

EXPRESSION OF INTEREST

QUEEN ELIZABETH SCHOLARSHIP – ADVANCED SCHOLARS (QES-AS)
PROGRAM ON CLIMATE CHANGE AND SOCIETAL TRANSFORMATION

PREPARED BY ROBBIE VENIS

1. SCHOLAR'S LEGAL NAME:

Robbie Alex Venis

2. QES CATEGORY:

Doctoral Researcher

3. HOME INSTITUTION INFO:

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4. SUPERVISOR INFORMATION:

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5. CANDIDATE'S BIOSKETCH (300 WORDS)

Since I was a child, I have been passionate about issues related to access to safe drinking water. I always felt it was unjust for my place of birth and socio-economic status to dictate the degree to which I was able to access such a vital resource; I felt I had a responsibility to contribute to change in this regard. I eventually pursued a degree in engineering with the express purpose of specializing in water-related studies, which eventually led to my pursuit of a PhD in environmental engineering from Carleton University, in which my thesis project focuses on improving water treatment availability for rural poor in Tanzania. On this path, I also have done various other projects including working for the Bill and Melinda Gates Foundation in Pune, India on developing a water treatment system to recycle toilet water, as well as working with a community in the Dominican Republic on improving local sanitation practices. Further, as my advancement in this field has made it clear that a multi-disciplinary approach to these issues is the only way to positively progress, I also began a podcast that highlights many of the challenges being faced by the global community in this sphere, discussing a variety of issues with people from many backgrounds. The podcast is called All About Aid and may be found at <http://allaboutaid.blog> .

6. CANDIDATE'S TOP 3 ACHIEVEMENTS:

- 1) Achievement 1: In 2018, I was awarded the Ontario Graduate Scholarship (OGS), which is an award for academic excellence at the provincial level.
- 2) Achievement 2: In 2018, I was also awarded the Dr. Thomas Betz Memorial Award for intellectual leadership. This award recognized my interdisciplinary approach to research and my promise as a scholar and intellectual leader in the field of environmental engineering. This award was also given to me because of my demonstrated commitment to tackling large and pervasive social issues with an evidence-based approach, bridging the gap between social and natural sciences.
- 3) Achievement 3: In 2017, I was a finalist in the CU75 POPS Water Competition at Carleton University. This competition grouped students from the Faculties of Public Affairs and Engineering at Carleton, and each group was expected to write a proposal document outlining a detailed policy on how the City of Ottawa could improve their water and wastewater infrastructure to be adaptable to the impacts of climate change. After making it through the first round, my group presented our ideas to a panel of judges in the finals and finished second overall.

7. CANDIDATE'S AREA OF INTEREST WITHIN CLIMATE CHANGE & SOCIETAL TRANSFORMATION:

As has been demonstrated by various research groups and international organizations including the United Nations, the provision of access to safe drinking water will only become more difficult to accomplish as the impacts of climate change become more prevalent. As climate change is expected to increase the frequency and intensity of droughts, both quantity and quality of water is expected to decrease, which may lead to increased numbers of mortalities resulting from diarrheal diseases. My area of interest within climate change and societal transformation is in the mitigation of this issue, specifically in terms of determining how to provide adequate mechanisms for treating water to the most vulnerable to climate change's adverse effects – the rural poor. Though urban Canadians like myself take centralized water treatment to be an expectation from their governments, the development of this infrastructure can be costly for governments in Low-Middle Income countries, both fiscally and in terms of political might. Further, this issue is only heightened in rural areas, as there is a smaller pool of individuals from whom such a project may be funded, and those individuals are often economically disadvantaged relative to their urban counterparts, making infrastructure development even less likely to be funded. Moreover, I am interested in addressing what may be done at a local level in the rural environment, so these communities are not left behind to struggle in the face of increasingly challenging conditions.

8. CANDIDATE'S EXPECTATIONS FROM THE QES PROGRAM:

SHORT TERM:

In the mobility phase of the project, I am primarily interested in the human resources that I will have access to at the partner university, Nelson Mandela-African Institute of Science and Technology (NM-AIST). As a Canadian with limited experience working in the African context, I am very excited about the

opportunity to work closely with scholars and intellectuals that have an intimate understanding of the research climate in their country, and further, a personal connection with the challenges that we are trying to tackle. I think that I have a tremendous amount to learn from the people with whom I will work while in Tanzania, and I am expecting this program to provide me with the opportunity to learn from those that truly understand the magnitude of the issue my research addresses. Further, I am expecting this program to aid in my research effort and progress, primarily in terms of providing me access to a laboratory to conduct experiments, and a supervisor to discuss my ideas with regularly. Finally, I am also expecting the program to support me during my time there in terms of my accommodations (as in where I stay relative the University), or any administrative needs I may have while abroad that pertain to my participation in the program.

MEDIUM TO LONGER TERM (OVER NEXT 5 YEARS):

Though a scholarship that facilitates travel and inter-university collaboration has inherent value already, I believe that the longer-term effects of the QES program is where the most impact will be made for me. As an emerging scholar with an interest in working within the African context, I think the connections that this program establishes will be invaluable as I move forward in my career. As the program moves beyond the mobility period, I expect for QES to still facilitate communication between myself and the other scholars (from my own and new cohorts) and professors from partner universities, such that there is an established avenue through which continued collaboration may be possible. When managing such a large and global issue like climate change and societal transformation, input from a wide array of experts with diverse backgrounds will be the only way to make progress, which is why I think QES has such great potential to act as a bridge between those in different countries around the world. Moreover, I expect QES to continue supporting work and connection between the partner universities and scholars, such that my research, and everyone else's in the program, may benefit.

9.SUPERVISOR'S ASSESSMENT OF CANDIDATE'S FIT WITH THE THEME OF SOCIETAL TRANSFORMATION AND/OR CLIMATE CHANGE (300 WORDS)

Waterborne disease prevalence and outbreaks have been shown to increase after high rainfall precipitation events. Indeed, it is widely accepted amongst water engineers and health experts that high precipitation events leading to increased run-off are associated with increased suspended solids and attached microorganisms as well as increased chances of cross-contaminations where raw sewage sources mix with rain water, while drought events can lead to higher concentrations of pathogens in limited water resources both of which have the capacity to increase the severity of waterborne disease events within communities. Provision, training and access to suitable point of use water treatment technology is one tool to help combat the spread of water borne diseases both generally and under climate change events. This research is centered around Ceramic Filter Pots (CFPs) as an accepted method to produce drinking water for areas that are in need of point-of-use POU devices due to a lack of a reliable clean water source for drinking. Of particular note the Tanzanian Government has ranked Ceramic Filter Pots as one of the top preferred choices for POU treatment in the country (Burt et al., 2017). Robbie Venis is investigating methods to improve manufacturing processes of CFPs in Arusha, Tanzania while

also investigating efforts to further the access and uptake in rural areas of Tanzania which are particularly subject to climate change risks.

Burt, Z, R. Njee, Y. Mbatia, et al (2017). User preferences and willingness to pay for safe drinking water: experimental evidence from rural Tanzania. *Social Science and Medicine* 173: 63-7

10. CANDIDATE'S POTENTIAL RESEARCH MENTOR AT VISITING UNIVERSITY

Mwemezi Rwiza

11. CANDIDATE'S POTENTIAL RESEARCH PLACEMENT AT VISITING UNIVERSITY

TEMBO Trust