

BUKAUSKAS & MICHAEL

38th WEDC International Conference, Loughborough University, UK, 2015

**WATER, SANITATION AND HYGIENE SERVICES BEYOND 2015:
IMPROVING ACCESS AND SUSTAINABILITY**

**Sanitation in Challenging Environments (SCE) Project:
mobilising sector engagement and innovation in Cambodia**

K. Bukauskas, & H. Michael (Australia)

BRIEFING PAPER 2158

A challenging environment is considered to be anywhere conventional sanitation solutions are not appropriate due to difficult geographical and/or geological conditions. In Cambodia, 4.14 million people (WSP, 2011) (~27% of Cambodia's population) live in areas affected by flooding, high groundwater, floating, riverbank or coastal conditions impacting their ability to access appropriate and improved sanitation solutions at all times. Engineers Without Borders Australia, in collaboration with partner organisations in Cambodia, in 2014 initiated the Sanitation in Challenging Environments (SCE) Project to mobilise sector actors, build capacity of implementing partners and drive innovation to contribute to WASH sector program effectiveness to achieve sanitation access in these areas. This paper shares the activities undertaken so far and key learnings.

Background

In 2013, Engineers Without Borders Australia (EWB-Australia) field engineers in Cambodia and Vietnam with our partner organisations RainWater Cambodia (RWC), Live & Learn, Peace Development Aid Organisation, East Meets West and Habitat for Humanity Vietnam joined together to address a common issue facing them all, sanitation in challenging environments. The group came together and ran a number of training workshops and follow-up meetings to identify challenges and opportunities related to this issue in Cambodia and Vietnam, and introduce technical sanitation concepts.

Following these activities a vision arose, to work towards improved and sustainable access to sanitation for those people residing in challenging environments in Cambodia through a collaborative multidimensional approach, with participation from the wider Cambodian Water and Sanitation (WATSAN) sector and affected communities. This vision took the form of the Sanitation in Challenging Environments (SCE) Project.

With funding from the Australian NGO Cooperation Program (ANCP), in June 2014 EWB-Australia mobilised an SCE Project Facilitator to Cambodia, working closely with EWB's partners and the wider WATSAN sector.

The objectives of the SCE Project are to:

- 1) mobilise key actors towards reaching access to sustainable sanitation for all people living in challenging environments within Cambodia.
- 2) build capacity of EWB's implementing partners to improve access to appropriate sanitation solutions of rural communities living in challenging environments.
- 3) drive innovation and contribute to WASH sector program effectiveness in Cambodia via the establishment and collaboration of the Sanitation in Challenging Environments Network.

A challenging environment in this context is considered to be anywhere conventional sanitation solutions are not appropriate due to difficult geographical and/or geological conditions. In Cambodia, 4.14 million people (WSP, 2011) (~27% of Cambodia's population) live in areas affected by flooding, high groundwater,

floating, riverbank or coastal conditions impacting their ability to access appropriate and improved sanitation solutions at all times. The affected population is higher, when including hard soil/rock, and drought prone areas. In addition to the technical constraints of these environments many affected communities are in rural and difficult to access locations, and are highly vulnerable with compounding socio-economic issues including labour migration, low cash seasonal incomes and dependence on the environment for their livelihoods.

Mobilising sector engagement

EWB believes in taking an approach that focuses on leveraging a wide range of actors and to do this EWB has undertaken a systematic approach to stakeholder engagement, involving identifying stakeholders and mapping their power & interest in SCE, to develop relationships with possible collaborators.

Following a groundswell of interest EWB-Australia has held a series of regular network forums to bring together key actors. These network forums have provided an opportunity to delve into the barriers to access, share case studies and research, and work together to develop innovative solutions and partnerships to reach sanitation access for communities living in challenging environments in Cambodia.

The SCE Network has started to grow in strength and momentum, with many of the leading national and international WASH organisations now participating on this important issue. The Cambodian Ministry for Rural Development, through the Department of Rural Health Care, are engaged and interested in how they can further support this work too. This is evidenced by recognition of SCE as one of key themes for WATSAN Sector agenda in 2015 and with key indicators on SCE technology development recently (January 2015) incorporated into the Cambodian draft National WASH Action Plan.

A complex problem such as addressing sanitation in challenging environments requires an innovative and multifaceted approach to address it. Building on the foundation of EWB-Australia's ten (10) years of experience in innovative humanitarian engineering practices and experience in Cambodia working with a diversity of local partner organisations, the SCE Project is pulling together expertise and relationships to facilitate an open platform for collaboration and innovation.

Appropriate sanitation options

There is an obvious barrier of appropriate technology options, whereby the vast majority of sanitation systems promoted in Cambodia are pour flush systems using a cess pit, built out of porous and holed concrete. Some adaptations have been made for people living in flood-prone, regularly flooded and river-communities, such as stilted shelters and squat pans; mounding dirt; installing valves to be opened upon inundation; or removable lids which are opened during times of inundation. However, the most commonly promoted adaptations do not serve to protect water resources including both groundwater and surface water from contamination.

There are a number of technologies and adaptations that have been investigated in Cambodia (and elsewhere), including:

- Wetlands Work! have developed the Handy Pod for floating communities (Chakraborty, 2012) and are currently developing a flood-resilient adaptation of the handy pod (Hand, 2015);
- Live & Learn with technical support from EWB-Australia developed a small-scale urine diversion desiccation toilet (UDDT) and an adapted small-scale biodigester for flood-affected and floating communities on Tonle Sap Lake, Cambodia (Hughes and McGill, 2014);
- Investigations in Cambodia have been undertaken to adapt pour flush cesspit latrines to enable appropriate containment and flow valves during seasonal flooding in Cambodia, however little progress has been made to incorporate these adaptations into sanitation marketing mostly due to higher costs (HCD i-Lab, IDE, WSP, 2013); and
- In Bangladesh, Oxfam GB trialled a range of technologies for flood and cyclone-prone areas and found that raised pit latrines, urine diversion and EcoSan latrines were widely acceptable and appropriate options (Moshed, and Sobhan, 2010).

These examples prove that there are solutions available and within reach. However, there has been very little in the way of national or international uptake of appropriate sanitation in challenging environments, with:

- high system cost still proving to be a barrier for most technologies;
- low investment by donors for research & development, piloting and scaling of SCE systems;
- limited access to and understanding of technology options by practitioners and local suppliers;
- faecal sludge management systems are not in place;

- limited market establishment to overcome transport and knowledge access; and
- inadequacies of current behaviour change programs to support demand creation in challenging environments.

A technology solution by itself will not be the silver bullet, and a holistic solution will need to address all of the above factors to truly enable access to those people residing in challenging environments in Cambodia.

Technology evaluation

Through EWB-Australia's consultation with stakeholders, one of the identified barriers the sector is facing to work on sanitation in challenging environments is to understand what is considered to be an appropriate sanitation solution, and how to evaluate this. EWB-Australia has been supporting the development of an SCE Options Assessment tool in the form of a questionnaire to evaluate a latrine system's suitability for a specific challenging environment. The system being evaluated can be one of several alternatives being considered for implementation, or an existing system being used in a community that is to be evaluated for appropriateness. The SCE Options Assessment will be complemented with a database of evaluated systems, and will be based on modular systems for implementation.

The SCE Options Assessment has a number of target users, including:

- funding agencies reviewing proposals;
- implementers selecting the most appropriate system for a known environment;
- monitoring and evaluation to determine the appropriateness of systems already installed; and
- designers and researchers developing and testing technologies.

The SCE Options Assessment is the initial of a number of user-friendly tools aimed at supporting all aspects of the WASH sector to implement appropriate and sustainable solutions in challenging environments.

Participatory approaches

Another concern raised by the SCE Network was the ineffective application of traditional forms of sanitation demand creation, such as Community Led Total Sanitation (CLTS). In challenging environments, demand creation has been hampered by the lack of alternative affordable options for communities living in challenging environments, and access to markets to purchase these systems.

EWB-Australia and RainWater Cambodia identified an opportunity to trial participatory approaches as a means of supporting low cost alternatives in areas affected by conditions such as seasonal flooding. RainWater Cambodia shared learnings from their involvement using CLTS in flood-prone communities that after 3 years of continued support, in one target community, Reay Pay, Kampong Cham, Cambodia latrine numbers had only increased from 3% to 6% (RainWater Cambodia, 2014). With a high reluctance from community members to invest in a latrine, some issues cited included reluctance to build pit latrines due to susceptibility of flood waters destroying them, or the costs involved in elevating a latrine.

RainWater Cambodia expressed an interest in learning more about participatory community engagement and design and as a result a mentoring program has been established delivered by Agile Development to support capacity development of the RWC staff in this human centred technique. Some of the aspects of a participatory design that differ from traditional triggering methods, include a focus on utilising:

- people at the centre of design and development;
- community members who have characteristics of motivators and influencers;
- building on community resources and assets;
- supporting rapid prototyping; and
- facilitating the use of innate knowledge.

The approach taken looks to use grassroots knowledge to empower community influencers to take the lead and develop appropriate latrines, which are low cost, use local materials and promote knowledge from within the community.

Phase 1 of the participatory mentoring program will be completed in June 2015, with a case study available to share learnings of RWC staff, any changes in community behaviour, latrine designs and future opportunities.

Key learnings

There have been numerous key learnings from the SCE Project, with many already incorporated into project evolution. A strong focus has been maintained on reflection and continuous improvement for increased

effectiveness and applicability of the activities promoted and supported. As a complex, and multifaceted issue, with no single answer or approach, one of the key challenges has been continually maintaining focus on what is the best way to influence change and create effective outcomes.

Some of the key learnings include:

Stakeholder Engagement

The importance of taking adequate time for stakeholder engagement planning and management activities: during the initial phase of the SCE Project, from June to September 2014, a large focus was on establishing a grounding in the stakeholder landscape, undertaking power and interest diagnosis, and initiating dialogue with identified stakeholders to gauge their interest and gain their buy in to our vision. One major success from this phase was gaining strong support, encouragement and advice from the WASH development partners (e.g. UNICEF, World Bank - WSP, Plan International and WaterAid). This has proven to minimise any potential conflicts and enabled on-going support and dialogue with these leading WASH agencies and this level of engagement is expected to provide greater sector-wide and long-term support of the initiative, working towards greater access to sanitation for communities living in challenging environments.

One key learning from the initial stakeholder engagement phase was the need to have in place a process for taking stakeholder feedback and ideas and to assess them in a systematic way. As we were trying to establish approaches and foundational activities, it was easy to be swayed in many different directions by the diverse perspectives on what was thought to work or not work. This resulted in a level of frustration and confusion. An effective management tool is still evolving, however in the interim all ideas are now documented in a catalogue for reference, and decisions on approaches is taken by reviewing all possibilities, and engaging appropriate EWB personnel and partner organisations before decisions are made.

Networks

Engaging the sector by opening the net wide, then focusing in was the main strategy employed in the early phases of the SCE Project, demonstrated in hosting sector-networking forums. The purpose of these forums was to invite people from WASH organisations and government to share their experiences on sanitation in challenging environments, including perceived barriers and opportunities for further activity, in addition to gaining their buy-in and thoughts to grow the sector wide movement. A key learning from these being that people are looking for leadership and although it has proven successful in terms of our initial objectives, with over thirty (30) organisations involved across three forums, including Cambodian Ministry for Rural Development, there is also a time and a place for smaller more focused discussions, which can be used to feedback into a wider network and forum. In this way we will now be looking to invite people and organisations with specific discipline knowledge and experience to discuss in more depth topics related to technical, behaviour change and funding aspects to fully address sanitation in challenging environments.

Facilitating Organisation

The value of an organisation coordinating a collaborative and innovative platform is apparent. Sanitation in challenging environments (a complex interplaying issue) has been sidelined by many organisations in the too hard basket. This is most often because no one organisation has the skills and resources to bring about effective change. The role of a coordinating organisation (backbone support) enables others to bring their unique skillsets and work collaboratively towards achieving success. A backbone support organisation, such as the role EWB-Australia is currently playing in the SCE Project has proven to be an essential component in addressing large-scale complex issues using a Collective Impact approach, such as sanitation in challenging environments. Kania and Kramer (2011) promote using a Collective Impact approach, concluding that “large scale social change requires a broad cross-sector coordination, yet the social sector remains focused on isolated interventions of individual organisations” a collective impact model as the program widens and gains support. Although founded on the social sector, collective impact approach is being adopted for the SCE Project as a proven way to address complex cross-sectorial issues. The collective impact model defines 5 key areas for success, including a common agenda, shared measurement, mutually reinforcing activities, continuous communication and backbone support (Kania and Kramer, 2011). As the SCE Project progresses, each of these factors is being progressively addressed to establish a sustainable collective impact approach.

Leveraging for Wide Scale Impact

The need to leverage existing systems and look for ways to incorporate learnings into national programs is essential for effectiveness and long term sustainability. Opportunities that have been identified to leverage for wide scale impact include building on the inherent knowledge of the partners we are working with by further supporting their work, creating training programs with existing delivery organisations and providing relevant guidelines to be approved by national government.

Future activities

Our vision is to facilitate knowledge sharing, collaboration and innovation on *Sanitation in Challenging Environments*. As a result the Cambodian WASH sector will be more knowledgeable, capable and proactive in developing and implementing appropriate sanitation solutions for challenging environments. To work together to reach Cambodia's WASH targets of 100% improved sanitation access by 2025.

We will do this through establishing innovative ways to create and share knowledge related to sanitation in challenging environments through research, training and education programs. Alongside supporting greater access to usable tools and guidance, ways to support research, product development, and marketing sanitation systems in challenging environments. Through EWB-Australia's approaches, we continue to look for ways to build on existing efforts, create and retain long-term partnerships and programs to ensure sustained efforts towards reaching sanitation access in challenging environments.

Acknowledgements

The authors would like to extend thanks to:

Engineers Without Borders Australia

RainWater Cambodia

Live & Learn Environmental Education

WaterAid Cambodia

Wetlands Work!

References

- Chakraborty, I., Jennings, W., Khon, P., and Hand, T. *Floating Treatment Pods for Lake Communities*. FSM2, Durban, 30 October 2012, Durban, South Africa.
- Hand, T., Chakraborty, I., Khon, P., Tep, C., and Allen, J. *A Constructed Wetland System for Flood - Resilient Sanitation*. FSM3 Conference, January 2015, Hanoi, Vietnam
- Hughes, R. and McGill, G. *Reaching floating and flooded communities with productive sanitation*. WASH 2014 Conference, 24-28 March 2014, Brisbane, Australia
- Human Centered Design Innovation Lab (HCD iLab) with iDE-Cambodia and World Bank Water and Sanitation Program (WSP) 2013 *Latrine Design for Challenging Environments Final Report*
- Kania, J. and Kramer, M. 2011. *Collective Impact*. Stanford Social Innovation Review. Winter 2011.
- Moshed, G., and Sobhan, A., 2010. *The search for appropriate latrine solutions for flood-prone areas of Bangladesh*. Oxfam GB. Waterlines, Vol. 29, No. 3, July 2010.
- RainWater Cambodia. 2014. Reay Pay Commune Profile (unpublished).
- World Bank Water and Sanitation Program (WSP) 2011 *Final Report: Cambodia. Assessment – Affordable Sanitation in Challenging Areas in Cambodia and Lao PDR, Phase 1*. Aruna Technology Ltd: Cambodia

Contact details

Katrina Bukauskas

Phnom Penh, Cambodia

Tel: +855(0) 93483752

Email: katrina.bukauskas@gmail.com

www.ewb.org.au

Heidi Michael

21 Bedford St, North Melbourne, VIC 3051

Tel: +61 (0) 439 913 565

Email: h.michael@ewb.org.au

www.ewb.org.au