



Newsletter No. 108

November 2018

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ABOUT CED

Christian Engineers in Development (CED) is a Christian professional consultancy service dedicated to development work with overseas communities, and through service, to witness to the Christian Faith. Operations usually comprise a tri-partite arrangement between a developing country organisation, a funding agency and CED providing technical assistance. CED responds to requests for assistance, improved water supply being the most frequent request but by no means the only one. CED promotes self-help with the maximum use of local resources.

CED's services include site visits, feasibility studies, assistance with project proposals, design, contract documents, procurement, tender evaluation, project supervision, direct labour employment, on-the-job training of local staff, project monitoring and evaluation, assistance with fund-raising and the management of project funding.

CED's income comes primarily from grants for projects together with donations from Churches, Trusts, Members and Supporters, and membership subscriptions. Most of the expenditure goes to operations; management costs are kept as low as possible. CED is not a funding agency and therefore cannot directly fund major projects but it can, and often does, fund preliminary investigations for potential projects.

The Association is registered as a Company Limited by Guarantee (without shares) and being a non-profit organisation, it is registered as a Charity. It is managed by a Board of Directors/Trustees, elected from the membership, giving their services voluntarily. The Board appoints a Secretary and a Treasurer. CED Members participate in the work of the Association either voluntarily or if they depend on earnings for their livelihood on negotiated payment for their services.

Membership of CED is open to any person who is professionally qualified, supports the Aims, accepts the Statement of Faith, supports the activities of CED in any way, or serves as an employee or volunteer, both in the UK and overseas. Membership requires an act of commitment and usually an annual subscription. Becoming a Supporter of CED is open to any person or group that supports the Aims, and wishes to be kept informed of CED matters.

Anyone wishing to become a Member or Supporter should contact the Secretary. An application to be a Member should be supported by an existing Member or Pastor.

Newsletter

The Newsletter is published twice annually. We'd be delighted to provide additional copies for friends, colleagues, church book stands, etc. Please contact chair@ced.org.uk and let us know how many you'd like.

The editor would be happy to receive contributions for the next Newsletter . Please send to ian@ced.org.uk

PrayerPoints

Copies of our monthly prayer bulletin are available by e-mail or post. Please request a copy by email to ian@ced.org.uk or by writing to the Secretary.

SHARING SKILLS
CHANGING LIVES





Letter from the Chair

Welcome to the latest edition of CED's newsletter. We have been saddened by the 'promotion to glory' of our brother John Holloway in June. John was our senior director but he was much more than just an elder statesman. He was full of wisdom and experience, particularly in a development context, forged during his working life. But these characteristics were combined with a remarkable graciousness and warmth. We **give thanks to God for John's life and witness** but we acknowledge that we will miss his presence and experience on the **board. Please continue to remember John's wife Vivienne and their family in your prayers.**

CED seems to have a good number of **projects either in execution or 'in the pipeline'**. In Uganda, development work has commenced on two projects aimed at providing power to hospitals in south west Uganda (Kagando and Kisiizi). As the Rwentamu project draws to a close, we have started thinking about the next charco-cum-valley tank in that region - an area where groundwater is notoriously difficult to access and supply to communities. We are also planning to investigate some other possible projects in Uganda. In Rwanda we have experienced some frustration with the

Mayange project. Hopefully we have now reached agreement with the local community and project work can commence. Ian Rankin has been working with Chato District Water Department in Tanzania to deliver spare parts to kickstart a handpump refurbishment programme; we hope that CED will be able to mentor their engineers. Steady progress is also being made on development of projects at Gbonko and Manowa in Sierra Leone. CED also hopes to help LAMB Hospital in Bangladesh as they seek to make water and sanitation improvements. On a less positive note, we have been frustrated in our attempt to obtain funding for Pakistan; our application to UK Aid Direct was once again unsuccessful.

In many ways we seem to have more projects than we can cope with and probably more than we will be able to source funds for. One of the biggest challenges with CED is a three-way balancing act: the number of projects against our design and project **management resources (i.e. members' time)** against availability of funds. Our organisation appears to be puny when measured by international standards - we have fewer than 75 members of whom only a proportion are active and/or available to help with project activity. We have no employees and no full-time members of staff. We are all volunteers. We like to think we are professionals but the truth is that we are often forced to fit our CED work in around our day jobs and also around busy family and church lives. I sometimes wonder how it is that projects are actually conceived, developed and then executed successfully. Yet, the remarkable thing is that God is able to take the little that each of us can offer and do something glorious with it.

Mike Beresford

John Holloway April 1930 - June 2018

John joined CED in 1986 soon after its inception. In November 1990 he became a Director and served in that role for the rest of his life. For many of those years he was our Director of Operations, a recognition of his very practical skills in overseeing projects.

John was one of those quiet, humble, **unobtrusive people... and yet everyone** seemed to know him. He had a passion for CED which showed itself in many ways. I'd love to know how many CED members John **personally recruited... Rob and I are certainly** among that number, and just a couple of weeks before he died, John was on the CED stand at the Big Church Day Out, still trying to increase our membership and make us **better known. And those of you who've been** to the BCDO will know that it would not have **been John's scene at all!**

But his main contribution to CED has to be in the projects, in particular in Uganda and Tanzania. John built up long term partnerships from which many projects resulted. The biggest two were carried out in partnership with the Anglican Diocese of Ruaha in Tanzania. Both received substantial sums of money from the EU and together resulted in well over 25,000 people being provided with safe drinking water, improved sanitation and health and hygiene education. Anyone who has made funding applications to similar institutions will know that it is a time-consuming task. John's first application to the EU was turned down, but he wasn't going to let that stop him. Having learnt where the first proposal needed strengthening he improved it accordingly and found success on the second attempt. It

was at this point, in 2004, that John suggested that perhaps I would like to join him on a visit to Tanzania to get the Kililo project underway.

And so a few personal reflections....on that first trip John and I travelled separately, with John arriving a day or so before me. Despite telling him that I was quite capable of getting a taxi from the airport to the hotel, he insisted on getting up very early to come and meet me, and of course I was very grateful for this. He was always the perfect gentleman.

He may have been quiet but he had a way of getting what he wanted, whether it was a reduction on the cost of accommodation, a hotel breakfast just as he wanted it or work on site being done according to his instructions. His authority, the respect others had for him and his smile were together very persuasive.

He was also very hardy, even in his 80s walking many miles over rough ground, and often, as I found to my dismay, with no thought of anything to eat or drink.

John was always looking forward, not backwards. We encountered quite serious difficulties on one large project but John **would so often say 'we are where we are'** in other words, it's no use keep going over what has happened, let's concentrate on getting a solution.

And, of course, everything he did was accompanied and undergirded by prayer.

We at CED will miss his godly wisdom and great experience so much. But we feel privileged to have known him and to have learnt from him. He has improved the lives of many thousands of people and as Philip **Tibenderana, our rep in Uganda said, "CED and the whole of the developing world has encountered a huge loss."**

Barbara Brighthouse



John in typical pose

My memories of John Holloway

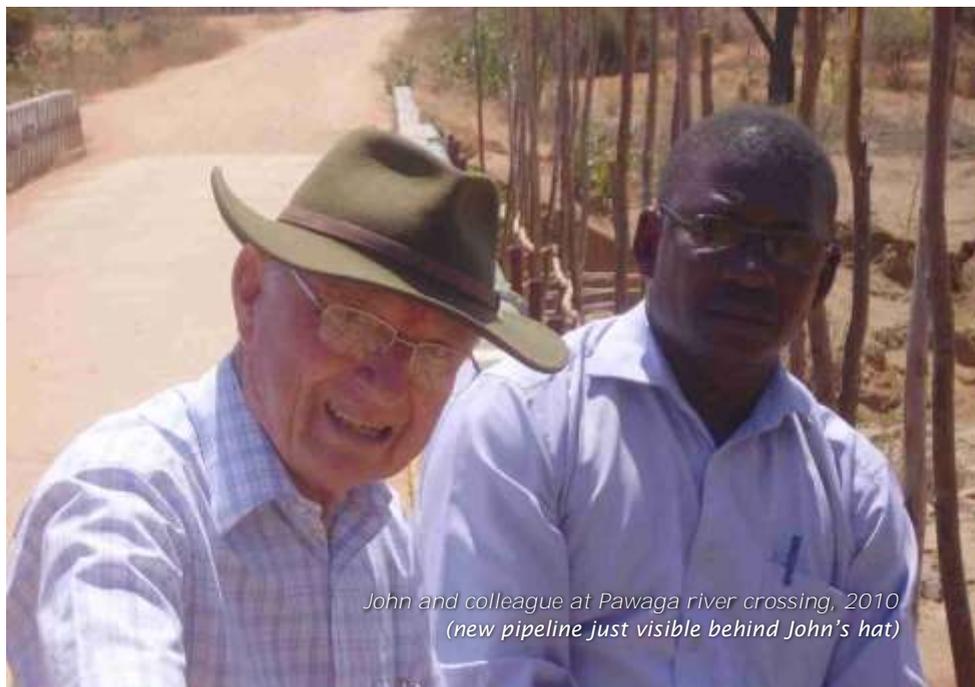
A few months have passed since we bade farewell to John Holloway, a very long-standing member and director of CED, at a packed commemoration service in Haddenham. John's influence was profound throughout CED's history. I would like to add a few personal memories to those already shared.

My earliest links with CED go back to the 1980s. The first meeting of members that I can recall was in a small room at Green Street, London W1, where our hosts were ChIPS (Christian International Peace Services). John was present, as at very many meetings since, and much involved in water-supply work then being undertaken alongside ChIPS in NE Uganda, an area long subject to civil war. I learned later that John had been part of the Government water service in the Trust Territory of Tanganyika (eventually combined with Zanzibar in the modern United Republic of Tanzania).

One of my most lasting memories of John is the way in which as a fluent speaker of Swahili, with years of bush-bashing behind him and accustomed to wringing sense from

sparse and contradictory data, he could win the hearts of African engineers, administrators and water-users while conceiving and helping give life to projects at an appropriate level of technology. At the same time he ensured that a lot of the expertise was passed on to local people to use on behalf of their own and neighbouring communities. In this he was aided by his deep but uncomplicated Christian faith which informed all he did and allowed him to develop similar good relations with the churches, clergy and mission workers who were a part of many projects.

John and I first overlapped in CED work while helping communities in Uganda, rather than **Tanzania, but it made no difference: John's** prior visits to people and places meant that a lot of groundwork had already been done and I was assured of a welcome, notwithstanding my far shorter record of the kind of work we were taking on. John was at his best in hydrology and hydrogeology, but like other good engineers he was master of **a range of related abilities. CED's legacy of** completed and continuing projects is due to the large number of our members who have



*John and colleague at Pawaga river crossing, 2010
(new pipeline just visible behind John's hat)*

done their own share and sometimes a lot more, but in nearly every case there has been something of John in the achievement, **whether through his leadership as CED's** Technical Director, his direct presence on the relevant project team or the many things he taught the rest of us at CED to do.

John was always quiet – I cannot recall him ever shouting at anybody, or being excessively angry in any way, but he was technically persuasive and always commanded a hearing. At the personal level I learnt a lot by helping him to check his calculations. While we sometimes differed as to an assumption made in the absence of anything better, he could make a good case and I never found any fault in his method or arithmetic. Projects benefitted from his African experience, his great stamina, even on very difficult terrain, and his ability to live off the land while painstakingly seeking out water sources and pipeline routes. Praise God for his long, patient and dedicated contribution to all that CED is now.

I have entitled this piece “My memories ...”

but would like to close with something that is much more the memory of others in CED, this being the solid achievement of two very large (for CED) water distribution schemes in **Tanzania's Ruaha basin. Both schemes** served several well-spaced communities from river sources through miles of intermediate pipelines and substantial water storage structures, both saw CED in partnership with other major NGOs, not all British, and both depended on complex financial agreements with the European Union, demanding great effort and attention to detail in planning, accounting and **reporting. Of course, John didn't do it all** himself: other directors and members of CED made essential and sustained contributions over several years, but without his leadership and diligence it might not have been done at all. In this, as in many **other of John's CED ventures, we owe a** great deal to Vivienne and the family for the **support he enjoyed from them. Let's keep** them in our prayers.

Dick Waller



Visit to Bushekwe, Uganda, 2007

Thames Tidal Defences

As a CED member I have been grateful for opportunities to contribute as a water engineer, but in an earlier phase of life I worked in coastal engineering. In that context I was aware during the 1960s and 1970s of the great effort being made to defend London from flooding through construction of the huge Barrier at Woolwich and a range of ancillary works. Between his **years in Tanzania's government water development service** and his work for CED, our late Director, John Holloway, was a key member of the leadership team which delivered the Thames Tidal Defences. The flagship monument to that part of his career is the Thames Barrier, but the Barrier by itself would have been useless without a lot of bank-raising work both upstream and downstream, as well as the major gated barriers on Barking Creek and the Darent.

As a coastal engineer in those days I saw a lot of this going on and applied some of the same technology to planning for works in the high tidal ranges of The Wash and the Dee Estuary. Neither of those schemes was built **in the end, but John's work on the Thames** is there for all to see and many must be living with their memories of him at that time of his life.

One thing that saddens me is that the Thames Barrier has never really been exploited properly as the monument to engineering it deserves to be. Things are no better at the downstream barriers which do their job but are amongst the scruffiest riverside structures on the Thames and very difficult to approach. Have you tried braving the flood of heavy lorry traffic to stand among the weeds for a distant view of the Barking Creek Barrier, or walked the littered,

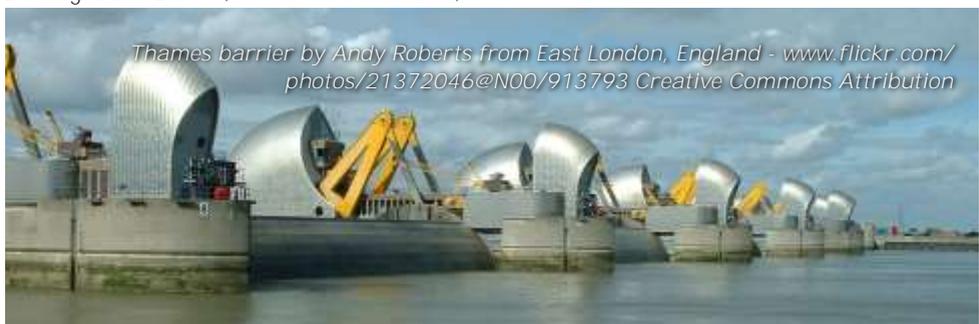
uneven and windswept approaches to the Darent Creek Barrier? In the latter case, the access is part of a major route in our national cycling network but the surfacing is rough and the spectacle awaiting overseas visitors who get that far is dire.

Engineering is being vigorously promoted as a career choice and we have wide experience of building in tidal ranges which **are among the world's highest. Think of the docks on the Mersey and the entry to the Manchester Ship Canal**, to name just two examples. Go to Falkirk and experience the good connections to, and facilities at, the new Boat Lift. Can we not similarly showcase the Thames?

Maybe there are some readers in a position to urge improvements. The Thames Tidal works may seem technically a long way from anything CED does, but there are engineering students from many countries who come to the London region and might one day be among the people we need to deal with.

There is another lesson too – the structures **and equipment installed on CED's projects** are often a step up from the engineering **already visible locally. Let's take pride in** making them good examples so that the eventual operators are proud to show them off, to explain their own part in the work and encourage interest in doing more of the same. None of us is perfect, of course, which is why it is healthy to pass ideas and designs around while there is still a chance to receive and act on comments. Our responsibility is collective!

Dick Waller



Introducing 4 new CED members. . .

Since publication of the last newsletter we have been delighted to welcome four people into CED membership. Those who receive PrayerPoints will already be aware of two of them.

Geraint Davies is a Chartered Mechanical Engineer with over 12 years professional experience. He has worked more recently as a Project Engineer / Project Manager within the petrochemical industry in the UK. He has volunteered with Brass Tacks on various building projects in Zambia. Geraint is a member of Locks Heath Free Church in Southampton where he is involved with youth work.

Simon Beswetherick has recently completed his MSc in Water Management at Cranfield University. He was one of two students that visited LAMB Hospital in Bangladesh in conjunction with CED to assess sanitation and waste disposal issues. He is now working with Medair in South Sudan on water, sanitation and health education, having previously worked with them in

Sudan, DRC and Indonesia assisting with IT and logistics. Simon became a Christian whilst a student in his teens.

Richard Molloy is a Fellow of the Institution of Civil Engineers and is Technical Director for the Transportation Division of Atkins where he has been employed since 1995. He recently took a 6 month sabbatical during which he accompanied CED Chair Mike Beresford on a visit to LAMB Hospital and, now that he is a member, hopes to become more involved in the next stage of the project. Richard attends Castle Hill Baptist Church in Warwick.

Roy Hooke is an experienced Chartered Geologist with a background in waste management engineering, open pit mining exploration and design. He retired a few years ago and following attendance at his second CED AGM in June, applied for membership. He has already been offering invaluable advice on issues at LAMB Hospital.

Barbara Brighthouse, Secretary

The Big Church Day Out

CED attended the Big Church Day Out (BCDO) last May at Wiston House in West Sussex. Our demonstration of a working India MkII pump proved to be a great opportunity to explain to children how a handpump worked - and to show them what a typical African child would have to do in terms of collecting water every day. When they lifted the 20 litre jerry

can we encouraged them to give thanks for taps in their homes!

The aim of attending the event was to make **more Christians aware of CED's existence.** We held many positive conversations and handed out leaflets and newsletters to many people. However, despite the number of leaflets distributed, we have had very little follow up since in terms of new membership applications or new partnership opportunities. This has been a disappointment to us since attending BCDO involved a significant amount of cost and even more effort. However, we know that **God's timing is the best, so we wait patiently** in anticipation for fruit to emerge from our time at the event.

Mike Beresford



Global engineering congress

CED supporter Mark Turner attended the Global Engineering Congress (GEC):

“I’ve been a CED supporter for a couple of years and have recently enrolled in a Masters in Engineering for International Development at UCL after working in water infrastructure design. I was fortunate to attend the GEC hosted by the Institution of Civil Engineers last November after winning a student competition for a week pass. The Congress’ aim was to bring together a worldwide community of engineers to look at how we can create real change and plan how the UN’s Sustainable Development Goals (SDGs) can be met.

I experienced a real passion among engineers to engage in achieving the SDGs but also a hesitance in the tools available and where to begin. Networking with leading engineers from Ghana, Cameroon and elsewhere, I heard their perspective of corruption in government and their firm belief the most important SDG is that of educating their own population so they can make their own decisions and implement infrastructure. African delegates as a whole showed a real hunger to end corruption and had exhilarating passion for achieving the SDGs, reiterating that for engineers entering a foreign country the work has to be based around community, engagement and passing education on.

Engineers without Borders received praise for actually making a difference out on the ground and one might parallel that praise to the work of CED; Larger institutions are taking note and realising they are not **making as big an impact as they’d like.** It was great to also see corporate business engaging in their duty to alleviate poverty. However there was also a focus on our role in **‘developed countries’** and how we have a role to play in reducing over-consumption and building infrastructure (like the



Victorians) that lasts!

Women engineers were well represented and there were plenty of groups making a real difference. However, there is still massive work to do to reach an equal playing field in diversity and bring together the best minds; having said that, international development engineering has roughly equal gender engagement. During one of the seminars I witnessed two ladies from WFEO and UNESCO alongside an independent consultant make a pledge on the spot to work together and pool resources to get Nigeria on the Newton Trust list and the majority of the room raised their hand to volunteer globally. These are big pledges, but more important is their legacy and measuring future impact, and should make us question how we can best measure CED projects against the SDGs.

The Congress was a significant step towards a sustainable future and an acknowledgement that even without the presence of government funding or policy makers, engineers – like CED - can still have an impact out on the ground. More importantly, it was an engagement of the high level global engineering community in working together to empower outcomes and set out an engineering route map to deliver **the UN SDGs.”**

Mark Turner



CED Open Day 2018

It was such a pleasure to meet up with old friends as we gathered at Immanuel Church Swindon on 23rd June, and get to know some new faces too. Eddie and Helen welcomed us with refreshments.

In the beautiful chapel, Alan Michell led us in worship with Rob Wakeling accompanying on piano.

Mike Beresford, CED's Chair, gave an introduction to CED's work, showing the new logo and strap-line, and statement of purpose. This will help us all to introduce CED, whenever we have opportunity.

Projects

There followed a review of current and anticipated projects by 5 members:-

Drs Hugh and Patricia Stradling told us of dramatic improvements in public health at Kisya Kagana in Western Uganda: In 2014 they made a baseline survey then recently made an impact assessment, noting that the people were so very grateful. There had been a big increase in general health with improved crops as people had more strength and could water their coffee and grow vegetables around their homes. There was also an improvement in school attendance with time to do homework instead of fetching water, and in animal health. Personal hygiene and school grades also improved.

Mike showed pictures of the "Charco-cum-valley" tank at Rwentamu in a very flat valley with 20 km² of catchment area. With good rains it had filled quickly showing the need for a bigger spillway; this is being worked on. It includes a hand-pump and a cattle trough. Health and hygiene training is yet to be finished. Guernsey Government supported with £29,000.

Jonathan Cox told us of Hydro-electric schemes at hospitals in Western Uganda. **Kagando's defunct scheme is being**

superseded by tapping its stream higher up to give 400kW with a 2.5km pipeline. (see p.16 for further info, Ed).

At Kisiizi a new 730kW scheme is envisaged to provide for a wider community. Jonathan Appleby is liaising. Paul Darral visited and is now involved in rewinding its burnt-out generator, while enquiring why it failed.

A number of Mini-hydro project are being planned for Uganda using streams on the slopes of both the Ruwenzori and Elgin mountains. This gives multidisciplinary opportunities for CED members—mechanical and electrical engineers and others—and a challenge to provide preventative maintenance.

In Tanzania, Chato District (home of the current President) Ian, Barbara and Mike Yallop have been wearied by the slow pace but things are moving towards mentoring Tanzanian engineers and to providing spare parts for the well pumps.

In Zanzibar, the Christian community at Kiwangwa is being helped with an electric well pump while at neighbouring Muungoni the another small project has stalled because of land issues.

Alan Michell was impressed by joint prayers at a meeting of the Muslim and Christian village in Sierra Leone where a pipeline is needed through dense rain-forest from a spring 3miles up the hillside. We are working with Engineers Without Borders.

In Rwanda the village people of Mayange have asked for a change of plan for water harvesting. This will have to be negotiated



On the Wilts and Berks canal

with the various funders. A group of Congolese pastors will visit Rwanda for training in rainwater harvesting.

Speakers

Our main speakers for the day were Rev. Chris Dobson and Kevin Riley

Chris, who grew up in Uganda, emphasised **the Bible's concern for the poor and for creation** and that righteousness is not only personal but also corporate. The aim is Shalom where everything works well together - as in the components of a Formula 1 engine!

Romans 1 tells us the creation is groaning for the Children of God to be revealed; Us? Too often the skills we learn -> money-> possessions -> litter!

He showed a photo of grain silos in Tanzania being used as a dwelling for the vicar - their dam had silted, no-one cleared it so crops were now too meagre to fill the silos.

He asked how we see the people we are trying to help - as victims or people made in **God's image?**

He encouraged us to stay with ordinary people when we visit and build relationships leading to understanding their culture. We are to recognise:-

1. *People are made in the image of God*
2. *The Kingdom is based on relationships*
3. *People must work their own way out of poverty*
4. *We should listen to local people*

Kevin is a head teacher in Bristol whose school has made a link with Bujagali school in Uganda. The key to this working well is having a local man as their ambassador to oversee all the projects there.

He recommended the book "African Friends and Money Matters" by David Maranz to explore these ideas further.

Lunchtime was an opportunity for conversation and catching up, as well as enjoying the tasty food kindly offered.

Workshops

In the afternoon there were two workshops with a choice of three topics.

Chris Dobson led a workshop on photography, emphasising the importance of planning ahead and knowing the story we want to tell.

Dick Waller hosted a seminar about pipelines and their specification.

Mike Yallop talked about wells and pumps, emphasising the need to know the topography and to carry out testing.

Annual General Meeting

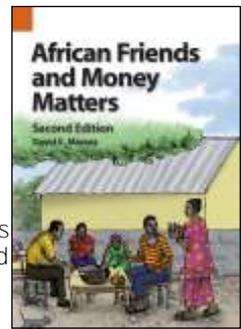
At the AGM our faithful treasurer Bill Harper reported that finances are in good shape with room to give a start to new ventures. Small and mid-sized projects can be considered but it may be too difficult to fund large ones like Pawaga.

Retiring Directors were re-elected and previously co-opted member Ian Bell was confirmed.

In the Open Forum a question was raised about having a central Archive. Many documents could be digitised, but sifting through them is needed.

Canal trip

A good number were able to take Eddie's offer of a trip on the section of the Wilts and Berks canal whose restoration he has been helping with over several years. This was a relaxed interlude of rural idyll, followed by a meal with good fellowship at the Running Horse pub.



Alan Chadborn

Website developments

We hope you like the newly created logo. In this digital age there is a feeling that we must look as well as be professional. As a volunteer charity this is a balance between spending too much time and money on non core matters – we hope we are achieving the balance. As well as any promotional material, letter heads, business cards we are also working on our online presence and our website in particular.

Tim Wakeling (Rob's son) is helping us upgrade the website. A lot of the existing content is very good but it was felt that we could present it in a better manner, which Tim is progressively doing for us. The site is **being developed "off line", but we hope to release it by Christmas.** The framework is complete, the pages have been made consistent and we are now refining the content. At this stage we are not putting up a lot of new material, rather updating and refining what we do have to appear consistent.

Look out for a posting in the coming months letting you know we have gone "live".



This all goes to show that any organisation is so much more than its core activities – in our case engineering. We also need financial (thank you Bill) and administrative, but also publicity and various forms of IT support. All our members and supporters are prized and the financial, spiritual and friendly support they offer is appreciated but please know that you can also help in the running of the organisation if you would like to feel more involved.

Angus Armstrong

Visiting Kibogoizi, Tanzania.



Broken collection chamber, Kibogoizi

CED was approached by the UK branch of Action in Africa in June this year. Alan Michell then met their UK representative, Tina Rayburn, with Father Vitalis S. Bamuhiga who was visiting from the Catholic Parish of Nyaishozi in NW Tanzania. Father Vitalis had **heard of CED's potential projects in Chato** and wondered whether CED could help with the restoration of a UN installed water system that had fallen in to disrepair.

Ian Rankin and Alan Michell arranged to visit Kibogoizi from Rwanda and in September travelled by road to Rusumo on the Rwanda / Tanzania border where we were met by Father Vitalis for a further two-hour



Looking down at collection chamber

drive to the Nyaishozi Parish Church and vicarage where we were his guests for two nights.

He took us by road to the village of Kibogozi then we trekked on foot up the hillside to the source of the water supply atop a waterfall. A dam had been built to divert water from the stream into a pipe system which fed to five existing tap points in the village. However, the main outlet pipe from the intake chamber had been damaged by large boulders brought down the stream by high water flow conditions during the rainy seasons. The main distribution pipework from the source to the lower levels seemed to be in good condition except where crossing the stream again at a lower level before reaching the village. The lower level PVC pipework was however damaged in several places and was exposed due to soil erosion. Four of the five existing tap points were visited however none were in working condition due to the damaged feed pipework.

The immediate requirement is to repair the Intake system and its outlet pipework and to check and repair the full extent of the lower level pvc distribution pipework and tap points. Father Vitalis explained a proposal to install a bulk storage tank and extend the distribution system to additional tap points further afield. A further visit was made to another stream where the water is cleaner but the flow poorer.

In the afternoon we were taken to meet the Bishop Almachius Vincent Rweyongeza at the Cathedral Church of St George in Kayanga.

The following morning we drove to the village of Kahanga also within the Kayashoizi parish. Some tap points were in use being fed from a

local water source. However, the village was very spread out and an extension to the existing pipe line is needed.

We then went to the Nyakasimba School which had several rainwater harvesting tanks already installed and were gradually increasing the RWH capacity as funds were available. This is a government non-fee-paying school of 500 students plus staff of 50. Although not a residential school, some students stay on the premises due to the distance from their home location. The RWH tanks were of various designs and states of repair, the two largest tanks having been installed 1 and 7 years ago. Their desire was for the addition of a borehole to supplement the water from their RWH storage.

We were then driven back to the Rusumo border post by Father Vitalis from where we took the bus back to Kigali and the Solace Guest House in Rwanda.

Alan Michell



Made-to-measure hiking poles courtesy of the Kibogozi water committee

Lamb Hospital, Bangladesh

CED has been working with LAMB Hospital near Saidpur in northern Bangladesh to review some of their waste management issues. We partnered with Cranfield University to support two MSc students to carry out research projects there. The students (Simon Beswetherick and Thelma Perpes) were based at LAMB Hospital between June and August. Simon and **Thelma completed their master's degree** theses on solid waste management and the sanitation facilities at the hospital. They were joined in July by Mike Beresford and Richard Molloy; Richard is a railway civil engineering director who was keen to find out more about CED. He has now become a CED member. The visit really helped clarify the various actions that CED will be recommending to LAMB.

Now that the theoretical academic work has been completed there is a need to convert theory and data analysis into concrete project action. There are a number of fronts



Thelma collects a sample

on this project, all of which have been delayed by time pressures. We are very thankful that new CED member Richard Molloy has offered to get more closely involved. In an exciting parallel initiative, CED member David Fulford has been actively drawing together a collaborative application with LAMB and other partners for funding for an anaerobic digestion system **through DFID's Energy Catalyst** Round 6 competition. The current thinking is that this would be a pilot scheme that is fed with food waste and solid waste emptied from the hospital's septic tanks.

Mike Beresford

Kibaha, Tanzania.

In 2016 CED helped Majahida Bible College to drill a borewell. Their Principal, Reuben Ng'Wala, is now pastor at Kibaha near the Tanzania coast. It was enjoyable to catch up with him. We visited a couple of Maasai churches where water is a challenge and I talked about rainwater harvesting and how CED had trained women in Uganda to build

ferro-cement tanks. The next day the head of **their women's work was visiting and when** Reuben told her the story her immediate **response was "you send the trainer and we'll do the rest"**. It looks like CED may have a new partner!

Ian Rankin



Kivunwi Church, Kibaha pastorate, is interested in rainwater harvesting (see also rear cover)

Chato, Tanzania

It seems to take forever to get a project off the ground. This has been my experience both working as an architect and also as a development worker. Back in August 2016 while visiting Tanzania, my friend Dale Hamilton, a long term missionary to the island communities, casually mentioned that his fisherman friend, now Mayor of Chato, had been wondering whether Dale and his NGO, Kwa Pamoja, might be able to help with water development. Within a day we had a meeting with the Mayor and District Executive Director of Chato District and discussed ideas around **CED's ability to provide support to their** Engineering Department. They invited CED to send engineers to Chato to better understand the situation.

Barbara and Rob Brighthouse visited in January 2017 then Mike Yallop visited in May 2017. Agreement was reached that CED would provide spare parts for some of the 70 odd pumps that are broken down in the district and would also help mentoring their engineers. But then there were changes in the District Council and emails went unanswered and nothing seemed to happen. Finally we had confirmation from the new Chato Engineer, Maria Malele, that they were happy to move ahead on the basis previously agreed with Mike and we were able to place an order for pump parts.

It took faith to order parts in Tanzania and arrange a flight so that I could be there to deliver them. First the prices had risen; we solved this by using two different suppliers. Then Dale got tied up in DRC. Then the bank mislaid the transfer of funds for the Nira pumps; the pumps later got stuck on the road to Mwanza for a week when the lorry broke down. Then, when we contacted the India pumps supplier (they asked for 2 weeks lead time and we'd allowed 5), he cheerfully told us that some parts would not arrive until mid-October.

After all that, it really was amazing when the



Engineer Maria Malele supervises unloading

actual visit went better than we could have imagined. Dale talked the supplier into giving us alternative (better) parts; he was able to pick up both consignments of equipment and we arrived in Chato in time to invite Maria the engineer to dinner. Next day we visited the District Offices where a meeting of the Department Heads was taking place. The Acting District Executive Director stopped the meeting and we were invited in to introduce ourselves. Dale talked about the project and was invited to pray. After this we talked with Maria and her team; she is overseeing a \$3m pumped supply project and would appreciate **support; CED's Iringa projects were of this** scale so we have something to offer. While we were at lunch the Mayor and some senior politicians arrived; they later joined us for a formal hand-over of the spare parts and the District Media Officer made a video which is now available on the CED Facebook page.

The upshot is that just about everyone in Chato District knows about CED; the engineers are under pressure to use the spare parts wisely and we look forward to developing our relationship further. God is good!

Ian Rankin.



Speeches complete, we pose for the camera

Kagando hydro, Uganda

Members who attended the CED 'Annual General Meeting' in June will know that CED has been supporting the development of a 400kW micro-hydro scheme since April this year. The plan is to supply Kagando Mission Hospital, its staff quarters, their flourishing nursing campus and various development projects (maize mill etc.) with 'clean' and sustainable electric power. Indeed, such is the capacity of the scheme that most of the **generated power will be exported and "feed-in tariff" payments will accrue to the hospital.** The diverse work and ministry of Kagando Mission Hospital is available on: <https://www.friendsofkagando.org.uk/>.

CED's interest in this project stems from a 'recce' visit to west Uganda in 2007 commissioned by the late John Holloway, at the time a CED director. The potential for a 400kW scheme was confirmed during that visit and the main recommendation made was to monitor river flows at the proposed intake location. This recommendation was duly followed up by Kagando Mission Hospital – **with the help of CED: a 'notch weir' was constructed and operated from 2008 to 2009 when it was washed away in a flood.** In the intervening years, electrical services at the hospital have both improved and got worse; the long anticipated national grid supply has extended around the south

Ruwenzori region and the hospital was finally – if somewhat unreliably – supplied by grid power. However, this was offset by the abandonment of the small micro-hydro scheme that had hitherto supplied the hospital with 30kW to 40kW. The hospital has had to rely on diesel based back-up **generators during grid 'outages'; these are relatively expensive to operate and result in carbon emissions.** The broader context is that Kagando Mission Hospital has struggled **in recent years to 'balance its books' and so, understandably, there is great interest in the proposed scheme. Equally, from CED's perspective, there is great interest in the scheme as it is a different kind of project from the water supply projects we have more experience of.**

I lift up my eyes to the mountains, where does my help come from? My help comes from the Lord, the Maker of heaven and earth. (Ps 121 v1-2)

The CED November 'Prayerpoints' has details of a recent visit made by Jonathan Cox (member) to Kagando Mission Hospital together with some items for prayer. During the visit, whilst travelling back to the hospital from a meeting in Kasese, a rare glimpse of the Ruwenzori peaks was captured [photo]. This shows the main plateau with Margherita peak rising to 5,109m. The plateau on the



Ruwenzori peaks



Measuring notch on river tributary

left-hand side of the photo drains to the south Ruwenzori regions including the river Rwembya which is the stream being harnessed for the micro-hydro scheme.

The main environmental issue that needs addressing in the environmental impact assessment is the effect of the scheme on **fauna and flora in the 'depleted reach'** (the 2km stretch of the River Rwembya that lies between the proposed intake and power house). Four measuring notch weirs have been locally fabricated and installed on **tributaries that feed the 'depleted reach'**.

Rwentamu, Uganda

The Rwentamu project is now drawing towards a close. This project has been executed in partnership with the North Ankole Diocese of the Church of Uganda. Construction was completed during the summer, and we have just paid the final 5% retention on the earthworks contract. Whilst **CED's focus is often on providing new water supplies**, this is not the only element of work needed to bring about health improvements. Unless new water supplies are accompanied by good sanitation and hygiene practices (particularly handwashing with soap), then the desired health improvements may not be achieved. The health and hygiene training at Rwentamu has been completed by the diocesan health officer Seith Abaho.

The charco-cum-valley tank filled up during the rains earlier this year and the water supply is now fully operational. **CED's part-time engineer Philip Tibenderana wrote, "the Rwentamu tank filled up and the spillway is**



Paul Darrell at Kagando

[photo]. This will give a better understanding of the effects of abstraction for the hydro scheme environmentally. The third photo is of Paul Darrell (member) chatting to hospital electrical technicians. Paul was able to **coordinate his visit with Jonathan's in order to inspect and assess the 4km long, 33kV transmission line that is to be used to connect the power house to the hospital.**

Jonathan Cox

working fine". He continued: "in my opinion, the project has been very successful on the technical side". The only outstanding item now is the sanitation promotion; our plan is to work with the community to train them and help them to construct 100 sanitary latrine platforms. Please pray for this initiative. Our aim is that the community see the benefits of such a development and continue producing latrine slabs for themselves in the future.

Now that the Rwentamu project is nearing completion our attention turns to a nearby village called Kakatsi. This has an estimated population of 1,000 people who apparently have no water supply.

Mike Beresford



Charco-cum-valley tank, Rwentamu

Book review:

Increasing production from the land

Subtitle: A Sourcebook on Agriculture for Teachers and Students in East Africa

Authors: Andrew Coulson, Antony Ellman and Emmanuel Mbiha:

Publisher: Nkuki na Nyota, Dar-Es-Salaam

As the title suggests, this book is written with agriculturalists primarily in mind, rather than engineers. It is nevertheless a useful resource for engineers working to improve conditions for rural dwellers in East Africa, something which describes a great deal of **CED's activity**. It is not primarily an engineering handbook but the treatment of topics such as water resources, irrigation, livestock, soil and terrain types, domestic water supply, transport and draught will nevertheless inform newcomers to our membership and challenge the conceptions of the more experienced.

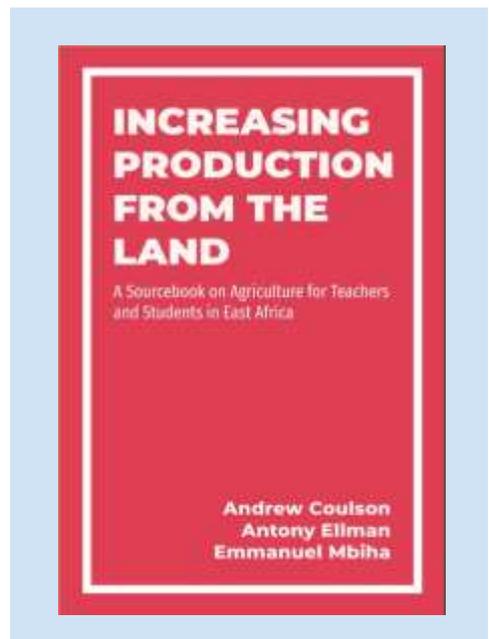
Engineering for any community is much more useful if the engineer has a broad **understanding of how the community "ticks"** and there is a great deal here which can help. The consumption of water by livestock and crops may far exceed that by humans, while the cultural and economic contexts in which farming is done, especially by single families or loan individuals can influence **greatly the farmer's place in pecking orders**. There are very readable sections describing how rural people spend their time, how gender affects the way things are done and by whom, and how they obtain, share and use water, whether for their crops, their livestock or themselves.

Readers well acquainted with East Africa might be surprised how wide is the range of circumstances, resources, problems, terrain and climate that different rural dwellers experience, all well illustrated by the helpful case studies, so that even those who might consider themselves old hands will learn at least one new thing. What stood out for me

were the helpful discussions of different irrigation methods and how they compare for ease of operation, economy of water use and reliance on good-neighbourliness. The issue of land tenure is also well discussed: many people just do not have sufficient security of land tenure, whether ownership, tenancy or even just informal recognition by their neighbours, so they cannot justify the investment needed to pursue what seems to **an outsider the "optimum" solution to a problem**. That applies as much to water as to land.

The book had just been published when we attended the AGM of the Britain-Tanzania Society (BTS). The lead author, Andrew Coulson, stepped down as BTS Chair during the AGM but had brought a few copies for sale at a concessionary price of £17. It is already available in Tanzania and in UK is offered at £30 on the internet.

Dick Waller





Soil testers being shown to a group of farmers / agricultural advisors.

Roy Lemberger initiative

A VERY brief update from last November's Newsletter where I gave a fuller explanation of the small offering I am able to provide for smallholders in E Africa.

Subsequent to that in the following year the legal issues surrounding the Waitaluk (Oasis) Water Trust have almost been completely resolved and the water is flowing and providing much needed fresh water to the Waitaluk community.

The distribution of soil testers to key agricultural advisers and leaders continues as funds become available. We have been blessed to be able to send more than 150 further soil pH/soil moisture meters to Kenya and Tanzania during the past 10 months.

Roy Lemberger



Soil meter in use.



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Front Cover: John Holloway.

This picture: Her family has a t.v. but this is where they still collect water!

