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**ENSURING AVAILABILITY AND SUSTAINABLE MANAGEMENT
OF WATER AND SANITATION FOR ALL**

**Training on WASH in the transition from emergency to
development in earthquake affected areas of Nepal**

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The magnitude 7.8 earthquake that struck Nepal in April 2015 caused extensive damage to water and sanitation networks, resulting in a high risk of negative health impacts from diarrhoeal diseases. In response to the disaster, the Environment and Public Health Organization (ENPHO) collaborated with the Centre for Affordable Water and Sanitation Technology (CAWST), to develop two training programs to educate volunteers on water, sanitation, and hygiene (WASH) needs. The first training focused on acute response, and the second focused on longer term recovery. Using these programs, ENPHO trained over 470 community volunteers during the acute phase and has since trained another 226 volunteers during the recovery phase. Through training these volunteers, ENPHO has reached many communities, providing services in 11 of 14 earthquake-affected districts. CAWST plans to assess the feasibility of decontextualizing the training and support materials so they can be widely disseminated and used in the emergencies.

Introduction

The magnitude 7.8 earthquake that struck Nepal on 25 April 2015 killed approximately 9,000 people and injured more than 17,000. Over 450,000 homes were destroyed, leaving around 2.8 million people displaced (UN Dispatch, 2015). Significant aftershocks followed, the most significant occurring on 12 May with a magnitude of 7.3. The earthquakes caused damage to existing water and sanitation networks. This damage, particularly when combined with the displacement of large populations, resulted in a high risk of health impacts from a range of diarrhoeal diseases that persisted long after the initial earthquake as well as the aftershocks (Watson, J.T., Gayer, M., and Connolly, M.A. 2007). In humanitarian crises, outbreaks of diarrhoeal disease are common; specifically, in the acute and early recovery stages, faecal-oral diseases can account for more than 40% of deaths overall and upwards of 80% of deaths in children under 2 years old (SHARE, 2012).

Accordingly, both in the acute emergency response phase and throughout longer term recovery, there was – and there continues to be – a need to strengthen existing WASH services, replace or repair those that ceased functioning, and develop additional, appropriate WASH services to meet the emerging needs of those in the affected regions. Alongside the implementation of appropriate WASH hardware, WASH awareness-raising and educational support is required to build the technical capabilities, adaptability, and resilience of local implementers and community members to improve the effectiveness and sustained use of new and rehabilitated WASH services. One such WASH intervention distributed after the earthquake was chlorine for household water treatment (HWT). An investigation into four diverse types of acute emergencies has indicated that in order for effective use of HWT to occur, a population needs to be familiar with an introduced product, willing to use it, and trained in its use (Lantagne & Clasen, 2012).

The Environment and Public Health Organization (ENPHO), a Kathmandu-based non-governmental organization, recognized the need to increase WASH awareness and disseminate WASH messaging to accompany WASH hardware and product distribution, something largely absent in earthquake relief activities:

“We realized very quickly that no one was working on WASH awareness. Earthquake affected communities were receiving support from various aid organizations but there was no information to go with it. People had hygiene kits but didn’t know what to do with them... They had emergency toilets but didn’t know anything about sanitation or why it was important. Piyush (liquid chlorine for water treatment, produced by ENPHO) was being distributed by many different organizations but without the education for people to understand proper doses.” – Rameswor, ENPHO, WASH Trainer

To address this need, ENPHO collaborated with the Centre for Affordable Water and Sanitation Technology (CAWST), a Canadian education, training and consulting NGO, to develop two training programs to educate volunteers on water, sanitation, and hygiene (WASH). The two trainings are described below:

- **Emergency WASH Volunteer Training – Acute Phase:** This 2-day workshop was developed and first delivered to community volunteers within 2 weeks of the initial earthquake, with trainings continuing for approximately 5 months. This training was intended for the acute emergency response phase, and its objective was to enable community volunteers to educate and train others who had been affected by the disaster. A key focus was to equip the volunteers with knowledge and skills to formulate useful WASH advice in the unanticipated circumstances they would encounter when working in affected areas.
- **Emergency WASH Volunteer Training – Recovery Phase:** This 3-day workshop was developed with the objective to enable participants to effectively advise people on emergency recovery WASH practices to keep themselves and their communities healthy and prevent the transmission of diarrheal disease. The training was intended to facilitate a transition from meeting urgent WASH needs in the period immediately following the earthquake to planning and providing for ongoing WASH needs during recovery and the transition to longer-term sustainable solutions. This workshop was delivered to community volunteers starting approximately 5 months after the initial earthquake and is ongoing as of March 2016.

This paper describes the process taken by ENPHO and CAWST to develop, pilot, deliver and improve the emergency WASH volunteer trainings. Here, we present preliminary results of the workshop, discuss lessons learned, outline next steps, and provide recommendations.

Objectives

ENPHO and CAWST’s objectives for training on WASH, both in the acute emergency response and the longer term recovery phase, were to develop education and training programs to enable community volunteers to respond to WASH needs as part of earthquake relief efforts.

The broad objectives for the training programs were to:

- Provide volunteers with information on local WASH issues, their link to health, and their increased importance after the earthquake.
- Ensure that volunteers understand the WASH information to the point that they would be able to:
 - Teach WASH awareness and instruct others on how to use available WASH options.
 - Apply their knowledge when giving advice on WASH related challenges in affected areas.

Methodology

This section describes the methodology undertaken to develop the two workshops following the earthquakes. The education program development process was fast-tracked due to the short timeframes for development and the immediate need for training following the earthquakes. Both workshops were developed using a framework modelled on the ADDIE model of instructional design (Branch, 2010), an approach informed by the model of active learning and the theory of educational constructivism and based on applied experience, which are core features of adult learning (Knowles, Holton, & Swanson, 2005). Each workshop includes relevant information, practical components, participatory activities, and varied discussion types to share experiences.

Emergency WASH Volunteer Training – acute phase

Within the first week following the earthquake, CAWST and ENPHO began collaborating on the development of the acute phase workshop.

- **Identify Needs:** Immediately following the earthquakes, ENPHO was approached by a large number of local community members who wanted to know how they could be involved in earthquake response.

ENPHO recognized that community volunteers could provide assistance to people in affected areas by distributing not only WASH hardware, such as liquid chlorine for HWT, but also by sharing WASH information. However, these volunteers would need appropriate and adequate training before they could work in the affected communities.

- **Develop Workshop:** ENPHO developed an outline that included the workshop's target audience, the local situation, and the training needs. After reviewing the information from ENPHO, CAWST collated information related to WASH emergency response, adapted lessons from existing WASH training programs, and developed new lessons to fill gaps in required content. Key learnings from CAWST's technical staff with prior experience in emergency response were vital in the development of appropriate lesson plans and participant materials. Program developers were careful to control the information included in the workshop so that key facts would be remembered easily by the volunteers. Close collaboration between ENPHO and CAWST was vital to the iterative, adaptive workshop development process. Achieving such collaboration was challenging due to difficulties with power and communications systems in Nepal, as well as ENPHO's many other priorities for earthquake response at that time, but the commitment of both organizations ensured success.
- **Pilot and Revise Workshop:** On May 6th, 10 days after the initial earthquake, ENPHO piloted the first version of the workshop. ENPHO shared feedback from this pilot with CAWST, and together, the team made modifications to the draft workshop.
- **Deliver Finalized Workshop:** Delivery of the revised workshop began on May 11th, and continued for 5 months. The finalized version of the workshop includes 10 lesson plans and support materials for the participants such as posters, an emergency WASH checklist, a field kit checklist, and a healthy WASH self-assessment form. The 2-day workshop covers the following topics:
 - WASH in Emergencies
 - Working with People in Emergencies
 - Disease Transmission and Blocking
 - Water Quality in Emergencies
 - Emergency Sanitation
 - Emergency Hygiene
 - Coordinating for Support
 - Tools for WASH Volunteers

Emergency WASH Volunteer Training – recovery phase

During the delivery phase of the acute emergency WASH training, the ENPHO and CAWST team began to develop a second workshop that focused on WASH services and awareness in the earthquake recovery phase. The interventions and recommendations in the recovery phase training are intended to support the transition between stop-gap measures in the acute phase training and long-term WASH solutions, forming a link between emergency relief strategies and long-term development goals (Mosel & Levine, 2014).

- **Identify Needs:** As the delivery of the acute phase training continued, ENPHO trainers recognized that the needs in earthquake affected communities were changing quickly as relief efforts progressed. They identified the need to provide a different training to volunteers so they could support communities throughout the recovery phase.
- **Develop Workshop:** ENPHO and CAWST collaborated to modify existing workshop content and add new content that was appropriate for the longer term WASH needs of earthquake affected communities. The program was developed using feedback and experiences from the delivery of the workshop during the acute stage and from volunteers who were working in camps and reporting on changing conditions and needs. Some examples of the changes between the acute stage training, and the recovery stage training include:
 - In the acute stage training, lessons on HWT prioritized the correct and consistent use of liquid chlorine, which was widely distributed post-earthquake. In the recovery phase, training participants cover the full multi-barrier approach to safe water and explore multiple HWT options.
 - Sanitation recommendations in the acute training focused on temporary pit or trench latrines, while the recovery training emphasizes encouraging sustainable latrine use and forming recommendations around fecal sludge management.
 - The depth of hygiene content was expanded from a focus on hand-washing to include food hygiene, menstrual hygiene, and broader concepts of healthy homes and communities.

- Pilot and Revise Workshop: The new workshop was piloted in September of 2015. Feedback from the pilot was used to update and finalize the workshop materials.
- Deliver Finalized Workshop: Delivery of the recovery phase workshop began in October of 2015, and is continuing as of March 2016. The workshop consists of 13 lesson plans – and associated support materials – that cover the following topics:
 - WASH in Emergency Recovery
 - WASH Behaviours and Disease Transmission
 - Responding to Diarrheal Disease
 - Water Quality and Point of Use Treatment Options
 - Encouraging Latrine Use
 - Waste Management
 - Emergency Hygiene
 - Healthy Homes and Communities
 - Coordinating for Recovery Activities
 - Monitoring WASH Indicators and Record-Keeping
 - Delivering Key WASH Messages

Results

Between March and October 2015, a total of 19 Acute Phase training events took place, with over 470 volunteers trained. Between October 2015 and February 2016, 10 Recovery Phase workshops were held, training an additional 226 people. The volunteers that were trained helped rehabilitate community latrines and water systems, produced and distributed liquid chlorine for HWT, distributed hygiene kits and facilitated health messaging and WASH awareness activities in affected communities. In doing so, these volunteers extended ENPHO's ability to conduct relief activities. ENPHO was able to partner with other organizations involved in earthquake relief such as UNICEF, Plan, Oxfam, WaterAid, and MercyCorps, and their trained volunteers were able to provide support in 11 of the 14 earthquake-affected districts. Training using the recovery package is continuing as of March 2016.

Feedback for both workshops has been very positive. Of the participants trained with the Acute Phase lessons, 77% of participants reported that it completely met their expectations. One participant, Hari Sundar Shrestha from the Liwali camp described it as “very relevant” and that “the workshop is the burning issue of the camp.” Further, participants recognized the value of a well-designed curriculum that addressed the actual needs of the earthquake-affected communities and the organizations working in emergency response:

“We looked at training manuals provided by other agencies, and in the end we were so impressed with the Emergency WASH curriculum provided by ENPHO. It was designed and explained very well. It fits very well with our needs and our communities' needs. ENPHO really focuses on needs-based curriculums.” - Maya Thapa, Team Coordinator, Shangrila Reconstruction and Development Project

With respect to feedback regarding improvement of the workshop, participants said that: (1) more depth on certain topics would allow them to make better recommendations; (2) a more hands-on component would be useful; and (3) more handouts and posters targeted to the emergency and recovery context would benefit the program. This feedback will be incorporated to improve future versions of the workshops.

Conclusions

Lessons learned

In the aftermath of the earthquake, ENPHO found that its existing volunteers were more than willing to help those in their communities who were more in need. By training these volunteers, ENPHO was able to reach many more communities in the immediate aftermath of the disaster.

The partnership between ENPHO and CAWST in developing the training materials was a highly collaborative and iterative process. This process was facilitated by open and frequent communication, which made it possible for CAWST to expand upon the drafted content and incorporate updates from ENPHO as they arrived. As a result, the training materials could be developed within a short response time. This collaborative partnership was possible due to ENPHO and CAWST's long term relationship, as the two organizations have worked closely together for almost 10 years. Throughout this relationship, CAWST has worked with ENPHO to develop a strong team of in-house trainers and education program developers who are able to quickly assess and analyse WASH needs and design educational and training programs to address

those needs. It was this skill-set that enabled the ENPHO team to quickly pivot from regular programming and begin initial development of the content required for the emergency training programs.

This experience emphasised the importance of long term partnerships and mentoring for achieving successful collaboration while also highlighting the need to better link ongoing development work and relief assistance to foster long-term resilience in communities to address their WASH needs. Aid distributed in the aftermath of a crisis needs to be locally appropriate, and users need to be trained on how to use this aid and why. Local development organizations are well-positioned to provide the initial education and training to complement interventions as well as the ongoing support as aid organizations exit during the transition back to recovery.

Limitations

CAWST and ENPHO recognize the limitations of the current evidence base as to the effectiveness of WASH interventions in emergencies (Ramesh, Blanchet, Ensink, & Roberts, 2015) and that more high quality studies are required. A significant limitation in assessing the results of the two emergency WASH training programs is that the scope of data collection for this program was restricted to number of volunteers immediately trained. There is accordingly little data available on how many earthquake affected people have benefited as a result of the training programs and volunteer activities, as well as the overall contribution the volunteers made towards any beneficial health impacts experienced by the affected populations distinct from the inputs of other relief activities.

Recommendations and next steps

While the recovery phase training continues in Nepal, CAWST is planning to disseminate the training and support materials among other CAWST partners so they can be adapted to the partners' local context. For example, a partner in Cambodia is planning to adapt the materials to be suitable in Cambodian communities. Specifically, this adaptation would focus on frequent flooding, the WASH challenges that result from this flooding, and the activities that can be undertaken to address these issues. CAWST is also planning to assess the feasibility of de-contextualizing the emergency and recovery materials that exist so they might be more widely circulated. Once decontextualized, the materials would become part of the resource materials that are freely available on CAWST's WASH Resources website.

Feedback collected from the training programs will be incorporated to improve future versions of the workshops. Building upon these experiences and results, CAWST and ENPHO are seeking opportunities for funding WASH interventions and programming to address long-term recovery and reconstruction needs within severely and crisis-hit earthquake affected areas of Nepal.

Moving forward, CAWST recommends that: (i) high-quality research is needed to expand the evidence base on the outcomes of WASH interventions in emergencies and humanitarian crises; (ii) development organizations planning to develop programming on emergency WASH should engage a team strong in both technical WASH and education program development to meaningfully structure recommendations and interventions through different phases of emergency response; and (iii) greater impact of humanitarian activities can be achieved if aid organizations, organizations working in Disaster Risk Reduction, and development organizations coordinate for longer-term and joint planning.

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