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Durham Global Challenges
Centre for Doctoral Training

“Moving into Global Challenge research, both as the Director of the CDT, and as a supervisor of a GCRF project, has challenged my thinking”



R


eflections on a Remarkable Year

In July 2018 I was appointed as the Director of Durham’s new Global Challenges Centre for Doctoral Training. The proposed centre’s aim was to train a cohort of new international students from developing nations to undertake research aligned with the objectives of the UK [Global Challenges Research Fund](#) (GCRF). The first major task was to identify suitable doctoral projects to fund through the centre. A widely circulated call resulted in 76 applications from staff in all faculties. The breadth and scope of the projects was impressive and selecting the projects was a challenge for the panel; after thorough consideration the panel identified 25 excellent projects. These projects cover the full scope of the UN Sustainable Development Goals, and are in partnership with universities and other organisation in 17 different developing nations from Afghanistan to Zimbabwe.

As a relative newcomer to global challenge research I had to familiarise myself with the complex requirements of GCRF funding including: ODA compliance, DAC list nations, OECD rules, and GCRF requirements. Notwithstanding all these regulations, rules, policies and frameworks, the underlying objective can be stated as: working to make the world a better place for all by addressing significant societal challenges as set out in the UN Sustainable Development Goals (SDGs) formulated in 2015 by the world’s leaders with the significant ambition of solving these challenges by 2030. There is an increasing focus on the SDGs since 2020 gives just a decade to achieve the ambition of the original vision to eradicate substantial societal problems. It is very clear that we need more centres such as the one we have set up at Durham.

Being a former Dean of a Graduate School and Director of the Durham Energy Institute Multidisciplinary Centre for Doctoral Training gave me a good basis on which to plan and develop the Global Challenges CDT. This combines many of the frontiers of doctoral education into a single centre: all international doctoral candidates from a wide range of different countries, multidisciplinary challenge based research spread across numerous disciplines, candidates supervised by teams with staff from different departments, a funded placement in a developing nation, and all of this to be completed in three years full time. This complexity has a purpose as new approaches to doctoral research must be developed to reflect the substantial multifaceted demands of the UN Sustainable Development Goals. In conversations I found a number of people were sceptical.

There followed an intensive period of advertising, interviews, and selection of candidates for the 25 projects. One supervisor described my deadlines as unrealistic and unfeasibly tight; they were probably correct, but in the end we managed to recruit excellent international candidates to all 25 projects. The next challenge was the UK visa application process which turned out to be a far greater test than the recruitment process. My vision of having all 25 arrive at the same time to start together faded into a distant dream. In the end we had the PhD candidates arrive and register between February-June 2019. They were all here!



“This is our Global Challenges CDT our mini-UN”

During my time at Durham I have had the privilege of travelling widely; in every country I have met intelligent, engaged, and creative people who were determined to make a difference. Our cohort has all these characteristics and more. I am confident that this group will live up to the high expectations of the GCRF CDT. When discussing my new role at home, one of my children described my task as leading a “mini-UN”. I like that. From their website: “The United Nations can take action on the issues confronting humanity in the 21st century, such as peace and security, climate change, sustainable development, human rights, disarmament, terrorism, humanitarian and health emergencies, gender equality, governance, food production, and more.” Whilst we are certainly not on the scale of the UN, this Centre demonstrates that a university such as Durham can work to make the world a better place for all.

The Centre was formally launched at an event in March 2019. We were delighted to have representatives from the Research Councils and UKRI attend. Our VC, Professor Stuart Corbridge, spoke about his experience of field work as a PhD student and the importance of this new centre. We heard from four of our new doctoral researchers and their supervisors describing their projects to tackle tropical diseases, HIV, resilient crops and protecting the earth’s natural resources. This brought the centre to life for me and I knew then that we would be successful. A colleague later described the launch as giving them a “warm glow”, I couldn’t have put it better myself.

Without exception everyone who has met and interacted with our GCRF CDT cohort has commented that they are a visionary, dynamic, purposeful, and an extremely cohesive and supportive group of people. They have gelled together in a way that surpassed my expectations. Building a strong cohort from such a heterogeneous group of people was anticipated to be a challenge but the group has risen to the challenge wonderfully. They identify very strongly with being “Global Challenge” researchers. Through a structured programme of workshops, events and training we have worked to strengthen this cohort. In a small way we have redefined what can be done in Doctoral Training Centres here at Durham.

Moving into Global Challenge research, both as the Director of the CDT, and as a supervisor of a GCRF project, has challenged my thinking. It can be easy to assume that prosperous OECD member states are the principal locus of research, thinking and global developments. This is not the case. The developed OECD nations may have more resources available to them but they certainly do not have the monopoly on intellect, creativity and knowledge. It is

of course fully appropriate that the wealthy nations help less-wealthy nations but we must not lose the cultural, societal and knowledge wealth that all nations have to offer. Global Challenges are exactly that: problems that we all face and for which there are consequences. Whilst it is true that the impacts of Global Challenges are very different in the global North and the global South it is certainly the case that we face these challenges together. Truly global solutions will only be found through partnership where everyone is considered equal with something of value to bring to the debate.

This is our Global Challenges CDT – our mini-UN. The 25 doctoral candidates have bonded together and developed a strong network of relationships, just as our cohort model intended. They debate, discuss, encourage support, challenge and empower such that success will be all the more commanding. It has been a delight to see the Centre develop; we have had a wonderful year of events, team activities, developing the cohort and developing the research projects. After many years of supervising and working with doctoral candidates it is my view that in addition to enabling candidates to undertake a programme of original research, it is also important to develop and stretch the individual researcher so that the skills, insights, behaviours and creative approach required by research are also developed and refined. This is inherently linked to identity, belief, confidence as well as skills. In our Global Challenges Centre we have run a whole series of events and workshops to enable this.

It is my hope and expectation that our cohort of Global Challenge researchers will learn from the very best that we have to offer at Durham in terms of facilities, laboratories, research culture and intellectual environment. I would not wish them to replicate this when the return to their home nations, but rather to use these experiences to develop their own approach located and informed by the specific context, knowledge, values and culture that is theirs. The success of our Centre is that we will learn as much from our doctoral researchers as they will learn from us.

Finally, and most importantly, the success of a venture like this depends on many individuals. Everyone from supervisors to the many support staff I have worked with have been very supportive of this venture. I thank them all sincerely, our success is due to their commitment to the CDT. A particular thanks must go to the Coordinator Abir Van-Hunen who has made our vision a reality in a way that is exceptional.

Poor soils make people poorer. That quote has pushed Zimbabwean PhD student Tariro Gwandu to pursue her research into water treatment residual (you'll have to read on!) and urban agroecosystems. She wants to see soil health improved for urban farmers in Zimbabwe and Africa as a way of improving family nutrition and building climate resilience. In the third of our WomenInScience series, she tells the British embassy in Harare about the value of waste, the need for better-equipped labs and her determination to inspire the next generation of women scientists and engineers.

UKinZimbabwe: What's best about being a women scientist?

Tariro Gwandu: Being a woman in engineering and science is fascinating. For so long these have been male-dominated disciplines. When I was growing up, girls were not encouraged to do sciences. People thought that sciences were difficult and meant only for boys. Things are changing now though it's at a snail's pace. Being able to interact with fellow male colleagues on the same level and contributing to the body of scientific knowledge brings me great satisfaction.

UKinZimbabwe: Tell us more about urban agroecosystems: they're at the heart of your research, aren't they?

Tariro: I'm doing a PhD at the Centre for Doctoral Training at Durham University under the Global Challenges Research Fund. The title is 'soil health improvement technologies to enhance drought and nutrient resilience in Zimbabwean urban agroecosystems'. I know most people would ask why I've chosen urban agroecosystems? My answer would be this: urban agriculture in Africa is here to stay! People will always farm close to where they live. Until now research on soil improvement technologies (SITs) has been focused mainly on rural smallholder farmers. I'd say that overlooks urban agriculture which is an emerging source of livelihoods and food security in Africa. And urban farming is practised on marginal soils. There needs to be immediate research into alternative soil improvement technologies to halt land degradation and enhance crop yields. What I am looking at is options for using what's called water treatment residual in urban crop production. WTR is a by-product of municipal clean water treatment. Usually it's disposed of as a landfill. But given the challenges of land pollution, soil degradation and climate change, I want to know how far it can help not only to improve soil and crop productivity, but also to protect the environment.



“investing in research on soil health can sustain our soils for future generations”

“I want to motivate other women and girls ... Science knows no gender”



UKinZimbabwe: What in your own life made you so interested in this field of research?

Tariro: I've lived in urban communities and seen the expansion of urban agriculture. I've also seen very poor crop yields and the indiscriminate dumping of waste in places where there is no system to manage it. This really motivated me to think about strategies to use waste – including household waste and water treatment residual – as valuable resources for agricultural production. Most farmers practising urban agriculture cannot afford mineral fertilisers. But they could use waste to improve crop productivity and at the same time minimise environmental pollution. I am also motivated by this quote from Rattan Lal & Bobby Stewart (2010) which says 'Poor soils make people poorer, poor people make soils worse, and desperate humanity does not care about sustainability and stewardship'. Maybe the way we can avoid that is by investing in research on soil health so that we can sustain our soils for future generations.

UKinZimbabwe: What things make your research difficult?

Tariro: Lack of capacity in local laboratories to do advanced analytical work is a drawback. Most local laboratories lack modern infrastructure. Analytical chemistry is a critical component in my type of work: it enables understanding of the chemical properties of the waste and how they impact soils. With modern equipment, more could be done to broaden our understanding of how we can convert waste into a valuable resource.

UKinZimbabwe: Has there been a teacher, lecturer or another mentor figure who really

inspired you?

Tariro: Yes, definitely. One of my mentors and current co-supervisor Professor Florence Mtambanengwe (now Executive Director of Research and Innovation at the University of Zimbabwe) has been a great inspiration for me to pursue research. She has published widely in the field of soil fertility management and climate change. Having worked with her in other projects helped give me a chance to interact with other scientists from the global North. My immediate goal is to finish my PhD, publish my work in peer reviewed journals and do some post doctorate research. I would like my research to impact on policy particularly on waste management. And I want to work with farmers and other stakeholders to build climate resilience.

UKinZimbabwe: A message for girls who might be thinking of going into science in Zimbabwe?

Tariro: In Zimbabwe, women are behind most agriculture production particularly smallholder farming in both rural and urban areas. They provide much-needed labour. I want to motivate other women and girls so they know they too are just as capable as men of also making significant knowledge contributions in resilience building and tackling climate change. Science knows no gender.

Through DFID funding, the Livelihoods and Food Security Programme and joint-donor Zimbabwe Resilience Building Fund programme encourage farmers to test their soils, manage them accordingly and use environmentally-friendly supplementation techniques for optimum crop production.



“A unique opportunity to meet wonderful people from all parts of the world”



W

orld Youth Forum 2019 Where the Civilization Meet

The World Youth Forum 2019 was a unique experience of participating in a global event in terms of diversity, motivation and hospitality.

The World Youth Forum was established in 2017 as a platform to support youth ideas providing ample and adequate space to express and exchange their opinions without barriers and to come up with recommendations for decision makers. Around 7000 youth from around the world took part in the 3rd edition of 2019 to express their opinions regarding the global challenges including: industrial revolution, food security, the Union for the Mediterranean, environmental challenges, artificial intelligence, block chain technology, women empowerment and art and cinema.

Director General of UNIDO, LI Yong, in his opening remarks said: “More than half of the world’s population is below age 30, the vast majority of them living in developing countries. Taking the views and perspectives of youth in any developing process is not optional, it is necessary”. The content of the opening ceremony was designed to be motivational; one of the first speakers was, Jessica Cox, the world’s first armless pilot. She spoke of her journey and emphasized on importance of being free from limitations! Make your own way of dealing with limitation, it could be frustrating but at the end of the success is yours. Kill the inner negative voice of your own which stops you from starting.

Jessica succeeds and she inspires to get rid of your comfort zone; now! Start thinking out of SHOE:

- S: Self-limiting beliefs
- H: Habits
- O: Over complication
- E: Excuses

Don’t be limited by your SHOEs and fly your own airplane as Jessica did. Ask yourself; what are you going to achieve? and, start bringing the change.

One of the other motivational speakers, people know him as: hero, being powerful, bliss, love of life, proud, hope, whole world... and smiling while being awfully fatigued; Zein Yousef,12 years old. Zein was the youngest Egyptian speaker of the forum. He is a cancer survivor for four times. He was there to share a 7-year journey of faith, hope, losses, triumph and staying positive.

During the journey, Zain embraced a model in life which could be inspirational for our everyday life – called NEGU:

- N: Never
- E: Ever
- G: Give
- U: Up

Choose to believe and choose to win, it all starts from the way you think. Think about it, how would you change your negative to positive.

WYF 2019, was an opportunity to learn, share and be inspired. I was amazed by the hospitality of Egyptian people. It brought a unique opportunity to meet wonderful people from all parts of the world. Besides, the WYF workshops, provided the opportunity for all the participant to join and discuss challenges and provide key recommendations to be reflected in the WYF 2019 resolution.

R

eimaging Peace in Violent Times

Violence is a pervasive global threat. The World Health Organization report that each year 1.6 million people worldwide lose their lives to violence. Women, children and men are experiencing forms of interpersonal abuse including child maltreatment, gender-based violence, sexual harassment and neglect of the elderly, among others. These acts of visible violence impact socio-economic stability and contribute to destructive and un-peaceful livelihoods. However, violence is not an intrinsic part of the human condition, although challenging and complex to deal with, it can be prevented and curbed.

From the 11-14 March the Durban University of Technology hosted a workshop on 'Reimagining Peace' in partnership with the Association of Commonwealth Universities and the British Council. At the core of this workshop was the objective to work through conceptions of violence and non-violence and ultimately gather collaborative insights to contribute towards the Commonwealth Youth Forum in Rwanda and the British Council's Going Global conference in the UK.

The workshop was attended by forty delegates from various continents, each nominated as student leaders within their universities. Every day of the workshop was structured around challenging perceptions on violence and non-violence, which was a particularly enriching experience due to the diversity of the delegates present.

From my personal experience, one of the most stimulating activities was titled, 'Spectrum of violence: developing a stronger conceptual grasp of what violence is'. Each group was given an envelope filled with small pieces of paper which had descriptions of human acts on them. We were asked to classify each act as non-violent, a little violent, neutral and very violent .

This activity showed how our upbringings, interests and country specific knowledge and exposure adds to our understanding of violence and non-violence. Some of the challenging acts to classify in our group included; eating meat, a mother telling her child she will leave them unless they behave, students protesting for less expensive accommodation, parents yelling at each other and a man being hired for a job because he is stronger than a woman. Classifying the actions given to us led to some robust discussions about the various types of visible and invisible (or structural) forms of violence, forcing us to think deeply about where violence persists in our daily lives and how we can actively foster and enact peace.

Goal 16 of the Sustainable Development Goals (SDG) is dedicated to the promotion of peaceful and inclusive societies. Central to this SDG is the reduction of all forms of violence and related death rates worldwide, ending abuse, exploitation and trafficking against women and children and promoting the rule of law at the national and international levels to ensure equal access to justice for all. This goal is critical for addressing not only "behavioural"



Thuli pictured at the workshop with Ela Gandhi, granddaughter of Mahatma Gandhi and South African peace activist

violence, but also structural violence, which is often unconscious. Through participating in this workshop it was evident that young leaders can play a vital role in finding concrete solutions and strategies for building peaceful futures.

Moreover, while each of the delegates participating in this workshop have specific interests in global development, our engagements showed that peace can be meaningfully embedded in the work on climate action, gender equality, access to quality education, access to water and sanitation services and the other global development goals.

Reimagining peace can be challenging in times of enduring violence. My reflective points on how young leaders can be the driving force behind reimagining peace includes;

Challenging narrow conceptions of violence that may persist within our communities and institutions; violence is a multi-faceted phenomenon that impacts humans, nature and animals. Understanding its multiple forms can help in thinking through alternatives and effectively addressing its existence.

Learning from past experiences of violence and reconciliation; intergenerational dialogues are fundamental in coming to terms with past forms of systemic, cultural and behavioural violence and addressing present day challenges of violence in order to future-proof our imaginaries of peace.

Enhancing our understanding of peacebuilding, peace-keeping and peace-making; these are key concepts which can facilitate the process of overcoming existing conflicts across scales (community, regional, global), understanding how they can be practically implemented can support of how we reimagine peace and our specific roles in it.

Participating and contributing towards institutional policy reform centred on peace, inclusivity and justice; seeking opportunities to voice our opinions on violence within our communities is a key way to recreate and reimagine peace. Engaging with senior management leaders and global leaders on how we envision threatening forms of violence being dealt with (i.e. gender-based violence policies within tertiary institutions) is a step towards building the peaceful societies we envision for ourselves and future generations.



Saturday, 14th March at Mahatma Gandhi House, Phoenix Settlement Durban, children peacefully playing with no worry or fear in the present moment. A reminder that they ought to live in a world where peace prevails.

“Reimagining peace can be challenging in times of enduring violence”



Ela Gandhi reading a quote by her grandfather – *“I have not the shadow of a doubt that any man or woman can achieve what I have, if he or she would make the same effort and cultivate the same hope and faith” – Mahatma Gandhi*

A Visit to the Past

‘On a chill November night in 1869, a few good men gathered in the Market Tavern in Durham City to form the Durham Miners’ Association (DMA). Their venture was born of many years of resistance to the cruelties of Victorian coal owners and their struggle against brutality. The men who met were determined to improve the lot of the working class. They abhorred the foul conditions that surrounded the coalfield and were determined to unite the workers and communities of the greatest coalfield in the world’. This is the story the Durham GCRF-CDT received from our two inspiring guides at Redhills Durham Miners Hall.

Our journey started at the gates of the headquarters of the DMA, an impressive building which demonstrates prosperity, strength and status. Redhills Miners Hall is the most excellent trade union in Europe and opened in October 1915 by which time the membership of the DMA stood at 120,000 organised in 200 lodges. Access to the building in the time was only for the leadership of the DMA and not for the ordinary miner who stayed at his local lodge and his welfare hall at his mine.

When you step inside the marble-floored building you are transported back to the past, with traditional miners’ banners, pictures with mining scenes and sculptures decorating the building throughout.

We see images line the wood panelled corridor and in the rooms photographs of Dave Guy (former president of DMA) presenting a sculpture to Nelson Mandela, next to a picture of Jeremy Corbyn. Different treasures, such as a letter written in 1943 from the USSR ambassador on behalf of Soviet Union leader Joseph Stalin, thanking Durham miners for a charitable donation of £1,500 for an X-ray machine, in the heat of the Second World War, an Ornamental brass miners lantern, once a principle object in homes across the North East and a Durham University robe offered to one of the presidents

of the DMA, are displayed throughout the building

We were pictured the hardships the miners’ children had to endure, for example the employment of an eight year old boy was the trapper. He had to sit, exposed to the damp and completely in the dark, and in silence, from the time the coal began to be brought forward by the drawers till the last wagon passed; this would have been the most monotonous and deadening experience to any young child.

In 1831, the union won its first strike, forcing a reduction in working hours for children under 12 - from 18 hours to 12 hours a day. Fighting for the rights of the miners was why the Pitman’s Parliament had been formed so that working people could manage their own affairs and lives could be improved.

Long before the creation of the Welfare State, the people of Durham were creating their own pioneering social system across the coalfield. There was education for the young, pensions for the old. Homes were built for aged mineworkers faced with eviction on retirement. There were unemployment benefits for those who lost their jobs; doctors, hospital care, and sick pay for those who fell ill. The union built libraries and reading rooms throughout Durham’s pit villages. DMA leaders commissioned clean water and sewage works. They built new roads across the county. Each one of these issues relate to the global challenges we are facing today and can be directly linked to one or more of the SDGs.

The guides finished the tour explaining the symbolism of one of the banners depicting a person snapping a stick and a person binding sticks together: one stick is easily broken but a bunch of sticks together are unbreakable: we have to stand and work together to make progress and to make a difference.



Meet some of our guest speakers that have provided a session for the CDT in the past 5 months

“Using mindfulness as a tool for wellbeing”

Nick Meynen
Author of Frontlines



Geraint Burrows
Founder of Groundwater Relief

“The Enterprising Researcher: Making the Most of Opportunities”

Elizabeth Scott
Rainbows End Coaching Ltd



Tony Koutsoumbos
Director of the Great Debaters Club



Margaret Kiley
The Australian National University

“From stories of Global Environmental Justice to a new Positive Post-growth Policymaking”

”How to engage in public debates on policies aligned to the UN SDGs”

“Balancing immediate humanitarian needs with longer term development goals”



C COVID-19 Coronavirus Management and Planning

The COVID-19 Coronavirus Pandemic continues to evolve at a fast pace. We now find ourselves in a situation where everyone has been asked or, depending on where they are, instructed to confine themselves at home. Our GCRF CDT cohort is currently in 10 different developing countries with the majority still in Durham. The GCRF CDT management team have been in contact with all PhD students and supervisory teams and asked for a completed risk assessment relevant to their location. We are continuing to monitor and adjust to the constantly changing situation and have set up a regular reporting protocol to alert us to any significant changes in circumstances. The GCRF CDT team is ready to provide immediate assistance to any student that requires it, although our options are reducing daily as global transport shuts down. We find ourselves in an extraordinary situation that no one had predicted or prepared for in advance; notwithstanding this we have worked hard to ensure that all of our cohort is as safe as possible in their local situation. This global event places demands on us that we had not anticipated. It would be easy to become despondent in such a situation, however we are finding new ways of encouraging and supporting each other in this difficult time. It may feel like a long dark period lies ahead but it is also true that no winter lasts forever and we look forward to new opportunities and new challenges as we emerge from this global crisis with a clearer understanding of who we are and how we can cope in such adverse circumstances. In the longer term there may be challenges ahead in dealing with the disruption that this pandemic has caused to the PhD projects. That is not a consideration for now. Our immediate task is to ensure everyone is safe and well and has adjusted to a new way of working. We will be considering options for mitigation of the impact of the coronavirus pandemic at a future meeting of the GCRFG CDT Management Board. I end this update by thanking all our students, supervisors and numerous support staff for the positive and effective way in which they have helped us to get to this point of safety in a changing and turbulent world.

Douglas Halliday
April 2020



If you have any research results, blogs or events related to the GCRF-CDT that would be of interest for the Durham Global Challenges- CDT please contact abir.van-hunen@durham.ac.uk



Durham Global Challenges Centre for Doctoral Training
<https://www.dur.ac.uk/globalchallenge-cdt/>



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Durham University Game Changer Innovation Programme
<https://www.dur.ac.uk/careers/students/enterprise/gamechanger/>

International Partnerships

<https://www.dur.ac.uk/international/>

GCRF - Links

<https://www.ukri.org/research/global-challenges-research-fund/>

<https://re.ukri.org/research/global-challenges-research-fund/>

Sustainable Development Goals

<https://www.un.org/sustainabledevelopment/>