The Chain Reaction

Humanitarian Solutions Worldwide

Newsletter 36 • January 16, 2024

CHEMISTS WITHOUT BORDERS

Chinhoyi Trip Report

BY RALPH L. HOUSE

Chemists Without Borders has begun work with the chemistry department at the Chinhoyi University of Technology (CUT) in Zimbabwe, and is partnering with Human Rights & Science based in Sweden, to develop a shared instrumentation facility that will serve the students, faculty, and staff at CUT as well as their surrounding community. The addition of analytical capabilities will serve a critical role in helping meet Zimbabwe's goals in innovation and industrialization by providing resources needed to expand experimental and educational capabilities as well as better train students to become competitive in the workplace.

A stakeholder committee led by Dr. Stephen Nyoni, Chair of the Department of Chemistry at CUT, with representatives from CUT, Bindura University of Science Education, and Midlands State University in Zimbabwe, has been assembled to develop a strategic management plan for the shared instrumentation facility. In addition to serving these universities, the equipment will serve the mining industries that are currently spread throughout Zimbabwe. Through service to the community, our goal is to generate financial resources that will sustain the instrumentation facility in the long-term.

In February 2023, Dr. Ralph House, Vice President for Research & Development at CWB, was honored with an invitation to present this project at the Fifth Chinhoyi University of Technology International Conference. His presentation stressed the importance of readily accessible analytical instrumentation to further the country's education goals in innovation and industrialization, as well as the critical importance of developing a management and sustainability plan with instrument acquisitions.

What's Inside this Issue

Our Mission

Chemists Without Borders solves humanitarian problems by mobilizing the resources and expertise of the global chemistry community and its networks.

Our Vision

A global support network of volunteers providing mentoring, information and advice to ensure every person, everywhere, has affordable, consistent and persistent access to:

- Essential medicines and vaccines
- Sufficient safe water
- A sustainable energy supply
- Education in green chemistry and business which people can apply in their daily lives and teach to others
- Safe processes in work environments where chemical hazards exist
- Emergency support, including essential supplies and technology

Chemists Without Borders is a registered 501(c)(3) with the Internal Revenue Service. EIN: 14-1984379

As of March 2023, this project is in the early stages of development and other projects are being explored in Zimbabwe that include water testing, detection of counterfeit medications, and developing a community composting initiative. We welcome any volunteers interested in getting involved.

Chemists Without Borders Presents at Scientific Research Week at University of Constantine 3 - Salah Boubnider

BY RALPH L. HOUSE

While attending a conference in Chinhoyi, Zimbabwe, I met Prof. Lakhdar Boukerrou, Director of International Programs and Global Initiatives at Florida International University (FIU). Prof. Boukerrou is originally from Constantine, Algeria and has several pre-established relationships with the universities in that area. He was intrigued by the work Chemists Without Borders is doing and invited me to present at the Third Edition of the Scientific Research Week at the University of Constantine 3 - Salah Boubnider (UC3).

Our goal during the visit was to initiate a conversation about developing a shared-use analytical instrumentation facility that would be used by several universities in the region and the thriving pharmaceutical industry. The Faculty in the Process Engineering Department at UC3 also expressed an interest in the Paper Analytical Devices (PADs) developed by Prof. Marya Lieberman at Notre Dame. Thus, during the visit I ran a titrations workshop with graduate students using the PADs. The purpose of the workshop was to introduce the students to microfluidics and their applications to process intensification. Till now, the process intensification courses were theoretical and the PADs represent an opportunity to introduce experiential learning opportunities into the course.
I also delivered two presentations: one broadly introducing Chemists Without Borders, designed primarily to recruit volunteers and another focused on the value of creating a shared-use instrumentation core laboratory as a method for catalyzing collaboration. There are increasing interactions between the universities and industry in Constantine and a shared-use instrumentation core can create the space and resources to bring members from both the public and private sectors together to catalyze joint projects.

During the visit I also drafted an MOU outlining a collaboration between UC3, CWB, and FIU. An MOU already exists between UC3 and FIU so it is likely we will be integrated into that document.
I was impressed by the enthusiasm and motivation of the students and faculty at UC3. There is a strong need for analytical capabilities driven by lack of resources but also a need to increase communication between universities and groups in the area. At the time of this writing (06/05/2023), the MOU is currently under review by UC3 leadership. Once signed, I believe we will have the beginnings of a fruitful relationship for developing analytical capabilities in Constantine, Algeria.

Information About Science Education: Pilot Project

BY ANN MILLER

Do you know where to find virtual, family, and in-person kits for chemistry education enrichment? Have you ever searched for a summer program or a cool kit to use?

And if you are a concerned parent, citizen, or older student, have you ever wanted to speak before your local or state Board of Education to let them know how much you care about science education?

If you have tried to search on the internet and grown frustrated with how scattered the information is on science education enrichment and decision-making, this project may provide a solution.

Education is a humanitarian concern. On a trial basis, Chemists Without Borders will be launching pages within its website housing two clearinghouses for information regarding:

- The plethora of online and in-person resources available for science education enrichment, including kits and other materials that can be ordered online.
- Upcoming decisions at the national, state, and district levels regarding science education in the public schools, to be continuously updated.

What will be included?

In the initial pilot clearinghouse for enrichment materials, we will focus on chemistry, and limit the entries to virtual enrichment for students in grades K-8. In the future, we hope to expand the offerings to include a wider range of subject areas, grades, and methods of enrichment, to include in-person events and opportunities.

Every state has an Open Meetings Act that allows public access to government meetings, at the state level. For some states, those laws also apply at the county/local level. We will choose one of those states to use for the pilot clearinghouse on upcoming meetings related to science education decisions for the public schools. In the future, we hope to expand the offerings to all states, and at the national level, where relevant.

How will these clearinghouses be populated?

The project lead for this effort, Ann Miller, will provide training to interested volunteers from Chemists Without Borders interested in populating the science educational opportunities clearinghouse. That training will include basic internet safety, and how to assess whether specific offerings detailed on webpages would be good candidates.

Criteria for inclusion on the clearinghouse

Chemists Without Borders views children's safety as the most important factor for inclusion in the educational opportunities clearinghouse. Therefore, depending on the type of opportunity, we will ensure that appropriate safety measures are in place, such as accreditation and/or meeting international child safety standards. Once we include in-person events, we will ensure any listing meets both the highest child safety standards and complies with all Centers for Disease Control COVID measures. Finally, and highly important, the chemist volunteers at CWB will ensure that the science educational aspects are sound.

Jasmine Nakashigashi's Bangladesh internship

BY ROBERT KURKJIAN

Jasmine, with AUW Chemistry Professor Mosae Selvakumar, testing well water samples for arsenic.

Jasmine Nakahigashi has been the Boots on the Ground person for this water project during its critical stages earlier this year. Jasmine was studying chemistry the University of Melbourne in Australia where she took a course that inspired her to apply science in a way that directly benefitted people. She searched online and discovered Chemists Without Borders. She then reached out to a member of its Board and learned about the Bangladesh water project, which was exactly what she was looking, and immediately wanted to get involved.

She took a break from her formal studies in Melbourne and moved to Chittagong, Bangladesh, so that she could work on the project as an intern for Chemists Without Borders, under the auspices of the Asian University for Women (AUW). At AUW, Jasmine was a guest lecturer in chemistry and she designed and ran laboratory work for students. She served as a liaison between Chemists Without Borders and the university's students and professors.

Jasmine drew upon the skills in chemistry and as an organizer that she had learned at university. In Bangladesh she canvassed rural residents and conducted surveys, she coordinated the testing of water samples, and she helped manage focus group sessions.

Jasmine training CWB volunteers to test water samples for arsenic at the local high school.

Before arriving in Bangladesh, Jasmine had researched the country's arsenic crisis. The research gave her the necessary scientific background to do her work. But, she told us, "being there in person really brought home the realities of this crisis and the people it affects."

News Briefs

Chemists Without Borders recieved a thank you letter from Botame Peter Ikome. Thanks to Dr. Rolande Hodel of AIDSfreeAFRICA, the Rural Development Centre (RUDEC) was able to provide two hundred fruit trees to farmers in the Batoke community in Cameroon. The assortment of one hundred avocado trees, fifty bush mango trees, and fifty bitter Kola trees will help on two fronts: providing food for the Batoke community and reducing the impact of climate change.

An update from Achal Garg:
"I am delighted to share that I have been chosen as a Fulbright Specialist by the Fulbright Program to join their distinguished roster. In the past, I have been honored with the Fulbright Scholar award twice. My initial Fulbright award was in 2012 for Namibia (Africa), followed by another in 2020 for Peru. The selection as a Fulbright Specialist represents the recognition of the highest level for an expert in their specific field of expertise.

The Fulbright Specialist program differs from the Fulbright Scholar program which is project-based and focuses on working within a designated country. The Fulbright Specialist program comprises a roster of accomplished professionals who possess the unique privilege of undertaking assignments anywhere in the world for a period of up to 6 weeks. This appointment is held for a tenure of three years, during which I will be able to undertake two projects of significance.

I am looking forward to exploring available projects in the areas of water and sanitation. I will keep you updated on my progress. If you have any ideas or suggestions, please share them with me."

Environmental Monitoring featured Chemists Without Borders in their magazine and online in June 2023, focusing on our water sharing program in Bangladesh.

Robert Kurkjian, Matthew Karanian, Jasmine Nakahigashi, and Shahena Begum are featured in the article alongside other Chemist Without Borders volunteers and members of the Teriail community. The article can be read online here: https://www.fondriest.com/news/establishing-a-water-sharing-program-in-bangladesh-solving-the-largest-mass-poisoning-in-history.htm

The feature on Jasmine Nakahigashi featured in this issue was originally intended for the Environmental Monitoring feature. Our thanks to Robert to having it featured in the newsletter.

Dr. Ralph House was commended by the State of North Carolina for his contributions with the University of North Carolina at Chapel Hill and Chemists Without Borders, having been awarded with the 2023 Governor's Award for Excellence in Human Relations. His profile can be read online here: https://oshr.nc.gov/2023GAE

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