

BETA Newsletter



BIOMEDICAL ENGINEERING TECHNOLOGY AID. INTL

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BETA International Incorporated in Salem, OR



Executive Director Dan Schuster with CPA Peter Reding filing for public benefit incorporation.

Biomedical Engineering Technology Aid (BETA) International was incorporated as a public benefit nonprofit on December 13, 2012. Why another non-profit? Why another small business? Inspiration and innovation — driven by commitment seldom achieved by working for large corporations. BETA is dedicated to providing opportunities for an ever-growing base of engineering

retirees and globally-inspired engineering students to share high-tech mentoring opportunities with students, engineers and technicians in developing nations. Initial targets are Tanzania and Haiti. Medical and educational professionals have had ample access to voluntourism opportunities, sharing their talents while on vacation. Engineering mentorship is a dire need in developing countries, yet only low-tech infrastructure development opportunities are furnished by the top volunteer resource, Engineers Without Borders. BETA is dedicated to building capacity within nations to handle their own critical engineering needs — “teaching to fish rather than giving fish.” Practical men-

torship by seasoned engineers is a critical deficiency. Engineers often have resources for travel vacations to high-need locations such as East Africa. Connecting experience with need is the role of BETA, leveraging the practical knowledge of experienced engineers and technicians in environments where “hands-on” opportunities are rare. These countries lack commercial intern training options which abound in the US, and also lack “tracking” of working BMETs which is standard for US BMET trainees. Even grad student volunteers, with little practical experience, offer teaching resources while sensitizing to Third-World BMET needs. BETA will unleash untapped potential.

BETA Board Elects Officers and Adopts Charter, Bylaws

Peter and Patricia Reding graciously provided their home (and pizza) for the first annual meeting of BETA’s Board of Directors just days before Christmas. Six of seven Board members were present or on teleconference. Peter ably navigated the Board through all steps nec-

essary to initiate our public benefit nonprofit. Director Dan Schuster presented a short Powerpoint overview, after which Peter set forth necessary business agenda for the evening. Critical officers were elected, and authority was vested in the Executive Director to initial-

ize bank accounts and manage finances. Bylaws and Conflict of Interest were reviewed and approved, along with other requisite documents. Peter kept us on track and we finished the evening in a remarkably short time for all that was accomplished.

Highlights:

- INCORPORATION
- BOARD MEETING
- HAITI REPAIR TRIP
- TANZANIA BMET STARTED
- HOUSING AGREEMENT
- ZANZIBAR POTENTIALS
- HAITI TRAINING TRIP
- NONPROFIT PURPOSES
- WHAT NEXT?

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BETA Newsletter

Meet the Board



Executive Director Dan Schuster takes oximeter reading for Tanzania's Deputy Minister of Education

We are truly privileged to have outstanding expertise among BETA's directors. Director Charles Fenning has 40+ years experience as a BMET, BMET manager, and BMET instructor. Director Bo Nonn performed mechanical design in developing Drake Willock's pioneering kidney dialysis machine, and Bioject's needle-free injection systems (and his wife worked for years on Park's Doppler blood flow devices). Director George Balagtas works

as biomedical engineer while pursuing a graduate degree. Still early in his career, he initiated the BMET volunteer effort at Project Medishare's Hopital Bernard Mevs in Port-au-Prince, Haiti. Directors Charmika Schuster and Priscilla Murray are both FNP's at OHSU. Charmika has founded nonprofit Global Mustard Seed Missions which facilitates mobile medical clinics staffed by local clinicians, with a first focus in Haiti street clinics.

She was the 2012 March of Dimes Oregon Nurse of the Year for Community Service. Director Rev. Nicolaus Mirandu is pastor of Immaculate Heart Catholic Church, and former pastor in Moshi, Tanzania, with an intimate understanding of cultural and political issues in Tanzania. Executive Director Dan Schuster has 35 years engineering experience, including biomedical and imaging applications. We are thankful for the selfless work of all.

"COUNTLESS
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Haiti: Project Medishare at Hopital Bernard Mevs

Countless medical volunteers responded to the 2010 Haitian earthquake through U of Miami's Project Medishare at Hopital Bernard Mevs in Port-au-Prince. But BETA Director George Balagtas was the first to address critical BMET needs in equipment repair. Executive Director Dan Schuster made his fourth trip to HBM from Jan 1 to 12, 2013.

Dr. "Bull" Durham requested repair of a Jackson radiolucent surgical table to allow X-ray spinal surgery, and installation supervision of OR central autoclave sterilizer. Both were achieved, along with repairing two patient monitors for pediatrics, and two syringe injection pumps for use in Peds and NICU, and exam lamp for triage.

Principal faults remain low-charge batteries at end-of-life, and failure of staff to keep devices with older batteries on constant charge (e.g. new batteries I donated for the Jackson table were unnecessary). Critical task was replacing an intermittent anesthesia machine in OR1, swapping halothane vaporizers to use spare in storage.

Tanzania BMET Program Launched at Arusha Tech



Soldering and PCB rework are core skills for second-year students in Electrical and Biomedical Engineering at Arusha Technical College

From Jan 15 to March 27, Executive Director Dan Schuster assisted launch of "Electrical and Biomedical Engineering" (EBME) diploma at Arusha Technical College. One-third of all EE and Telecom 2nd-year students applied. Thirteen finalists resulted from rigorous vetting based on GPA, instructor

referrals, and juried electronics troubleshooting skills. All made room for Saturday classes and hospital visits while juggling full course loads. Nine lab exercises culminated in production of working ECG simulators by each student, capable of testing patient monitors, ECG recorders, and defibrillators.

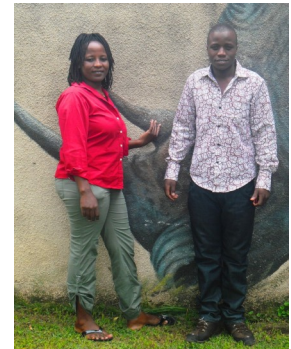
Biometric measurement errors were analyzed for pulse oximeters, auto blood pressure cuffs, spirometers, infrared and digital thermometers. Students took their own ECG. Electrical leakage was tested for device safety assessment. Soldering, PCB rework, circuit reading and prototyping skills were key elements.

BETA's First Volunteer Housing Agreement

BETA entered into its first Memorandum of Understanding (MoU), with Arusha Technical College in northern Tanzania. The agreement calls for BETA to provide mentoring experts in engineering, and in return the college will provide local transport and guest house accommodations. BETA was chartered to facilitate "voluntourism" opportunities for engineers, faculty and students, and already volunteers are taking advan-

tage. Hobey Tam, a PhD candidate in Biomedical Engineering at Clemson University, will spend two weeks in August training faculty and students in physiology from an engineering systems perspective. Two PhD's from Cornell's Biomedical Engineering Program will visit ATC in June under the MoU, to assess partnership opportunities in BMET. Dr. Delphine Dean, BMET Dept. Head at Clemson, will visit in mid-June

to assess potential for 2014 on-site instruction of ATC students and visiting Clemson students. The MoU also calls for BETA to assist with instruction materials including textbooks, test equipment, and lab supplies, and to help provide living stipends for students' 10-week internship at region hospitals. ATC Principal, Dr. Masika, gratefully acknowledged January receipt of \$5600 in equipment and much-needed textbooks.



Robert and Jennifer to host BETA volunteers at Sakina Campsite guest house in Arusha, under newly-signed "Memorandum of Understanding" with Arusha Technical College

Zanzibar BMET Partnering Opportunities

Executive Director Dan Schuster visited the College of Health Sciences (CHS) in Stone Town, Zanzibar, in mid-February. He met with Mr. Hamid Juma, a member of the Ministry of Health, to determine opportunities for cooperative development of BMET training between Arusha Technical College and CHS, along with adjacent

Karume Institute of Technology (KIST). Nonprofit MED International has launched an initiative for BMET training at CHS, and we discussed ways in which training materials might be leveraged, particularly shared Powerpoints. Jayson Marhwal, CEO of MED International, has been involved in several discussions. Whenever possible,

BETA seeks to leverage existing and parallel efforts, such as those of Engineering World Health's Duke Summer Institute near Arusha, which trained an ATC faculty member in 2012. Zanzibar has a population of 1.2 million compared to over 40 million for the mainland, so the extent of BMET training may be more limited.

BETA SEEKS TO LEVERAGE EXISTING AND PARALLEL EFFORTS, SUCH AS THOSE OF ENGINEERING WORLD HEALTH'S DUKE SUMMER INSTITUTE NEAR ARUSHA....

BMET Training in Pignon, Haiti

Executive Director Dan Schuster was in Pignon, Haiti from May 12-21 at the request of Billy Teninty, former BMET training coordinator for International Aid, and also Engineering World Health. Schuster was delighted to work with Teninty, who has over 28 years of international BMET repair and training experience in developing

countries, and is an advisor to the World Health Organization's Medical Device committee. Schuster taught care and repair of Operating Room medical devices, including Electrosurgical Units and Patient Monitors. Babylon10 software was used to translate Powerpoints into French, and translators did the rest. The 22 BMET trainees came

from hospitals throughout Haiti. BMET Test equipment was carried from Project Medishare's Hopital Bernard Mevs in Port-au-Prince. Rotary International sponsored eight 2-week sessions over 2 years, to allow attendance by working hospital techs. The first group of 22 BMETs graduated on May 23.



Haitian BMET students repair Vital Signs monitor at Pignon training in Operating Room equipment, held at L'Hôpital Bienfaisance de Pignon, sponsored by Rotary International.



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Section 2.2 Purpose of nonprofit corporation. The charitable, educational, and scientific purposes for which this corporation is organized shall be to serve populations in underserved nations:

[1] By improving the availability of functioning medical equipment through donations, repair, and maintenance;

[2] By training local biomedical technologists and engineers to repair and maintain medical equipment properly;

[3] By facilitating local academic training programs that are self-sustaining and adaptive to new medical technologies;

[4] By sustaining local biomedical technologists to instruct medical staff on proper use and care of new and legacy medical technology devices;

[5] By collaborating with local organizations to offer secure accommodations to mobile teams and to partner with local nonprofit establishments providing technical repair services in the host country so that facilities may be maintained;

[6] By contracting for any kind of activity to perform and carry-out contracts of any kind necessary to, or in connection with, or incidental to the accomplishment of the purposes of this nonprofit Corporation; and

[7] By performing any and all other acts and activities necessary, incident, proper, desirable or convenient to carrying out the purposes of this Corporation and generally to engage in any or all of the foregoing activities, either within or without the State of Oregon or the United States; and to engage in any lawful activity for which **nonprofit** corporations may be organized under the laws of the State of Oregon, none of which shall be inconsistent with Section 501(c)(3) of the Internal Revenue Code of 1986, as amended from time to time.



Arusha Tech student, Sarafina Michael, has rare opportunity to check blood pressure of EE Dept. Head, Urbanus Melkior. EBME program manager, Menansili Mejooli, looks on at right, with Lab Manager Emmanuel Kassi (center). The EBME program was just approved by Tanzanian technical accreditation agency, NACTE.

Next Up — What Lies Ahead

There are many goals to accomplish within the next year, particularly with regard to nonprofit status and organization of BETA. First on that list is achieving and maintaining 501c3 status with the IRS. Rotary International Houston has offered to cover the expenses of Executive Director Dan Schuster for his training of BMET Pignon, Haiti, payable to BETA, which is our first “receivable” payment. Fundraising income from multiple sources remains critical to maintaining nonprofit viability, even if personal donations cover short-term funding necessary to continue

BMET development at Arusha Technical College. Our late-breaking news: Arusha Tech’s “Electrical and Biomedical Engineering” proposed curriculum has received NACTE approval, which means it is the first program of its kind to receive accreditation approval in Tanzania. The real work is just beginning, and we hope to graduate the first students in January 2015 after a 10-week internship at various hospitals in Tanzania (to be partly subsidized by BETA). Arranged visits by faculty from Clemson, and Cornell has already set the stage for

remarkable educational alliances, following on the heels of Arusha Tech faculty member training by Duke in summer 2012. The path for BMET promotion in Haiti is murkier. The lack of intact higher education facilities makes BMET programs like the one at Arusha Tech unfeasible. Partnering with organizations like Rotary International and Project Medishare is the most viable means to provide volunteer assistance, and safe accommodations. Hopefully, that may change as the country rebuilds, and academic facilities arise.