatory approach," involving users and policy-makers, with decisions taken at the "lowest appropriate level" (i.e. individual households). We will inform users (men and women) about their water and health such that they will make individual demand on service level and technology that best fits their conditions, with an understanding of the costs and responsibilities of each option.

New Financing Method – Non-cash Contribution
Instead of asking the poor for solely monetary contributions, our poverty-sensitive approach allows alternative contributions (i.e. readily available labor and building materials), evaluated based on a RWSSSP developed model. This non-cash contribution provides the users a sense of ownership, which leads to better maintenance of their ABF, as opposed to the non-sustainable practice of providing free filters.

Question 5

What is your/your organization's role in implementing the project idea? Provide a brief description of your/your organization's activities and experience in the area/sector of the project. What is the particular capacity of your organization in implementing the project idea? (250 words maximum) *

The MIT Masters of Engineering Program, "Water and Sanitation in Developing Countries" projects, take place in Nepal, Brazil, Nicaragua, Haiti and focus on sustainable (technically-sound, socially-acceptable, cost-effective) household drinking water treatments, with an emphasis on arsenic and microbial contamination.

Since 1999, the Nepal Water Project has, with local partners, been among the first to identify and address the water crisis through site investigation, innovative technology design, laboratory and field tests, and pilot implementations.

MIT will take a lead role in managing this project among partners. MIT will provide staff and graduate/ post-graduate students to support our partners' activities, and will develop a monitoring, evaluation, and information dissemination system.

Over 30 Masters theses have contributed to the Nepal Water Project (see http://ceemeng.mit.edu/~water/documents.html), including:

- Investigation of arsenic contamination and speciation in Terai drinking water, 2000-2002
- Evaluation of arsenic adsorption technologies including 3-Kolshi and activated alumina, 2001
- Evaluation of arsenic removal using coagulation & filtration, iron-oxide coated sand, modified alumina, and ABF, 2002
- Pilot ABF Implementation in the Terai, 2003
- Social evaluation of arsenic technologies, 2003

- Investigation of microbial contamination in water supply, 2000
- Evaluation of microbial removal from Terai drinking water using household coagulation & settling process, solar disinfection, ceramic filter, and biosand filter, 2001-2003
- Investigation on household water use and treatment practices in rural Nepal, 2001
- Implementation of biosand filter, and household water chlorination 2001-2002
- Evaluation of a tubewell water supply program, 2002
- Development and marketing of ceramic filter, 2002-2003

Question 6

Who will be the proposed project team leader? This person will be the key contact between Development Marketplace and the project team. Describe the experience/background of the project team leader with regard to implementing the above mentioned project idea. Please enclose a curriculum vitae of the proposed project team leader if available. (200 words maximum)* ATTACHMENT: Yes _X_ or No ____

Susan Murcott will be the project team leader. She is a Lecturer and Research Engineer in the Department of Civil and Environmental Engineering at Massachusetts Institute of Technology. She is also a visiting faculty at Cambridge University, UK, where she teaches two courses "Design for Developing Countries" and "Sustainable Development for Large Infrastructure Projects." In addition, she is an independent consultant with Ecosystems Engineering, Marblehead, Massachusetts. Her work focuses on innovative and low-cost drinking water and wastewater treatment technologies for developing countries. Murcott has conducted research and field projects in Brazil, Mexico, Nicaragua, Haiti, Eastern Europe (Hungary, Slovakia, Czech Republic), South Asia (Nepal, Myanmar, India, Bangladesh), Korea, Japan and China.

Murcott created the MIT "Water and Sanitation in Developing Countries" projects and was instrumental in launching the ABF pilot study. Preliminary studies of the ABF took place in her field sites and lab. Murcott established the original arsenic biosand pilot study project sites and has coordinated with partner organizations during that study.

Moreover, Murcott has presented at numerous major conferences and published many articles on sustainable development as applied to water and wastewater treatment. Refer to the enclose curriculum vitae for additional details.

Question 7
What is the role of your primary partner organization in implementing the project idea? Please provide a brief description of your primary partner organization's activities in the area/sector of the project. What is the history of collaboration between your organization and your partner(s)? Is there already a formal agreement for partnership on this project? If so, between which partners? If you plan to implement your project without a local partner, please explain why. *NOTE: Biodiversity-oriented projects MUST have a local partner*. (250 words maximum) *
Since both of our partners play significant roles in this project, description of both partners are provided: ENPHO, established in 1990, is a foremost Nepali-based and operated environmental NGO, with 30+ staff highly experienced in research & development of appropriate water technologies. ENPHO introduced various technologies and provided technical support to many prominent agencies, including RWSSSP, Red Cross, NEWAH, UNICEF, Peace Corp, etc. ENPHO is a key member of the National Arsenic Steering Committee (NASC), responsible for developing arsenic testing protocols. ENPHO has partnered with MIT since 2001 for environmental investigation, design and testing of technologies, and monitoring/ evaluation. In this project, ENPHO and MIT will establish an ABF technology center for enhanced training. They will also coordinate in-country implementation efforts, and outreach for new partners. RWSSSP, established in 1990, is the successor to FINNIDA, which operated in Nepal since 1972. RWSSSP's 70+ staff operates in eight rural districts, serving 150,000+ people. RWSSSP past successes includes tubewell programs, latrine programs, safe water programs, health awareness programs, village capacity building programs, etc. RWSSSP is a key member of the NASC, responsible for advising sustainable mitigation scheme. RWSSSP has partnered with MIT since 2002 to evaluate RWSSSP's rural water programs, and to setup the 2002-2003 ABF pilot study. In this project, RWSSSP and MIT will establish programs to strengthen local capacity in safe water provision, through health awareness workshops, community discussion meetings, user training, etc. MIT has a formal agreement with both partners describing the respective roles and responsibilities in this project.

Question 8

Who are the principal beneficiaries of the project activity? Please describe the degree of acceptance that the project has among beneficiaries and the level of participation, if any, of the beneficiaries in the project? (250 words maximum) *

Arsenic and microbial contamination cause water-borne diseases that can be prevented by ABF. Therefore, this project can directly improve the health of thousands of poor in the rural Terai. Better health contributes to higher quality of life and reduced stress on medical facilities. Less sickness also results in greater worker productivity, leading to overall economic growth of society, contributing to the Nepali government's Millennium Development Goal and World Bank's country-specific goal of poverty-alleviation.

External benefits such as time savings resulting from avoidance of long travel to collect better quality water will allow the poor to pursue productive work. Family cohesion will be enhanced by preventing divorce and rejection of marriage of some women who show signs of skin diseases due to arsenic poisoning (ENPHO, 2001). Furthermore, the success of our implementation program to strengthen communities' capacity and responsibility in safe water provision can be a springboard for other community initiatives such as sanitation services.

A successful 2002-2003 pilot study in 4 villages shows that ABF not only effectively removed arsenic and pathogens, but also iron, turbidity, foul taste, and odor, producing aesthetically-pleasing water. There is high user acceptance and strong demand of the ABF. The users like the high filtration rate, simple operation, and minimal maintenance. They think the filter is a durable and permanent drinking water solution. Prominent NGOs in Nepal consider the ABF as the best among all filters available.

Finally, the expansion of our project to other locations will *Make Services Work* for potentially millions of poor.

Question 9

What are the expected outcomes/results of your project? How are they measurable? How do these results/outcome help your targeted beneficiaries? If possible, indicate how many beneficiaries your project expects to reach. How should DM measure project success after implementation is complete? (250 words maximum) *

The success of our pilot technology transfer model will be measured by its long-term sustainability and large scale replicability, evaluated from the users', management's, and technological perspectives. We will collect data from primary sources, including household surveys, interviews with VDC and community leaders, and technical assessments. Where feasible, objective, scientific methods will be used, including control groups.

Users

The users' evaluation is very important because they are the primary beneficiaries. We expect high women participation and satisfaction, clear community role to assist informed choice about filter construction, time savings, growing long-term usage rate, and new initiative to build more filters. We also expect informal transmission of health and ABF knowledge from villager to villager, through word of mouth, to surrounding non-project areas.

Management

We expect more organizations, with multi-disciplinary backgrounds and proficiency, to join this network, expanding our project to new areas. More specifically in our village programs, we expect to mobilize 25 villages, reaching approximately 1000 households and schools, targeting 10,000 people. We expect to train 25 VDCs, 50 Mistri, and 50 local teachers (each category with 50+% women). We expect DDCs/ VDCs to allocate resources toward long-term monitoring and education activities. Finally, we will publish in peer-reviewed journals and present in conferences to communicate our success to the development community.

Technological

We expect the ABF to produce water within relevant guidelines. We expect villagers' health conditions to improve, as indicated by diarrhea prevalence and arsenic concentration in hair samples, after project implementation, as compared to initially established baseline.

Question 10

How will your project be sustainable beyond the phase funded by Development Marketplace (DM)? Please describe both organizational sustainability and financial sustainability, and indicate specific details (agreements from other funders, projected revenue flows) that can be verified to suggest that your project is sustainable and can leverage DM funding. (300 words) *

Our simple and flexible organizational network is sustainable because each team member (i.e. MIT, ENPHO, RWSSSP) has a specific role based on its expertise, which is different from the others. This facilitates independent action by each while encouraging communication. Beyond DM funding phase, MIT's will hand over all in-country management responsibility to ENPHO, and serve as a consultant as necessary. ENPHO will promote and coordinate all ABF efforts, and will provide technical services to interested implementers/ NGOs. Implementers including RWSSSP will continue to carry out capacity building programs in additional villages. Because of the very direct communication between MIT, ENPHO, RWSSSP, and the users, feedbacks will be easily heard, and improvements will be quickly incorporated.

Independent role by each partner also contributes to financial sustainability. Each organization will develop its own financial support network, using financing vehicles that are most appropriate (e.g. grants, donations, income). MIT's reduced role will be easily supported by the university. ENPHO's activities will be supported by training fees paid by interested implementers/ NGOs. ENPHO has an agreement with the Red Cross, Department of Education, and RWSSFDB (a World Bank supported program) to provide technical services and to assist ABF implementation. RWSSSP and its predecessor, FINNIDA, have received Finnish government support since 1972, and expects to continue. It should be noted that the only additional costs to our ABF project are related village capacity building programs. However, these costs are justifiable; because the users will provide materials and labor, funds that would otherwise be allocated to filter distribution and subsidy is freed up to support these programs.

Furthermore, VDCs and DDCs will collect funds from donors, government and users for future monitoring and education activities.

Finally, the ABF is sustainable from the user's perspective because the long-term filter operation and maintenance requires minimal external support.

Question 11

What is the possibility of implementing your idea/project elsewhere (in a different country)? (150 words) *

Because of the independent sustainability of our network partners, our project can be easily scale up according to each organization's contribution level. For example, NGOs like NEWAH and HELVETAS can join our network, start their implementation scheme in their operating regions, and serve a number of new villages.

There is also a huge possibility of seeding a similar project in the neighboring Bangladesh and India. Up to 100 million people have no practical alternative to arsenic and pathogen contaminated water. Although the ABF construction and the village program content may need slight modifications to adapt to the different socio-economic conditions, the idea to equip the poor with "knowledge tools" to solve their own problems characterizes this effort. No other person understands the poor's situation better than the poor themselves. If they are given the appropriate tools and honest advice, their ingenuity will produce solutions that will serve them the most.

SECTION IV. PROJECT COSTS

Instructions

1. PLEASE USE THE ACCOMPANYING EXCEL SPREADSHEET TO INDICATE YOUR PLANNED PROJECT BUDGET. **THE SPREADSHEET HAS BEEN FORMATTED FOR YOUR CONVENIENCE.**
2. ALL CURRENCY UNITS SHOULD BE INDICATED IN US DOLLARS. **DO NOT USE DECIMALS OR COMMAS.** The spreadsheet will automatically format your numbers.
3. Any applicable taxes should be included as part of budget.
4. "Total Personnel Costs" should include overall cost of wages, salaries, and benefits associated with project.
5. “Materials and Equipment," "Training," "Travel" refers to any expenses in these categories to achieve project objectives.
6. ALL expenses **must** be explained in the text box provided below.
7. “Evaluation/ Information Dissemination” should include expenses to assess the impact of the project and to share that information with development community.
8. "General Administration/ Overhead" should not exceed 10 percent of Total Project Expenses.
9. "Support from other sources" refers to contributors other than Development Marketplace. If applicable, please explain in the text box provided below.
10. Funding requested from the Development Marketplace is to be calculated by subtracting "Support from other sources" from the "Total Project Expenses.” Your requested amount cannot exceed the maximum award amount of US$250,000.
11. "Estimated Project Revenues" refers to any income-generation expected during project period and should also be described in the text box provided below.

Project Costs – Question 1

Briefly describe expenses in each of the categories that you have listed in your budget for above (300 words) *

This summarizes the total budget (see attached) comprised of individual components. It is the intent that each partner be funded separately (i.e. the total budget divided into appropriate sums) according to their responsibilities.

Personnel:
ENPHO staff = US$250/person/month * 4 persons * 8 months = US$8,000
RWSSSP staff = US$200/person/month * 5 persons * 8 months = US$8,000
Medical doctor = US$500/month * 8 month = US$4,000

Materials and Equipment:
Setup ABF technology center, training & education facilities, prepare ABF manual = US$5,000
Setup mobile ABF information center = US$2,000
Village programs audiovisual equipment = US$4,000
Water test equipment = US$10,000
Health awareness promotion and education materials = US$100 per village * 25 villages = US$2,500
Filter training workshops for users and Mistri including equipments = US$500 per village * 25 villages = US$12,500

Training:
Training of VDC/DDC on water management, and local teachers on water-borne diseases = US$200 per village * 25 villages = US$5,000

Travel:
Return air travel and visa between Nepal and U.S. = US$3,000 per trip * 4 trips = US$12,000
Per diem living expense for visiting members at US$50/person/day * 360 person-days = US$18,000
In-country travel to field sites for all partners including vehicle, fuel, driver = US$1,000 per month * 8 months = US$8,000

Others:
Project management, communications, outreach activities, meetings = US$1,000 per month * 8 months = US$8,000
Contingency at 10% of total project expense = US150,000 * 10% = US15,000

Evaluation/ Information Dissemination:
Village monitoring, health survey, users interview = US$400 per village * 25 villages = US$10,000
Project evaluation, data collection and management = US$3,000
Website maintenance = US$2,000
Produce report, publish journal articles = US$4,000
Present findings in conferences, seminars = US$4,000

General Administration/ Overhead
MIT administration cost = US$3,000
Overhead including utilities, office supplies, etc. = US$2,000

Project Costs – Question 2

Please describe or explain clearly any non-DM funding that your project is receiving or will receive and indicate their contributions. To the extent possible, please indicate the names of the other funders and the amount they will be contributing to your project and what the funds would be used for. Please note any funding sources that are anticipated but NOT confirmed as well. (200 words)

The ABF design won the prestigious US$10,000 first prize Lemelson Award at the MIT IDEAS Design Competition. This US$10,000 supported the 2002-2003 pilot study on ABF performance testing and user acceptability.

ENPHO has a US$25,000 contract with the Nepal Red Cross Society, Rural Water Supply Fund Development Board (RWSFDB), and Nepal Department of Education (DOE) toward technical services on arsenic and pathogens mitigation. The World Bank funds both RWSFDB and DOE. Of the US$25,000, about US$10,000 will directly benefit our ABF project. In addition, ENPHO will commit US$10,000 from its own funding toward our ABF project.

The US$20,000 is roughly divided into four categories, comprised of $5,000 towards communications, awareness, and promotion activities, US$5,000 towards ABF technology center establishment, US$5,000 towards implementation and coordination, and US$5,000 towards salary and infrastructure.

RWSSSP has allocated approximately US$120,000 toward arsenic and pathogens mitigation activities for the fiscal year ending August 2003. Of the US$120,000, about US$15,000 is anticipated to contribute to our ABF project.

The $15,000 is roughly divided into four categories, comprised of US$2,000 towards awareness activities at village level (e.g. posters) and district level (radio program), US$7,000 towards local capacity building, US$3,000 towards health survey and monitoring, and US$3,000 towards salary.

Project Costs – Question 3

If your project is generating any revenue from its activities, please describe (150 words)

ENPHO will generate revenue in two ways. First, its ABF technology center will charge a fee to individual or organizations that wish to receive intensive training in ABF construction, operation, maintenance, repair, as well as scientific education about ABF technology. The estimated revenue is US$2,500 during the DM project time frame. Second, ENPHO can, at its clients'/partners' request, provide in-house or field-level technical consulting services such as arsenic and microbial testing, implementation activities, health monitoring, etc. One example of this revenue is the combined US$25,000 program as described above. These revenue streams will provide ENPHO with financial stability to maintain and expand its leadership role in ABF implementation beyond the DM funding period.

Project Costs – Question 4

ALL project teams/organizations (with the exception of local governments and universities) MUST enclose current and a one-year projected income statement and balance sheet. These financial statements need not be audited. *All biodiversity-oriented projects must also include financial statements of the primary partner organization and/or other partner organizations as well.* Sample financial statements will be provided on the DM website for your reference.

SECTION V. ADMINISTRATIVE INFORMATION

Administrative Information – Question 1
If your proposal is a translation from local language (French or Spanish), do you want to attach original version for reference? **Yes _____ No ___X___**
Administrative Information – Question 2
Have you ever received a grant from any WB grant Program? * **Yes _____ No ___X___** **If yes, indicate which one:**
Administrative Information – Question 3
How did you find out about Development Marketplace 2003? (50 words) To obtain additional funding to support ABF implementation, Susan Murcott (team leader) contacted her former MIT classmate, Ede Ijjasz, who is currently working at World Bank, for advice. Ede suggested that the DM Competition, one of the most successful WB funding programs, embraces innovative ideas like the ABF project.

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