

DOUGLAS BOMFORD TRUST

An update

Reports of technical visits that received funding support from The Trust

An important part of the work of The Trust is the award of travel grants that enable recipients to attend conferences, workshops and/or work with groups away from their home location.

Below are edited extracts from two reports submitted this year as a result of grantees completing such visits (Full versions of these reports are available from the DBT office).

From Dr Branislav Vuksanovic, Senior Lecturer at the School of Engineering at the University of Portsmouth - visiting Curtin and Wollongong Universities in Australia as part of work to establish a project concerned with 'Ground Penetrating Radar (GPR) - based Water Reservoir and Pipe Work Inspection Systems'

The main purpose of the visit was to explore the possibilities for collaboration with the research groups based at the two Australian universities. There is no GPR expertise available at the University of Portsmouth and very little work done in the area of digital signal processing for GPR data in UK. Thus this visit was important for the work I intend to pursue in order to get up to date with current work and developments in this important research field and relatively new GPR technology.

During the first part of my visit I was hosted by the Communication Technology and Signal Processing research group which is part of the Department of Electrical and Computer Engineering at Curtin University in Perth. The time spent at Curtin provided a useful experience although during this period it has become clear to me that the group expertise and research interests are moving away from the ground penetrating radar (GPR) technology. However, I was given a number of useful suggestions about the possible algorithms (Independent Component Analysis in particular) that might be worth exploring in more detail in the next stage of my research.

The second part of the visit was to the University of Wollongong in New South Wales. Here I was provided with Matlab software developed during a project conducted at the university and described in key publications. I am currently trying to extend it and use it to analyse some of the data I have obtained at the Portsmouth University laboratory.

The whole trip and the research visits I have made have greatly benefited me and my research work. At the same time I have managed to improve my chances of obtaining further support for my research by preparing the Fellowship application in the research oriented environment. Thus I am grateful to Douglas Bomford Trust for the help and support they have provided for this trip.

From Jean Mtethiwa, Cranfield University - visiting Malawi as part of project work concerned with 'Sustainable Irrigation Development: Assessing the potential for small-scale pumped irrigation systems'

The main objective of the field research work was to collect field data from stakeholders and small-scale irrigation (SSI) pumped systems users in Malawi in order to inform the on-going PhD research project currently being undertaken at Cranfield University. The aim of the PhD is to identify the potential and options for supporting sustainable development of SSI pumped systems and their future development in Malawi and Sub-Saharan Africa.

The field research used various types of data collection method. First formal and informal meetings were conducted with government officials and relevant stakeholders at both higher and lower level in order to understand the extent of SSI pumped systems and select the study locations. Two districts from Central region of Malawi were selected for an in-depth study, Lilongwe and Ntcheu. Selection of the districts was based on convenience and prevalence of diverse

Post-graduate research funding

The Trust is pleased to report that two of our sponsored post-graduate research students have successfully completed and defended their PhD theses and will be awarded their Doctorate degrees from Cranfield University. They are:

- **James Ulyett** whose project was concerned with the application of Biochar to arable soils and the impact of this on nutrient and water dynamics; and
- **Raed Al-Asadi** whose study examined combined impedance, visible and near infra-red spectroscopy techniques for the non-invasive in situ measurements of soil compaction.

SSI pumped systems in the region.

Second, a reconnaissance survey was conducted in selected communities where SSI pumped system were known to be taking place. Selected interviews with selected key informants were conducted to ascertain the existence of the pumped systems and their mode of operation.

Third, a detailed in-depth survey was conducted in selected communities using the information collected from reconnaissance survey and snow ball sampling. Finally relevant stakeholders were interviewed and documents were analysed to compliment the findings.

The study managed to collect adequate data to inform the initial objectives of the field visit. So far the preliminary results from the fieldwork have been communicated to the research community through a poster presentation in a Conference organised by Cranfield University in February 2014. However, a second field visit will be required in order to fulfil the main aim of the on-going PhD research project and the results need to be communicated to a wider community through oral presentations in other Conferences and Publications.

Studentships and prizes

STUDENTSHIPS

Congratulations to two of our Douglas Bomford Trust sponsored under-graduate students at Harper Adams University for the 2013/14 academic year, Andrew Dawson and Cormac Flaherty, both of whom are to be awarded 1st Class Honours degrees. The degrees will be presented at a Graduation Ceremony on

19th September that will be attended by Paul Miller representing The Trust.

PRIZES

Very many congratulations also go to Alexandra Cooke who was awarded the Douglas Bomford prize for the best student on the Land Reclamation and Restoration course at Cranfield University.

The award was presented at a Prize Giving Ceremony ahead of the main Graduation Event at Cranfield University on 5th June.



Alexandra Cooke and Paul Miller