

The **Combat Diseases of Poverty Consortium** brings together scientific, academic, NGO and private sector expertise to build educational and research capacities for combating diseases of poverty. The CDPC aims to network researchers across geographical borders and disciplines, in order to foster a scientific exchange and opportunities for new collaborations. The **CDPC newsletter** serves as a platform for the exchange of information between CDPC partners and other interested parties.

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**Welcome** to the ninth edition of the CDPC newsletter! As usual, the CDPC has kept busy over the summer and early autumn. We have had quite a large number of trainees, both in Ireland and East Africa. Two of them, who were venturing into new fields for CDPC training, describe their experiences in this newsletter: Sarah Naulika, our first trainee with a focus on Science Education trained with the CDPC's Education officer Joseph Clowry (page 2). Keith Greene was the first Irish trainee to be based in Uganda, where he trained with Prof. Joseph Olobo at Makerere University (page 3). We are hoping to feature some of the other trainees in the coming editions and would like to sincerely thank everybody who was involved in their training, especially Dr John Waitumbi, Prof Joseph Olobo, Dr Derek Doherty and Dr Joseph Keane. It is great to see that the seeds of the CDPC training are beginning to generate fruits, as James Wainana reports on passing on his bioinformatics skills to students at the University of Nairobi (page 4).

The newsletter aims to enhance and facilitate communication within the CDPC, so if you would like to see your research or recent publications featured, **please send me your contribution for the next newsletter by the 7th of January 2011!**

*-Dr. Martina Schröder*

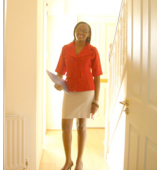
### CDPC to host Global Health conference

On the 29<sup>th</sup> and 30<sup>th</sup> of November 2010, the CDPC and NUI Maynooth will host the biennial conference of the Irish Forum for Global Health (IFGH): 'Partnerships to Address Health and Diseases of Poverty Challenges'. Confirmed keynote speakers for the conference include Dr. Zeda Rosenberg, CEO of the International Partnership for Microbicides, and Professor Fr. Michael Kelly. Dr Rosenberg and the microbicide partnership focus on women as a target population to prevent the spread of HIV by developing topical microbicides for their use. Recently, the CAPRISA trial has brought some encouraging news for the use of microbicides to prevent HIV infection and Dr Rosenberg's visit to Ireland therefore comes at a very opportune time. Michael Kelly, who has lived in Zambia for over 50 years, has also passionately highlighted the 'feminisation of HIV and AIDS' and the links between education and HIV. We are honoured that Prof Kelly, who collaborates closely with Irish Aid and sits on the International Advisory Panel of the CDPC, will launch his new book 'HIV and AIDS, a Social Justice Perspective' during the conference.

The CDPC will mark World Aids Day on the 1<sup>st</sup> of December with a range of events focused on HIV/AIDS. Most importantly, the CDPC has invited Prof Robert Thornton, a medical anthropologist from the University of Witwatersrand, whose most recent book investigates and compares social determinants of HIV transmission in Uganda and South Africa, to participate in the conference and to lead additional masterclasses for NUIM students.

The conference will also include selected oral and poster presentations by attendees. If you are working in the area of Global Health, please consider participating in the conference and submitting your work for presentation at the meeting. Abstract submission is now open and closes on November 5<sup>th</sup> at 5pm. Abstract submission guidelines can be found under: <http://www.globalhealth.ie/downloads/69>. More information on the Irish Forum for Global Health and the Conference is available here: <http://www.globalhealth.ie/>  
We look forward to welcoming you to Maynooth!

## Learning to Communicate Science



*-provided by Sarah Kituyi Naulikha, who trained with the CDPC from May to July 2010. Sarah has a BSc in Biotechnology from Kenyatta University and has started an MSc in John Waitumbi's lab since her return to Kenya. Sarah has a keen interest in science communication and education and was working with the CDPC's education officer, Joe Clowry, in Ireland.*

Before coming to Ireland, it was my desire to get exposure to communicating science concepts to a young audience. I got the opportunity to train with the CDPC's Educational Outreach Programme, was able to fulfill this objective and had a very rewarding experience throughout. Through my training, I was exposed to a wide variety of resources and methodologies that are used to communicate science concepts. I was involved in a pilot programme that is embedding development education in Irish secondary schools. The resources for this pilot programme are available on the CDPC's website: "Development Issues - a course for Transition Year" ([www.cdpc.ie/deved-resources](http://www.cdpc.ie/deved-resources)).

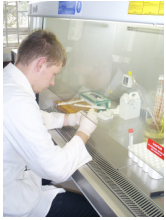
I also observed that young students were encouraged to investigate science topics related to development and to appreciate how science can make the world a better place. This broadening of the sciences seems to act as a catalyst and motivates young students to engage with the sciences in an exciting and innovative manner. Science is not boring when the students see that the lives of people can improve through science innovation. I was overwhelmed to meet so many students that were doing projects on issues that concern us in the developing world. Along with the Education Officer, Joe Clowry, and other CDPC trainees, I attended various workshops throughout Ireland. At these workshops several schools came together for the day and engaged with issues around development through active learning methodologies. At these workshops I was introduced to other facilitators and trainers from NGOs, such as Self-Help Africa, and partner organizations that collaborate with the CDPC. Before each workshop, I was taken through the process of preparing the content for such a workshop. I was trained to produce resources that create an awareness of the diseases of poverty, especially HIV/AIDS. I learned how to engage young people and to stimulate them to believe that they can make a difference in the creation of a better world. I was also taken to various schools where I was exposed to the use of science projects among students for the promotion of science and technology. The students I met were preparing their projects for the annual Irish Young Scientist competition ([www.btyoungscientist.ie](http://www.btyoungscientist.ie)) and the Young Social Innovators competition ([www.youngsocialinnovators.ie](http://www.youngsocialinnovators.ie)). This was one of my best experiences since I also got an opportunity to attend various forums in which such projects were showcased, including The Young Social Innovators 2010 and the Sentinus Young Scientist in the UK.

Above all, I was introduced to an exceptional science education technology called 'Labquest' that allows for innovative experimentation and data-logging. I met several students that had submitted projects to Sci Fest 2010 using the 'Labquest' in their experiments and analysis ([www.discoversensors.ie](http://www.discoversensors.ie)). Their teacher, Mr Sylvester McEvoy, and Joe Clowry introduced me to Ibotz, the company who manufacture the 'Labquest' and I received training in the use of it. I am very grateful for the generosity shown by everybody at Ibotz and Vernier Europe for sponsoring me with various sensors and the 'Labquest'. As a result of this, I have now initiated the launch of the Labquest in Kenya to transform the teaching of science here. I am currently using my experience of the workshops in Irish schools and the concept of science projects to promote the use of science and technology as a tool that can ensure the development of problem solving skills among Kenyan students. I hope to link schools in Africa with schools in Ireland and to develop mutual research interest among the schools.

In addition, I also had a wonderful experience in the Institute of Immunology while working with Dr. Martina Schroeder. While in her lab, I was introduced to a number of immunological techniques, especially the transfection of mammalian cells. This further exposed me to techniques like tissue culture, gel electrophoresis and western blotting. It was great to be back in the lab after a very long period of time without bench work, and some of the techniques I used appeared very new and tricky to me. Thanks to Martina and her team of PhD students who dedicated their time to help me learn, I managed them in the end. My first attempt of transfecting cells was a disaster, but I learnt to do a number of things that I did not get right on the first attempt and later did another transfection with quite promising results. The techniques I was exposed to while working with Dr Martina are very essential and I look forward to using them at some point in my own MSc project that I have now started.

Finally I would like to thank everyone (too many to mention) for making my fellowship in Ireland with the CDPC so rewarding and productive. *-Please contact Sarah if you would like to know more: [kituyi2@yahoo.com](mailto:kituyi2@yahoo.com)*

## Living in Kampala for the summer



*-provided by Keith Greene, who trained with CDPC partner Prof. Joseph Olobo at Makerere University from June to August 2010. Keith has now finished his MSc in Immunology and Global Health here at NUI Maynooth.*

As part of my MSc for Immunology and Global Health at NUI Maynooth, I applied for a training fellowship with the CDPC and was given the opportunity to travel to East Africa to complete the research for my MSc thesis. I was lucky enough to travel to Kampala in Uganda, where I worked under the supervision of Professor Joseph Olobo. The aim of my project was to isolate three small molecular weight proteins on the surface of the Leishmania parasite *L. donovani*.

Arriving first in Uganda was a big shock to the system. It is a completely different world to what we are used to here in Ireland. The labs I worked in were quite small and had no air-conditioning, but they had big windows and therefore there was always plenty of heat in the labs. The facilities and equipment were far from ideal, but the researchers there were amazing and resourceful. The work I was doing was really very interesting and I found myself getting almost swept away in it at times. The people I lived with in the hospital guest house were all very nice. Most of them were American doctors, but there was a good mix of other professions that passed through. This rotation of people through the house meant that I got to meet a lot of new people and make a lot of new friends.

Kampala is most definitely a city of contrast when it comes to money. It is home to countless impoverished people most of who live in slum areas just outside the city itself, while a 15min drive away are some of the most beautiful houses and exuberant wealth. Despite living in impoverished conditions the people of Kampala are extremely friendly and will talk to you and try to get to know you at any opportunity. As with all cities in all countries in the world, there are some inherent dangers such as crime. In a city like Kampala all white people are deemed to be wealthy and therefore are warned that they may become targets of purse snatchings or muggings. So, being in a new and different country, a warning like that will keep you on your toes. However, it must be said that in the three months I was there I experienced no such animosity. The poverty in the city and in the country is something you can't prepare yourself for, but it is something you cannot avoid either when you are there. Dealing with some of the things, like people without legs begging or homeless people sitting literally in a gutter, is hard. I learned a lot about myself by seeing that every day.

I was lucky enough to be able to go travelling on occasions during my stay in East Africa. The most memorable of these will always be my trip to Kenya. I went to visit the other two students from my class who were based in Kisumu and we had arranged to go on Safari. It was the most spectacular and adventurous week of my life. The sights that I witnessed were awe inspiring and I am lost for words as to how to describe them. I also got to go white water rafting on the river Nile which was a fantastic trip filled with adrenaline rushes.

My stay in Uganda was a once in a life time journey that will stay with me forever. In going to Uganda and living a life there, albeit only for three months, I have learned a lot about myself: who I am, what I want from life, how trivial a lot of our so-called "needs" really are. More than anything else, it taught me about the strength of the human spirit and showed me how truly lucky I am to have what I have in this life. The trip opened my eyes to a different world, and since arriving home I do look at life and the situations it presents me with in a new light. I approach these situations in a much more positive way, because, if people who face impossible odds and struggle to survive from one month to the next can be hopeful and positive about their lives, then there is no reason why I shouldn't. In the future, I am hoping to use my skills and training to make a difference to the lives of impoverished people like the ones that I witnessed during my stay in Uganda.



## Sowing the seeds of bioinformatics in Kenya



- provided by James Mbora Wainana

*James is one of the CDPC's most active alumni. He trained with the CDPC in the autumn of 2009, did an MSc on Rickettsiae under John Waitumbi's supervision and is now looking to embark on a PhD. If you would like to find out more about his research or teaching, feel free to contact James ([jwmbora@yahoo.com](mailto:jwmbora@yahoo.com)).*

Just like the mustard seeds are sown in the fields and become trees, so that birds can make their nests in their branches; I decided to sow the bioinformatics skills that I had learned during the CDPC training under the supervision of Dr Noel Murphy. I initially began with coaching individuals, especially postgraduate students who were carrying out their research projects and had very specific interests and requirements. The recurrent questions that I faced were how to design primers and how to analyse DNA sequences after sequencing, in particular doing phylogenetic analyses. It was interesting that even though there has been a surge in the area of sequencing, the amount of information one can derive from the sequence output remains unclear to a great number of people. With this in mind, I saw that it was necessary to begin teaching bioinformatics to a larger number of students. Fortunately, the luck of the Irish was with me and the Chairman of the Department of Biochemistry and Biotechnology at Kenya Polytechnic University College Nairobi is also interested in bioinformatics, and was kind enough to entrust me with the E-learning class and give me some guidance on how to teach the course. The E-learning class is different from the regular classes in that the students come for their classes only during the holidays, mainly in April, August, and December, however their course content is similar to that for the regular students. Teaching bioinformatics to the students was interesting and very relevant, since most of them already work in research laboratories. Hence, the course will hopefully increase the knowledge base in these laboratories and thus increase the applications of bioinformatics in future projects. One of the grey areas that I noted was that, because most of the students are from a core biological background, the development of algorithms for different programmes, such as Python, would be needed in order to develop specific programs to deal with the different tasks they encounter. To remedy this I am working with Thomas Dunne, a secondary school student, who won awards at the BT Young Scientist exhibition this year with his project on the Malaria parasite *P. falciparum* and was supported by the CDPC's outreach programme (Issue 7 of this newsletter). Thomas is a young (bio)informatics whizz who I had the pleasure to meet during my stay in Ireland. He was kind enough to help me gather material for Perl programming and develop it for the requirements of my students. So, one can see how the different strands of the CDPC are coming together in this project. With these measures I believe the young bioinformatics tree in Kenya will soon have strong roots. In conclusion, I am grateful to the CDPC family, especially Noel and Martina (Schroeder) who have always been there with their encouragements and resourcefulness in more ways than I can remember.

## Farewell to Hayley - Welcome Doireann!

As most partners and friends of the CDPC have probably heard, Hayley Coristine, who was the CDPC's central administrator since 2008, has left us during the summer to pursue an MSc degree in Environmental Protection and Management at the University of Edinburgh. I should be speaking for all CDPC partners when I say that Hayley will be missed and that we wish her the very best for her studies in Edinburgh.



Doireann Mac Kenzie is the new face in the CDPC office and, due to the various duties of the CDPC's administrator, you are likely to meet, email or talk to Doireann soon (for all non-Irish natives like myself, her name is pronounced more like 'dirren'). Doireann has recently completed a Higher Diploma in Finance here at NUIM and previously did a degree in Anthropology and Spanish. Doireann deals with the day to day management of the office and also looks after CDPC training applications, arranges travel and accommodation for the trainees, helps to coordinate guest lectures and events, and manages the website. We welcome Doireann to the CDPC and look forward to working with her!