

Tanzania 2010

This is the second year of the project where we again went to 3 schools two in Morogoro and one in a very poor rural area, Mgeta . We gave them each two days training and a coffin sized box of basic science equipment accompanied by a teaching manual. The equipment is simple and designed specifically so that it requires no electricity and very little water so that it can be used anywhere no matter how poor the school. The kit is basic the physics is not. It is possible to use the kit to teach both O level and A level physics. In each session three schools received training but only the host school received the full box of equipment. The visiting teachers each received a training manual and a reduced kit to get them started on the road to use practical as the method of teaching physics.

It is the change to the method of teaching that we are trying to introduce that is the biggest educational leap for many of the teachers. We are now hearing the buzz phrase 'pupil centred learning' from Tanzanian teachers but little help seems to have been given to teachers expected to make this cultural change in their classroom.

In this second year we shipped the equipment out from the UK again but next year the intention is that it is all purchased locally in Tanzania with only a few specialist items being brought out in baggage. We also visited the schools that we gave kit to last year to see if had been used. The long term aim is to provide a sustainable model of physics teaching that will be used across Tanzania.

An important message to get across early is that we do not have the monopoly on good ideas. 'We are bringing ideas from the UK from a background of teaching practical for 20 years, but we have experienced the resourcefulness of Tanzanians and we would like to take back as many ideas from you as we bring'. This is an important message in levelling us both sides of the demonstration table.

The training manual is a key part of the package. We will probably develop the book further to include experiments from Mr Kiswili from Kingurunyembe Teacher training college and suggestions from other teachers that we taught. A list, by experiment, of equipment required will also be included as suggested by Dr Kainkwa from the University of Dar Es Salaam.

We contacted Dr Reubens Kainkwa a physicist at the University of Dar Es Salaam, before travelling. He was very keen to learn about the project and we arranged for him to see the project in action in Morogoro.

Dr Kainkwa was very impressed with the project and stayed overnight to watch the large part of the second days teaching. He took numerous photographs of the kit in use, helped out with students in the sessions and generally got stuck in. The main development suggested by Dr Kainkwa is an extra teaching session at the University. Dr Kainkwa would select the best physics teachers in Dar to attend the one day only training session to be run at the end of the trip next year. The only difficulty here is fitting it into an already packed schedule but we are keen to pursue any activities that raise the profile of the project going on in Morogoro.

All schools had used the equipment from last year but it was at Mvomero that the head master's speech to welcome us back, was revelation in terms of what they had done since then. They had entered a competition as part of a science exhibition within the district which Madam Salma

Kikwete, the first lady of Tanzania, had attended. They had come first by using the equipment donated by us last year and beaten the more prestigious Mzumbe school. Mzumbe were then very keen to talk to Mvomero about where the ideas had come from and so they had then widened their net to invite five other schools again to see what they were doing. They gave out copies of the Practical Physics book to visiting schools. This is the project at its best, schools completely taking on the idea then selling it to other schools prompting an interest to be involved. Numbers choosing to study science as an option had gone from 14 in Forms III and IV to 40 (15 and 16 year olds) with a target of 100 for next year.

There is a new idea that has come about since meeting Mr Kiswili and his considerable practical talent. Schools lack technicians but it would be excellent training for a small number of bright students to be trained to be teaching technicians. They would gain valuable experience, and each school would effectively gain a technician. It may be necessary to provide tools but we already have an off shoot of this project bringing out hand tools so we could expand it into this area. This would form effectively a technician apprenticeship scheme.

Teachers are desperate to learn. Students are desperate to learn. Money is very tight and resources are limited. Our model of basic cheap equipment supply accompanied by teacher training is accessible to many schools across Tanzania, even those with the most basic of facilities. There is huge potential in Tanzania. Students are desperate to learn and very motivated. We need to bring together the natural resourcefulness of Tanzanian teachers and good Physics teaching in the form of practical learning.

With the practical training centre refurbishment fully underway, a ground swell of 22 schools having experienced the project, interest at district level in two areas, interest from the universities of Dar Es Salaam and Mzumbe, interest from the Tanzanian Physical Society and a real feeling of schools wanting to disseminate their new found practical skills the project is set for successful development over the next two years.

Joe Brock, Tanzania Coordinator, IoP