



This issue

What is EWB? **P.1**

Improving Communities with the BRAP **P.2**

Making an Impact: Before and After **P.4**

What is Engineers Without Borders?

Engineers Without Borders (EWB) is an international organization dedicated to addressing people's basic needs, such as sanitation, clean water, electricity, and education, through designing and implementing engineering projects in the communities of developing countries. Currently, EWB-USA encompasses 180 university chapters and 80 professional chapters across the U.S.



EWB-USA oversees the development of the projects undertaken by each chapter to ensure the quality of the projects implemented in

the communities. First, non-governmental organizations (NGOs) work with a community to put together an application to EWB-USA, which outlines possible projects that may benefit the community—easy access to clean potable water, road and bridge construction, environmental preservation, to sample a few. EWB-USA decides which projects are suitable for chapters to undertake. Chapters review these approved applications and choose a project based on the expertise and capability of their chapter. Once a project is chosen, each chapter is partnered with both a local community and a NGO to learn more about the dynamics and needs of the community to begin the designing process. Chapters work with their adopted community for four to five years.

Engineers Without Borders at Rose-Hulman is the only student organization that enables its members to practice hands-on engineering design, gain international experience, and learn how to manage large-scale engineering projects all at once. With the help of technical and cultural mentors, students are fully involved in all aspects of the project. Being in EWB means being a committed member—students communicate with the NGO and community, brainstorm design concepts, crunch numbers in design, and go on-site to the community to build, not to mention organize traveling and fundraising.

In the past, EWB-RHIT worked in Obodan, Ghana, to build a poultry house in 2006 and a community training center in 2008. Both facilities allow the villagers to learn how to maintain poultry production to provide monetary support for the community. In 2009, EWB-RHIT adopted a new community in Batey Cinco Casas, Dominican Republic, where an in-patient facility for a health clinic is being renovated. Completed projects include building a roof and septic system for the health clinic. Currently, EWB-RHIT is reaching out to a local community near the health clinic to build community latrines that will improve the community's health and standard of living.



EWB-RHIT Team

President Angelica Patino

Senior Biomedical Engineer
from Indianapolis, Indiana

Vice President Alex Morelli

Junior Electrical Engineer
from Ozark, Missouri

Treasurer Elaine Schaudt

Sophomore Civil Engineer
from Villa Park, Illinois

Secretary & Webmaster Ryan Oliver

Sophomore Electrical Engineer
from St. Paul, Minnesota

Fundraising Team Katie Aburano

Freshman Biomedical Engineer
from Glenview, Illinois

Ryann-Rebecca Montgomery

Sophomore Civil Engineer
from Lafayette, Louisiana

Tyler Nuanes

Freshman Physicist
from Montgomery, Alabama

Marcel Snijder van Wissenkerke

Sophomore Mechanical Engineer
from Claremont, California

Improving Communities in the Dominican Republic with the Batey Relief Alliance

Working with the BRA

EWB-RHIT is eager to continue working with the Batey Relief Alliance (BRA), a non-governmental organization dedicated to developing safe, productive, and self-sufficient communities through health care, education, agricultural programs, and development programs in the Dominican Republic. The BRA oversees projects at their health clinic, Centro Medico, in Batey Cinco Casas, as well as the surrounding communities the clinic serves. Centro Medico caters to impoverished Dominican citizens and Haitian refugees. The clinic offers low cost healthcare to them, and if they cannot pay, it is free.

In the past two years, EWB-RHIT has been involved in renovating an old building into an in-patient facility by constructing a hurricane-proof roof and installing a septic system for the health clinic. With the new roof and septic system installed, the clinic staff can now monitor patients long term, provide x-ray services, and treat cholera.

Having successfully completed these projects, EWB-RHIT is now focusing on building community latrines in the nearby town of Batey Santa Rosa in collaboration with the BRA. This initiative will help improve the quality of life and hygienic practices of the over 100 families who live there, and will spread to other nearby communities with the continued guidance of the BRA.



A Roof Over Our Heads

Phase one, the building of a new roof, was successfully completed after the team went to the Dominican Republic in August 2010. Wil Painter, a technical mentor from EWB-Indianapolis,

helped the group with the engineering analysis and construction as a skilled civil engineer. Architecture for Humanity-Indianapolis also played a vital role in the roof design. Made with environmentally friendly materials, the roof is both aesthetically pleasing and is constructed to withstand hurricanes and earthquakes. The construction materials were purchased locally, and the roof was built

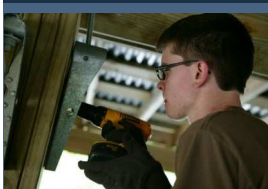
to mimic architecture of the region. Local volunteers worked alongside the team, so the community is able to repair the roof if necessary and replicate the design for other projects. They also learned U.S.-standard building methods from the team. The partnership between the BRA, EWB-RHIT, Architecture for Humanity, and local volunteers allowed us to enable the BRA to expand their clinic space and services.



Student Spotlight—Alex Morelli

Q: What skills have you gained by being part of EWB?

A: I improved my interpersonal skills by working with people—engineers, students, and our Dominican contacts. As a leader, I have helped several teams accomplish goals that range from fundraising to engineering design. I also learned how to handle large scope projects by keeping the big picture in mind and making sure to keep every aspect of the project in motion. Being in EWB is one of my defining experiences here at Rose.



A New Septic System

With hard work and determination, EWB-RHIT finished phase two, the installation of a septic system for the in-patient facility despite hurricane threats in August 2011. The septic system consists of a 1200 gallon septic tank and a pipe network. It accommodates the water usage and waste disposal of the in-patient facility as well as future bathroom additions and a cafeteria.

Building Community Latrines

During the August 2011 Implementation Trip, the administrative staff at the BRA identified several needs in local communities that the health clinic serves. Having completed a roof and septic system for Centro Medico, EWB-RHIT served its critical needs and was requested by the BRA administration to reach out into the local communities that the health clinic serves. EWB-RHIT visited Batey Santa Rosa and decided to head a project in that community in collaboration with the BRA.



The 200 families living in Batey Santa Rosa, Dominican Republic, have few latrines in their community, and 95 percent of these latrines are on the verge of reaching full capacity. Currently, three to five families share one existing latrine. The severe shortage of latrines contributes to this high level of usage per latrine. For many families, latrines are difficult to access, which leads to hygiene and sanitation concerns when they are forced to dispose of wastes in the environment. Building more community latrines in Batey Santa Rosa can help



reduce the high level of usage per latrine. Other direct effects of building community latrines are controlling the spread of disease and preventing contamination of community crops and water sources.

Keeping on Task

Over the course of the 2011-2012 school year, the EWB-RHIT team will work on designing and planning the community latrines for Batey Santa Rosa. The team will take an Assessment Trip to the community in February 2012 to gather cultural and technical information from the community. After the Assessment Trip, EWB-RHIT plans to return to Batey Santa Rosa to construct the latrines in the August 2012 Implementation Trip.

In addition to engineering design, the EWB-RHIT team is consistently working on fundraising efforts. For the February 2012 Assessment Trip, the EWB-RHIT team anticipates a cost of \$8,250 that will cover the team's airfare (\$5,500), food and lodging (\$1,200), on site-travel and logistics (\$1,000), and investigative materials (\$550). The August 2012 Implementation Trip is estimated to cost \$16,400, which include airfare (\$6,500), food and lodging (\$2,400), on site travel and logistics (\$3,500), and materials (\$4,000). Past projects have been funded through on-campus and out-of-town fundraisers, grants, company donations, and donations from professors, alumni, and generous individuals who believe in our work and our cause.

EWB-RHIT Mentors

Technical Mentor Wil Painter

Professional Civil Engineer
from EWB-Indianapolis

Technical Mentor Mike Cline

Professional Civil Engineer
from EWB-Indianapolis

Travelling/Cultural Mentor & Translator John Gardner

Associate Spanish Professor
from Rose-Hulman

Faculty Mentor John Aidoo

Assistant Civil Engineering Professor
from Rose-Hulman

Fundraising

Although fundraising isn't part of the design and implementation process, it is vital to our ability to continue using our Rose-Hulman education to impact developing communities worldwide. Thus, our members' dedication shines through in both our engineering and fundraising efforts.

EWB-RHIT's projects are financed through organized campus events, many of which are sponsored by the Diversity Initiative, the Humanities and Social Sciences Department, the Residence Hall Association, and the International Student Association. Other major sources of funding include a range of grants, company donations, and private donations from alumni, professors, and interested individuals.

Donating to EWB

Contributions can be made to
Rose-Hulman,
directed to
Engineers Without Borders
in the memo.

For more information, contact
patinoam@rose-hulman.edu.

Making an Impact: Before and After

EWB-RHIT is excited to continue making an impact with the BRA in the Dominican Republic. Over the past two years, EWB-RHIT has been able to provide a roof and septic system for the health clinic's in-patient facility. Before any work was completed, the adjacent building in disrepair once bore walls with faded turquoise paint with an interior that was damaged by rain and other environmental factors. Now with a hurricane-proof roof, fresh yellow paint, and septic system, the building is frequently used by the clinic for x-ray screenings, cholera treatment, and community education for HIV-AIDS and agricultural programs.



Before the completion of the roof and septic system, the building was in poor condition and was left unused.



After the completion of the roof and septic system, the health clinic is able to expand its services.



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EWB-RHIT

5500 Wabash Ave
Terre Haute, IN 47803

www.rose-hulman.edu/ewb
patinoam@rose-hulman.edu