Canadian Engineering Student Makes a Big Difference in Ghana
By Robin Farnworth

The Canadian Water Network is supporting an Engineers Without Borders student as she lives and works in Ghana for a year. Robin Farnsworth is hoping to apply her engineering skills to numerous projects, helping local communities and farmers become self-sufficient. Please take a moment read more about Robin's projects and progress and about the great work of Engineers Without Borders.

The sun is my alarm clock here. At about 6:30 it shines directly in my window and through my mosquito net, falling on my face and waking me up. Soon the roosters pipe, making sure I do not sleep in and miss work, or on the weekend, miss exploring my new hometown. I am living in Gumani, a peri-urban area of Tamale, the largest and busiest city in the northern region of Ghana, Africa. Not a likely place for a new graduate of Engineering Physics from UBC perhaps, but a place where I can contribute my skills in a way that will help people. I will spend one year working as a volunteer for Engineers Without Borders (EWB), a Canadian organization dedicated to using technology to drive change in developing countries.

When my plane touched down in Accra 5 weeks ago I was bewildered and overwhelmed by my new home. It could have been the 30 hours in transit, or it could have been the drastically different surroundings; the noises, the heat, the dust, the smells. The other Canadian engineering students with EWB, who had been in Ghana all summer slowly introduced to me the wonders of the culture. They laughed at me as I ate clumsily with my hands, they sat me down at a cool "drinking spot" for my first Malta Guinness, they squished me into a cramped "tro-tro" for a sightseeing trip to the coast, they gave me hints and tips on shopping, eating, talking, living and working in Ghana, and eagerly answered my myriad of questions with endless anecdotes.

I began orientation with the Ministry of Food and Agriculture (MoFA), the government department in charge supporting farmers; from seed production to irrigation to post-harvest processing and marketing. Northern Ghana suffers from exceptionally dry, hot

weather and sporadic rains, conditions which increase the vulnerability of those that depend on agriculture. Seventy-five percent of the population depends on agriculture. Therefore, MoFA in this region not only supports the agricultural industry, but makes a real difference in poverty reduction.

A key way that MoFA supports the farmers is through its extension services and special projects. There are people in each area of the region who help farmers solve specific problems, create demonstration plots of new farming techniques or seed varieties, facilitate the formation of community-based farmers groups, and disseminate new innovations. The route out of poverty for a family in this region could be as simple as gaining access to credit through a farmers group in order to purchase a simple pump for irrigation during droughts, or for dry season vegetable cultivation. It is MoFA's job to help the farmer gain access to solutions of this type, to overcome the challenges of agriculture in a harsh climate.

Things happen slowly at MoFA. Like any government organization, it is limited by too few resources and a large bureaucracy, restricting what the extension staff can accomplish and therefore the impact on the farmers. The Directors have extensive agriculture experience and knowledge, but lack vital management, reporting and leadership skills. MoFA has the potential to drive positive change in farmer's lives. While my role will be determined more definitively after my orientation, it will consist of helping MoFA build the meta-skills to become a more effective organisation. It may involve joining a project team and teaching them computer skills, or how to give effective training workshops, or helping them to write proposals. It may involve working with the regional office on an improved reporting structure, or developing a program of collaboration with the dozens of Non-Governmental Organisations (NGOs) in the region. My hope is that it will be in such a way that after I leave, the organisation can continue to benefit from the work that I did, and that it will have the capacity to keep on changing in a positive direction. With more of these tools, MoFA can be a more effective organisation, and better able to work towards its vision of positively impacting the rural farmers.

The role of supporting a large organisation like MoFA is not a simple or easy one. Change is very slow and the effect on the farmer is not immediately obvious. When I go back to my host

family in the evening and am greeted by the neighborhood children, I think of the other ways I could have impact here. We are often visit by 6 year-old Ahmed and 2 year old Rashida, neighbors of my family and two of Ghana's poor. You can see at a glance that they are less fortunate; their bellies unnaturally large compared to their thin limbs and their hair not as thick as other children, the signs of poor nutrition. But Ahmed is always smiling, jumping around and showing off, with Rashida toddling after him.

As I play with them, my immediate reaction is to want to help them directly, to pay for food, healthcare and school. I could make a real difference in these two children's lives with my resources and time here, a difference that could be immediately seen and attributable to my actions. But I know that my approach - building capacity at MoFA - can be felt by far more people. If I can make a change at MoFA that enhances the way they support farmers, strengthening the national agricultural industry and economy and increasing food security, the benefits will be felt by more than Rashida and Ahmed. This may not be the exciting side of development, but I feel it is a necessary one. The change I would like to drive will take time and is not immediately obvious – but I am confident it is the right choice.

Farming with little water:

In a place where there is only one rainy season, and the rains can be sporadic and few, strategies are necessary to sustain agriculture. MoFA plays a role in supporting farmers who implement these techniques and in disseminating new innovations throughout the region:

Bunding fields: Involves building up stone or soil barriers along contour lines to keep the rainfall in the field, preventing run-off of the water, soil and fertilizer.

Contour ridging or ploughing: Traps water in the small gulleys between the crop lines.

Varying crop type: The New Rice for Africa (NERICA) is an upland variety that requires less water than lowland varieties, flourishing in higher areas that typically were used for maize.

Med to Large-scale irrigation: Provided by the Irrigation Development Authority, these systems are managed and maintained by the communities through local Water

Management Associations that collect fees, settle disputes and ensure regular maintenance.

Bucket irrigation: During dry season or droughts, some small-scale farming can be done if the plot is near a water source such as a well.

Treadle pump irrigation: A foot-pump requiring no fuel or electricity that can irrigate up to 1 ha for dry season planting, or provide water to crops during a drought.