

Simple Technology. Dramatic Results.

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Last month, David Damberger, a mechanical engineer from Calgary, spent hours biking into the bush, weaving along dirt paths and wading through a river, all in his commute to work. It's not exactly a corner office that he was heading to, but rather a meeting with a group of small-scale farmers in southern Zambia. Dave, a volunteer with Engineers Without Borders, is working in Zambia to help spread irrigation technologies among poor farmers.

Dave is one of 150 volunteers who have dedicated themselves over the past three years to overseas assignments with EWB, a Canadian charity that is working to address global poverty through spreading appropriate technologies. EWB volunteers have worked in 25 countries in Africa, Asia and Latin America, helping some of the world's most impoverished communities meet their most basic needs and improve their livelihoods. The unique skills of engineers, most notably their keen problem identification and solving abilities, combined with a strong commitment to alleviating the impacts of poverty, has enabled these volunteers to make a difference in the diverse communities where they have worked.

63.7% of the Zambian population lives on less than \$1 a day and have a life expectancy of only 32 years. Dave has the potential to have an extraordinary impact in Zambia by encouraging the use of a simple irrigation technology – the treadle pump.

Using treadle pumps allows farmers to increase their yields, particularly in the dry season, by delivering pressurized water to fields of up to 1 hectare. They resemble a stair-master and are powered by someone stepping on the treadles, drawing water from rivers and wells, pressurizing it, then delivering it to fields at a rate of one liter per second. Since alternative irrigation methods generally involve a rope and bucket, the treadle pump increases the effectiveness and ease of irrigation, while reducing the necessary labour.

The meeting that Dave was heading to last month was organized to provide a forum for farmers to discuss current problems they are facing and what can be done to improve the situation. The farmers gathered on the farm of Mr. Muungu who has been farming for 12 years on a small plot of land and who just last year, bought a treadle pump. After years of subsistence farming and the deaths of two of his children during prolonged droughts, Mr. Muungu saved enough money, about \$80, to purchase the pump. Using the treadle pump, Mr. Muungu doubled his plot of land and quadrupled his yields in one year. The impact has been expansive; his surplus crops in excess of what his family requires to subsist are sold at a local market, bringing in sufficient funds to send two of his children to school, and he now has the security of knowing that he can feed himself and his family if the rains are not forthcoming.

Dave chose to hold the meeting at Mr. Muungu's farm so that other villagers could see the benefits from increased irrigation. Promoting the treadle pump in this way has been vital since people are less receptive to an outsider such as Dave than to members of their own communities who understand the daily challenges they confront. Through working with Mr. Muungu, Dave was able to create interest in treadle pumps.

For Dave, this meeting marked a big success - only when people see the benefits of a particular technology, understand how to operate and maintain it, and want to incorporate it into their lives, does that technology have the capacity to drive development. This is why EWB volunteers work directly with community members to ensure that the technology is a good-fit and is bringing about the desired results. Dave is spending a minimum of one year in Zambia, encouraging interest in the treadle pump, training farmers to operate and maintain the equipment, and working with metal workers to ensure an adequate, affordable and accessible supply of pumps.

The contribution that Dave is making in Zambia is an example of just one of the many new engineering graduates who are choosing to lend their skills, abilities and experience to developing world communities. By spreading appropriate technologies throughout the developing world they are helping to address the global disparities that continue to persist. The rapid growth of the organization has helped to put a human face on the engineering profession in Canada by revealing that many engineers are strongly committed to the alleviation of poverty throughout the world.

EWB is proud to be the charity of choice for Canadian Engineers. To find out more about EWB visit their website at www.ewb.ca.