EWB: A Tale of Two Projects

MIT's M-Lab Wheelchair Design

10 Commandments of Development
Letter from the Editor

It is an honor to introduce myself as Komaza’s new Editor-in-Chief, and please join me in welcoming Dorothy Curran, Komaza’s Manager. We are excited to lead MIT’s one and only international development magazine, and more than happy to continue to bring you inspiring stories of service endeavors from the MIT community.

This is a new year for Komaza! Our issues are growing longer, we are now featuring follow-up stories on projects we have written about in the past—marking the passage of time and showing how much Komaza has grown since its beginning in 2009. In this issue, we bring you a special spotlight on MIT Engineers Without Borders, as well as a follow-up on MIT Accelerating Information Technology Innovation AITI, among a sampling of other energizing projects that have been done in just the past few months. And if you are looking for a thought-provoking book to read this IAP, check out “On Our Bookshelves” for some recommendations.

In the words of Komaza’s founder, Bina Choi, we hope you continue to be encouraged, entertained, and inspired. Thanks for reading—we hope it’s a good one.

Sincerely,

Sudha
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Cover: Uganda adolescents with water jugs. Photo Credit: Steven Pennybaker.
Jamaican beaches deserve their reputation for beauty, as Victoria Okuneye discovered this past August.

Living in Negril on the western end of the island, Victoria Okuneye ’13, Course 9, took advantage of her beachfront location to swim as often as possible during her three-week stay. But unlike the tourists sunbathing in the tropical sunshine, she was in Jamaica to work.

Victoria leads a team of eight International Development Club (IDC) students working to improve computer literacy in Jamaica. The IDC is a non-profit, MIT student-run group that partners with non-governmental organizations (NGOs) and non-profit groups to provide advice on a variety of projects, ranging from water and sanitation in Honduras to microfinance in China. In Jamaica, the IDC partners with Great Shape! Inc.

Great Shape was started in 1988 by US citizen Myrtle Franklin to provide relief in the wake of Hurricane Gilbert. With a mandate of “empowering children in need”, Great Shape now partners with various Jamaican schools and community organizations to provide resources for education, arts and sports. Great Shape’s flagship project is SuperKids, which provides equipment, volunteers and training to improve elementary school education in rural areas.

Through this program, Great Shape facilitates the donation of new and used computers loaded with Microsoft Office, Encarta and other educational software. But a teacher can’t teach what she doesn’t know. Great Shape found that their donated computers were underutilized at many schools because the teachers lacked basic computing skills. Thus IDC’s summer objective was to teach the teachers.

Victoria, project coordinator David Tse (Materials Science and Engineering ’13) and their IDC team members designed a curriculum during the 2011 spring semester to teach introductory skills in computer hardware and software, including the Microsoft Office suite. The IDC team also developed a manual that school teachers could use during the course and then keep as a reference. Once summer began, the IDC members traveling to Jamaica – Glory Nguyen (MIT alumna), Rebecca Odim (EECS ’13), Megan Cherry (Chemistry ’13) and Victoria – prepared individual lesson plans, cognizant that last-minute changes would undoubtedly be made once the course began.

The IDC team’s preparation served them well during the fast-paced course, which was held in a high school near Negril. The IDC team had only 4 hours per day to help course participants, many with no prior computing experience, to become comfortable typing, using the various Office programs, sending email and conducting internet research. Lessons were tailored to demonstrate how the teachers could incorporate computers into their classrooms, like finding quizzes online, calculating grades in Excel and making certificates for the school children in Publisher.

By virtue of their own success, the IDC
team occasionally found themselves stretched too thin. Starting on the first day with more than 30 teachers, enrollment grew each day as participants recommended the course to their peers; by the end of the course, 47 teachers from 10 schools were attending.

With participants at varying skill levels, one of the biggest challenges for the IDC team was keeping everyone engaged. Teachers who finished a task ahead of the others were asked to explore other ways to apply a lesson. Those who were struggling required more one-on-one attention, but sometimes were uncomfortable speaking up. Initially, the wide range in skill levels made for slow progress. But “by the time we got to Word in the second week,” Victoria notes, “it started moving a lot faster. Their understanding went up. Their dependency on us to guide them really improved because they got more comfortable with the computers. We definitely saw more confidence with their skills, and had some very excited teachers by the end of the course.”

This excitement and willingness of the teachers to learn played a big part in the success of the course, says Victoria. The course participants were not paid or required to attend – they had given up their time and paid for their own transportation to the course.

Another key ingredient for success was the support of Great Shape. The NGO had spoken with government officials and schools in the area to publicize the course and recruit participants ahead of time. Representatives were also present for the first two weeks to provide introductions and help the IDC team adjust to Jamaican culture.

This support was crucial for establishing a good relationship between the IDC team and the course participants. For example, the team had been unaware that it is customary in Jamaica to begin the work day with a devotional, which consists of a prayer and a song or two. The Great Shape representatives informed the team of this aspect of Jamaican culture so that each morning a teacher could be asked to lead the devotional before class.

With a successful course and a good working relationship established between IDC and Great Shape, both parties are looking forward to the future of the project. In Jamaica, Great Shape is seeking opportunities to provide the course in other school districts. The course was co-sponsored by an official from the Ministry of Education, who was pleased with its outcomes and subsequently presented it at a conference. Hence the course is likely to be more widely adopted with official support.

On the MIT end, the IDC team members are still determining their next steps. They would like to return to Jamaica for another course. They want to refine the curriculum and "We want to make sure the project is sustainable and not build up dependency on us."

find more time within the lessons for participants to practice what they are taught. More training on computer maintenance is required, specifically on the handling of viruses. The IDC team also hopes to recruit new members with more sophisticated computing skills so that they can offer a higher-level course in the future.

Ideally, IDC would like to transfer the project to the Jamaican teachers and train past graduates to serve as teaching assistants or lead instructors of future courses. “We want to make sure the project is sustainable and not build up dependency on us,” explains Victoria. If the project’s success so far is any indication, computers will be coming into the classrooms of many more Jamaican school children very soon.

"We definitely saw confidence with their skills and had some very excited teachers by the end of the course."
Give a man a fish, feed him for a day; teach a man to fish, feed him for a lifetime.

These words ring true for MIT’s Accelerating Information Technology Initiative (AITI), a student-run organization that fosters mobile and internet technology entrepreneurship in the developing world. AITI was established in 2000 and since then, the organization has sent nearly 120 MIT student-instructors to teach over 1500 university students abroad. In African and South Asian countries specifically, there is a significant lack of computer science and entrepreneurship education. Through its program, curricula, and business networks, AITI promotes development in these emerging regions by teaching college students the tools to start businesses of their own.

“We want to recreate the kind of thing that happened with the Internet revolution, the mobile revolution here in America—recreate those increases in efficiency, those new opportunities,” says Program Director Michael Gordon. In order to plant the seeds for this revolution, AITI partners with premier universities across Africa and South Asia to provide advanced courses for local undergraduates in the summer taught by MIT students. These courses allow students to delve into the complexities of mobile and Internet technologies, including the entrepreneurial opportunities that these technologies provide.

 “[The students] all had a lot of experience in programming. A lot of them had done hardware, [so] they picked up pretty quickly. They are the best of the best.”

MIT undergraduate Max Koylsh ‘14 was a technical instructor for AITI’s six week program in Kenya this summer. He was part of a team that taught 36 of the top students from Kenya’s premier academic institutions, many of whom attended the program on corporate scholarship.

 “[The students] all had a lot of experience in programming. A lot of them had done hardware, [so] they picked up pretty quickly,” says Max, “they are the best of the best.”

Although their students have prior programming experience, the Kenyan team had to develop much of their program on the spot, in order to cater to each student’s varying programming abilities.

 “The first test diagnostic that we gave them,” says Max, “kind of scared us a bit.” He and the other instructors realized that their students’ problem-solving skills had not been put to the test. After slightly restructuring the curriculum, the students were roughly at the same level in their programming abilities. The team also added routine check-ups to ensure all students were meeting the benchmarks of the course.

All students were taught a parallel curriculum of technology and business applications to complement the software technologies they learned. After a few weeks of programming in Python and Java, and learning web-based mobile frameworks like Jenga and Google App Engine, students were organized into groups and assigned project ideas that can develop into start-up ventures. One group in Max’s class developed a mobile application named Okoa Maisha, Swahili for “Save Lives,” an app that matches patients with volunteer blood donors in the area in the case of severe emergencies. Another group developed Tazama, an app tracker for matatus—mini-vans that serve as the predominant form of transportation for much of Africa.

Student groups were then put in front of investors and other members of local business networks to present their projects. In AITI Kenya, as well in other regional AITI programs, students routinely pitch their ideas to local angel investors, business leaders, and guest lecturers, and are taught how to vouch for capital in local business networks.

“‘We want to recreate the kind of thing that happened with the Internet revolution, the mobile revolution here in America—recreate those increases in efficiency, those new opportunities.'

Since its creation, AITI has spurred a number of businesses and additional courses offered at partner universities. Just last year, two student groups from the Sri Lanka program were each awarded $75,000 marketing budgets from large mobile operators in Sri Lanka to start and market their business. In Kenya, AITI partner Strathmore University was able to secure grants to build a mobile innovation lab and create a master’s program in mobile telecommunications and innovation based off of the AITI curriculum.

AITI Director Gordon remarks “[Students] continue to amaze me with the ideas that they have after the program. I have many students that could have gotten a job with a big multinational corporation or a mobile operator, but they chose to stay entrepreneurs, and then founders of companies. They don’t come in like that in Africa: they come in very passive, very much ready to just take a job with a company, sit back, and get their paycheck, not really innovating. We see this cultural shift more towards entrepreneurship, and also more regional thinking. Our students [now] feel like they are global citizens—they’re connected, now, back down to America, that they have global skills—some of our students have even written applications for the Apple App Store and Google’s Android App Store.” He hopes that AITI will continue to update the curriculum at local institutions to make it more entrepreneurial and innovative, and more focused on problem-solving.

For Max, “[The AITI program] provided a pretty eye-opening experience. I definitely would recommend going. [AITI] is a really good way to combine travel with technology.”

For more information, visit aiti.mit.edu and check out our previous article on AITI in Komaza’s 2010 Spring Issue.
Traveling with Engineers Without Borders
In the developing world, running water and bathroom facilities are often expensive and not easily accessible. Safety and privacy are also issues, as many people, particularly women, do not feel comfortable using communal showers or traveling to and from facilities that may be located far from their homes.

In November 2010, Sanergy, an MIT startup, contacted MIT’s Engineers Without Borders (EWB) chapter regarding a partnership to work in Nairobi, Kenya. This company, which won MIT’s 21st annual $100K Entrepreneurship Competition in May, aims to build low-cost, sustainable sanitation infrastructure in the Nairobi slums. Sanergy’s main focus is on latrines and processing waste into electricity and fertilizer, but the company asked EWB-MIT to work on a side project building and installing showers. The Showergy team, with project manager Tiffany Cheng ’12, was created to focus on this project. Showergy won the Team Spirit award in MIT’s 10th annual IDEAS (Innovation, Development, Enterprise, Action, and Service) Global Challenge competition in the spring.

Over the summer, team members Michelle Chen ’14 and Jesika Haria ’14 traveled to Nairobi, Kenya for three weeks to scope out the conditions in their target distribution and installation site. Sanergy is based in Nairobi and has already established connections in the area, so Michelle and Jesika were able to work with a local youth group, the Amusha Youth Organization, to conduct surveys of residents. The organization consists of individuals aged 4 to 20 years old and was founded to promote community football play, later developing into a community outreach center.

“Of course, you can’t just walk up to a stranger and ask them how they shower, so we would ask them more general things ... like to describe a day in their life.”

This collaboration was highly effective since the youth group representatives were familiar with the neighborhoods in Nairobi and knew where to find a diverse sample of people. They also worked as translators since many people there know basic English but find it easier to explain certain concepts in either their native tongue or Swahili.

Each morning, Michelle and Jesika rode matatus (Kenyan minivans) to the Nairobi slums. Out of two slum areas they visited, they chose to focus on Mukuru Kwa Njenga for project implementation. A variety of cultures and differences exist within each slum, so Mukuru Kwa Njenga’s smaller size allowed the team to understand the conditions more easily. It was also a relatively more wealthy area, so it was more plausible that the residents would be willing to pay for showers. In addition, Sanergy is currently looking to expand in Mukuru Kwa Njenga and there are already some showers installed there, so there would have been opportunity for future partnerships.
Kwa Njenga is an industrial area where the walls of houses are usually made out of corrugated metal. Families live on plots with around 8-10 households, with each family inhabiting an approximately 10-by-10 foot room. Some plots have toilets but not bathrooms, and others have bathrooms but not toilets. Through their surveys, Michelle and Jesika found that if a bathroom existed, families on the plot would definitely use it. However, bathrooms are often located far from plots, so people are afraid to walk there at night.

“Of course, you can’t just walk up to a stranger and ask them how they shower, so we would ask them more general things ... like to describe a day in their life,” says Michelle.

Approaching people with great tact, Michelle and Jesika discovered that the main issue in the slums is water access. People buy water in jerry cans, flat-sided plastic cans used to carry liquids, from vendors, who must pay a large sum to open and operate a water point connected to the main city pipeline owned by the central government. One thing Michelle and Jesika noticed about the locals is that they are very good at budgeting water; each person only uses about 10-15 liters of water per day, covering cooking, drinking, washing clothes, and bathing; this is about one toilet flush’s worth of water. The Showergy team is designing a shower that will not require direct connection to a water pipeline and instead will use a refillable water tank.

Another challenge the Showergy team had to face was material access. While designing their prototype at MIT, they had no way of knowing whether the materials they used were even available in the local hardware stores, not to mention the sizing or pricing.

By the end of their stay, Michelle and Jesika had worked on building a scalable modular shower model out of low-cost materials available in the slums, such as jerry cans, bike pumps, simple hoses, hand-held shower heads, tarp, and wooden boxes. They created shower frames and a prototype pump, and also ran a solar shower heating experiment using a Super Solar Shower kit purchased from a camping store. Unfortunately, due to overcast and cool winter weather, they were not able to heat up water successfully. They brought the materials they obtained in Nairobi back to MIT to do more work on after their trip and plan on incorporating their findings from their experience in Nairobi into future designs.

The structure and pump sub-teams of Showergy are currently working on shower details such as foot pump design, stability, and drainage. The main goals of the team this year are to fine-tune the shower design, have parts of the prototype functional, fund

“We’re not just trying to help them; they are definitely helping us as well. It’s a two-way learning process.”

...and raise public awareness of the issue. Eventually, perhaps next summer, team members will go back to Nairobi to install the showers.

Commenting on their work in Nairobi, Jesika says, “We’re not just trying to help them; they are definitely helping us as well. It’s a two-way learning process.” While the Showergy team is helping increase safety and sanitation in the Nairobi slums with their shower design, working with this project has also given the team a chance to learn about both engineering and Nairobi culture.

To learn more about this project, visit http://showergy.blogspot.com.
Students from the MIT chapter of Engineers Without Borders (EWB) have helped bring clean, usable water to a remote Ugandan village in an ongoing project that has students and community members working together to achieve the goal.

In the summer of 2011, the MIT chapter sent two teams of students to continue work on rainwater harvesting and alternative energy in Ddegeya, Uganda. This is the third year EWB students have worked in Uganda, and each year the partnership grows stronger. Last year a 10,000L rainwater harvesting tank was installed in the village. EWB hopes to expand rainwater harvesting in Ddegeya, but in a more economical and sustainable manner. After research and collaboration with other NGOs in Uganda, EWB decided to pursue a partially underground tank system. This design minimizes the resources and costs associated with the tanks.

In addition to technical design, EWB has worked extensively with the community to develop a distribution model for the tanks that would be accepted by the community. A Water Projects Board established in summer 2010 oversees the existing project and helps EWB work on new projects. Initially, the community was only interested in household tanks, but after discussion about EWB resources and community resources the community decided communal tanks would be more effective. The Water Projects Board, made up of respected members of the community, organized the community into five clusters and explained the project to the community. After extensive community surveying and working closely with the Water Projects Board, locations were measured and evaluated.

The different components of the tank including tank lining, pumps, and first flush systems were also tested and presented to the community for feedback. Each component was evaluated for ease of manufacture and use. EWB partnered with students from Makerere University in Uganda to work with the community on developing prototypes. While in Ddegeya, the team built both a ferrocement and a clay tank prototype. The ferrocement tank consisted of cement with a steel-mesh internal support, while the clay tank was made using local clay. Different types of pumps were also built, using materials available in the nearby town of Masaka. The pumps built by the MIT team were significantly cheaper than the consumer water pumps available. Finally, two types of first flush system, a way to prevent the initial dirt from roofs from collecting inside the tank, were also built and tested.

While in Uganda, the MIT-EWB team also determined the best house in each cluster to use for rainwater catchment. Households were chosen in terms of roof size, location, and Water Projects Board recommendations. Students spent time getting community feedback in terms of the projects’ cost and benefits to those in Ddegeya.

After all prototypes were made, the students presented them to the community. Community members were asked for their input as to the usability of the design, and the feedback was overwhelmingly positive. Despite the 6,000 mile plus distance between Ddegeya and MIT, the two communities continue to work together implement the changes. EWB hopes to travel back to Uganda in January 2012 to implement the designs and build five systems including a 5000L tank, pump, first flush and gutters.
Left page: Katelyn Wolfenberger at the pump. Right page, clockwise: Top two- EWB members building prototype tanks. Katelyn working on the tank. Steven teaching kids.
Photo Credits: Steven Pennybaker and EWB
"A nurse, an architect, a mechanical engineer, a business student from Babson and me," lists Karine Yuki ’13, Course 8 and 17. This seemingly unrelated group of people are not walking into a bar.

They comprise part of Karine’s nine-member team for the 2011 International Development Design Summit (IDDS). During the five week summit held in July, Karine’s group worked in the Ghanaian villages of New Longoro, Dweru, and Gomboi to conceive, prototype, and market a small mosquito-repelling, neem oil-diffusing lantern.

The IDDS, founded in 2007 at MIT, challenges small multi-disciplinary teams like Karine’s to focus on complex international-development related problems for one month. The unique summit is the brainchild of D-Lab founder Amy Smith; early conditions for the summit included mantras like “prototypes, not papers.”

The approximately 50 participants and 20 partitizers (participant-organizers) in the 2011 IDDS received intentionally broad assignments. Karine arrived in Ghana on July 6th with the goal of “Reducing malaria in children.”

The problems needed to provide a “big enough space for teams to start in,” says Eric Reynolds, program manager and mentor for IDDS and staff member in D-Lab. Through surveys and Ghanaian input, IDDS had narrowed down hundreds of project proposals down to 50 and then 25 as participants ranked their favorites. In the end, teams of 8-9—always including at least one Ghanaian and a mentor—tackled 9 problems ranging from processing bamboo to increasing productivity for artisans. Though every team was different, each benefitted from its diverse team members.

“The nurse knew a lot about malaria,” Karine remarked. The architect and the mechanical engineer, a MIT graduate Rebecca Smith, built the outside of the lamp.” Karine herself made use of the organizational skills and knowledge she gained leading the IAP 2011 D-Lab: Development trip to slums in São Paulo in her home country of Brazil.

The members met each other the first week while staying on the campus of the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Ghana. They brainstormed market opportunities and ways to reduce childhood malaria.

The second week was spent visiting the villages. Karine’s group stayed in a pastor’s house and took notes on malaria within community. Often, people did not attribute their early, flu-like symptoms to malaria.

“There was no sense of urgency [regarding malaria] in that area,” says Eric—the team’s mentor. Any viable prototype made to lessen malaria would have to serve two purposes. The desire for light and the need to protect against mosquitoes were two such purposes.

“Oil from a tree in the region called neem was 99% effective at repelling mosquitoes,” says Karine. And thus, the mosquito-repelling, oil-diffusing lantern was conceived.

“Understanding the cultural difference was very important. In Ghana, when you are silent, you are often agreeing.”

A small battery is attached by wires to a wick that sits under the oil reservoir. When lit, the heat will spread the oil throughout a small region. A small LED at the top of the device completes the design.

The lamp, rapidly prototyped at KNUST during the third week, was a collaborative effort utilizing the unique skill set of the group. For example, the architect and Smith were able to separate the aesthetic—“looks like”—and practical—“works like”—aspects of the design.

The team received more support from mentors and organizers, including José Oscar Mur-Miranda—an Olin College professor of electrical and computer engineering. Yet, the designs had to be sufficiently simple. For
example, “[we] join[ed] wires manually instead of actually soldering them,” Karine recalls.

During the fourth week, they took approximately four designs to the community—embodying the co-creation with the community envisioned by IDDS—to get relevant feedback.

“Understanding the cultural difference was very important. In Ghana, when you are silent, you are often agreeing,” Karine says.

Eric remembers that the villagers disliked the “spherical, futuristic shape” of one of the lanterns. They also preferred a lantern made of plastic because it would be more durable. Karine recalls the interest of the villagers, especially “mothers fighting to get their LEDS to work.” The team also scouted for potential retailers for their product, as well as looked for a consistent, affordable neem oil source.

After modifications, the last week consisted of an event called “Maker Fair” at KNUST with approximately 200 people sharing creative ideas and solutions. Other IDDS projects included creating devices to shell moringa seeds for effective oil extraction and creating a phone service where people could share Ghanaian farming techniques by listening to or recording voice messages for others.

“The best outcome [of an IDDS project] is a committed team, a working idea, and a viable business.” says Eric.

Sharing ideas and interacting with the other participants had been memorable. Emails sent around the IDDS 2011 group now often start with “Hey family.”

IDDS 2007-2010

Karine’s experience was uniquely IDDS 2011. The summit has evolved over the last five years. The July 2007 IDDS brought 50 people from 16 different countries to MIT to design, build, and peer review devices such as portable water disinfectants and low cost refrigerators needed in the developing world. The 2008 IDDS, also held at MIT, had over 60 participants from over twenty countries working on ten different projects while learning from guest speakers and each other.

In later years, the summit took a more community-centered approach. Multinational teams travelled to KNUST and Ghanaian villages, designing projects like a hand-cranked cassava grating machine and a mobile phone application for baby monitoring.

Eric acknowledges the importance of integrating venture development with product development.

“You have an amazing product...how will it get to the middle of a village in Africa?” Karine asks.

With host institution and partner, Colorado State University, participants in IDDS 2010 reviewed prior IDDS projects and came up with viable action plans for furthering manufacturing research and disseminating the low-cost technologies. The style was very classroom based. A variety of dissemination techniques were discussed for different projects such as making some of the past prototypes “do-it-yourself” models where users would make, not purchase the item. Other areas of exploration included creating micro-grant programs within IDDS.

IDDS 2012

In 2012, not just one, but three different sites might host a summit including San Paolo in Brazil, Lusaka in Tanzania, and possibly Uttarkhand in India. These summits will function in a similar fashion as IDDS 2011. At least five people from each of these sites attended IDDS 2011. Karine thinks that the decentralization of IDDS will help ensure that IDDS is not just a point event.

MIT undergraduates are encouraged to apply to be a part of the summit at iddsumit.org.

“We’re very open,” says Eric.

“Some of the best ideas may come from an African farmer who has a very different perspective...believing in this potential in everyone is a big part of the summit,” Karine says.
Transition Wheels

In Summer 2011, Rachel Dias Carlson ‘14 and Paul Lazarescu ’13 travelled to Antigua Guatemala to work with the Transitions Foundation to prototype a low-cost wheelchair for both active and everyday use. They were sponsored by the class Wheelchair design for developing countries, offered by the MIT Mobility Lab (M-Lab).

Design goal:

To build a wheelchair for active users that would allow them to move around quickly and independently. The chair's frame could only be made of mild steel and be able to be manufactured with tools available in the Transitions workshop.

Target users:

Young men aged 18-30, a large portion of the disabled population due to car accidents and gun violence.
Finished prototype:

Cost: –$450 to produce (significant improvement over the >$2000 imported American wheelchairs)

Lightweight: 22lbs

Adjustable features: Allow chair to fit the user without having to change parts:

  Backrest height - Allows user with different types of injuries to have optimal support
  Seat length - Important for leg stability and lower body fit
  Footrest height - Allows legs to be properly positioned, helps prevent pressure sores
  Axle position - Users of different weights and ability can change the position to find the best center of balance for their needs
The Ten Commandments of Development

What I learned during my summer with Partners in Health
by SUDHA GUTTIKONDA

Partners in Health is a Boston-based non-profit organization centered on the belief that healthcare is a fundamental human right. Founded in 1987 by Dr. Paul Farmer, Ophelia Dahl, Dr. Jim Yong Kim, Todd McCormack, and Thomas J. White, its main premise was to bring high-quality healthcare to those afflicted by the burdens of poverty and disease. Starting with its commitment to one rural village in Haiti, today, PIH spans ten countries on four different continents. Among these are Haiti, Malawi, Rwanda, Lesotho, Peru, Russia, and the United States.

PIH is “based on solidarity, rather than charity alone.”

But PIH is more than a system to provide healthcare—rather, it is a system of accompaniment, an organization that walks with its patients throughout treatment and the alleviation of their suffering. PIH is “based on solidarity, rather than charity alone,” says their mission statement. When a person is sick, it is very rarely due to disease alone, but inexorably linked to social and economic inequality. PIH has targeted all of these factors, ranging from the very basic, providing the medical care needed by building top notch hospitals, to reducing drug manufacturing rates, changing policy, providing education, building homes, and overall contributing to the empowerment of the poorest of the poor.

It was my honor to work with such an organization through the PIH summer internship. This internship, hosted annually, is sponsored by the Partners in Health Institute of Health and Social Justice (IHSJ), and is a program for students or early professionals who are interested in current issues in global health. Twenty-seven interns from all over the world were brought together for 10 weeks, from June to early August, to gain an insider’s perspective on how PIH operates and contribute to its ongoing projects through individual assignments.

I was placed with the Medical Informatics team, working with PIH’s premiere electronic medical records system, OpenMRS. This open source system was built to electronically store patient data and diagnoses to easily keep track of patient treatment over time. My particular assignment was to develop HTML forms for PIH’s new rehabilitation program in Haiti, such that for every paper form used in the program, a duplicate electronic form would also be available to be used with OpenMRS.

But that’s not all I got to experience at PIH. I was able to attend once in a lifetime talks with prominent members of PIH and exciting brown bags that detailed PIH’s current state of affairs. I even got to partake in the planning of the PIH Student Conference. This year, we had the theme of activism, and brought together panelists from different disciplines to discuss global advocacy and the ways in which students can influence change in global health. The symposium, held on September 25 of this fall, was a success, bringing together local college students and professionals alike.

I enjoyed the healthy environment, the smiling faces, and the warmth of PIH. Moreover, I now understand why PIH has been so successful. The key is in the passion of those working for it. Everyone at PIH was highly dedicated, and cared so much about the cause that they put in extra hours for no extra pay. Their work, and the change they facilitate, is truly inspiring. I learned everything from how to bring accompaniment to a poverty stricken area, how an NGO works, how to empathize, how to be a better person, and how to channel your energy into something you love. You can say, that in 10 weeks, I learned the 10 commandments of development work:
“Chance favors the prepared mind.”
Louis Pasteur’s famous quote was restringed to me during a special discussion with Howard Hiatt, Paul Farmer’s mentor. What he meant was that lightbulb moments don’t just happen, that insight occurs because you have done your research. When going into a new project, you must always account for all the possibilities that may happen. Then you can feel lucky.

Hermeneutic of generosity.
Though the exact origins of H of G is lost, this is a phrase that was used all throughout my stay at PIH. It means to always give the benefit of the doubt. Not only must you carry it, but you must also cultivate it in those around you such that they give you the benefit of the doubt. This is especially important if you are going into a new community. You want them to want you to help them—you want them to give you the benefit of the doubt such that if something goes wrong, they will still believe in your cause.

Turn passion into compassion.
Passion, drive, and believing in what you are doing is a good thing. But empathizing with those you are trying to help is ultimately what will turn your project into something that can be truly shared by them. There shouldn’t be a “you” and a “them,” nor a your-side and the other-side. Compassion is what will bridge this initial boundary.

Always keep the big picture in mind.
Keeping a bird’s eye view in mind will let you see issues that you didn’t know were affecting what you want to accomplish. PIH is a big example of the big picture. Something seemingly simple and focused as providing medical care included just about everything—not only hospitals, but the targeting of the many economic and social inequalities that contributed to disease.

Fieldwork is what counts.
You can study development in school. You can read books. These things are important, and necessary, as they help you understand what it is you want to do. But in the end, actually going to the place you want to make a difference in, getting your hands dirty—that’s what will bring your idea to reality.

Plan, but do not restrain.
PIH was originally committed to one small rural village in Haiti. It certainly didn’t stay that way, with multiple branches, spanning ten countries today. In the same way, your project can be currently small and very focused. Planning is always good. But the field is always changing. New issues and new opportunities come up, and you must always be receptive about these things. In other words, you can plan for some change.

Teamwork and collaboration is very important.
Self-explanatory. You can’t do it alone. Get together with a trusted friend or two, and talk about what you want to do. You may surprised by how he or she may be able to help, or what new ideas will come up. PIH, in the same way, began with three people and an idea.

Service, Teamwork, Advocacy, and Research
These are the tenets of PIH, and are applicable to any development project. Service: the central idea. Teamwork: work with others. Advocacy: share what you have learned from your experience. Research: constantly evaluate what you are doing.

There is room for all disciplines in development work.
You don’t have to be a doctor to work in global health. In the same way, you don’t have to be an urban planner to work with making a city a better place, nor an engineer to work with water quality. In every project, there is always a niche for another discipline, and the key is finding what your strengths are and playing to them.

Presentation, and communication, are highly nuanced, and key.
You must learn to communicate your ideas so that others will understand. You should also be diplomatic but stick to your central beliefs, so that when you are put in a compromising situation, you always know how to react. This is how you can build your team, how you can build your project—effectively telling others about it, and having them believe in your dream too.
SPOTLIGHT ON:

Chris Thorsvik

by NAINA MEHTA

Home to a community of 48,000 people, Lankaran is a small city cosily tucked in the southeast coast of Azerbaijan. Lankaran is one of the oldest settlements in the country. While rusty sand beaches run along the Caspian Sea, foothills occupy the rest of the mountainous territory.

Predominantly an agrarian economy, income-generating enterprises in Lankaran were unheard of. Traditionally, children would take over farming after their parents. Today, in a world where innovation and entrepreneurship are prevalent, a new generation of Azerbaijanis has risen. This generation boasts of ambitious youngsters who seek to break in to the opportunities available to them.

A small city like Lankaran is an unlikely interest for any for-profit consulting firm.

Chris Thorsvik (*’13), Course 15, spent his summer in Lankaran. Chris was engaged in a rather unique and interesting project. Equipped with strategies taught in his Sloan classes, Chris worked with his friend Chris Brown to launch a consulting firm in Lankaran: the CB Consulting Firm.

CB Consulting Firm provides its services solely to entrepreneurs from low-income sectors of the economy to help kick-start microenterprises and thereby give them a source of livelihood. By equipping budding entrepreneurs with solid business expertise, CB ensures long-term success of its clients. Doing so, CB Consulting Firm is also playing a pivotal role in bridging the gap between low income groups and the field of entrepreneurship.

Brown requested Chris to develop a business structure for the consulting firm. He explains, “To start a successful business which is profitable and sustainable, you need a plan going forward and that’s often something that’s lacking.” Over the course of two months, Chris developed mentoring programs for the clients, designed business plan seminars, and devised teaching methods that will go a long way to instill basic business strategies in his clients. Chris strongly believes that “giving [entrepreneurs] the mental aptitude to make good business decisions” will have far-reaching impacts.

After developing his model for a business plan seminar, Chris decided to try it out with one of the clients who was starting an eco-tourism company. Lankaran is home to some beautiful scenery; and it is no wonder that the tourism sector is budding fast. It is no surprise that most of CB’s clients are from the tourism sector.

There were a couple of bumps along the way, mainly due to communication barriers, but were soon alleviated by Chris’s sharp ability to learn new languages. Having spoken Turkish since childhood, Chris quickly picked up Azerbaijani. Following the pilot seminar, and some tweaking of his initial ideas, Chris had completed the model for a seminar integral to CB Consulting Firm—English lessons. Chris explained, “English would be an invaluable asset, especially for entrepreneurs in tourism. And an American is best at teaching English.” Though Brown had been teaching the language for the past two years in Lankaran, Chris helped Brown further improve the teaching methodologies.

The opportunity to interact with entrepreneurs fueled Chris’s desire to be part of this consulting firm. Chris hopes to establish himself in the field of entrepreneurship and development with a focus on orphaned children. He said, “I want to [heal] broken communities and rebuild them.” A passionate student, Chris sees himself working in what he describes ‘trenches.’ He wants to work with orphans to help them become self-sufficient and independent. He admires how they live lives without prejudice. Chris explained, “With kids, they lose all linguistic barriers, they no longer recognize you are a foreigner.”

The experience in Lankaran will go a long way in helping Chris educate successful entrepreneurs in developing countries.
**On Our Bookshelves**

**Poor Economics:**
*A radical rethinking of the way to fight global poverty*
by Abhijit Banerjee and Esther Duflo

Poor Economics is an international development must read. Full of evidence from simple randomized trials and powerful antidotes, the book sheds light on the gripping reality of poverty and what has proved most effective in the field of international development.

--Jonathan Abbott '14

**Mastering the Machine:**
*poverty, aid, and technology*
by Ian Smillie

I read part of this book for D-Lab and I was so interested that I read the whole thing. The stories emphasized the complexities of making a project successful and that it takes more than good technology to make a project work. It was also interesting to learn about so many different technologies from all over the world and why they worked or didn’t work.

--Marisa Simmons '13

**Field Guide to Environmental Engineering for Development Workers:**
*Water, Sanitation, and Indoor Air*
by Mihelcic, Fry, Myre, Phillips, and Barkdoll

This book has a lot of basic information about the technical aspects of projects. I always bring it with me when I work in the field because of the handy information and equations in it. It also provides advice on project management and working with a community.

--Marisa Simmons '13

**The Boy who Harnessed the Wind**
by William Kamkwamba

This was one of the most humbling stories I have ever read. It makes you wonder how much untapped potential there is in the world and be thankful for your own educational opportunities. The book also highlights how education could be more creative.

--Helen D’Couto ‘12

**The End of Poverty**
by Jeffrey Sachs

**Dead Aid**
by Dambisa Moyo

Reading both of these books simultaneously was really interesting because they both passionately argue for opposing viewpoints. Each makes seemingly valid arguments, Jeff for more aid and Dambisa against it, yet you know they both can’t be right. I think it questions whether there can be a one size fits all solution to development and whether more local policies would be more effective than such broad sweeping policies as advocated by the two authors.

--Helen D’Couto ‘12
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Or visit web.mit.edu/komaza/www/

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