CONTINUING PROJECT APPLICATION FOR CHAPTERS
(Note: Please keep the application to four pages, with a maximum of 4 pages of attachments)

SECTION 1: Chapter Information

Today’s Date:  March 7, 2008

Chapter Name:  University of Hartford Student Chapter

Chapter President:  Rachel Ladue   ladue@hartford.edu  865-776-3884

Name   E-mail address   Phone

Faculty Advisor:  David Pines    pines@hartford.edu  860-768-4560
(If Applicable) Name   E-mail address   Phone

Project Lead:  Bob Arsenault   rjace52@yahoo.com  860-904-2813

Name   E-mail address   Phone

Eligibility Criteria: (We cannot approve chapter projects without a current chapter agreement)

1) Is your EWB-USA chapter agreement current (circle)?   X__Yes   ____No

2) What is the date of submission of your Chapter Agreement?  U of H Student Chapter:  1/06

3) Does your chapter currently have a project (circle)?   X__Yes   ____No
   • If Yes, which projects (Country, region, type)?
     Abheypur, India:  Implemented first phase of project in January 2008.  Interested in doing a
     joint student-professional chapter project which is a pipeline from girls school to lower caste
     community and this student chapter rainwater harvesting project.

   (Note: In general, EWB-USA asks that chapters limit their number of projects to three for
   quality and funding reasons.  Please contact the project managers with questions)

4) How many people will be working on this project?
   • Number of Students:   ____15____
   • Number of Professionals:   ____2____
   • Are all project participants members of EWB?   X__Yes   ____No
SECTION 2: Project Information

1) Country: India

2) Region/State: Haryana

3) Community: Abheypur

4) Location in the Country (e.g. South West Kenya, 30 miles from Tanzania): 30 miles South of New Delhi

5) Project Title: Rooftop Rainwater Harvesting for Girls Primary School

6) Phase Descriptions: (An example has been filled in)

<table>
<thead>
<tr>
<th>Phase Number</th>
<th>Dates</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5/2006-1/2008</td>
<td>Water Supply for Girl’s School</td>
</tr>
<tr>
<td>2a</td>
<td>New (Joint Project)</td>
<td>Water Supply for Lower Caste</td>
</tr>
<tr>
<td>2b</td>
<td>New(Student Project)</td>
<td>Rooftop Rainwater Harvesting</td>
</tr>
</tbody>
</table>

7) Project Summary: provide a short overview summary of the proposed project.
   • One paragraph. Approximately: 75 words

The proposed project is a follow-on to the installation of a solar powered groundwater pump and water storage system at the girl’s primary school. During the rainy season there will be limited solar energy to power the groundwater pump so the girl’s school will need an alternative supply of water. With concrete roofs (see attached photo), the school buildings provide an excellent location for harvesting rain water and will help to provide a sustainable supply of water. It is hoped that the techniques used in this project can be replicated by the villagers in other parts of Abheypur.

8) Check the specific services or needs addressed for this project. Check all that apply.
   - [ ] Agriculture
   - [ ] Water Supply
   - [ ] Water Treatment
   - [ ] Sanitation
   - [ ] Alternative Fuels
   - [ ] Energy
   - [ ] Information Systems
   - [ ] Socio-Cultural
   - [ ] Construction
   - [ ] Environmental
   - [ ] Micro-Enterprise
   - [ ] Ecosystem
   - [ ] Health and Safety
   - [ ] Education
   - [ ] Other: Describe: ____________________________________________

9) How many people will be affected by this project in a certain geographic region?
   a) Directly Affected: 200
   b) Indirectly Affected: Excess water is available for others to use in the village
   c) Geographic Area (5km radius, town, region etc): ~1 km radius
10) **Detailed Project Description:** Provide a more detailed description of your project. What is the goal of the project? Why is this project necessary? Are there any proposed solutions for the project? See sample questions below. (1-3 paragraphs. Approximately: 300 words)

   Roof top rain water harvesting is an important technique that is being pursued in both urban and rural Gurgaon for meeting the growing population’s water demand as can be seen by the attached email from the NGO (Navjyoti India Foundation) to our student chapter. The goal of our project is to demonstrate how this technique can be used to collect, treat, and store that provides a clean drinking water source at the girls primary school during the rainy season.

   The design of the rooftop rainwater harvesting system is being done by 15 sophomore engineering students who have elected to work on a sustainable and appropriate design for their 2nd year design project. Attached is a sketch of the school yard with a more detailed site map being drafted using GPS and school buildings measurements made during the implementation of the solar powered well project. The school yard has three school buildings with two others that are under construction that will be used to harvest rainwater. There are several alternatives being considered by the EWB student team. These include the rooftop lining material, piping material, size and location of storage tanks or piping rainwater to existing solar water storage tanks, construction of foundation for water tanks, and water treatment.

   The necessity of this project can be seen by the importance that the NGO is putting on making rainwater harvesting a water conservation technology that is applied in both urban and rural Gurgaon. Through our India team members at Evaluatives Inc., we hope to be able to play a part in achieving their goal of “catching millions of gallons of water.”

11) **Background:** What is the cause and history of the problem? If any efforts were made, please describe the outcome. (One to Three Paragraphs: Approximately 200 Words)

   The need for an alternative water supply to groundwater can be seen throughout the village irregardless of the family’s economic and social status in the village. First, the electric well pumps (both private and public) are only operational the limited time that the village has electric power of about 3 to 5 hours per day. Furthermore, the availability of electricity is very erratic and changes from day to day. Secondly and more importantly, there were many non-operational wells in the village. The villagers informed us that some of the shallower wells have gone dry. From our experience, this was the case for one of the two non-operating wells in the school yard. To help the village better quantify the long term sustainability of their water supply, we have requested that the village youth group measure the depth to ground water at a non-working well twice a month using a water test meter and weighted tape measure that we gave them. Before waiting to see if depletion of the aquifer may or may not be a severe problem, we feel that it is important to pursue alternative water sources such as rooftop rainwater harvesting and also to assist the NGO instilling the importance of water conservation to those people who have easy access to water.

12) What is the community contributing towards this project? Will local labor and workmanship be offered free as part of the contribution from the beneficiary group(s)?

   As with the previous project, there will be a combination of volunteers and paid local labor working on the implementation of the project. By working with the most active villagers and using local labor and materials, we hope that the rooftop rainwater harvesting that we construct at the school can be replicated by others throughout the village.

13) What potential impacts, both negative and positive, are anticipated or could possibly occur as a consequence of this project? Please consider health, economic, environmental, social, cultural, and ecosystem impacts. For any possible negative aspects that you foresee, how can these negative impacts be diminished? (One-Two paragraphs: Approximately 100 words)
The positive impact of this project is that it will provide an alternative source of water during the rainy season which will reduce the demand on groundwater. It is also hoped that the project is implemented in such a way that it can be replicated by others in the village on both public and private buildings.

The negative impact could be contamination of the water through contact with the concrete roofs that might pose a long term health effect. The design of the system will try to minimize this negative consequence and the water will be tested before it is used as a source of drinking water.

14) Who is expected to own the project proposed? Who will manage and maintain the project? Who will cover the cost of maintenance? Who will educate the beneficiaries on how to use, manage and maintain this project? (One paragraph: Approximately 75 words)

The rooftop rainwater harvesting system will be owned by the NGO. The school teachers and NGO youth group will be given the responsibility of maintaining the project. Local materials and labor will be used in the construction of the system so that is an appropriate technology for the village. Also, the youth group and other village leaders will be involved in the implementation of the project so they will understand its design and construction. The cost of any maintenance will likely be the responsibility of the NGO and perhaps the public girl’s school.

15) Who will be the technical lead or mentor for the project? What technical capabilities make this person appropriate for this project? What is the approximate cost of this project?

Bob Arsenault is the technical lead for the project. He is a professional engineer with over 30 years of experience in designing all facets of private and public sector development projects. He has worked both in the public sector as Director of Public Works for South Windsor, CT and as the founding partner of a full service civil engineering consulting firm.

David Pines, EWB student chapter faculty advisor, and the five students that implemented the solar powered groundwater pump and water storage project will assist the team. They will provide the sophomore student design course team assessment information such as local materials and construction techniques, school yard site data, and building characteristics needed for the design of the rainwater harvesting system.

Please Sign and date this form and submit it to the project manager at projects@ewb-usa.org:

Signature: David Pines

Date: March 6, 2008

E-mail Address: pines@hartford.edu

Please submit this application electronically via email to the EWB-USA Projects Staff at (projects@ewb-usa.org).
Attachments:

(1) Photo of School Building Roofs

Storage Building Roof where Solar Panels are Installed with Roof of Main School Building in the Background
(2) Email from Chandni Bedi of the Navjyoti India Foundation (NGO) on the importance of rainwater harvesting to both urban and rural Gurgaon

Hello friends,

Hope you are doing well. Just to update you about the progress here in India. We have recently formed a group under the aegis of Dr Kiran Bedi called Green Gurgaon Good Gurgaon. This comprises of various professionals from different walks of life such as NGOs, IT professionals, corporates, Resident Welfare Associations (RWAs), technical experts all of them from Gurgaon. We have particularly taken up the cause of promoting rain water harvesting and preparing both urban as well as rural Gurgaon for this monsoon i.e. by July month. In this context, a first meeting was sought with the Administrator of Haryana Urban Development Authority (HUDA) to seek public-government partnership and how together we can achieve our goal of catching millions of gallons of water for this season. During the meeting, we also mentioned the commendable work done by you and the students of the University, your group i.e. Engineers Without Borders. Since, we were already thinking of projects on similar lines in Abheypur village and surrounding areas, I think it would be really nice if you join us in the group. In fact, it would be great to have a representative from Evalueserve as they have an office in Gurgaon. We do understand time is the major limitation but this is a volunteer group and works after office hours or meet on Sundays as per their availability.

Regards

Chandni Bedi Taneja  
Head (Operations) Admin, HR and Rural Development Programme  
Khasra No. 99, Village Mohammadpur, Karala Majri,  
New Delhi - 81  
(M) 9818070787
(3) School Yard Site Map – Preliminary Sketch

Entrance from main road (gate)

Classroom A under construction (23’3” x 35’7” x 13’ height)

Old Water Storage Tank (5’6” x 9’6” x 7’1” height)

Pumping Well

Classroom B (35’2” x 24’2.5” x 10’ height)

Monitoring Well

Water Storage Tanks

Not To Scale

Classroom C under construction (23’3” x 35’7” x 13’ height)

School Storage Building E – Solar Panels on Roof (25’6” x 32’ with building height of 14’5” and porch ht of 11’6” which is 9’ of 32’ dimension)

TV Food

Main Room Building D

Latrines

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