

Research Challenges in Africa



Kilwa Kisawani, World Heritage site, East coast of Tanzania; Credit: CR Bates

Safeguarding heritage for sustainable development of coastal sites in Tanzania.

Dr Richard Bates, School of Earth & Environmental Sciences

Cultural heritage (both tangible and intangible) is intimately linked to the wellbeing of people and society. However, it is facing increasing negative impact from global climate change, neglect and targeted vandalism. Projects in Tanzania have demonstrated that novel methods of digital data capture and data management can address the direct economic benefit of preserving this heritage to local communities. Novel methods are also providing a means for local government to manage all their heritage assets, whether they are physical structures or local skills and traditions, to the benefit of local communities and a global audience.

The World Heritage site of Kilwa Kisawani, once at the heart of trade along the east coast of Africa, is located in one of the poorest regions of Tanzania. Today, the ruins sit in a district of 220,000 people with high unemployment and an

illiteracy, resulting from non-school attendance, of over 36%.

Dr Bates and colleagues provide training on these sites to local groups, such as the WAUMAKI (Women's Culture, Buildings and Heritage Organisation in Kilwa), a women-run business catering to tourism, to help them provide guiding to the archaeological sites, catering for visitors and supplying transportation to and from the site. The local groups are also taught how to record and promote their heritage before it is permanently lost. The project hopes to stimulate a new tourist economy and to create a blueprint for heritage management that can be rolled out across Tanzania. Dive-based training was conducted to open up a new market for a high-value tourist sector.

www.sustainablepreservation.org/kilwa

Safe and effective TB treatment for children in Africa

Dr Derek Sloan, School of Medicine

In last year's *Chronicle* we reported on the pioneering MBLA (Molecular Bacterial Load Assay) rapid laboratory test for TB developed at St Andrews. Tuberculosis (TB), the leading infectious cause of death worldwide, is a major public health problem in Uganda with 86,000 new cases (40% HIV co-infected) and 11,000 deaths per year. The MBLA test measures the concentration of live bacteria in a patient's sputum within a few hours. This provided the essential foundations to allow medical staff to fully evaluate the test in the care of TB patients in Uganda. As a result, healthcare workers have been learning how best to use the MBLA tools to reduce the impact of this deadly disease on individuals and their communities. Dr Sloan is using the test to help understand how to treat children in Uganda with the disease.

He has been carrying out multi-disciplinary collaborations with the Infectious Diseases

Institute, Kampala which combines medical and social science skills to improve effective and safe delivery of TB therapy. He will use the infrastructure that they have established to help children in Uganda. Of the 1.1 million cases of TB in children worldwide, there were 230,000 deaths in 2018. Approximately 96% of children who die of TB have not started treatment.

The problem is that TB diagnosis often relies on analysis of sputum; however, young children cannot easily expectorate. Dr Sloan and his team will test the novel MBLA on stool samples from children with presumptive TB to find out whether use of more easily available specimens improves access to care for the children and also improves understanding of their treatment response. Dr Sloan will discuss their results with the National TB programme, clinicians and community groups to inform policy and public health messaging.



Caption?



Caption?

Food security and health for East Africa

Professors Andrew Brierley and Lesley Torrance (School of Biology) and Dr Wilber Sabiiti (School of Medicine).

This £1.1m award is an interdisciplinary project that aims to break the current circle of poor sustenance and poor health by tackling food security and health challenges as a single, connected development issue.

Its objectives are to increase the availability of food staples by producing climate-resilient and disease-resistant potato varieties; to reduce the incidence of human disease especially Schistosomiasis, which is an acute and chronic disease caused by parasitic worms from infected water; to disrupt the infection cycle with prawns (bio-control) while providing protein-rich food; and to increase diagnostic accuracy and improve antibiotic stewardship in the treatment of TB and Chronic Obstructive Pulmonary Diseases.

Reducing the incidence of human schistosomiasis through biocontrol is being developed by Professor Andrew Brierley's group in Tanzania, Kenya and Uganda, working with in-country fisheries, medical research institutes and relevant government agencies as well as UK prawn farming leaders.

To tackle TB and COPD diagnostic challenge, Dr Wilber Sabiiti's team works with medical and social science partners in Tanzania and Uganda to bring together expertise in lung health and socio-anthropological research. NHS Five brings clinical expertise in respiratory diseases and LifeArc, an industry partner whose focus is on translation, bringing lab-based findings to product development through to patient use.