Document 502
Chapter Application To Acquire An EWB-USA Program

Chapter: CU Boulder
Country: Peru
Community: Huacapongo
First Project: Potable Water System

Prepared by:
Patrick
Scott
Benjamin
Jordan
Chris
Julia
John
Franco
Kate
Rita
Kara

9/31/2014

ENGINEERS WITHOUT BORDERS USA
www.ewb-usa.org
Please check one of the following boxes:

☐ Chapter 502 application submitted for Open Program from EWB-USA website.
☒ Chapter 502 application submitted with 501 – Community Application for an EWB-USA Program/1st Project.
  • Has the 501 application already been approved by the Application Review Committee (ARC)? □ Yes ☒ No

Travel for Student Chapters:
Student chapters must check their university's policy regarding travel to the destination country before submitting this application. If the university does not allow travel to the destination country, the chapter will not be allowed to apply for this program.

  • Does the university/college allow students to travel to the destination country?
    ☒ Yes □ No

Submittal Options:

● Submittal Options for Chapter with Established Community Partnership

  1. Chapter submits 502 chapter application ALONG WITH 501 community application:
     o Chapter submits 502 – Chapter Application to Acquire an EWB-USA Program along with the 501 – Community Application for an EWB-USA New Program/1st Project according to the monthly submittal deadline schedule for 501 applications. 501 applications are due the last day of each month and the review process is 4 to 6 weeks. The community will add the name of the chapter it is submitting with in their 501 application.
     o The partnering chapter can either submit both the 502 application and the 501 application together OR the community can submit the 501 application and the chapter can submit the 502 application separately. Both applications should note the partnering chapter or community.
     o The 502 application will not be reviewed until the 501 application is approved. If the 501 is declined, the 502 will not be reviewed.
     o If the 501 is approved, the review cycle for the 502 application will follow the monthly review cycle for all other reports. For example, if the 501 and 502 applications are submitted on September 30th, the 501 will immediately enter the October review process, which starts October 1st. The 502 will enter the standard monthly review cycle, which would start mid-October (see monthly submittal deadlines on EWB-USA website for exact date). The 502 reviewer will not begin their review until after approval of the 501, which in this case might not occur until mid-November.
     o All applications should be submitted to projects@ewb-usa.org.
Evaluation Criteria for Reviewers

- **Commitment to EWB-USA Theory of Change.** The EWB-USA theory of change is that all members of our partner communities will enjoy an improved quality of life through being able to access, use, and maintain technologies that are appropriate to their needs. In the accompanying 501, the applicant community identified the elements of change that they hope to affect with this program. The chapter should include a statement acknowledging acceptance of these goals and a commitment to developing a monitoring plan for the projects in this program that will study those specific elements of change.

- **Chapter is in Good Standing.** In order to adopt a new program, EWB-USA chapters must currently be in good standing, which includes:
  - Valid and signed Chapter Agreement with EWB-USA.
  - For student chapters, the annual university chapter fee is paid in full for the current year.
  - Chapter is not restricted from adopting a new program per the 203 – Corrective Action Process.

- **Quality of Existing Programs.** Chapters with existing programs must demonstrate that each program is progressing at a reasonable pace, is under the direction of qualified mentors, and requires minimal review time and support from EWB-USA Headquarters (HQ). Specific indicators that will be reviewed to assess the quality of the existing programs are listed below:
  - At least one assessment trip has been taken and the 522 Post-Assessment Trip report has been reviewed on all existing programs. If any existing programs are new and there has not yet been a 522 review after the first assessment trip, this 502 will not be reviewed until that requirement is met, per Submittal Options, 3., above.
  - Progress is made on an annual basis in the form of trips or significant advancement in the design.
  - A team of professional mentors are committed to each program.
  - All programs require an average amount of time of EWB-USA HQ staff over the life of the program from initial assessment through final implementation.

- **Capacity of Chapter to Take on Additional Programs in Terms of Fundraising and Member Support.** Chapters must demonstrate that their membership base and fundraising capacity exceeds the demands of their current programs. Specific indicators that will be reviewed as part of the application process include:
  - Demonstrated success in fundraising. At a minimum, a chapter will have to show that none of their existing programs are experiencing significant delays (greater than 1 year) due to fundraising challenges. The chapter will also need to present their plan for funding an additional program without taking needed funding away from their existing programs.
  - A large membership base. At a minimum, it will be expected that each program, existing and proposed, have at least 10 active members on each project team and an adequate team of professional mentors (as defined in the subsequent criteria). Active members include those who have assigned responsibilities and regularly attend meetings.

- **Strength of Professional Mentor Team.** The chapter has a team of professional mentors that include experience in each of the technical disciplines required of the project, construction, and international development. Additional detail on the professional mentor team requirements is included in the 405 - EWB-USA Professional Mentor Teams and Qualifications on the
Sourcebook Downloads page of the EWB-USA website. Please note that the requirements for professional mentors apply to both professional and student chapters.

- **Strength of Program Quality Management Plan.** The quality of each EWB-USA program is the responsibility of the chapter that has adopted the program. While the Project Engineers at EWB-USA HQ are valuable resources for the chapters and can provide some assistance to the chapter in their quality management, they are not responsible for the program quality. Likewise, the technical advisory committee (TAC) that reviews all projects prior to implementation is not responsible for the quality of projects. The chapter must demonstrate that it has deliberate quality control processes which are designed to ensure that the project design and implementation is of high quality.

- **Education of Project Team.** The project team is well-educated on the EWB-USA mission, vision, development approach, technical guidelines, and policies. The team will need to demonstrate their preparedness by listing all of the on-line resources that they have reviewed, all of the EWB-USA webinars and conferences they have attended, and any other education the team feels is pertinent.
1.0 Program and First Project Summary (Provide a short summary of the proposed program from Section A.3) and the first project from Section B.1(2) on the 501 application):

The program will address public health, access to water services and technical knowledge of WASH-related projects for the community of Huacapongo, Peru. Huacapongo is approximately 34km² and is home to approximately 1350 people (300 families). The primary water source has been tested by the local health post and was deemed unfit for human consumption. Approximately 40% of the community’s residents drink untreated water while 30% resort to boiling and 30% use bleach as a point-of-use treatment method. Partnered with the local water committee (JASS) and the municipal government of Huacapongo, EWB-CU Peru will address the community’s need for potable water.

2.0 Chapter Contact Information

Please fill in the fields below. All projects must have a team of qualified professional mentors that cover all technical and non-technical disciplines of the project. One person from the team must be designated as the Responsible Engineer in Charge. The qualifications of the Responsible Engineer in Charge and all other members of the professionals mentor team should be described in Section 5.0 with resumes attached. Only the Responsible Engineer in Charge needs to be identified in this table.

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail Address</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Jordan</td>
<td></td>
</tr>
<tr>
<td>Project Lead</td>
<td>Benjamin</td>
<td></td>
</tr>
<tr>
<td>Responsible Engineer in Charge #1</td>
<td>Robert</td>
<td></td>
</tr>
<tr>
<td>Responsible Engineer in Charge #2</td>
<td>Kara</td>
<td></td>
</tr>
</tbody>
</table>

3.0 Chapter Standing

3.1 Your chapter must have a valid chapter agreement. Does your chapter have one?  Χ Yes  ___ No

3.2 Does your chapter currently have any active EWB-USA programs?  Χ Yes  ___ No

3.3 If Yes, list all active Programs:

<table>
<thead>
<tr>
<th>Country</th>
<th>Community</th>
<th>Type of Projects in Program</th>
<th>Year Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peru</td>
<td>Llacamate, San Leon</td>
<td>Water Systems, Sanitation</td>
<td>2002</td>
</tr>
<tr>
<td>Rwanda</td>
<td>Cyanika</td>
<td>Water Collection</td>
<td>2013</td>
</tr>
<tr>
<td>Nepal</td>
<td>Ilam</td>
<td>Water Source Protection/Purification</td>
<td>2014</td>
</tr>
</tbody>
</table>
3.4 Please answer the following questions for each existing active program listed in the table above (create a separate table for each active program)

<table>
<thead>
<tr>
<th>Program Name: Peru</th>
</tr>
</thead>
</table>

1. What is the current status of each project in this program? Please select one of the following options: assessment, design, construction or monitoring for each active project.
- Santa Rita Sanitation: Cancelled (Latrines removed due to updated facilities)
- San Leon Water: Monitoring
- Llacamate Water: Monitoring
- Llacamate Sanitation: Monitoring

2. Provide a timeline (month/year) of major milestones of the program (project start dates, trips, design submittals, etc.)

<table>
<thead>
<tr>
<th>Dates of Travel</th>
<th>Type of Trip</th>
<th>Description of Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2002</td>
<td>Assessment</td>
<td>Program begins. First needs assessment trip in Santa Rita, Chao Municipality Peru. Assessment of water, infrastructure, environmental hazards, sanitation, and energy.</td>
</tr>
<tr>
<td>January 2004</td>
<td>Milestone</td>
<td>Santa Rita project application form submitted</td>
</tr>
<tr>
<td>June 2004</td>
<td>Implementation</td>
<td>Santa Rita implementation trip. Sanitation project is completed. Construction of pour flush latrines at school.</td>
</tr>
<tr>
<td>March 2005</td>
<td>Assessment</td>
<td>Community assessment trip for new water project in San Leon, Chao Municipality, Peru.</td>
</tr>
<tr>
<td>May-June 2006</td>
<td>Implementation</td>
<td>San Leon implementation trip. Drilled a well, installed casing, platform, and manual pump.</td>
</tr>
<tr>
<td>June 2007</td>
<td>Implementation</td>
<td>San Leon implementation trip. Installed solar electric pump and distribution system, including tanks and public tap stands.</td>
</tr>
<tr>
<td>June 2008</td>
<td>Implementation/Monitoring</td>
<td>San Leon implementation/Monitoring trip. Performed reservoir and pump system</td>
</tr>
<tr>
<td>Date</td>
<td>Event Type</td>
<td>Details</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>August 2008</td>
<td>Pre-assessment</td>
<td>Introduction to community of Llacamate.</td>
</tr>
<tr>
<td>January 2009</td>
<td>Assessment</td>
<td>Llacamate assessment trip for new water project in Llacamate, Chao Municipality, Peru.</td>
</tr>
<tr>
<td>July 2009</td>
<td>Assessment</td>
<td>Llacamate community organization, data collection.</td>
</tr>
<tr>
<td>November 2009</td>
<td>Milestone</td>
<td>TAC presentation, design submittal for Llacamate spring catchment and basic system design.</td>
</tr>
<tr>
<td>January 2010</td>
<td>Implementation</td>
<td>Llacamate implementation trip. Spring catchment construction attempted, but rain prevented construction.</td>
</tr>
<tr>
<td>April 2010</td>
<td>Milestone</td>
<td>TAC presentation, design submittal for Llacamate transmission line and break pressure tank.</td>
</tr>
<tr>
<td>May-July 2010</td>
<td>Implementation</td>
<td>Llacamate implementation trip. Catchment constructed, beginning of transmission line installed.</td>
</tr>
<tr>
<td>November 2010</td>
<td>Milestone</td>
<td>TAC presentation, design submittal for Llacamate distribution system.</td>
</tr>
<tr>
<td>January 2011</td>
<td>Implementation</td>
<td>Llacamate break pressure tank construction.</td>
</tr>
<tr>
<td>May-July 2011</td>
<td>Implementation</td>
<td>Llacamate reservoir and valve box installation. Transmission line testing.</td>
</tr>
<tr>
<td>January 2012</td>
<td>Implementation</td>
<td>Llacamate pileta and personal valve box completion. Distribution line testing. Llacame water project implementation completed.</td>
</tr>
<tr>
<td>June 2012</td>
<td>Assessment, Monitoring</td>
<td>Assessment trip for new water project in Tanguche, Chao Municipality, Peru, which fell through. Assessment trip for new sanitation project in Llacamate. Gathering data, survey community. Monitoring and inspection of Llacamate water system. Monitoring of San Leon water system resulting in replacement of leaking HDPE reservoir.</td>
</tr>
<tr>
<td>Date</td>
<td>Milestone</td>
<td>Event Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 2012</td>
<td>Milestone</td>
<td>TAC presentation and design submittal for Llacamate composting and VIP latrines.</td>
</tr>
<tr>
<td>January 2013</td>
<td>Implementation, Monitoring</td>
<td>Llacamate Sanitation implementation trip. Constructing one composting latrine and one VIP latrine. Monitoring and inspection of Llacamate water system.</td>
</tr>
<tr>
<td>April 2013</td>
<td>Milestone</td>
<td>TAC presentation and design submittal for pour-flush latrine.</td>
</tr>
<tr>
<td>June 2013</td>
<td>Implementation, Monitoring</td>
<td>Llacamate Sanitation implementation trip. Constructing four pour-flush latrines, and converting the VIP latrine into a pour-flush type. Monitoring and inspection of Llacamate water system.</td>
</tr>
<tr>
<td>January 2014</td>
<td>Implementation, Monitoring</td>
<td>Llacamate Sanitation implementation trip. Constructing four pour-flush latrines, conducting training with JASS members and community leaders, and leaving materials for an additional ten latrines to be constructed. Meeting with regional Peace Corps Director, Jorge Izaguirre, to identify potential project partners for the future. Monitoring and inspection of Llacamate water system.</td>
</tr>
<tr>
<td>June 2014</td>
<td>Implementation, Monitoring</td>
<td>Final Llacamate Sanitation implementation trip. Delivery of materials for 15 more latrines, quality inspections on latrines under construction or completed, site selection for to-be-constructed latrines. Concurrent Llacamate Water monitoring trip to address concerns of erosion at the spring source catchment. Introduction to community leaders of Samne, Chirinos, and Huacapongo to discuss need for potable water.</td>
</tr>
</tbody>
</table>

The Peru Program at the University of Colorado Boulder intends to conduct a final monitoring trip for San Leon and Llacamate in January 2015 and close out the program at that point.

3. **Has the program experienced significant delays (greater than 1 year) due to fundraising challenges?**
   No.
4. Description of professional mentor team including names, primary area of expertise, duration of involvement, and level of activity on the project. If any of the mentors listed are also proposed to support the new program, please comment on their capacity to support the additional work.

Robert
Expertise: Civil engineering project management in remediation and water projects in a large rural area. Previous engineering experience with Doctors Without Borders.
Involvement: 6 years
Project Activity: 7-time travelling mentor, hydraulic design of Llacamate water system
New Program? Yes, Responsible Engineer in Charge #1

Kara
Expertise: Civil Engineering project management and construction management, EWB experience with EWB-CU Rwanda and EWB-USC
Involvement: 1 year
Project Activity: Mentor in 501 search process
New Program? Yes, Responsible Engineer in Charge #2

Michael
Expertise: Civil engineering project management in structures, water, environmental, highway, and bridge management projects. Broad construction experience. 2 years of service in the Peace Corps.
Involvement: 4 years
Project Activity: 3-time travelling mentor, main implementation mentor for Llacamate sanitation
New Program? Yes, Professional Mentor

BJ
Expertise: Civil engineering project manager and construction/environmental restoration company owner. Returned Peace Corps volunteer (Ecuador).
Involvement: 3 years
Project Activity: 2-time Travelling Mentor, Professional Mentor
New Program? Yes, Professional Mentor

Rita
Expertise: Engineering for Developing Communities, Water, Sanitation and Hygiene (WASH)
Involvement: 4 years
Project Activity: Faculty mentor and primary advisor for topics relating to sustainability, community involvement, and sanitation and hygiene education.
New Program? Yes, Faculty Mentor

5 Has this program ever been in the Corrective Actions Process?  
(If you are unfamiliar with the Corrective Actions Process, please refer to the 203-Corrective Actions Process on the Sourcebook Downloads page of the website.)
Yes, a Type A warning was issued for a late 525B submission in April 2013.
5. Please indicate the number of active members who contribute to the existing program. If any of the members will support the new EWB-USA program, please comment on their capacity to support the additional work.

Students: ~30 active members
Professionals: 5

The team is very well organized and highly adept at keeping track of tasks for our different projects and the new program. There is more than enough capacity of members to get the additional work done, especially as we plan to conclude the current program in the municipality of Chao within the next year.

<table>
<thead>
<tr>
<th>Program Name: Rwanda</th>
</tr>
</thead>
</table>

1. What is the current status of each project in this program? Please select one of the following options: assessment, design, construction or monitoring for each active project.

Cyanika water: Monitoring

2. Provide a timeline (month/year) of major milestones of the program (project start dates, trips, design submittals, etc.)

<table>
<thead>
<tr>
<th>Dates of Travel</th>
<th>Type of Trip</th>
<th>Description of Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>August, 2013</td>
<td>Assessment</td>
<td>Sourcing materials, water quality testing, community</td>
</tr>
<tr>
<td></td>
<td></td>
<td>surveys, site surveys.</td>
</tr>
<tr>
<td>July-August, 2014</td>
<td>Implementation</td>
<td>Implementation of three rainwater catchment systems.</td>
</tr>
</tbody>
</table>

3. Has the program experienced significant delays (greater than 1 year) due to fundraising challenges?
No.

4. Description of professional mentor team including names, primary area of expertise, duration of involvement, and level of activity on the project. If any of the mentors listed are also proposed to support the new program, please comment on their capacity to support the additional work.

Steve
Expertise: Civil Engineering
Involvement: 4 years
Project Activities: Primarily involved with travel teams
New Program? No
<table>
<thead>
<tr>
<th>Name</th>
<th>Expertise</th>
<th>Involvement</th>
<th>Project Activities</th>
<th>New Program?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kara</td>
<td>Civil Engineering project management and construction management, EWB</td>
<td>3 years</td>
<td>Professional Mentor, Travelling Mentor</td>
<td>Yes, Responsible Engineer in Charge #2</td>
</tr>
<tr>
<td></td>
<td>experience with EWB-CU Rwanda and EWB-USC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Involvement: 3 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Project Activity: Professional Mentor, Travelling Mentor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New Program? Yes, Responsible Engineer in Charge #2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elliot</td>
<td>Mechanical Engineering</td>
<td>1 year</td>
<td>Primarily involved with travel teams</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Involvement: 1 year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Project Activities: Primarily involved with travel teams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New Program? No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5 Has this program ever been in the Corrective Actions Process? 
*If you are unfamiliar with the Corrective Actions Process, please refer to the 203-Corrective Actions Process on the Sourcebook Downloads page of the website.*
No.

6 Please indicate the number of active members who contribute to the existing program. If any of the members will support the new EWB-USA program, please comment on their capacity to support the additional work.
Students: 20
Professionals: 3

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<table>
<thead>
<tr>
<th>Program Name: Nepal</th>
</tr>
</thead>
</table>

1 What is the current status of each project in this program? Please select one of the following options: assessment, design, construction or monitoring for each active project.

- Schools – Assessment
- Patpate Dhara Spring Source Protection – Design
- Reed Bed – Monitoring

2 Provide a timeline (month/year) of major milestones of the program (project start dates, trips, design submittals, etc.)

<table>
<thead>
<tr>
<th>Dates of Travel</th>
<th>Type of Trip</th>
<th>Description of Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous dates dating back to 2004</td>
<td>Assessment, community involvement</td>
<td>(Various)</td>
</tr>
<tr>
<td>Summer 2007</td>
<td>Implementation</td>
<td>Spring source protection</td>
</tr>
<tr>
<td>Date</td>
<td>Phase</td>
<td>Activity</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Dec 2007-Jan 2008</td>
<td>Assessment</td>
<td>Spring Source Protection, telemedicine</td>
</tr>
<tr>
<td>Summer 2008</td>
<td>Implementation</td>
<td>Spring Source Protection, telemedicine, solar lighting</td>
</tr>
<tr>
<td>Dec 2008-Jan 2009</td>
<td>Assessment</td>
<td>Preparation for SSP, micro-hydro surveying</td>
</tr>
<tr>
<td>Summer 2009</td>
<td>Implementation</td>
<td>Spring Source Protection, health survey</td>
</tr>
<tr>
<td>Dec 2009 – Jan 2010</td>
<td>Assessment</td>
<td>Mai Khola Restoration (reed bed) feasibility assessment</td>
</tr>
<tr>
<td>Summer 2010</td>
<td>Implementation</td>
<td>Reed bed implementation Phase 1</td>
</tr>
<tr>
<td>Dec 2010 – Jan 2011</td>
<td>Implementation</td>
<td>Reed bed implementation Phase 2</td>
</tr>
<tr>
<td>Summer 2011</td>
<td>Implementation</td>
<td>Constructed primary treatment (septic tank) for reed bed system</td>
</tr>
<tr>
<td>Winter 2011</td>
<td>Assessment</td>
<td>Green City and Katuwal Dhara feasibility and site assessment</td>
</tr>
<tr>
<td>Summer 2012</td>
<td>Assessment, Implementation</td>
<td>Build tap stand at Katuwal Dhara and assessment for future spring source projects</td>
</tr>
<tr>
<td>Winter 2012</td>
<td>Assessment</td>
<td>Assessment of Aghla Dhara spring site, community surveys of Taplejung and Namsaling</td>
</tr>
<tr>
<td>Summer 2013</td>
<td>Assessment</td>
<td>Conducted topographical land surveys at 10 spring sites to assess potential for future projects</td>
</tr>
<tr>
<td>Winter 2013</td>
<td>Assessment</td>
<td>Tested water quality of spring sites, discussed responsibilities of involved stakeholders</td>
</tr>
<tr>
<td>Summer 2014</td>
<td>Assessment, Implementation, Monitoring</td>
<td>Research water quality, implement at Jhor Dhara spring site, monitor previous projects, visit local schools</td>
</tr>
</tbody>
</table>

3 Has the program experienced significant delays (greater than 1 year) due to fundraising challenges? No.
Description of professional mentor team including names, primary area of expertise, duration of involvement, and level of activity on the project. If any of the mentors listed are also proposed to support the new program, please comment on their capacity to support the additional work.

Barry
Expertise: Health and Sanitation
Involvement: 10 years
New Program? No

Cindy
Expertise: Fundraising
Involvement: 4 years
New Program? No

Jeff
Expertise: Fundraising
Involvement: 8 years
New Program? No

Mike
Expertise: Design
Involvement: 8 years
New Program? No

Lon
Expertise: Design
Involvement: 8 years
New Program? No

Warren
Expertise: Design
Involvement: 2 years
New Program? No

Tamara
Expertise: Sustainability
Involvement: 2 years
New Program? No

Richard
Expertise: Project Management
Involvement: 1 years
New Program? No
5 Has this program ever been in the Corrective Actions Process?  
(If you are unfamiliar with the Corrective Actions Process, please refer to the 203-Corrective Actions Process on the Sourcebook Downloads page of the website.)

Yes; Type A warning several years ago due to a late 525 submission.

6 Please indicate the number of active members who contribute to the existing program. If any of the members will support the new EWB-USA program, please comment on their capacity to support the additional work.

Students: 30 active members
Professionals: 9

4.0 Team Overview: How many people will be working on the first project within the new program?

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Number of Professionals</th>
<th>Are all participants members of EWB-USA (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>~ 30</td>
<td>5</td>
<td>Yes</td>
</tr>
</tbody>
</table>

5.0 Professional Mentor Team Experience:

Please complete the table below clearly specifying the roles of all professionals who will be part of the Professional Mentor Team. Review the 405 - EWB-USA Professional Mentor Teams and Qualifications available on the EWB-USA website before completing this section. For all design engineer roles, please specify the specific technical discipline that will be covered by that design engineer. All technical and non-technical disciplines required of the project should be included in the table. If one person will fill more than one role, fill in their name for each applicable role. Add and delete rows as necessary.

Following the table, include one paragraph for each person listed in the table. Each paragraph should include the following:

1) Description of his/her responsibilities on the project.
2) Explanation of how his/her experience relates to his/her specific responsibilities.
3) A statement about the level of commitment the person can make in terms of hours per week or month, ability to travel, ability to participate in regular project meetings, etc.

In addition, the following should be attached to this application:

· The resumes of all members of the Professional Mentor Team
· A completed 404 - Mentor Statement of Intent (available on the Sourcebook Downloads page of the website) for the Responsible Engineer in Charge

See Appendices B and C for resumes of all mentors and 404 completed by Robert.
<table>
<thead>
<tr>
<th>Mentor Team Role</th>
<th>Name and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Engineer 1 – Responsible Engineer in Charge #1: (Environmental Engineer)</td>
<td></td>
</tr>
<tr>
<td>Design Engineer 2: (Civil Engineer)</td>
<td></td>
</tr>
<tr>
<td>Project / Construction Management Mentor – Responsible Engineer in Charge #2: (Civil Engineer)</td>
<td></td>
</tr>
<tr>
<td>Construction Lead: (Civil Engineer)</td>
<td></td>
</tr>
<tr>
<td>International Development Lead (Environmental Engineer)</td>
<td></td>
</tr>
</tbody>
</table>

**Robert:**
Robert will serve as both the Primary Design Engineer and the Responsible Engineer in Charge. He is a licensed Professional Engineer (Environmental) and was the Senior Environmental Engineer/Project Manager for the State of Maine Dept. of Environmental Protection from 1990-2014. In addition to extensive work with EWB-USA, he also has experience with Doctors Without Borders as a volunteer in Sudan and Indonesia. He is an expert in hydraulic system design and is very knowledgeable about construction methodology. Moving forward, Robert’s main responsibility will be to advise students about technical aspects of the project and, occasionally, to travel to the community with the team. Furthermore, he will contribute local cultural knowledge relating to his past involvement with the Llacamate water and sanitation projects. He is available to meet with our group via Skype or conference calls at least once a week.

**Mike:**
Mike will act as the Secondary Design Engineer. He is a licensed Professional Engineer (Civil) with more than twenty years of academic and professional experience related to groundwater development and monitoring. As a Peace Corps volunteer, he worked on water projects in the Ivory Coast. Mike is well suited to support the team because of his broad knowledge of structural engineering principles and his understanding of the dynamics of low-tech/low-resource environments. Moreover, the team values his broad experience with construction, which includes installing and inspecting formwork and casting concrete. These qualities will benefit the new project because it is likely we will need to locate and develop a groundwater source as well as fortify and the existing infrastructure using locally available materials. He is available to meet with our group via Skype or conference calls as needed.

**Kara:**
Kara is a licensed Professional Engineer (Civil) with fifteen years of project management experience. She currently works as a project manager for Parsons-Brinkerhoff. For several years she has been involved with EWB and has served a professional mentor for numerous student projects. Moving forward, she will be responsible for advising the team about project management, planning and overall strategy. Furthermore, she will be part of the document review team and may be available to travel at some point. Her experience directly supports to organizational and logistical needs of the new project. She lives in the area and will be able to attend weekly meetings in person every other week as well as provide additional advising and consultation with the group by appointment as needed. She is also available to travel with the team occasionally.
BJ: BJ is a licensed Professional Engineer (Civil) and has owned an environmental restoration/excavation company since 2001; the primary emphasis of which has been wetland construction, stream restoration, residential utility excavation, rock retaining walls and landscaping. Additionally, he has worked as project manager and staff engineer on wide variety of civil engineering projects relating to hydrologic/hydraulic analysis and storm drainage master planning which includes: hydrologic analysis for small and large/complex drainage basins in urban and rural areas; hydraulic design of channels, storm sewers, drop structures, culverts and appurtenances; design of detention facilities; development of storm drainage master plans and drainage design criteria; and delineation of floodplains and design of water quality and wetland structures. He also served as a Peace Corps Volunteer in Ecuador and Honduras. His experience directly supports the new project because it will be very crucial to have a mentor who is fluent in Spanish, has extensive experience working in Latin America and is an expert in hydraulic analysis of small water systems. He lives in the area and will be able to attend occasional weekly meetings and provide additional advising and consultation with the group by appointment as needed. He will also be available to travel with the project team during winter trips.

Rita: Rita is a water, sanitation and hygiene (WASH) expert with over 20 years experience with international development agencies. She teaches “Hygiene and Sanitation”, “Environmental Health” and “Global Issues in Water Supply” at CU. She recently retired from a career at the World Bank, where she focused on the water and environmental agendas. She is well-versed in international development policy, community development, and WASH programs. In this project, she will be responsible for advising the team on matters of project strategy, best practices, and community relations. Her experience relates to the new project because she is an expert in development work and can help us resolve issues relating to societal aspects including education, community acceptance and project responsibilities/ scope of work. As the group’s faculty mentor, Rita is on campus daily and is available to attend weekly meetings as well as provide additional consultation as needed. She does not plan on travelling with the project team.

6.0 Chapter Preparation: How prepared is your chapter to implement the first project in the program? Please describe chapter preparedness in each of the areas below.

6.1 Project Education and Training: Please list out all training and educational resources that the team plans to take advantage of in preparation for the project work. This should include those offered by EWB-USA, the University, or other organizations. Topics should consider all aspects of the project with focus on design, construction, and international development.

Members of the program will continue to actively participate in EWB-USA sponsored events such as conferences and webinars. Furthermore, we will utilize EWB-USA’s technical design resources and seek funding through the semi-annual grants program. Students will also be involved with the annual WASH Symposium at the University of Colorado, and the Engineering for Developing Communities (EDC) certificate program. The WASH symposium offers discussions and panels by leaders in the field of global development on topics such as sustainable solutions in rural water supply and innovative approaches in urban and rural sanitation. Team members will continue to take classes offered by the EDC program, such as a WASH class, Global Development 1, Sustainable Community Development 1 and 2, and Field Methods for Practitioners.

Additional training in basic construction techniques such as form building and concrete casting will be led
by returned Peace Corps and past travel team members. Team members from CU’s Civil Engineering Department will frequently hold CAD workshops to train others on how to generate annotated designs. Technical designs will be thoroughly reviewed by multiple professional engineer mentors before they are submitted for approval by EWB-USA. Additionally, the team will analyze successes and failures of past projects to draw conclusions relating to lessons learned.

Finally, the team will continue to reach out to other development organizations in Boulder and Denver to collaborate and exchange ideas about water development strategies in Latin America.

6.2 Cultural Training: How will your team members prepare for any intercultural experiences and communication that will come about through the course of this project? How will your team ensure that your project planning includes the participation of the community?

The EWB-CU chapter has had a team working in Peru for 12 years. Veteran members of the Peru Team are well-versed in the social and political norms of rural Peru. In an effort to preserve this knowledge capital and bestow it onto newer members, chapter meetings include cultural anecdotes and stories from members of past travel teams. Occasionally, we also have guest presentations from mentors with relevant experience living and working abroad.

As a team we are committed to a collaboration with the community of Huacapongo. All phases of the project from initial planning to implementation to post-implementation monitoring must include the active participation of the community, which will be conducted through phone calls and emails with the project contacts listed in the 501. A successful working partnership will require strong community contacts, mutual trust, and clearly defined roles for all parties involved.

Huacapongo has an organized water committee (JASS) and local health post; we will be working closely with both organizations for the duration of this project. A carefully constructed Memorandum of Understanding with the JASS will outline the roles and responsibilities of all relevant project stakeholders. Building a strong working relationship with the members of these organizations will be a priority during the assessment phase of this project. Our team will use JASS meetings as a venue for capacity-building exercises and as a forum where we can bring up issues that require the community’s input and encourage community participation in all aspects of the project. One cultural artifact specific to Huacapongo is the use of an official stamp on all project documents.

For a broader understanding of the community, our team will conduct informal house visits to collect sociological data and participate in community-organized events to further establish relationships with the general public. This will expand the community’s understanding of our presence in Huacapongo and hopefully inspire participation from individuals who would not otherwise involve themselves in the project.

6.3 Health and Safety Preparation: The Health and Safety Officers are responsible for complying with our Health and Safety Policy (available on the Health and Safety Program page of our website) and planning and implementing the Health and Safety Plans for each trip. Two Health and Safety Officers must travel on each trip. Who will be your Health and Safety Officers and what are their qualifications? Are they available to travel? Have they read the Health and Safety
Policy? Does the first proposed project have any unique health and safety hazards that would require additional training (for example, working at extreme elevations, confined space entry, exposure to lead-based paint, etc.)? What education and training activities have and will the Health and Safety Officers and other team members participate in?

Each travel group will include at least two Health and Safety Officers who are familiar with the EWB Health and Safety Policy. These specific team members will be selected prior to the submission of required travel documents. Detailed plans for preventative measures and in-country solutions to emergency medical and safety issues for each trip will be documented in the Health and Safety Plan. Health and Safety Officers will have CPR and First Aid training, and will be familiar with any special medical circumstances of all travel team members. The proposed project in Huacapongo does not have any distinct unforeseen health and safety hazards at this time.

6.4 Language and Translation: What languages are spoken in and around the program area? How do you propose to work effectively given language differences between the project team and community? Will you hire a local translator or will someone on your team be able to translate? Is anyone on your project team from the project area?

The primary language spoken in Huacapongo is Spanish. To effectively work through the implicit language barriers several team members who are proficient in Spanish will translate conversations and data for travel team members with weaker Spanish skills. As of right now, no one on our team is from the Huacapongo area. We will make sure that our travel team consists of at least two proficient Spanish speakers for every trip. When possible, we will collaborate with Peace Corps volunteers working in the area to aid in communication, however, we understand that we must be self-sufficient to work independently and not heavily rely on these relationships.

6.5 Education Lead: EWB-USA requires that community members are trained in operation and maintenance and in any unfamiliar implemented technologies. Who will be responsible for developing the education materials and for leading the education for the community? What are his or her qualifications for this role?

The current education lead of the EWB-CU Peru team is Julia. She and her team will be responsible for developing education materials at the initiation of this program. Julia has extensive knowledge of intercultural communication and rural development from her EWB involvement in the Llacamate Water and Sanitation projects and is able to apply her knowledge of technical operations of the project to generate necessary operations and maintenance materials for both the JASS and community members. Under Julia’s leadership, the education team will also collaborate with project mentors and team members with international experience, such as returned Peace Corps volunteers, in order to develop appropriate education materials. Once the travel team has been selected, the education team will share these materials with the education lead of the travel team and together they will develop a clear, concise teaching plan that can then be translated to Spanish. Furthermore, in anticipation of the possibility that not all community members are literate, the team also plans to create an operations and maintenance video that will be delivered to the community at the completion of the implementation. This strategy was very successful for the water system in Llacamate.
6.6 Planning, Monitoring, Evaluation and Learning Lead: EWB-USA requires that the chapter develop a monitoring and evaluation plan that will measure the efficacy of their role in the partnership with the community and local partners. Who will be responsible for developing the PMEL documents and for leading the monitoring efforts during the life of the program? What training has the proposed PMEL Lead had for this role?

The current PMEL lead is Kate, who meets the PMEL lead qualifications outlined in Document 904. Kate completed the PMEL webinar training on February 19, 2014. She has worked with EWB-CU Peru since August 2011, and has an understanding of local culture and is proficient in Spanish. Her specific field of interest lies in the social and cultural perspectives of sustainable rural development. She is pursuing a graduate certificate in Engineering for Developing Communities to supplement an MS in Civil and Environmental Engineering; this has allowed her to take coursework about WASH topics, sustainable community development, and entrepreneurship for the developing world. Before graduating in two years, Kate will ensure that a qualified replacement is ready to lead the PMEL program.

6.6.1 The chapter should review the community’s stated goals for the program in the 501. In this section include a statement acknowledging acceptance of these goals and a commitment to developing a monitoring plan for the projects in this program that will study those specific elements of change.

In Huacapongo’s 501, the community identified goals in improving public health, environmental health, behavioral practices, access to services, and technical knowledge. EWB-CU acknowledges and accepts these goals, and is looking forward to collaboration with the community to work towards these changes. The PMEL program of EWB-CU is committed to the development of a monitoring plan that will allow the chapter to evaluate these specific elements of change.

6.7 Fundraising: Please describe the team’s fundraising plan. If the Chapter has other active programs, please explain how your team’s fundraising plans for this program will not negatively impact the funding of the other active programs.

Currently, the team receives a majority of its funding from grants within the College of Engineering and Applied Science and other programs at CU Boulder. Approximations of the annual funding from these sources are as follows:

- Engineering Excellence Fund (EEF) ~$16,000/year
- Undergraduate Research Opportunities Program (UROP) ~$3,000/year
- Student Group Funding Board (SGFB) ~$7,000/year

The Boeing Corporation has also provided significant project funding through the EWB-USA grants program. We will continue to apply for grants through EWB-USA at every available opportunity.

Materials for past projects in Llacamate and San Leon have been funded by the chapters of Rotary International in the Denver area; these organizations have brought in over $30,000 during the last 7 years through various matching grant programs. The Rotary Club of Estes Park, CO has recently contacted the team about continuing to support future projects.
The other active program in Chao is very close to Huacapongo; thus transportation between the two communities will not be an issue and will not pose any additional financial burden on the team. Furthermore, all projects in Chao are in the monitoring phase, and it is unlikely that they will require any large materials purchases. If major repairs are needed on any of these systems, the team would get in touch with our contacts at Rotary to see what the available funding options are. In the past, when a large tank needed to be replaced in San Leon because of a technical design flaw, the Rotary Club of Aurora agreed to replace it as long as we made the necessary design changes to fix the problem. In conclusion, we are very confident in our ability to fund this project and we do not believe that the active program in Chao would pose a major financial risk moving forward in Huacapongo.

7.0 Quality Management Planning – The quality of each EWB-USA program is the responsibility of the chapter that has adopted the program. Please describe the measures the chapter will take to ensure that the projects implemented under this program are of high quality by addressing each of the areas below.

7.1 Statement of Quality Management Plan: Please provide a brief statement about the methods that the chapter will employ to ensure that the documents submitted to EWB-USA HQ for review will be a high quality document. EWB-USA will not dictate the methods that should be used for this quality management. Each chapter is expected to develop a quality management plan based upon the resources that they have available to them and the specifics of the program they are working on.

The University of Colorado’s Peru program ensures the production of high quality documents through an extensive internal review process. For each required document, members of our project team who have completed and signed an internal membership agreement form can volunteer to take on specific sections. To help newer members who lack the necessary training and project knowledge, we will schedule frequent group work sessions lead by more senior team members. When needed, we will organize conference calls with our responsible engineer in charge, as well as our design engineers to get input on documents requiring technical expertise to ensure feasibility and sustainability of our designs.

All team documents are organized on Google Drive, which allows easy access for the entire team to old project documentation. For all required documents, we maintain an internal deadline that falls at least ten days before the official EWB-USA deadline. Each section must be completed by this time, at which point we send the document out to team leadership as well as to our professional mentors and faculty advisors for internal review. After all interested parties have given their input, the leadership team compiles all suggested edits and submits all documents for that cycle to EWB-USA by the deadline.

7.2 Quality Management Team Staffing: Please describe the roles and responsibilities with implementing the team’s quality management plan. Potential Quality Management Team Members could include: professional mentors, peer reviewers, community leaders, local partners, local government agencies, etc. Specific names do not need to be included in the table below. The Description of the Quality Management Roles should include review responsibilities at a minimum.
### Quality Management Team Members and Roles

<table>
<thead>
<tr>
<th>Quality Management Team Member</th>
<th>Description of Quality Management Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rita (faculty advisor)</td>
<td>Reviews all documents to ensure all team activities are in-line with the best practices in the field of sustainable community development</td>
</tr>
<tr>
<td>Robert (professional mentor)</td>
<td>Provides input relating to technical aspects of project</td>
</tr>
<tr>
<td>Kara (professional mentor)</td>
<td>Provides input relating to planning/project organization</td>
</tr>
<tr>
<td>Mike (professional mentor)</td>
<td>Provides input relating to technical aspects of project</td>
</tr>
<tr>
<td>Huacapongo Municipal Government Affiliates (mayor, local school teachers, JASS leadership, etc.)</td>
<td>Reviews all educational materials prior to implementation to ensure our plans support their educational agenda</td>
</tr>
<tr>
<td>Ben</td>
<td>Compiles and organizes documentation from mentors and advisors for EWB-USA reporting</td>
</tr>
<tr>
<td>John</td>
<td>Finalizes edits for all documents for content and grammar.</td>
</tr>
<tr>
<td>Patrick</td>
<td>Translates/edits all relevant documents to Spanish for content and grammar</td>
</tr>
</tbody>
</table>

### 7.3 Review Requirements:

*Please use the following table to indicate the level of review in terms of personnel and time that your team will follow for each EWB-USA submittal. It is expected that these reviews will occur before submitting your document to EWB-USA. The team should use this information to begin mapping their overall project timeline.*

<table>
<thead>
<tr>
<th>EWB-USA Document</th>
<th>Reviewer(s) - review time needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>521 – Pre-Assessment Report</td>
<td>Professional Mentor, Faculty Mentor, Design Engineer - 10 days&lt;br&gt;Peer Review Team - 1 week</td>
</tr>
<tr>
<td>522 – Post-Assessment Report</td>
<td>Professional Mentor, Faculty Mentor, Design Engineer - 10 days&lt;br&gt;Peer Review Team - 1 week</td>
</tr>
<tr>
<td>523 – Alternatives Analysis Report</td>
<td>Professional Mentor, Faculty Mentor, Design Engineer - 10 days&lt;br&gt;Water Committee - 2 weeks&lt;br&gt;Municipality - 2 weeks&lt;br&gt;Peer Review Team - 1 week</td>
</tr>
<tr>
<td>524 – Draft Final Design Report</td>
<td>Professional Mentor, Faculty Mentor, Design Engineer - 10 days&lt;br&gt;Water Committee - 2 weeks&lt;br&gt;Municipality - 2 weeks&lt;br&gt;Peer Review Team - 1 week</td>
</tr>
<tr>
<td>525 – Pre-Implementation Report</td>
<td>Professional Mentor, Faculty Mentor, Design Engineer - 10 days&lt;br&gt;Water Committee - 2 weeks&lt;br&gt;Municipality - 2 weeks&lt;br&gt;Peer Review Team - 1 week</td>
</tr>
</tbody>
</table>
| 526 – Post-Implementation Report | Professional Mentor, Faculty Mentor, Design Engineer - 10 days  
Peer Review Team - 1 week |
|----------------------------------|-------------------------------------------------------------------|
| 530 – Pre-Monitoring Report      | Professional Mentor, Faculty Mentor, Design Engineer - 10 days  
Peer Review Team - 1 week |
| 531 – Post-Monitoring Report     | Professional Mentor, Faculty Mentor, Design Engineer - 10 days  
Peer Review Team - 1 week |

*Please submit this application electronically via email to [projects@ewb-usa.org](mailto:projects@ewb-usa.org) for review by a EWB-USA Project Engineer. See EWB-USA website for submission deadlines.*
8.0 Appendix A: Risk Management Plan

The following section is a preliminary outline of the risk assessment plan that will be conducted throughout the course of the proposed project in Huacapongo. EWB-CU Peru views the identification of potential obstacles to a successful and sustainable project as a very important part of the assessment that will be conducted prior to the beginning of the implementation phase, and although not yet required by EWB-USA, the following discussion is submitted in support of our commitment to our partner community. Estimated probabilities for the various risks are not yet known, but the framework and weighting that will be used to evaluate these risks and mitigate their potential impacts is included nonetheless.

Event

Topography
Risks involved with the topography include hazards from: natural and man-made surface water channels, moderate elevation gains and well drilling activities. Huacapongo is in a low mountain valley and the current water catchment is a few kilometers upstream in a marshy area that floods during the rainy season. Steep mountainous topography surrounding the floodplain presents significant challenges to water transport and, to a lesser extent, team member safety if a source is to be developed away from the valley floor. The actual town lies on flat terrain, thus a gravity fed distribution system may present challenges. Another proposed consideration is drilling a well. Although no official borehole analysis has been completed, the team knows that the ground there consists of very rocky and gravelly soil, which could make it more difficult to drill.

People
Some of the risks involved dealing with people include communication, technical training, politics, and community support. Effective communication is key to ensuring project sustainability. Although no public phone lines exist in the community a majority of individuals own cell phones. With cell phones there is always the inherent possibility of poor reception, and outages due to technical problems or individual’s lack of funds to pay for service. Many key community members can also be contacted by email and social media, however, there is the risk of infrequent access to the internet.

There are several risks relating to politics. As we learned through past experiences the local government could abruptly back out of a project depending on other external factors that we have no control over (budget restrictions/funding, elections, etc.) Furthermore, there is the possibility of disorganization and quarreling among different levels of government, which could produce negative outcomes for the project. Finally, as is with any political organization, there is always the possibility of corruption.

Without effective and widespread community support a project will most certainly result in failure. The team constantly faces the risk of losing community support during all phases of the project, which could be the result of our own actions or external factors not directly associated with us. Likewise, we also face the risk of key project players moving away and not passing on their knowledge.

System
System malfunctions and failures are one of the biggest risks associated with undertaking any design problem. Depending on the type of alternative system implemented in Huacapongo, the specifics of each scenario will change. Overall, there will be the possibility of poor water quality, unforeseen technical challenges and scarcity of available materials. Because we have done little assessment work to understand the current problem, it is difficult to elaborate further into specific system risks.
**Probability**
The probability in this section is the likelihood of each one of these risks actually occurring. Each section and subsection will be considered and ranked after an assessment trip is conducted. Here the importance is equal to the weight, which is the probability of the event happening. The score represents the importance of trying to reduce/eliminate (if possible) the risk. Therefore the higher the score in the end the more important it is to try and reduce the occurrence of the event. This is determined by: weight * total points = score. Each event is ranked from 1 (least) to 5 (most) with the ability of only being able to use a number once per section.

**Topography (10%)**
- Microbial contaminants
- Chemical contaminants
- Difficulty drilling for groundwater
- Steep/dangerous elevation gains

**SCORE**

**People (50%)**
- Communication breakdown
- Political breakdown
- Little/no community support
- Improper/insufficient O&M practices

**SCORE**

**System (40%)**
- Component malfunction
- Material scarcity
- Insurmountable technical challenges

**SCORE**

**AVG RISK (probability) = Weighted average of 3 subtotals**

**Impact**

**Topography**
The risks associated with the availability and transport of surface water could produce the impact of significantly raising project costs and limiting the available quantity of water. If the soil is difficult to drill through, drill rig equipment could break thus raising project costs and delaying progress; moreover this could also result in a limited quantity of water available for distribution.

**People**
The impact in poor communication results in poor project social infrastructure. Further, this could lead to misperceptions of what the community actually needs and the community's role with the project. Miscommunications could lead to a lack of mutual understanding with respect to the responsibilities of all project stakeholders. The political impacts could include: lack of government support, and alternative organizations being hired to complete the project given the students EWB’s work schedule and ability to travel only twice per year. Political ineffectiveness and corruption could also delay the project significantly. Poor community support would lead to a lack of system maintenance, project delays, and reluctance to pay taxes and donate time (labor, materials, etc.). Any misconceptions perceived by the community as to our reason for wanting to help could lead to distrust between EWB and the community of Huacapongo.
System
System malfunction will lead to the community not receiving potable water, which in effect could lead back to waterborne illnesses that we were originally trying to prevent. Moreover, this will lead to budget increases and project delay as we will need to fix or rebuild any malfunction or complete failure.

Mitigation
Topography
Our strategy for reducing the probability of failure in transport of surface water or unnecessary drilling would be to consult with our mentors prior and during travel. Along with consulting our specific mentors that are experienced in water project management, it would be necessary to consult local drillers, engineers, and geologists that are familiar with the topography and geography of the surrounding area. Our goal is to also seek out water table maps of the area to ensure we are drilling deep enough and in the right place to better inform us of our decision to choose a clean water source.

People
To mitigate potential communication issues, we will determine different mechanisms for contacting the JASS, the health post and the local government. Possible alternative communication lines include phone call, email, or social media messaging. We can also pre-plan and set scheduled communication times such as phone conferences or Skype conferences while also confirming and reconfirming the set times. To lower the potential for insufficient training and system upkeep practices we will provide both printed and video operations and maintenance materials. We will also run workshops while in country about the system with community members to ensure there is a thorough understanding of the entire system. To ensure redundancy when organizing the training program we will include as many active community participants to learn as many aspects of the system as possible.

System
In order to lower the probability of system malfunction or system failure, proper research will have to be done along with consultation with our mentors and the community in order to properly design the system to the specific want of the community. Furthermore, mathematical models and computer simulations will aid in the efficiency of designing the system of choice.

Contingency
In the event that any of these risks described above were to occur it is imperative that we make these risks known to the community, the local municipality and EWB-USA. It is important that we convey this risk analysis to the community so that in the event of anything that may occur they too have their own plan to reduce the impact on their community. Other technical options need to be made available in case the first option fails.

A more specific contingency plan will be finalized once the project plan is fully developed and more technical and social information is available. For example, part of the finalized contingency plan would be to figure out what to do in the event of various specific system malfunctions; it would include details relating to the expected design life of different components and the options to replace them in case of failure (using old parts, having backup parts, buying new parts, etc.).
Appendix C: 404 Mentor Statement of Intent

EWB-USA Mentor Statement of Intent for Responsible Engineer in Charge

By signing this form, you are attesting that you have the minimum qualifying practical design experience to serve as an EWB-USA Responsible Engineer in Charge, that you are an EWB-USA member and that you will adhere to the responsibilities outlined below. Please review this document thoroughly.

Responsibilities of the Responsible Engineer in Charge:

1) Design: As the Responsible Engineer in Charge, you will be responsible for oversight of the project design. EWB-USA requires that you have approved all designs prior to implementing the project in the field. EWB-USA does recognize that often the installation does not go as smoothly in the field as during the planning process; however, the overall design must meet EWB-USA’s standards, and must be safe for the host community. EWB-USA Project Manager approval and Technical Advisory Committee (TAC) travel approval must be granted prior to making any travel arrangements for assessment, implementation and monitoring trips or purchasing any plane tickets. All designs must be submitted to the TAC on time for final approval prior to implementation.

2) EWB-USA Compliance: The Responsible Engineer in Charge is responsible for making sure the project has a team of Professional Mentors with the required qualifications as outlined in the 405 – EWB-USA Professional Mentor Teams and Qualifications document. You are also responsible for ensuring that all EWB-USA paper work has been submitted to EWB-USA on time and that all project design reviews have been completed and revisions made to the design prior to making any travel arrangements or implementing the design. You, or a qualified alternate Travel Mentor, are required to travel with the team to assess, implement and monitor the project.

3) Student Learning: For EWB-USA student chapters, learning is a significant result of the implementation of successful projects. This means that the Responsible Engineer in Charge is there to guide the project and teach the students. The students are not professionals and they will often be unable to perform tasks on their own or know what is required to complete the project successfully. As the lead of a Professional Mentor team, it will be your responsibility to help the students learn these necessary skills by doing such things as arranging for training, teaching them yourself, or by asking other professional members of EWB-USA to help with the project. The Responsible Engineer in Charge leads a mentor team that teaches the students and he/she, or a qualified alternate Travel Mentor, must travel on the implementation trips to carry out that responsibility in the field.

I have read and understand all of the above responsibilities for the Responsible Engineer in Charge, and I agree to adhere to these responsibilities.

Signature ___________________________ Date __________

Printed Name ___________________________ E-mail ___________________________

Submit this form and your resume to your project leads. These documents are required with project report submittals.