

The Joint Action Group (JAG) is a non-formal group of civil society organisations working in Cambodia on Disaster Risk Reduction (DRR) and Disaster Management. Members coordinate relevant activities and share information, knowledge, skills and experience. **Full members (2015):** ActionAid - ACTED - AVSF - CARE - Caritas - DanChurchAid - IFRC - Life With Dignity - Oxfam - Plan - People in Need - Save the Children - World Vision Regular Observers: CHF/ADPC - UNDP (on behalf of UN system)

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DETAILED RECOMMENDATION 2A-II ENSURE ADEQUATE SANITATION AND HYGIENE DURING TIMES OF NEED⁷

2A-II.i Provide accessible, gender-responsive and decent sanitation at safe sites

A minimum of one block of three latrine units should be constructed at recognised safe sites.⁸ These should be constructed to ensure the most vulnerable have access to decent sanitation during times of displacement; and waste water does not further contaminate surface and drinking water supplies. Aspects of accessibility, privacy and the needs for women need to be well integrated in the design.

One of the alternatives to consider is pre-positioning of Eco-San composting toilets and distributing them the safe sites at the time of flooding. This system has been tested by UNICEF in collaboration with Live & Learn and RainWater Cambodia at five safe sites in Prey Veng in 2014.

Another solution is low cost, bio-degradable, single use toilet bags that

turn faeces into fertiliser. These can be pre-positioned for two years and distributed at times of crisis. This is particularly useful for evacuation sites where there is no space for installing latrines.⁹ Research on acceptance of this solution among affected populations is recommended before scale-up.

2A-II.ii Map and create inventory of safe sites sanitation facilities

This would enable local authorities and development partners to plan long-term WASH at these sites.

The mapping and inventory of safe sites also enables humanitarian agencies to quickly estimate the needs of the evacuated population. For example, in September 2013 it took PIN three hours to contact all the safe sites lying in the flood-affected areas in Pursat as shown on the satellite imagery; and to collect necessary information regarding the humanitarian situation.

PIN and ActionAid have conducted inventories in collaboration with Provincial Committees for Disaster Management (PCDMs) in Pursat (2013), Banteay Meanchey and Oddar Meanchey (2014). But there are no other known inventories of safe sites and other critical disaster preparedness infrastructure in other parts of Cambodia.

2A-II.iii Support development of, and training for, low-cost flood-proof sanitation solutions

But despite the increasing numbers of household latrines in Cambodia,¹⁰ open defecation remains widespread; and existing latrine models are frequently damaged by floods.

To avoid contaminating surface waters, flood-proof sanitation systems must keep faecal waste out of the surrounding environment. The system can be sealed or elevated in a range of ways to achieve this. However, flood-proofed sanitation solutions are generally more expensive and subsidy models need to be developed as part of the programme for families living in medium and high risk of flooding areas. This needs to be combined with training of local masons constructing latrines at the village and commune levels.

Thanks to rural sanitation programmes, many Cambodians now purchase pour flush latrines, which are generally more resistant to flooding than simple pit latrines. Inundation of latrine systems results in reduced system capacity, structural damage (from toppling and material degradation) and wastewater overflow to surface waters. This leads to users reverting to open defecation while toilets are unusable. More effort should still be invested in flood-proofing latrines

in seasonally flooded areas as they are frequently inundated for prolonged periods.

Several WASH-focused NGOs associated with the Sanitation Working Group led by MRD are working on affordable solutions, which could be effectively scaled up through future and ongoing sanitation programmes.¹¹

2A-II.iv Introduce safe site environmental planning including defining roles and responsibilities of safe site management committees and O&M mechanisms

Improved safe site planning and good practices are likely to multiply health benefits from improved infrastructural assets and other humanitarian assistance. Therefore, whenever possible, each safe site should clearly define shelter areas for people and livestock, since livestock can easily transmit diseases to humans and vice versa.

Moreover, solid and organic waste disposal sites should be identified and clearly marked to control vector-borne disease and ensure optimal hygienic conditions. Local authorities and respective committees should ensure the relevant rules are known and respected.¹²

2A-II.v Scale up hygiene promotion during disasters through first responders: Village Health Volunteers and Health Centre/Health Post staff¹³

During the floods in 2011 and 2013, Village Health Support Groups and Village Health Volunteers were among the first responders providing essential hygiene training and awareness-raising as well as referrals. Further support to these individuals is strongly recommended in all flood-prone areas.

Village Health Volunteers, and/or pagoda/school/safe site management committees should also be engaged in outreach activities: promotion sessions, monitoring and finding corrective solutions to poor habits, soap distribution, etc. Local authorities with support from Development Partners should provide training to first responders on effective hygiene promotion in times of emergency and distribute Information, Education and Communications (IEC) materials.

There is an ongoing discussion among WASH practitioners in Cambodia how effective these IEC trainings and materials. It is strongly recommended to involve private sector marketing and design companies and professionals in order to increase effective adoption of the messages by disaster-affected populations.



CAMBODIA DRR POSITION PAPER 2A WATER, SANITATION AND HYGIENE

“Preventing a problem is better than curing the problem”

SUMMARY

In recent years Cambodia has experienced several notable disasters, for example Typhoon Ketsana in 2009 and floods in 2011 and 2013. Each of them caused significant damage, and the extent and intensity of flooding and drought is likely to increase due to climate change.¹ It is essential to take preparatory action to reduce the impact on the population.

Secure and safe access to Water, Sanitation and Hygiene (WASH) facilities is one of the most essential needs after a natural disaster. As well as cholera and other waterborne infections, lack of good WASH increases cases of diarrhoeal diseases, especially among children. Diarrhoea leads to severe malnutrition, which has long-term negative effects on children's physical and cognitive development.

This paper and its companion papers present a series of practical recommendations for the Royal Government of Cambodia, international institutions and NGOs on how to address and mainstream Disaster Risk Reduction (DRR) in the WASH and health sectors, including aspects of nutrition.

We encourage the Ministry of Rural Development (MRD) to take the lead on integrating the proposed recommendations in consultation with the Ministry of Health (MoH), the Ministry of Water Resources and Meteorology (MoWRAM), the Ministry of the Interior (MoI) and other relevant governmental institutions and non-governmental stakeholders.

KEY RECOMMENDATIONS

Recommendation 2A-I: Ensure adequate disaster-resilient community water supplies

- 2A-I.i Elevate at least one functioning safe water point per 500 residents by at least one metre above historic flood levels; and ensure it is accessible to people with disabilities and the elderly;
- 2A-I.ii Safe sites should be equipped with reliable, safe drinking water sources to provide a minimum of 15 litres per person per day;
- 2A-I.iii Support pre-positioning of spare parts and chlorine in Provincial Departments of Rural Development (PDRDs) for immediate repairs and cleaning of the most affected infrastructure;
- 2A-I.iv Support mapping of water supply infrastructure including functionality and spatial distribution, to inform better planning, preparedness and programming;
- 2A-I.v Promote sustainable household water treatment systems and water hygiene;
- 2A-I.vi Support effective implementation of operation and maintenance (O&M) of critical Water, Sanitation and Hygiene (WASH) infrastructure in flood-prone areas.

Recommendation 2A-II: Ensure adequate sanitation and hygiene during times of need

- 2A-II.i Provide accessible, gender-responsive and decent sanitation at safe sites;
- 2A-II.ii Map and create inventory of safe sites sanitation facilities;
- 2A-II.iii Support development of, and training for, low-cost flood-proof sanitation solutions;
- 2A-II.iv Introduce safe site environmental planning including defining roles and responsibilities of safe site management committees and O&M mechanisms;
- 2A-II.v Scale up hygiene promotion during disasters through first responders: Village Health Volunteers and Health Centre/Health Post staff;
- 2A-II.vi Support arrangements for de-sludging service for latrines prior to flood season

GENDER AND DIVERSITY PERSPECTIVES

Women are particularly vulnerable at times of disaster. Often they are primary caregivers; responsible for household water supplies, sanitation and hygiene; preparation of meals; and medical treatment of family members. This is why any deficiencies in the functioning of WASH infrastructure can affect them more than men. At the same time it must be recognised that women bring a lot of additional capacity and contribute immensely to long-term disaster resilience (UNISDR, UNDP & IUCN, 2009).

- The following minimum gender-sensitive aspects should be considered (Sphere, p.130):
- WASH infrastructure should be easily accessible, safe and secure: lockable from the inside, well lit, and ensure privacy (in the case of latrines).
- Latrines at safe sites should be gender segregated (at least a three women - two men ratio where possible).

People with disabilities (physical and mental), the chronically ill and elderly are frequently the worst affected by disasters as they tend to be the most impoverished and may require assistance in evacuation to the safe areas.

- The following minimum disability and age sensitive aspects should be considered:
- WASH infrastructure should be accessible to all people, regardless of their ability. Simple accessibility adjustments can be easily integrated into original designs. In case of retrofitting, there should be at least one sanitation facility with accessibility adjustments.
- Development agencies should integrate the special needs of disabled and older people in their WASH interventions and involve them in design processes.
- Local authorities (e.g. village chiefs) should have an up-to-date list of individuals with special needs, and ensure they are assisted with any WASH requirements.

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1. Cambodia will be one of the countries most affected by climate change. The Second National Communication (SNC) study to the UNFCCC elaborated by the Ministry of the Environment in 2010 demonstrates that average temperatures have risen continuously over the last 50 years, and that "rapid increase in temperature is expected to occur after 2030" (MoE 2011). The joint UNDP and University of Oxford School of Geography and the Environment Cambodia Country profile report expects average temperatures to rise by 0.7-2.7° C by 2060. It is expected that changes will occur in the timing, duration and intensity of both the wet season and the dry season. The dry season will be longer than before and it is likely that more severe rain will occur at the peak of the rainy season. This may have negative impacts on physical infrastructure, agriculture and livelihoods. The SNC also indicates sea levels rising about 1.7cm per year under the 'high GHG' emission scenario. At this pace, the permanent inundation of some 25,000ha of coastal zone following a 100cm rise in sea level is expected within 90 years.

RATIONALE

WHY THIS PAPER?

Despite significant improvements in access to health services and WASH, many Cambodians continue to use unsafe water sources and to practice open defecation. The situation worsens at times of crisis, such as flooding (May-October), resulting in increased levels of morbidity due to normally easily preventable diseases

According to the Cambodia Disaster Loss and Damage 1996-2013 Analysis Report, floods are the primary cause of disaster-related deaths (53%: 1,091 reported deaths since 1996) and damage caused to health facilities

(98%: 191 reported damaged health centres and hospitals since 1996). The floods in 2013 alone damaged 12,094 wells and boreholes across 18 provinces hampering access to clean water to nearly 2.2 million Cambodians.

Scaling up DRR interventions in the WASH sector is essential to protect vulnerable citizens at times of crisis. This can be achieved only by well-coordinated, planned and focused interventions aiming at resolving specific problems as outlined above.

In order to reach the required scale and local ownership of the process, the relevant authorities – i.e. MRD with MoH, MoWRAM and Mol – should

take the lead on integration of the proposed recommendations in their planning and projects. This can be achieved through existing coordination mechanisms, such as WASH monthly meetings at MRD and regular Council for the Development of Cambodia (CDC) forums of the Government and Development Partners.

This paper was compiled by Piotr Sasin, Cambodia Country Director, People in Need, with the kind support of Engineers Without Borders (Katrina Bukauskas), Rainwater Cambodia (Kea Pheang), WaterAid (James Wicken), Watershed (Lyn McIennan), Wetlands' Work (Irina Chakraborty), UNICEF (Belinda Abraham) and others.



DETAILED RECOMMENDATION 2A-I ENSURE ADEQUATE DISASTER-RESILIENT COMMUNITY WATER SUPPLIES

2A-I.i Elevate at least one functioning safe water point per 500 residents by at least one metre above historic flood levels; and ensure it is accessible to people with disabilities and the elderly

Elevated water supply facilities are already common in regularly-flooded areas and have proved to be very effective. Their construction should be further promoted and supported by MRD and Development Partners.

However, according to the 2013 Floods Early Recovery Needs Assessment Report, 12,094 open wells and hand-pumps were damaged (UNDP, 2014). Although there are no verified figures, anecdotal information suggests that many of the wells rehabilitated in the aftermath of 2011 floods were severely affected again two years later.

Incremental improvement and strengthening of critical water supply infrastructure should therefore be integrated into local planning processes (e.g. Commune Development Plans and Commune Investment plans - CDPs/ CIPs).²

2A-I.ii Safe sites should be equipped with reliable, safe drinking water sources to provide a minimum of 15 litres per person per day

According to People in Need (PIN) and ActionAid pilot inventories in Pursat, Bantey Meanchey and Oddar Meanchey, only 5% of the assessed safe sites have sufficient water supply and sanitary infrastructure to assist displaced populations. The proposed target of 15 litres of water per person per day is based on Sphere Minimum Standards in Humanitarian Response, 2011 edition (see 'Minimum Standards in WASH', p79). Rainwater harvesting tanks, elevated hand-pumps or other feasible solutions should be constructed to make this possible.

The water available at safe sites should be tested by PDRDs or other capable parties. This is to ensure it is potable and safe for humans (no faecal coliforms per 100ml). In case the minimum standards for water quality are not met, it should be treated either at the safe site (chlorination³) or at household level (HWTS, boiling, water purifying solutions, etc.).

2A-I.iii Support pre-positioning of spare parts and chlorine in Provincial Departments of Rural Development (PDRDs) for immediate repairs and cleaning of the most affected infrastructure

PDRD staff are the first responders to crises and therefore should be able to conduct elementary repairs to restore access to safe water in affected areas. Although PDRDs typically have very qualified staff to perform repairs and maintenance of water supply infrastructure, they lack resources to respond immediately due to limited spare parts and supplies.

Regular inventory of PDRD stocks and pre-positioning of water treatment materials, dewatering pumps and spare parts could significantly reduce response times and speed the early phases of recovery. Institutional capacity-building of PDRD staff in implementing stock management procedures and protocols should be integrated in any projects involving prepositioning.

2A-I.iv Support mapping of water supply infrastructure including functionality and spatial distribution, to inform better planning, preparedness and programming

One of the benefits of infrastructure mapping is easier identification and assessment of the potential needs and the extent of damage caused by disasters. This is being done by overlapping infrastructure maps with flood extent satellite imagery.

There is no effective water supply database for Cambodia, except the Wellmap (<http://www.cambodiawellmap.com/>), which is not regularly updated. There are concerns about this platform's usability and general usefulness too (WSP & MRD, 2013).

MRD with support from UNICEF is currently developing a water point assessment tool based on an electronic data collection platform and online database. It enables a variety of stakeholders to access to water supply infrastructure information. While the tool is primarily designed for post-disaster assessments, it has potential to become a national water supply infrastructure database.

2A-I.v Promote sustainable household water treatment systems and water hygiene

HWTS, and in particular Ceramic Water Purifiers (CWP), have proven to be effective in eliminating or significantly reducing faecal coliforms (similar to boiling of water).⁴

There are several manufacturers in Cambodia producing such filters. However, access to spare parts (taps, filters, lids) is limited, hampering the sustainability of this product. This is also due to uncoordinated water filter distribution during flooding by aid agencies, which is disrupting the local markets.

Aid agencies shall consider conditional cash grant distributions instead, so affected populations could purchase the filters or spare parts from local vendors. In case of emergencies they shall also consider limiting filter distributions to institutions only (e.g. schools, health centres, evacuation sites). It is therefore recommended to analyse value chains and address the bottlenecks in order to increase access to spare parts.

Other HWTS methods (e.g. PUR, cloth filters combined with SODIS)⁵ should be also promoted in flood-affected areas although their acceptability and feasibility may be a concern in some areas (e.g. the SODIS method requires six hours of sun to treat water)

The recent WHO study (Shantz, 2013) suggests that the majority of supposedly treated water is re-contaminated with e-coli because of poor hygiene: dirty hands, lack of lids and dirty containers and cups, plates, etc. However, households using HWTS are much less likely to contract diarrheal diseases than those who do not treat their water.

2A-I.vi Support effective implementation of operation and maintenance (O&M) of critical Water, Sanitation and Hygiene (WASH) infrastructure in flood-prone areas⁶

Badly maintained WASH infrastructure will fail at a time of crisis. Integration

of robust, regular O&M is a cross cutting issue for the WASH sector. Water Safety Plans or alternative O&M arrangements of critical infrastructure (especially in safe sites) should be further supported and rolled out in flood prone areas.



Above: Handwashing and other hygiene practices are even more essential during emergencies. Cover: Testing safe water filtered by communities in Kratie, supported by Oxfam's TOP project. (Photos: Tell Our Story / Oxfam GB)

CURRENT SITUATION

Some problems and obstacles on integration of DRR in the WASH sector are:

- **Political commitment:** Due to the relatively low number of deaths and amount of damage to industrial infrastructure caused by natural disasters in Cambodia compared to other countries in the region (notably the Philippines and Indonesia), plus other priorities and poor understanding of DRR, political commitment to DRR is limited.
- **Vulnerable water supply infrastructure:** The high level of damage to water supply infrastructure (12,094 wells and boreholes were affected during the 2013 floods, for example) suggests that retrofitting guidelines and flood-proofed designs including site selection and preparation are needed for new constructions.
- **Vulnerable sanitation infrastructure:** Though less than 50% of Cambodians have access to latrines and toilets, the effects of overflowing pits during floods may have very negative impacts on the population. Faecal pollution would affect the immediate environment and creates wider hazards.
- **Operation and Maintenance:** Though facilities are frequently damaged during disasters, there is no central O&M system in place, and infrastructure is maintained and repaired at the community level. This is often inefficient, especially at public facilities such as schools and pagodas, which often serve as temporary safe sites during flooding.
- **No comprehensive inventory of critical infrastructure for disaster preparedness and response:** With no verified data regarding the types and spatial distribution of WASH or health facilities and stocks, the local authorities and humanitarian agencies are unable to assess potential damage and humanitarian needs during the first days of disaster to mobilise necessary resources.
- **Limited involvement of the private sector:** There is definitely a space in Cambodia for greater integration of private sector in DRR-sensitive WASH and health programming. For example, Population Services International (PSI) Orasel marketing campaigns in rural Cambodia proved to be quite successful in approaching local vendors to promote and sell Orasel solutions to rural Cambodians. Similarly, producers of ceramic water filters and other household water treatment systems (HWTSs) shall be encouraged and supported in after sale services provision.
- **Poor hygiene and sanitation practices:** Despite large-scale hygiene and sanitation promotion campaigns and high awareness among the general public in Cambodia, poor hygiene and sanitation practices remain one of the biggest contributing factors to the high prevalence of diarrheal diseases in Cambodia. This lack of knowledge exacerbates the situation during disasters.

2 See, for example, Richter, Iris, 'Mainstreaming of Climate Change Adaptation and Disaster Risk Management into Commune / Sangkat Planning'. (UNDP/GIZ: 2014)

3 0.5 mg/l of residual chlorine, turbidity less than 5 NTU

4 According to a UNICEF/WSP study in 2007, households using a CWP reported only half as many cases of diarrhoea compared to control households without a filter. Although questions remain regarding CWPs' effectiveness in reducing protozoans and viruses, during flooding and relocation this method is very handy and effective (UNICEF/WSP, 2007, p6) due to portability, affordability and ease of use.

5 Read more about SODIS at http://www.sodis.ch/methode/forschung/publikationen/index_EN

6 According to MRD, the O&M of infrastructure at village level is the primary responsibility of Water and Sanitation User Group members; District and Provincial Departments for Rural Development shall provide only technical advice, training and monitoring (MRD, 2011).