

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 third edition of the CDPC newsletter! Inside this issue you will find reports on recent CDPC events, such as a public lecture and master class by the journalist and epidemiologist Dr. Elisabeth Pisani (Page 3), the interdisciplinary CDPC seminar, and the ongoing activities in the CDPC secondary school outreach programme. We also feature articles submitted by CDPC partners, in this issue we have a report on and discussion about HIV vaccine development written by Dr. Bernhard Mahon (Page 4). On Page 2, we are featuring a call for 8 postgraduate research positions with the Water is Life: Amazzi Bulamu research project, funded by Irish Aid and the HEA and led by Dundalk Institute of Technology. Please make potential applicants aware of this opportunity for postgraduate research.

In addition, the deadline for applications for the postgraduate course in Immunology and Global Health at NUIM is the 31<sup>st</sup> of May:

<http://immunology.nuim.ie/MScdetails.shtml>

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 19<sup>th</sup> of June!

*-Dr. Martina Schröder*

### The interdisciplinary CDPC seminar

This spring the CDPC established a regular interdisciplinary seminar series to stimulate scientific exchange between CDPC partners, and to expose our students to the wide-ranging expertise on global health research within the consortium.

Our initial speakers, Dr. Michael Kibe (University of Nairobi) and Dr. Fiona Larkin (Department of Anthropology, NUIM) were followed by Dr. Derek Nolan (Trinity College Dublin), who told us the intriguing story of how trypanosomes avoid detection by the adaptive immune system and shared his research on potential novel targets for therapeutic intervention. Next, our current CDPC trainee, Dr. Anderson Wambugu from the Kenya Agricultural Research Institute, presented us his development of a diagnostic test for Contagious Caprine Pleuropneumonia (CCPP), emphasizing that this livestock disease is of major economic concern in Kenya and other African countries, and that rapid, affordable and specific diagnostic field tests are required to be able to prevent the spread of the disease. Next, Sharon Jackson from the Institute for International Integration Studies (IIS) and the Trinity International Development Initiative (TIDI) gave us an insight into her initial studies on the interaction between HIV infection and gender-based violence in Tanzania and Uganda. Sharon's talk was also attended by several secondary school students from Colaiste Lorcaín in Castledermot, as part of the CDPC's outreach activities.

Dr. Dennis Pringle (Department of Geography, NUIM), told us about a medical geography research project concerned with cases of psychoses in rural Cavan and Monaghan. This ongoing study aims to identify localized clusters of high prevalence and potential socio-economic factors that influence the development of these mental illnesses.

Our last speaker for this term will be Dr. Angus Bell on the 4<sup>th</sup> of May (Ehrlich Seminar Room, Biosciences building, NUIM, 3pm) with a talk entitled: 'New anti-malarial drugs for the 21<sup>st</sup> century'.

We welcome suggestions for potential speakers for the autumn term.

*-Dr. Martina Schröder*

## Water is Life: Amazzi Bulamu: Opportunities for PhD research

'Water is Life: *Amazzi Bulamu*' is a large multi-disciplinary project comprising a partnership of Irish Higher Education Institutions (Dundalk Institute of Technology, NUI Maynooth, Dublin City University, Trinity College Dublin, Dublin Institute of Technology Bolton St., The Royal College of Surgeons in Ireland, University College Dublin and Queens University Belfast), Makerere University in Uganda and various NGOs. The aim of this programme is to support sustainable water resource management as a catalyst for sustainable economic and social development in rural Uganda.

The project is funded under the Programme for Strategic Cooperation between Irish Aid and Higher-Education and Research Institutes (2007-2011) and is led by Dundalk Institute of Technology.

**The partner institutions wish to recruit 8 PhD researchers** as outlined below, **each with a start date of 1<sup>st</sup> October 2009**. All PhDs are fully funded for 36 months and successful candidates will be required to spend time in both Ireland and Uganda as part of their course of study.

Practical work experience, particularly in a developing country, would be an advantage for many of the projects.

**Informal Enquiries to:** Dr. Suzanne Linnane ([suzanne.linnane@dkit.ie](mailto:suzanne.linnane@dkit.ie)), Director National Centre for Freshwater Studies, or the appropriate lead supervisor.

**Letter of application and CVs** (clearly indicating which project is being applied for) **should be sent to:** The Human Resources Office, Dundalk Institute of Technology, Dublin Road, Dundalk, or by email to: [kathleen.mccoy@dkit.ie](mailto:kathleen.mccoy@dkit.ie)

Project Title	Lead Supervisor (s)	Partner Institution(s)	Candidate Background
<b>Sourcing and distribution of sustainable groundwater supplies for rural water supply</b>	Dr. S. Linnane (DkIT) <a href="mailto:suzanne.linnane@dkit.ie">suzanne.linnane@dkit.ie</a> Mr. B. Misstear (TCD) <a href="mailto:bmisster@tcd.ie">bmisster@tcd.ie</a>	Makerere	Honours degree in Geology, Earth Sciences or Civil Engineering. Masters in hydrogeology and/or experience in hydrogeology an advantage.
<b>Sustainable pump technologies</b>	Dr. P. MacArtain (DkIT) <a href="mailto:paul.macartain@dkit.ie">paul.macartain@dkit.ie</a> Mr. K. Sayers (DkIT) <a href="mailto:kimmitt.sayers@dkit.ie">kimmitt.sayers@dkit.ie</a>	Makerere	Primary honours degree in Mechanical Engineering or an equivalent.
<b>Rainwater harvesting and other appropriate safe water storage mechanisms</b>	Dr. S. O'Hogain (DIT) <a href="mailto:sean.ohogain@dit.ie">sean.ohogain@dit.ie</a> Mr. L. McCarton (DIT) <a href="mailto:liam.mccarton@dit.ie">liam.mccarton@dit.ie</a>	Makerere DkIT	Honours degree in Civil/Environmental Engineering or similar and/or Masters Degree with water & sanitation focus.
<b>Water and water management needs: social and health impacts on women and their children</b>	Prof. A. Staines (DCU) <a href="mailto:anthony.staines@dcu.ie">anthony.staines@dcu.ie</a> Dr. J. Clarke (DCU) <a href="mailto:jean.clarke@dcu.ie">jean.clarke@dcu.ie</a>	Makerere DkIT	Honours degree or MSc in a nursing/health care or allied discipline, or in women's studies.
<b>Solar disinfection of drinking water</b>	Dr. K. McGuigan (RCSI) <a href="mailto:kmcguigan@rcsi.ie">kmcguigan@rcsi.ie</a>	Makerere DkIT	Honours degree/MSc Microbiology, Epidemiology, Public Health, Environmental Science, Engineering.
<b>Adaptation of water management to climate change</b>	Dr. A. Fraser (NUIM) <a href="mailto:Alistair.Fraser@nuim.ie">Alistair.Fraser@nuim.ie</a> Prof. M. Downes (NUIM) <a href="mailto:Martin.Downes@nuim.ie">Martin.Downes@nuim.ie</a>	Makerere	Minimum of an honours degree and preferably an MA in Geography.
<b>The social impact of gendering water resource management</b>	Dr. G. Honor Fagan (NUIM) <a href="mailto:Honor.Fagan@nuim.ie">Honor.Fagan@nuim.ie</a>	Makerere DCU	Minimum of a 1 <sup>st</sup> class Honours Degree, but preferably a Master's Degree (or equivalent) in either sociology, gender studies, political science or development studies.
<b>Understanding cooperation and conflict in local water governance</b> <i>or</i> <b>Participation and governance in water management systems</b>	Dr. N. Gaynor (DCU) <a href="mailto:niamh.gaynor@dcu.ie">niamh.gaynor@dcu.ie</a> Prof. R. Munck (DCU) <a href="mailto:ronnie.munck@dcu.ie">ronnie.munck@dcu.ie</a>	Makerere DkIT NUIM	Master's degree (or equivalent) in either political science, sociology, social studies or local/rural/community development.

**Closing date for receipt of applications is Friday 12<sup>th</sup> June at 4pm.**

## The Wisdom of Whores

Dr. Elizabeth Pisani visited NUI Maynooth in February 2009 for two public lectures hosted by the CDPC. Pisani, who holds an MA in Oriental Studies, an MsC in in Medical Demography and a Ph.D. in epidemiology, is also a writer and journalist, and worked as a consultant with Ministries of Health in Indonesia, China, East Timor, and the Phillipines, as well as for the World Health Organization, the World Bank, UNAIDS, and the US Centers for Disease Control. In an evening lecture presented to the general public entitled "Time to Slaughter Some Sacred Cows? Confronting failure in the war on AIDS" Pisani challenged the often voiced argument that poverty and the HIV/AIDS epidemic are tightly linked. She called for candidness about sexuality and a renewed focus on HIV prevention at a time when effective roll-out of anti-retroviral drugs receives a great deal of global attention and concern. Dr. Pisani argues that a large portion of HIV/AIDS funding is wasted on ineffective programmes because of public health policies being too heavily influenced by politics, ideology, and "morality." The next day, Pisani also conducted an afternoon master class with graduate students and others on qualitative research methods, epidemiology, and sexual cultures.



Dr. Pisani's first book 'The Wisdom of Whores: Bureaucrats, Brothels and the Business of AIDS' was published in May 2008 by Granta in the UK, WW Norton in the US and Penguin Canada. For more information on the book, you can visit <http://www.wisdomofwhores.com>, which also contains an entertaining and informative blog written by Elisabeth Pisani on AIDS, sexuality and health policy. Her personal website <http://www.ternyata.org> contains more information about Dr. Pisani's background and career to date.

Dr. Elisabeth Pisani during her public lecture at NUIM

*-provided by Dr. Thomas Strong*

## One year into the CDPC outreach programme

As the school year comes to a close, we look back at a successful first year of the Education outreach programme. The CDPC has built up a collaborative working partnership with Self Help Africa and has been busy expanding the Development Education course for secondary schools in over 32 schools in Ireland. The work of the consortium has been embedded in 24 of these schools to date through workshops, the development education course and school visits by the African trainees and the education officer. Feed back from the schools has been very positive. The consortium is also already working with 7 schools on projects for the 2010 BT Young Scientist exhibition, and will also be represented at the Young Social innovators exhibition on 6<sup>th</sup> May 2009. We wish St. Peter's College, Dunboyne, and Colaiste Bride, Carnew, the best of luck with their collaborative project called the "Butterfly Effect". As part of their YSI project, the schools developed an exciting new resource for schools, which highlights poverty and living in poverty. This resource will be further developed and used in other schools. We have been actively working with these two schools on development issues, and students from Colaiste Bride also volunteered to work at our stand at the 2009 BT Young Scientist exhibition. In addition, the two schools have just published a book on the Millenium Development Goals called "Twenty Fifteen", which Kalule John Bosco (Ugandan CDPC Trainee) has also contributed to. Over the next few months, the CDPC hope to visit our African partners to explore the possibilities of developing an outreach to secondary schools in African schools.

Finally, if you are in Dublin on the 6<sup>th</sup> May, visit the YSI at the RDS and call in to see us at the CDPC stand.



Michael Kibe (Kenyan CDPC partner and trainee) visiting Mercy Convent, Ballymahon, Co. Longford to discuss their science projects for the 2010 BT Young Scientist.

*-provided by the CDPC education officer Joseph Clowry(joseph.clowry@nuim.ie)*

## Where now for HIV Vaccines? - The impact of recent clinical trial failures.

It is now over 25 years since the Human Immunodeficiency Virus (HIV) was first described as the causative agent in AIDS, and it is worth taking some time to review the scientific advances in confronting this disease. It is estimated that over 30 million people have died from AIDS since 1980. However that risk is not distributed equally, nearly 70% of newly infected individuals live in developing countries, with a noticeable concentration in sub-Saharan Africa. Anti-retroviral therapies (ART) have made a significant impact on prolonging the lives of individuals fortunate enough to have access, however ART remains expensive, sometimes prohibitively so, and is not curative. Even with improved delivery mechanisms and formulations, ART are estimated to reach less than 3 million infected people. Consequently, most commentators consider the development of a safe, effective, low cost and easily administered vaccine against HIV disease as an urgent priority. Vaccine development has not been straightforward; HIV presents an ever mutating and changing target for antibody, and the virus itself suppresses effective T cell responses.

One of the most recent vaccines to enter clinical trial was developed by Merck and was based on three components combined in a viral delivery system. The phase II, test of concept clinical trial (called the STEP trial) was multi-centre, randomized, double-blind, and placebo-controlled, involving immunisation of HIV negative high risk subjects in the Americas and Australia. However the STEP trial and the related Phambili trial in South Africa were halted at the end of 2007 when it was observed that the vaccine did not protect. More worryingly, among the HIV infected, virus loads increased more rapidly in immunised subjects compared to those who received placebo controls. It is fair to say that the HIV vaccine development community is still reeling from the results of the STEP trial, and indeed some have questioned whether a vaccine is theoretically possible. However these trials and other recent work may point to better approaches. Firstly, it now seems that a major problem in the STEP trial was the vaccine driven expansion of CD4+ T helper cells. Instead of providing a robust defence against disease, expanded cells seem to have added "fuel to the flame" and enhanced HIV replication. Thus it is the quality of response driven by vaccination that will be the key to future success. Data from HIV-infected long term non-progressors indicate that future vaccines will need to induce HIV specific antibody at the mucosal surfaces of the genital and intestinal tracts. This will need to be combined with a robust CD8+ cytotoxic T cell response. To achieve this without a profound helper T cell response will be quite a scientific challenge, but some solutions are emerging. First, the route of vaccine administration may need to be varied, it may not be feasible to develop mass campaigns based on conventional delivery, but transcutaneous and oral delivery could certainly be preferable to the traditional needle based approach. Secondly, the active agents or immunogens need to be re-considered and must be aligned to the diversity of HIV and especially the viral types prevalent in sub-Saharan Africa. Finally, novel vaccine formulations may be needed to counter the immune-modulatory effect of HIV proteins such as Tat, which induces T cell death. Thus the future of HIV vaccine trials probably lies in combining novel prime-boost vaccines involving some mucosal or transdermal delivery of multiple immunogens. Such vaccines must induce both antibody and CD8+ responses at mucosal surfaces, reminiscent of long term non-progressors. In addition the vaccine will incorporate novel ways of countering the immune-modulatory products of HIV infection; possibly using a vaccine/therapeutic combination. The STEP trial may have been a huge disappointment, but the vaccine community needs to focus on the lessons to be learned- at least now we know the sort of vaccine we need to design.

A bibliography/reference list is available from the author ([bp.mahon@nuim.ie](mailto:bp.mahon@nuim.ie)) but is omitted for brevity.



-provided by Dr. Bernhard Mahon  
 CDPC partner, Head of the Cellular Immunology Laboratory at NUIM.  
 Dr. Mahon's group works on improvement of neonatal vaccination strategies using modified bacterial delivery systems. His team is preparing a clinical trial in Sweden for a new whooping cough vaccine as part of the EU FP7 Child Innovac consortium.  
<http://biology.nuim.ie/staff/bmmucosal.shtml>.

We depend on your contributions for making this newsletter an interesting resource for CDPC partners. It is your tool for disseminating information about your work to other partners! **Please send your contributions for the June/July edition of this newsletter to [Martina.Schroeder@nuim.ie](mailto:Martina.Schroeder@nuim.ie) until the 19<sup>th</sup> of June!**