SanCoP 17 Synopsis: “The next generation of sanitation professionals - skills gaps & curricula”

The 17th meeting of the UK's Sanitation Community of Practice was held on Monday 14th December 2015 at University College London. The meeting's focus was on identifying the skills required to be a sanitation professional, the skills gaps which are present and the educational programmes which are needed to fill those gaps.

The following is a synopsis of each presentation and the ensuing conclusions from round-table discussions. This synopsis is available online at: http://www.susana.org/en/cop/sancop-uk

Many thanks to University College London for hosting our event and Luiza Campus in particular. Thanks to our speakers, Peter O'Neill (Concern Worldwide), Philippa Ross (Atkins), Paul Hillman (CIWEM), Alison Parker (Cranfield) and Brian Reed (WEDC). Finally, thanks to all those who attended and joined in the discussions.

********

Synopsis of Presentations and Discussions

Introductory activity

Prior to the first speaker, Brian Reed (WEDC) asked all attendees to think of skills that are needed to be the ideal sanitation professional, note them on post-it notes and stick them on the wall. Throughout the various speaker presentations, any skills mentioned were noted and added to the wall.

Session 1: Peter O’Neill, HR, Concern Worldwide

Peter leads recruitment of Concern’s international staff in the WASH, Livelihoods and Finance sectors across 25 countries. He presented on a small sample of Concern’s diverse WASH work, the skills they need and the ones they have difficulty finding.

Highlights from the presentation

Peter noted that Concern’s remit to target the poorest can lead to remote or difficult working locations (such as unstable regions), which leads to a requirement for particular soft skills and attitude. Delivering both emergency response and development work requires a wide range of skills, and on top of this the move towards coordinated programmes in the emergency response sector – either via cluster systems or internally coordinated programmes covering WASH, Livelihoods, health and nutrition, and education – means coordination and communication are critical.

Sustainability is key to all of Concern’s programmes, which include both maintenance of infrastructure and behaviour change. Engaging and training the communities they work with is vital for achieving this. Much of Concern's works takes place in fragile states where advocacy and political engagement are important. Concern do not have a unilateral approach to communications around hygiene promotion, it’s always context specific.

Focus on emergency response in Lebanon

Lebanon has a large number of scattered refugee sites. Concern’s focus in the north, in the Akkar region which has limited municipal resource – both in terms of finance and capacity. Concern have delivered a number on infrastructure projects in the region including construction of a water tower, a water treatment facility and a sewerage network. Key skills required to deliver this type of work include; local knowledge,
procurement, project management, training for operations and maintenance, relationship building and communications with both the municipality and the community, drawing up and agreeing contracts, liability and negotiations with land owners.

Language skills are critical, Concern note a shortage in French speakers.

Questions

- Local staff – Concern employ approximately, 200 expats and 2800 local staff. Capacity building is a huge part of their work, both of local staff and partners or municipality staff.
- Technology – Concern see the value of keeping up to date with technology (eg: GIS). They believe that creativity and innovation in programming is important and that training in new technology is important as new technology is one way to maintain innovation.
- Key skill gaps – French language skills, proof of success of managing contractors.
- Identifying skills – Concern use a video interview for technical interviews which gives time to go into technical depth before face to face interviews.
- Experience vs Qualifications - Concern value experience over qualifications and look for examples demonstrating competency. They are open to transfers from other sectors, provided the right skills and passion are present.
- Internships - Concern offer paid internships and have successfully taken interns from Cranfield in the past, they have several examples of interns who have gone on to become full time staff. How can you justify the cost of an intern compared to a local? They bring fresh ideas, positivity and often stay with the company for the long term.
- Soft skills - less emphasis has been placed on skills such as behaviour change. Are these skills easier or harder to find that technical engineering skills? Concern typically find technical engineering skills hard to find, however this may be a result of the type of work they are currently doing and they note that designated posts on behaviour change are becoming more common.

Session 2: Paul Hillman, CIWEM

Paul provided personal reflections on the skills required to be a WASH professional, and spoke about the role of the professional institutions such as CIWEM on supporting WASH professionals to develop their skills and seek professional accreditation. Paul’s views are his own and not those of CIWEM.

Highlights from the presentation

Paul explained the role that professional accreditation such as Chartership should provide, both to the individual and to the wider industry. Chartership requires demonstration of the ability to appropriately apply technical knowledge, as well as professional competency.

CIWEM (Chartered Institution of Water and Environmental Management) as an institution includes professionals from a wide range of industries, and as such there is real strength in diversity. CIWEM is a charitable body set up for the public benefit, in the past they have had a number of WASH professionals as members but in recent years this has gone down, and more of their members work as engineering / environmental consultants or within regulatory bodies. Paul explained that currently CIWEM reflects the UK water industry focus, in that it is quite UK centric, and gives preference to western style high-tech
solutions to problems. The international focus that there is, is essentially EU, not wider. When considering impacts such as climate change, these topics also tend to be UK focussed.

A key role of CIWEM and other similar professional institutions is the accreditation of educational courses. A requirement of accreditation is not only the technical aspects of the course but also the public benefit being delivered. Paul sees that there is a need for more apprenticeships and technician training schemes that is currently not being met, and which CIWEM are looking to support. CIWEM accredit courses at WEDC, Cranfield, Newcastle, and others in the UK, and have recently accredited two courses abroad in Saudi Arabia and China. On visiting these institutions as part of the accreditation process, Paul noted that the course being delivered in China as part of an engineering institution was very technically capable, but lacking around the contextual topics and public benefit. The course being delivered in Saudi Arabia was much stronger around the contextual issues and public benefit, covering issues such as population growth and providing water in an arid environment for a growing population. CIWEM provide constructive feedback to the institutions they accredit.

CIWEM have produced a number of interesting policy positions around topics such as faith and the environment (for which there is an active engagement network) and population growth and consumption.

Paul questioned the lack of innovation within the water industry in general – even in the UK we have not moved on from a Victorian solution. Why are composting toilets viewed as a low-income solution? The Gates Foundation re-invent the toilet challenge has been really inspiring in encouraging people to innovate and in not separating technologies in to supposedly low and high income categorises.

Questions / Discussion

- Why are there less NGO members of CIWEM then previously? This is probably a dual issue of the lack of promotion of CIWEM to NGOs, and the lack of value within NGOs of professional qualifications such as Chartership, which are very heavily valued within traditional consultancy / construction type companies. There has also historically been a lack of suitable reviewers to assess NGO type candidates suitability for Chartership. This is now improving with WASH professionals such as Brian Reed acting as reviewers for Chartership applications for NGO / WASH professionals.

- Concern note that they value Chartership but do not see many people working in the industry with the qualification.

- Paul asked the room to gauge the level of interest around starting a CIWEM community on sanitation and hygiene.

*******

Session 3: Philippa Ross, Atkins

Philippa spoke on her experience as a sanitation professional working on a range of international development projects from within private practice.

Highlights from the presentation

Introduction

Philippa works in International Development at Atkins, and is also completing her Engineering Doctorate in Urban Sustainability and Resilience part time at UCL. Atkins are shortly going to be opening offices in Africa, which the international development team are really excited about. Much of the work Atkins deliver in this sector is urban, with the rural areas more commonly supported by NGOs. Funding for this type of
work comes through large organisations such as the World Bank and European Investment Bank, as well as from NGOs looking for specific technical or evaluation support. Philippa then went on to speak about several project examples the Atkins team have delivered, and the skills needed to deliver them.

**Kigali Central Sewerage**

This was project preparation work, where Atkins are engaged to assess if a project is feasible for further development / bank funding. Sewage is seen as aspirational but there are technical and institutional barriers to delivering it, such as willingness and ability to pay – which is very important for EIB type projects which must be demonstrated to be financially sustainable. In many ways, the technical aspects of the project are the easy part for international development type projects. For this project, household survey indicated little or no willingness to pay for sanitation, and there was no mechanism for valuing the health benefits. Particular skills needed for this project included project management and procurement.

**Liverpool Wastewater Treatment**

This was a highly technical UK project that involved coordination of many, many specialist disciplines. BIM (building information modelling) was used for this project as a physical coordination tool but also as a project management and project integration tool. Software skills were therefore important for this project.

**SADC Water Supply and Sanitation Programme**

SADC is the Southern African equivalent of the EU. As the project involved working at a regional level, there was not the time or physical opportunity to collaborate with all local partners, though a number of facilitated workshops were held. Peer to peer learning was a real success of this project, with presenters from the different countries speaking to their equivalents in other countries. Particular skills needed for this project included communications and community engagement specialists.

**Kenya Water Utility**

This project involved working with the Kenya Water Utility to undertake capacity assessments to support them to be able to reach commercial financing sources – essentially to understand how the water companies’ skills can be assessed and to allow them to demonstrate they are not a financial risk when applying for loans. Particular skills required for this project included leadership, technical skills, contract management, survey skills, and interview techniques.

**Summary**

The skills required for sanitation professionals across this projects included; project management, procurement, specific software skills, community engagement, leadership, contract management, survey skills, and interview techniques.

**Questions / Discussion**

- Skills - although it may seem like we are asking our sanitation professionals to know everything, we should perhaps instead require an awareness of a lot of topics and not be afraid to allow people to be specialists or generalists.

- Skills such as listening, communication, and personal resilience are harder to teach. Presentations and interpersonal communication are often much more important to project success than writing a report.

- Atkins are often unable to develop their own scope for projects but are instead responding to TOR developed by funding organisations. Hence topics like capacity building are often excluded.
Session 4: Alison Parker, Cranfield

Alison gave a brief presentation on how the UK education sector is currently filling the skills gaps and the challenges that are emerging. Alison then invited the room to split into four discussion groups, to answer the questions set out below.

Highlights from the presentation

Funding available for MSc courses from HEFCE is decreasing, hence fees are increasing, resulting in reducing student numbers and mounting student debt. Several courses have already been cut, including hydrogeology courses. UK based students are primarily responsible for the drop in student numbers, international student numbers are not affected. Alison asked the room if this is impacting employers, and if the courses available are valued? The response from the room was limited, employers do not seem to be seeing this impact at present.

The room was then split into groups to answer the questions below.

Discussion group questions and feedback:

1. How can the sanitation sector help? Should things like bursaries or part-time learning opportunities be made available? Should guaranteed jobs be considered?
   Are only people with masters level education being employed in the sector? Is this a real barrier? MSc type courses mean people have focused and considered what they really want to work in. NGO structures are changing – there is less of a need for technical skills in the UK. Softer skills are easier to provide on the job training for – technical skills are the gap which academia should focus on. There is no shortage of graduate engineers to consultancy firms – is there really a shortage to NGOs? More funding to the sector to deliver more projects will generate more jobs. Public health should also be considered more as a route into sanitation. EngD type schemes where people study but are linked in to a company or organisation through day to day work give the benefits of deep study to the individual but also provide their knowledge to the wider organisation.

2. What should be taught? How should course providers balance technical and social aspects, and technical grounding with innovation, specific knowledge vs. transferrable skills? How can academia respond to the diverse backgrounds of different students?
   Student knowledge should be identified – a common baseline with specific specialisms could be considered. Principles and broad understanding of context should be covered before specialising. Not all engineering technical knowledge is equally relevant. Greater emphasis on emergency context? How can soft skills be taught?

3. Study modes – what are the issues with different study modes such as part time, full time, distance learning, short courses, etc. How can they cover the required practical skills, such as borehole drilling?
   Many part-time courses present barriers to people as they are not sufficiently flexible, spending an intensive week on campus is not possible for everyone, such as people that work overseas. Distance learning is much more flexible and better in this regard. Intensive summer courses were suggested as a potential option – where people could take a chunk of time off and come and learn intensively, giving room for practical experience.

4. Overseas experience – are overseas research projects valuable to host organisations, or too academic? How should people get overseas experience following graduation – should they take unpaid internships / volunteer roles? What about organisations such as EWB?
**Financial constraints are a real barrier to overseas experience, especially as many roles are voluntary. EWB and other student bodies do great work but there are not enough placements and they don’t provide enough experience. Students need to really build their networks to find out about opportunities such as internships being offered by NGOs. Alumni networks are a great resource that is often underutilised. Beyond the first short-term experience, recommendations from people are key. Expat communities are small and can provide helpful networks. Things like WASH cluster meetings can generate exposure to a number of NGOs. Networking is really important.**

**Session 5: Brian Reed, WEDC**

_Brian led the group through a facilitated discussion reviewing the training available to sanitation professionals around the world and the pros and cons of each type of education or training._

**Highlights from the discussion**

_Brian began the session by discussing the sanitation ladder and using it as a concept for comparison with the training available for sanitation professionals._

At the bottom of the ladder you might find a 1 day course on sanitation, or self-study such as reading a book. Benefits of this type of training include the low cost, the low time requirement, and the flexibility both of topic and delivery location and time, and the focus. Negatives include the lack of time to ‘learn’ rather than being taught (no education cycle), no time to apply knowledge, and risk of overconfidence / not understanding the limits of your knowledge.

At the top end of the ladder there might be MSc courses which give time to get into the depth of a topic, to reflect, to develop skills around critical thinking and team work, and provide a qualification / formal accreditation upon completion. These type of learning methods that require a big commitment from the student can mean that the desire to learn is really strong. Timeframe requires commitment but not as much as a PhD, however both breadth and depth typically can’t be achieved in a year. The courses are expensive and can lack practical experience.

Delivery of MSc type courses in different locations around the world was discussed. If MSc courses could be delivered locally ‘in country’ benefits would include reduced cost, improved flexibility for local attendees, and the ability to tailor the course to the local requirements. However factors such as the lack of educational materials (books etc.) in local languages, lack of physical resources such as libraries and laboratories, and the lack of professional staff available (if the skills are available they are focussed on delivering solutions not on education). Part time degrees and part time teaching were discussed as a potential route to make the most of the time and skills of the available professional staff – to allow them to fit teaching in around other work. Good lecturers require more than just knowledge of the topic, also pedagogical knowledge and communication skills.

The difficulty of financing specialist MSc courses with only a handful of attendees was acknowledged. Apprenticeships and mentoring were discussed as routes to help develop skills, and the lack of courses giving practical experience was acknowledged.

**Group exercise: Skills review**

_Throughout the day when specific skills required of a sanitation professional were mentioned these had been written on post-it notes on the wall. These skills were reviewed by 4 groups and collated into technical skills, social skills, professional (e.g. management) skills, and context specific skills. Each group discussed what skills were needed, and how they could be given measurable indicators to be assessed against._
Key skills gaps highlighted through the day included contracts, project management, marketing skills, language skills and local regulation.

********

Key Themes to emerge from the day and further questions to explore

- A wide range of attributes was identified - are these too broad? Is there "creep" of responsibilities? Although the topic was sanitation, water was often mentioned, however solid waste management, drainage and MHM were not mentioned, yet are part of "environmental sanitation". Do we end up working outside a reasonable range of competencies? Where should breadth of skills stop and expertise be developed?

- The challenge of having clear objective indicators for some relatively important aspects of capacity was raised several times. "People know it when they see it". (E.g. adaptability, cultural awareness, sustainability, listening). These general attributes were prominent in the brainstorming exercise and in the discussions - but how are they recognised/ developed? They seemed to be important to people but how is this expressed in a concrete manner.

- The problem of engineers without "soft" skills was noted several times, but should people working on the "soft" side also have technical knowledge? In the final group work exercise there was a lot of overlap between what is technical/ social sanitation and also the wider professional/ contextual.

- Lack of definition of technical skills was notable. A range of non-technical issues was identified in detail (e.g. Finance, communication, behaviour) but technical skills were lumped together (basic civil engineering) and not many people noted this requirement. A "basic civil engineer" however may not have the required knowledge as (low-cost) sanitation is not a core element of all degrees. Even basic sewer design may not be part of an undergraduate programme, so is technical knowledge a neglected area? Do we need people who can ensure latrines are physically safe and sanitary or is it such a simple issue to design and build a toilet that specialist skills are not required? Do HR staff assume that "engineers" have more knowledge than they may have in practice? Does the pendulum swing between technical and social aspects? How will this change in the future with increasing urbanisation?

- Hygiene promotion is "technical" was an interesting observation made during the group discussions. What is the "hardware"/ "software" division? Do programmes need to be integrated or separated into specialities - or something in between? Given very few people start out their career with a balanced set of these skills, what is the best path to developing a more rounded practitioner?

- Career paths and professional recognition - how do you recognise a competent practitioner? How do we develop the skills that cannot be taught but are acquired through practice when there may not be another sanitation professional around?

- There was a difference in the skills noted - the general participants noted a good range, including empathy and listening etc. Some talked about policy/ regulation/ institutions and hard issues of surveying/ range of technical solutions. Others mentioned wider issues of ethics and health as well as contracts, project management, working with partners, IT/ GIS skills, being a trainer, knowing your limits, innovation/ creativity/ being able to find the answers if you don't already know them as well as working conditions (remote/ insecure), languages and sustaining the response (maintenance)

Updates on SanCoP
Next event (18th SanCoP) to be held Spring / Summer 2016, we are now looking for a host venue
Possible themes identified at SanCoP 17 included public health and epidemiology, contracts, and prioritisation in emergencies. Other ideas are welcome and should be sent to sancop.uk@gmail.com

Notes compiled by the SanCoP co-ordination team - Christine Cambrook & Ben Skelton.
### ATTENDEES

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abimbola Odumosu</td>
<td>Save the Children UK</td>
</tr>
<tr>
<td>Alison Parker</td>
<td>Cranfield</td>
</tr>
<tr>
<td>Andreea Savu</td>
<td>UCL – DPU</td>
</tr>
<tr>
<td>Andrés Hueso</td>
<td>WaterAid</td>
</tr>
<tr>
<td>Ben Skelton</td>
<td>Dig Deep</td>
</tr>
<tr>
<td>Brian Reed</td>
<td>WEDC</td>
</tr>
<tr>
<td>Cathy Stephen</td>
<td>Plan International UK</td>
</tr>
<tr>
<td>Celia Way</td>
<td>BuroHappold</td>
</tr>
<tr>
<td>Christine Cambrook</td>
<td>BuroHappold</td>
</tr>
<tr>
<td>Emily Huynh</td>
<td>BuroHappold</td>
</tr>
<tr>
<td>Fernanda Gracia Alba</td>
<td>UCL</td>
</tr>
<tr>
<td>James Houghton</td>
<td>Dig Deep</td>
</tr>
<tr>
<td>Joanna Reed</td>
<td>Atkins</td>
</tr>
<tr>
<td>Lauren Hershey</td>
<td>UCL</td>
</tr>
<tr>
<td>Luiza Campos</td>
<td>UCL</td>
</tr>
<tr>
<td>Mariona Galan</td>
<td>Loowatt</td>
</tr>
<tr>
<td>Mimi Coultas</td>
<td>Save the Children UK</td>
</tr>
<tr>
<td>Owen Swann</td>
<td>WEDC</td>
</tr>
<tr>
<td>Pascale Hofmann</td>
<td>UCL – DPU</td>
</tr>
<tr>
<td>Patrick McMahon</td>
<td>WEDC</td>
</tr>
<tr>
<td>Paul Hillman</td>
<td>CIWEM</td>
</tr>
<tr>
<td>Peter O'Neill</td>
<td>Concern Worldwide</td>
</tr>
<tr>
<td>Philippa Ross</td>
<td>Atkins</td>
</tr>
<tr>
<td>Priti Parikh</td>
<td>UCL</td>
</tr>
<tr>
<td>Rob Fuller</td>
<td>WaterAid</td>
</tr>
<tr>
<td>Sara Emanual</td>
<td>Water for Kids</td>
</tr>
<tr>
<td>Sonia Coates</td>
<td>IOD PARC</td>
</tr>
<tr>
<td>Tim Liptrot</td>
<td>-</td>
</tr>
<tr>
<td>Tommy McManmon</td>
<td>WEDC</td>
</tr>
</tbody>
</table>