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THE COLLABORATORY FOR
STRATEGIC PARTNERSHIPS AND
APPLIED RESEARCH

One College Avenue Suite 3034
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DOKIMOI ERGATAI



Paxton Ministries continued from page 2

team also volunteers at Paxton Ministries at least twice a semester. Some of their tasks have included building shelving units for storage, planting trees and rebuilding a small footbridge.

Through both the volunteer and project work, members have gained invaluable experiences that have impacted their lives.

Student Project Manager Sean McCormick '18 says that having the opportunity to work on real life problems has allowed him to venture into different areas of engineering and has helped him to figure out what he wants to do in the future.

"It's one thing to do engineering work, and another to do engineering work with a purpose," McCormick believes. "When you see the community you're affecting, it gives you the spark and energy to work for an organization like Paxton Ministries." ●

STUDENT VOICES

Interviewed by Leanne Tan '21

"What is your most meaningful Collaboratory experience?"



Brianne Roper '18

*Diagnostics for
Viral Diseases*

"Working on my project on a research grant over the summer was an amazing opportunity to make some real progress on our project and also learn some important biomedical research techniques. I realized my knack for this style of work and now I plan to go to graduate school following my time at Messiah to continue in this field. My Collab experience has changed my future plans and showed me my potential for research."



Sandra Snozzi '18

Intelligent Water Project

"My team had an approaching deadline to send IWP units to our client in Ghana. The entire team worked very hard and grew much closer as we built and programmed the units during that time. This was a great experience that not only allowed us to work together to help communities abroad, it also created a formation of a community within our own team."

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The Collaboratory for Strategic Partnerships and Applied Research

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“Approved Workers” – II Timothy 2:15

DOKIMO I ERGATAI SPRING 2018

AFFORDABLE SANITATION PROJECTS CONTINUE IN GHANA

Leah Hagenbuch '18



Above left: Rachel Aukamp '18 and Cheylee Smith '20 dig around the newly implemented ferro-cement liner to create a level ground surface for laying the concrete slab. Above right: Eric Denlinger '19 and Adam Barley '19 remove the ferro-cement liner from its mold.

The welcome started before we entered the country. In the D.C. Dulles airport on a late Thursday afternoon, two men in our airport terminal asked at different times if Ghana was our final destination, and then shared their excitement about our visit to their home country. “The real land of the free,” one man said.

Our team shared in this excitement to see this country and meet its people. Before the trip, our Affordable Sanitation team had researched practical, sustainable and cost effective solutions to solve the problem of pit latrine collapse. We partnered with World Vision to determine solutions that would work within the upper east region of Ghana, using findings from a site team that traveled to this location a year and a half earlier.

As we arrived in Ghana and made our way to the village community of Nadigri, some new findings led to a change in plans. While we had prepared to focus on the implementation of the rebar reinforced liner design, a visit to the previous team’s test liner of this kind showed signs of

deterioration. With this new information, the World Vision staff and local artisans, skilled in latrine installation helped us to determine solutions for revising our plans. We made slight alterations to the rebar reinforced liner, and built and installed one, but we focused primarily on our other design for a ferro-cement liner. We completed one ferro-cement liner and made plans for a local artisan to install 19 more of them in the community.

The team’s student project manager Rachel Aukamp '18, a civil and environmental engineering major, states, “I grew through collaboration with local tradesmen who combined brainpower with us to develop our technologies. I was humbled by the respect they had for our ideas and the hard work they continuously demonstrated.”

Civil engineering major Adam Barley '19 also appreciated the collaborative experiences. “It was a blessing to work with the artisans and World Vision to find an affordable solution to pit latrine collapse,” says Barley.

We’re thankful that God put us in contact with people who had great patience in planning and implementing new solutions as well as His protection and safety for us throughout the trip. We pray that the work that has been accomplished will serve the community well and start a trend for increased access to suitable latrines in this region.

As we departed from the Accra airport and the people who had welcomed us so kindly, we left with a peace in believing that God used our time for His glory. ●

INSIDE

- Word from the Student Director
- Group updates: Solar Power in Kenya, Paxton Ministries, Remembering Ron Herr
- Student voices



THE COLLABORATORY FOR
STRATEGIC PARTNERSHIPS AND
APPLIED RESEARCH

WORD FROM THE STUDENT DIRECTOR

MISSION

The Collaboratory is a center at Messiah College for applied research and project-based learning, in partnership with client nonprofit organizations, businesses, governments and communities in our region and around the world. Areas of engagement include science, engineering, health, information technology, business and education. Our two-fold mission is:

- To foster justice, empower the poor, promote peace and care for the earth through applications of our academic and professional disciplines.
- To increase the academic and professional abilities of participants, their vocational vision for lifelong servant-leadership and their courage to act on convictions.

VISION

Increasing hope and transforming lives through education, collaboration, innovation and service.

IDENTITY

The Collaboratory is an organization of students, educators and professionals affiliated with Messiah College. We are Christians who aspire to obey the instructions of our Lord and Savior Jesus Christ, to love neighbors as ourselves and to share his Gospel. As God enables us to serve others today, we seek to grow as disciples of our Lord and Savior Jesus Christ, to serve as God's stewards over the resources of our academic disciplines and to bear witness to the good news of the Kingdom of God.

STUDENT STAFF

STUDENT DIRECTOR: Jessica Kline
 ASSISTANT STUDENT DIRECTOR: Lily Gaudreau
 STUDENT PROGRAM MANAGER: Wei Yee Ng
 STUDENT ADMINISTRATIVE ASSISTANT: Linh Vo

PROFESSIONAL STAFF:

DIRECTOR: Doug Flemmens
 ENGINEERING PROJECT MANAGER: Dereck Plante
 PROGRAM MANAGER: Lori Zimmerman
 ADMINISTRATIVE ASSISTANT: Shannon Walker

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JESSICA KLINE '18, STUDENT DIRECTOR



Even seasoned Collaboratory members are puzzled—what does our logo mean? Various ideas have circulated and I find one explanation particularly relevant: the cross symbolizes what's happening here and now, while the swirl represents the eternal impact. Amidst all I've learned from the Collaboratory, this is the most significant: this moment is part of a much larger story. This is certainly true for our projects, as part of God's global mission. However, it's also true for us. As we work on projects, God works in us in ways that will transcend our time at Messiah College. The greatest mystery in Collab isn't the logo. It's the eternal impact God is creating in us and through us.

"Now to him who is able to do immeasurably more than all we ask or imagine, according to his power that is at work within us, to him be glory in the church and in Christ Jesus throughout all generations, for ever and ever! Amen." (Eph. 3:20-21) 

PAXTON MINISTRIES

By Leanne Tan '21



Above left: Paxton Ministries experiences temporary flooding during rainstorms. Above right: Collaboratory team volunteers by planting shrubs.

Paxton Ministries has been a Collaboratory partner since September 2017. This Christ-centered, non-profit organization provides affordable housing and support services to adults with special needs.

This project team is seeking engineering solutions to flooding and sinkhole issues on Paxton's property in Harrisburg. The site is prone to the formation of sinkholes due to the geology underlying its location. Paxton also experiences regular flooding from the stormwater that runs off the street into its property, resulting in temporary submergence of its tennis courts. The frequent accumulation of stormwater on

Paxton's property not only aggravates the condition of the existing sinkholes, but also leads to the development of more sinkholes.

"Since the start of the project in September, we've discovered a new sinkhole about eight feet deep and eight feet wide under Paxton's tennis courts," project advisor Professor Scott Heisey reveals.

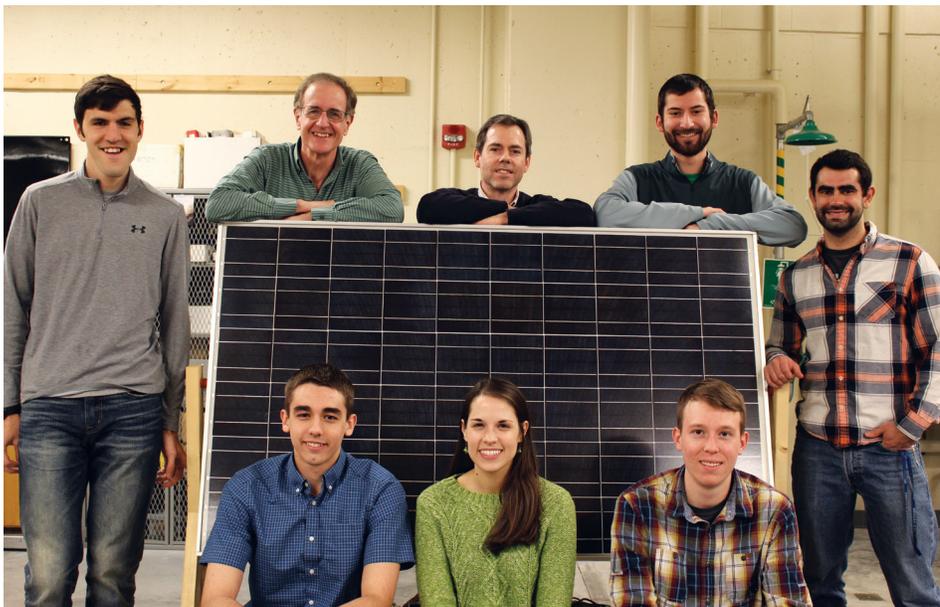
The team proposes two possible solutions. The first involves installing a pipe to connect the stormwater runoff to a creek about 700 feet away, while the second solution aims at redirecting the stormwater away from the tennis courts to a field situated on a lower region of the property.

In addition to the ongoing project, the

Continued to back

SOLAR POWER IN KENYA

By Hannah Beirsto '20



Above: Solar PV team prepares for summer 2018 trip to Kenya. To the right: Solar PV team with finished project in Zimbabwe during summer 2017.

Unreliable energy sources

create huge challenges in developing countries. The Solar PV project alleviates some of that stress by designing and installing solar panel systems. In summer 2017, the team completed an installation at the Ekuphileni Bible Institute in Zimbabwe. The team is thankful to have a new partner organization, Living Love Ministries, a small orphanage in Kenya.

"The design of the Solar PV is somewhat cookie cutter, but it also has to be tailored to specific client needs," says Steven Carpenter '19, student project manager. The orphanage has similar needs to the Bible Institute. Both areas suffer frequent "blackouts," where the government turns off electricity to conserve the precious resource. These blackouts come without forewarning, and can last for hours, days or weeks at a time. Food spoils, electronic communication is limited and students cannot do their homework in the dark.

Why solar power as an alternative source? "Kenya is on the equator, so they have an incredible amount of sunlight," explains Dereck Plante, Collaboratory



Engineering Project Manager. Living Love Ministries currently buys power from the Kenyan power grid, which is unreliable. Carpenter says, "The orphanage wants to avoid dependency on outside agents." Solar panels will be a good long-term investment despite the significant start-up cost.

The team is excited to travel to Kenya and install the system this summer. After the installation, Living Love Ministries hopes to convert its water pump to solar power as well. "We're all excited to have a partnership that will last more than one year," shares Plante, mentioning the possibility for other Collaboratory teams to work with Living Love Ministries in the future. 

REMEMBERING RON HERR

By Hannah Beirsto '20

"Ron Herr was one of the most encouraging people I've ever known," said Jake Gulinello '18.

A beloved member of the Collaboratory community, Herr passed away on February 3, 2018. Herr led the economic empowerment team on several trips to Zambia.

Gulinello and his fellow students were nervous about leading business classes. "We'd never taught, but he gave us the confidence we needed to do our work well."

Herr was more than qualified to lead trips to Zambia, having lived there with his wife, Erma, for nearly seven years before joining the Collaboratory. "Ron was a really relational person," said Gulinello. "In Zambia, we could only go 20-30 feet before someone stopped him, someone he knew from when he lived there."

"I always felt safe with him as our trip advisor," said Carissa Brandt, a recent alumna. "He was incredibly knowledgeable and experienced, but he still let us students take the lead. There was mutual trust."

She continues, "shortly after arriving in Zambia, Ron said 'this is home...these are my people.' I don't quite remember what the circumstance was but I remember how deeply and warmly he meant that; I could see it in his eyes that he loved Zambia and the people there with his whole heart." 



Above: Ron Herr with Collaboratory site team trip to Zambia in summer 2016.

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