

Gap Analysis in Emergency Water, Sanitation and Hygiene Promotion



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Acronyms

ACF	Action Contre la Faim
ALNAP	Active Learning Network for Accountability and Performance
CARE	Cooperative for Assistance and Relief Everywhere
CHAST	Children's Hygiene and Sanitation Training
CLTS	Community Led Total Sanitation
CRS	Catholic Relief Services
DRR	Disaster Risk Reduction
DFID	Department for International Development (UK)
DRC	Democratic Republic of Congo
DWS	Drinking Water Supply
ECHO	Humanitarian Aid and Civil Protection department of the European Commission
ELRHA	Enhancing Learning and Research for Humanitarian Assistance
ER	Early Recovery
FGD	Focus Group Discussion
GWC	Global WASH Cluster
HHWT	Household Water Treatment
HIF	Humanitarian Innovation Fund
HP	Hygiene Promotion
IFRC	International Federation of the Red Cross and Red Crescent
IRC	International Rescue Committee
KAP	Knowledge Attitudes Practice
LRRD	Linking Relief, Rehabilitation and Development
MSF	Medecins sans Frontieres
NFI	Non Food Items
NGO	Non-Governmental Organisation
OFDA	Office for US Disaster Assistance
PHAST	Participatory Hygiene and Sanitation Transformation
POU	Point of Use
RECA	Regional Emergency Cluster Advisor
SCF	Save the Children Fund
TF	Tear Fund
UDDT	Urine Diverting Dry toilet
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water Sanitation and Hygiene Promotion
WC	WASH Cluster
WEDC	Water, Engineering and Development Centre
WRM	Water Resource Management

Executive Summary

The emergency Water, Sanitation and Hygiene Promotion (WASH) gap analysis project was funded by The Humanitarian Innovation Fund (HIF), a program managed by Enhancing Learning and Research for Humanitarian Assistance (ELRHA) in partnership with the Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP), and is a component of a larger initiative to identify and support innovations in emergency WASH.

The project was commissioned to identify the major challenges that require innovative solutions in humanitarian WASH. It is a targeted effort to identify different stakeholder perspectives of the gaps and spaces for innovation in emergency WASH, rather than a systematic review of the evidence around WASH programming. A total of 909 people were consulted across around 40 countries, involving individual practitioners and approximately 45 different organizations, spanning donors, the UN system and international and national NGOs

Data was collected during a six month consultation period and draws on six complementary research components:

- A review of relevant literature produced over the last five years
- Structured focus group discussions with eight beneficiary groups in six countries
- Facilitated workshop discussion with WASH practitioners working at the country and sub-national level in 12 countries
- An on-line survey of humanitarian WASH practitioners
- Two facilitated sessions with Global WASH Cluster (GWC) meetings
- Consultation with five major donor organisations supporting humanitarian WASH programming and policy

Across all six components of the analysis, sanitation issues were identified as the major area with gaps and potential for innovation. The second major gap identified by four groups was hygiene issues; the country and sub country WASH sector groups and the beneficiary groups selected water as the second priority and hygiene third.

The specific issues raised have been consolidated into 57 different categories. These were then ranked according to the number of times they were mentioned in the feedback and the priority they were given in the workshops.

The most significant gaps identified in emergency WASH were:

1. Latrines in locations where no pits are possible (urban, high watertable/flooding)
2. Community participation and empowerment of vulnerable groups, including monitoring and evaluation from the outset
3. Latrine emptying and desludging
4. Hygiene promotion and the importance of understanding context, including socio-anthropology issues
5. Community Led Total Sanitation (CLTS) and sanitation marketing
6. Urban alternatives for excreta disposal
7. Exit strategies and sustainability issues from the outset
8. Final sewage disposal options after desludging and treatment
9. Further development of non-toilet options/early response/mobile
10. Hand washing hardware and promotion and sustainability (including soap) and non-soap options
11. Water Treatment, particularly bulk and point of use household filters, including cost and sustainability issues
12. The need for low-tech WASH solutions acceptable and sustainable by locals

From this list it is clear that excreta disposal issues such as latrines in areas where pits cannot be dug, desludging latrines, no-toilet options and the final treatment or disposal of the sewage are the areas in which people have identified gaps in emergency responses. Unsurprisingly, given current patterns in urban migration and the nature of recent emergency responses, urban sanitation in particular was identified as a major gap. The other major issue highlighted was weak community participation and the critical importance of designing appropriate hygiene promotion activities for each context. Sustainability also emerged as an important issue for all WASH activities, as did the emergency-development continuum, the importance of better preparation and resilience and the need for exit strategies and environmental considerations.

As to be expected, there were many other issues highlighted by various groups which were beyond the scope of this project but were nonetheless worthy of note. A major issue, for example, was coordination with local state actors and NGOs, coordination within the GWC and coordination between GWC and other Clusters. Additionally respondents mentioned funding issues, training, and preparation/prepositioning.

The next phase of this project will be to facilitate a structured innovation process to identify the strategies, methodologies and technologies that can be used to address the gaps which are not already being dealt with by other initiatives. For more information on this process, please visit the HIF website:

www.humanitarianinnovation.org

Background

Clean drinking water, effective sanitation and good hygiene practices have proven to be central to saving lives and reducing suffering during emergencies, effectively controlling conditions such as diarrhoea, which itself kills 4,000 children daily.¹ In April 2012, the Secretary of State for International Development in the UK announced a doubling of support to water and sanitation.² The January 2012 DFID strategy for promoting innovation and evidence in humanitarian response found “a clear demand for more innovative technologies and approaches suitable for emergency situations and a strong role for the private sector to play in innovating and supplying appropriate technologies for humanitarian response”.³

Recent research has noted that the “need for improved WASH strategies for emergencies has generated a number of new approaches that have been explored by relief organizations, leading to rapid innovation”. While this may be a promising sign the same research noted that “there remains insufficient confidence and evidence of what works, what doesn’t and why in emerging processes, technologies and approaches for humanitarian WASH services. Unknowns persist about which strategies are suitable for the immediate emergency phase and which technologies, practices, and approaches may permit a transition towards more sustainable solutions and future resilience.”⁴ This work is part of larger efforts to address such concerns and identify and build credible evidence around innovations in emergency WASH.

The Humanitarian Innovation Fund (HIF) WASH Stream is managed by Enhancing Learning and Research for Humanitarian Assistance (ELRHA). The HIF WASH Innovation Project is funded by the Department for International Development, UK (DFID). The WASH Innovation Project⁵ seeks to identify the major challenges that require innovative solutions in the Humanitarian WASH sector (see the Terms of Reference, [Annex 1](#)). The focus of this work is Humanitarian Programming and Response; it will only concentrate on challenges that can be solved by tangible innovation. The Project has however agreed to keep a note of other gaps or challenges and to share those with the Global WASH Cluster (GWC).

Definitions of WASH terminology used in the report:

Sanitation:

Refers to: Excreta disposal from toilets to final deposit site or treatment; Solid Waste management; Drainage and Vector control.

Hygiene Promotion:

Refers to: Community mobilisation and participation; health data monitoring; information, education and communication (IEC); behavioural change and hygiene kit distribution. In this report Children’s Hygiene and Sanitation Training (CHAST), Participatory Hygiene and Sanitation Transformation (PHAST) and/or Community Led Total Sanitation (CLTS) have also been included under hygiene promotion.

Water:

Refers to: Ground water, water treatment, water testing, and water supply.

1 <https://www.gov.uk/government/policies/providing-clean-water-and-sanitation-in-developing-countries>

2 <https://www.gov.uk/government/news/water-and-sanitation-uk-to-double-its-support>

3 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/193166/prom-innov-evi-bas-appr-build-res-esp-hum-cris.pdf

4 Brown, J., S. Cavill, O. Cumming, A. Jeandron (2012) ‘Water, sanitation, and hygiene in emergencies: summary review and recommendations for further research’, *Waterlines 31: 11-29*

5 Referred to as the ‘project’ in this document

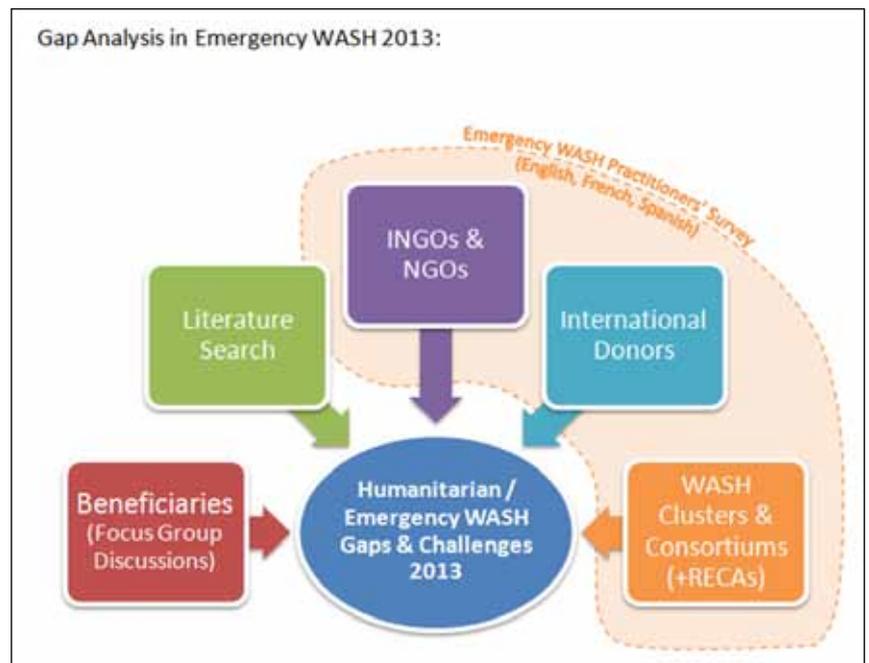
Methodology

The research for the project began in January 2013. It was led by Andy Bastable, Head of Water and Sanitation at Oxfam GB, and supported by Project Assistant Lucy Russell. It is a targeted effort to identify different stakeholder perspectives of the gaps and spaces for innovation in emergency WASH, rather than a systematic review of the evidence around WASH programming. The Global WASH Cluster assisted the project by sending out an on-line survey to all members of the Cluster and by contacting all 35 country Clusters to facilitate the feedback from group discussions. The Project's timeline is included in [Annex 2](#). The project adopted a range of qualitative research methods employed through six complementary research components, including:

1. A literature review conducted following a request for relevant literature with key actors and the GWC.
2. The collection of beneficiary feedback obtained through Focus Group Discussions (FGDs). To complete this the project prepared questions, guidelines and notes which were piloted in South Sudan Oxfam GB. The methodology for the FGD was subsequently refined and circulated for replication.
3. The use of structured workshop discussions, with a facilitation plan developed outlining suggestions for a one-hour workshop. This was then circulated to WASH Clusters and Forums/Consortiums (where no formal cluster was present), requesting that discussions take place as part of a planned meeting, and feedback provided with a ranked list of major challenges.
4. The workshop methodology was adapted and used to facilitate workshop discussions with senior technical WASH specialists at the global level, taking place in the UK and Switzerland.

5. A Gap Analysis Survey was created, tested and circulated in English, French, Spanish and Arabic
6. A request for Donor input was sent to individual contacts in several donor agencies supporting humanitarian WASH programming and policy.

In addition, the Regional Emergency Cluster Advisors (RECA) were contacted with a request to run regional workshops. However, the RECA project itself was in the process of renewal and funding was not obtained in time for the RECA to participate in the process.



During the data gathering, over 200 issues were raised by the various contributing groups and individuals. The issues and the number of times they were raised by all stakeholders consulted, were compiled, analysed and triangulated to determine priority gaps and challenges. A complete list of the issues raised, disaggregated by stakeholder group and in order of priority is included in [Annex 3](#).

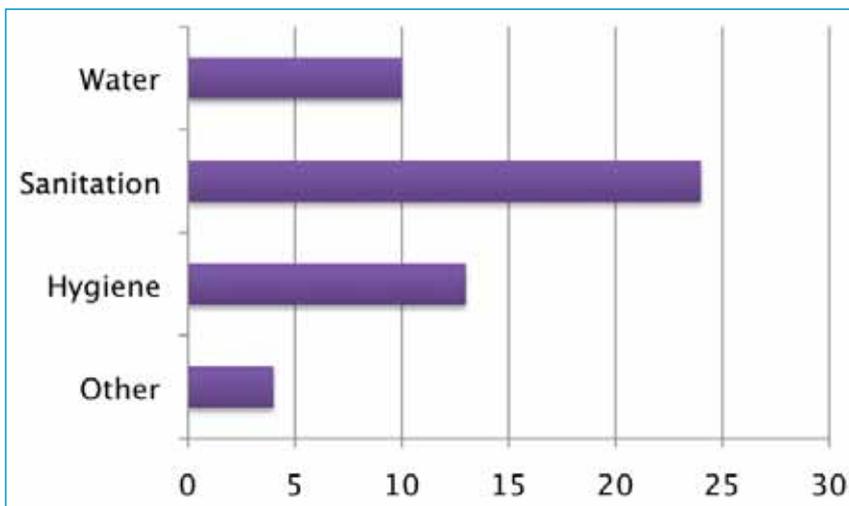
Literature Review

A literature review was carried out and the Global WASH Cluster and other key actors invited to send any relevant literature (formal or informal) to the project. Given the limited time and resources available for the project, the literature review itself targeted those recent publications synthesising a wide range of evidence and experiences in WASH programming, including a number of evidence reviews and learning reviews. Key recommendations and suggestions from the literature were then grouped under appropriate headings and an overall summary compiled, included below. A detailed list of the key points from the literature is attached under [Annex 4](#). The list of literature reviewed is in [Annex 5](#).

Summary of key recommendations and suggestions from the literature review

Sanitation/excreta disposal, latrines and solid waste management were raised 24 times; Hygiene (including maintenance) 13 times and Water 10. Other issues (including environmental concerns and exit strategies) were raised 4 times.⁶

Sanitation: several sources raised the issue sanitation in difficult environments (high water tables/flood, urban, unstable soils) and there were suggestions about pit/latrine lining kits, raised latrines, sealed tanks. The need for ‘close-the-loop’ approaches (eco-sanitation) was mentioned. More than one source considered the issue of non-toilet options such as biodegradable bags, especially for initial onset but also for floods. Again, several sources identified excreta/sludge disposal including storage, treatment, final disposal, sewage, waste water and general drainage. Closely related were issues raised about latrine design: the need for alternatives to the classic plastic slab and variations (e.g. urine diversion, sitting, children’s, disabled); and durable, environmentally sound alternatives for latrine superstructures. Also raised were issues of vulnerability, cost and the right to water.



⁶ These figures are included in the consolidated table in Annex 3: see column headed Literature

Hygiene promotion (HP): the literature considered extending hygiene promotion to schools, community groups, etc and involving children more. Behaviour change was also high on the agenda as a way of sustaining longer term adherence to water treatments, including point of use (POU); the latter requires further research and perhaps new approaches. Uptake and sustained practice of handwashing, including no soap/no water options, was identified and the need for rapidly deployable handwashing stations for communal latrines and a handwashing device. Hygiene kits were raised in relation to content and timing (delayed distribution beyond the immediate emergency). More than one source noted that HP activities during emergency responses have increased. There is potentially better data now available to assess the effectiveness of Participatory Hygiene and Sanitation Transformation (PHAST) and/or Community Led Total Sanitation (CLTS) in emergencies.

Water: there was a call for low-tech solutions for beneficiaries and the sustainable treatment of water, including at household level. There were issues about bulk versus POU water treatment, the need to involve women more in using and maintaining water filters and issues around the cost, sustainability and acceptability of different water filters.

With regard to 'other' issues, the emergency-development continuum and need for exit strategies, environmental concerns, DRR and more evidence base for WASH in general were raised.

Consultation Findings

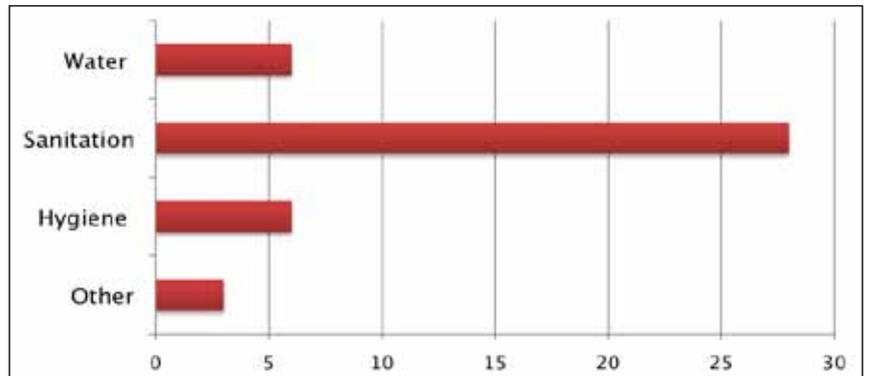
This section describes the gaps and challenges identified by each major stakeholder group: the beneficiaries, country and sub-country workshops, the on-line practitioner survey, the Global Wash Cluster and major WASH donors. The findings for each group are discussed below. The overall results were consolidated (details in [Annex 3](#)) to identify priority challenges and gaps.

Focus Group Discussions with Beneficiaries

Eight focus group discussions (FGDs) were held in six countries involving a total of 452 beneficiaries. Considerable effort went into drawing up the guidelines and piloting them. The FGDs were held in South Sudan (58 people), Pakistan (44), Somalia (110), Afghanistan (45), Philippines (103) and Jordan (92).

Summary of the key findings from Beneficiary FGDs

Broadly, the findings from the beneficiary FGDs demonstrated priority concerns about sanitation 28, hygiene 6, water 6, and other 3.⁷



The FGDs with the beneficiaries generally took place following an intervention or during a longstanding emergency programme using prepared guidelines. The exception to this was Jordan which was active at the time of writing and had just undertaken a similar analysis, using its own methodology.

⁷ See Annex 3, column 'FGD'

The main FGD question was ‘if we were setting up a similar programme, what could be improved or done differently?’ Generally speaking the beneficiaries did not concern themselves with the technical problems associated with water and sanitation provision, although there were comments related to the structures not being durable. Overall, FGD participants were reasonably satisfied with the water, sanitation, hygiene promotion and community participation provision.

Sanitation was by far the main priority which includes concerns related to poor drainage for showers and bathing areas and the issue that agencies do not normally provide water inside latrines for those cultures practising anal cleansing with water. The other major concern was rubbish disposal. Issues included the need to liaise with local authorities for bins or regular collections, a lack of tools and support or lack of disposal sites for communities attempting to dispose of rubbish themselves, leading them to abandon the attempt. One FGD mentioned recycling and a desire to be supported in this approach. Other often-mentioned sanitation issues concerned the lack of latrine use by women due to privacy issues (especially related to menstruation), the ability to lock the latrine and lighting provision. In some cases, a shortage of latrines had led to people defecating in the open.

When hygiene promotion was raised, people had different preferences for the various inputs and the timings of these – for example kits addressing menstrual hygiene, at a time to suit women and the need for female staff able to sensitively discuss hygiene issues. The need for additional washing facilities and soap were also raised.

With regard to water provision, in a number of countries beneficiary concerns related to the equal distribution of tap stands and the distance to the tap stand.

Workshops and Discussions at Country or Sub-Country Level

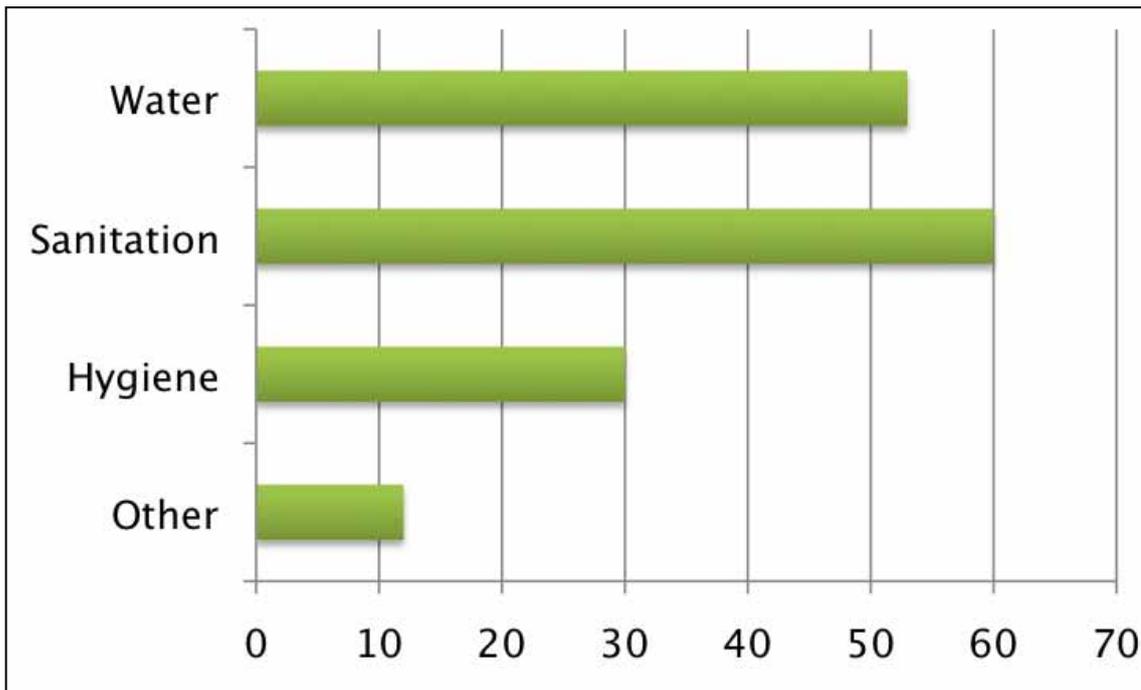
An invitation to run gap analysis discussions was sent to all WASH Clusters and Forums/consortiums and member organisations of GWC. Contributions were received from five countries through nine workshops held specifically for this analysis: South Sudan (Maban, 10 people), South Sudan (Juba, 24 people), Somalia (Nairobi, 25 people), Somalia (Mogadishu, 15 people), DRC (40 people), Afghanistan (Kabul, 22 people), Afghanistan (Western region, 20 people), Philippines (74 people), Oxfam GB PH Team (31 people). Furthermore, we received gap analyses based on pre-existing in-country workshops and/or information/evaluation/reviews from the following seven countries: Lebanon, Liberia (Feb 2013 consortium workshop), Jordan (Oxfam Feb 2013 ideas), Sierra Leone, Yemen, Haiti, Pakistan (2012). In total 261 people participated in the workshops and discussions.

Summary of priorities according to gap analysis country workshop/discussions

The country and sub country workshops prioritised sanitation, raising it 60 times and water 53 times. Hygiene promotion was raised 30 times and ‘other’ 12 times (including exit strategies and sustainability issues). Some workshops ranked the issues, others simply listed them as priorities or concerns. Additional valuable feedback was obtained through the country workshops as considerable discussion also took place.⁸ See [Annex 3](#) for the full results.

Sanitation was high on many of the ranked lists, especially urban and early response sanitation. General sanitation gaps included sanitation promotion and sanitation and hygiene in fragile and conflict-affected environments. Key challenges related to the difficulties in building latrines on rock/snow/sand/collapsible soils and desludging issues including lack of appropriate equipment, how to extend the use of latrines through desludging and how to treat the sludge or, indeed, use it to advantage (biogas, compost etc. and recycling of wastewater). Drainage (from showers and bathing areas) was also a top issue identified. The need for eco and environmentally friendly latrines was raised more than once.

⁸ See column ‘W-S’ in Annex 3 for all issues raised



Water (raised 53 times) was another major concern, particularly with respect to poor availability in arid environments and in areas with shallow wells and the potential for drying up of water resources. There was also a need identified for water conservation and water harvesting technologies such as rain water catchment as well as greater awareness by the community on proper water use (e.g. reasonable irrigation). Low groundwater availability was a significant challenge. Further challenges and needs raised several times included the need to map and share information and address salinity issues.

Another frequent issue raised was the need for low-technology solutions which are acceptable and sustainable by local people, especially in protracted emergencies. Examples included: how to involve the private sector in water provision (Philippines), the use of manual hand sludge pumps (in Haiti) and dry toilet design. Another discussion considered how to sustain wells/boreholes, possibly with fuel or solar energy. Additionally maintenance of water source/supply, spare parts and monitoring was mentioned. One workshop selected collapsible jerry cans as a top priority, another asked about how to clean jerry cans effectively.

Hygiene Promotion was raised 30 times. There was due recognition of the need to understand the context and cultural beliefs and how they might affect hygiene practices. Community participation in general and of vulnerable groups in particular was also strongly highlighted; poor participation and the need for improved awareness-raising campaigns and approaches were identified. The need for better evidence of effectiveness was raised and how to ensure the effectiveness of hygiene mobilisers. Challenges remain to ensure the accessibility of community latrines for women (Afghanistan), partly because of cultural issues and partly resulting from fear of attack. CLTS was mentioned as an option more appropriate in an established emergency than in rapid onset. Handwashing uptake and sustained practice was an identified concern along with menstrual hygiene.

Other issues raised in several of the in-country discussions particularly related to the need for exit strategies and sustainability. Other issues raised once or twice included preparedness, the lack of available risk mapping (Yemen), the need to think long term and better stockpiling of supplies (e.g. for water storage). The need for good planning and leadership was raised; examples included the need for coordination of approaches such as household water treatment vs. treatment at source, or blanket approaches vs. using epidemiology for better targeting (Sierra Leone).

Online Practitioner Survey

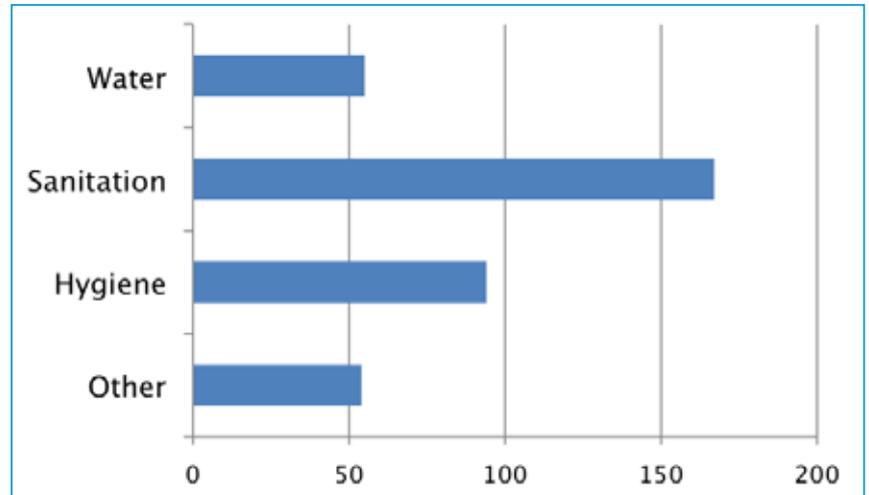
The English version of the Gap Analysis survey was set up online in February 2013; the French and Spanish versions were available at the beginning of March and an Arabic version in April. The survey ran until 15th April 2013 (Arabic until 25th April). In May, given renewed interest, the surveys were reopened until 5th June 2013. The Project had expected some 30 responses but actually received 107.

The survey asked respondents to note challenges, solutions and, separately, to list their top three issues of a technical and/or approach/software nature that would lend themselves to creative solutions. The combined figures provide an overview of the frequency of issues raised: Sanitation 167, Hygiene 94, Water 55 and 'other' issues 54 (which included the emergency-development continuum; exit strategies, sustainability; environmental issues and improved integration of DRR in WASH).

Who responded:

The online survey permitted detailed disaggregation of the data according to the respondents' experience. Of the 107 respondents many had experience of more than four humanitarian programmes, working in different responses in camp settings (83), floods (77), conflict (75), host communities (64), earthquakes (54), rapid onset (51) and drought (49). 74 respondents had more than five years' experience in the sector; 31 had worked in the sector for between one and five years. As a result, their feedback reflects considerable experience across multiple contexts. Details of their backgrounds are included in [Annex 6](#). Additional comments from the survey (less commonly raised) are included in [Annex 7](#).

Summary of the key findings raised in the online survey for practitioners



Sanitation was mentioned 167 times in the survey and 55 times as a priority issue. The most frequently mentioned concern was digging latrines in challenging situations (particularly urban contexts due to lack of space but also in rock, floods, soil, snow). This was followed closely by the issue of excreta waste management especially in urban, floods and rocky terrain. Maintenance, cost recovery, sustainability and the cleaning of latrines were also significant issues raised, as was drainage from showers and wash units. Biodegradable bags were mentioned several times, for example as a response in the first 24 hours, in impossible-to-dig contexts and for children. Eco-friendly solutions (decomposable latrines, compost latrines) and urine diverting latrines were mentioned more than once as was anal cleansing and lighting.

Hygiene promotion was raised 94 times in total and 37 times as a priority issue. A major concern was the (weak) participation and empowerment of communities and of vulnerable groups and their involvement in monitoring and evaluation (M&E). Overall, a major theme identified was the importance of hygiene promotion in any WASH response. A key concern related to the importance of understanding the context for any HP design (e.g. for materials and the need for innovation such as SMS). Some respondents noted challenges related to the time-consuming nature of HP and how to better engage with and empower the community (and vulnerable groups within it). Handwashing was mentioned several times, with and without soap, long term uptake and soap manufacture.

Behaviour change was raised with regard to potential ethical concerns and how to maintain and measure it. Weak national capacity and poor participation were also raised a number of times.

Water was raised a total of 55 times overall and 26 as a priority issue. The priority issue mentioned most frequently was groundwater management, its mapping and sharing of information as well as finding water in arid environments. This is linked to concerns raised about conserving water and better use of rainwater capture. Again there were challenges identified about the need for low tech simple solutions which are acceptable, maintainable and sustainable by the local population. Examples raised more than once included household water treatment and quality. The challenges of manual drilling, desalination and trucking/tankering were identified by more than one respondent.

‘Other’ issues were mentioned a total of 54 times, with 24 raised as priority issues. Priorities included: how to better link emergency and development, the importance of exit strategies, environmental concerns and long term sustainability issues as well as preparation and resilience.

Summary of Other issues raised by the survey

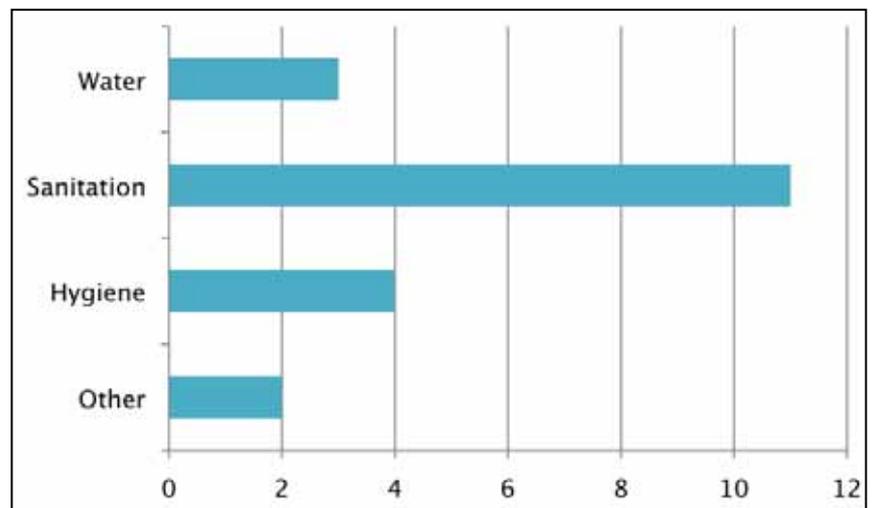
As to be expected, there were many issues raised that go beyond the scope of this project and reflect wider challenges faced by the humanitarian system, but are of interest and relevance to the Global WASH Cluster. Such topics included leadership, particularly with respect to coordination. Coordination included interactions with local state and NGO bodies, coordination within the Global WASH Cluster and coordination between GWC and other clusters. Additionally respondents mentioned funding issues, training, and preparedness, including prepositioning of supplies. A summary of these and ‘other’ issues raised by different contributors is included in [Annex 8](#).

Global WASH Cluster

The Global WASH Cluster (GWC) represents the coming together of major actors in the WASH sector globally. It provides an open and formal platform for humanitarian WASH actors to work together to address key weaknesses in the WASH sector as a whole. There were 35 WASH Clusters and 2 WASH Forums active at the time of this research.

The GWC held two gap analysis workshops for this project. The first was held at WEDC in the UK in March 2012 and was attended by 34 people representing 29 different organisations including INGOs, UN organisations, Red Cross, WEDC and donors. In May 2013 this exercise was repeated at the GWC meeting in Geneva involving 35 people from similar organisations. The issues and priorities from each workshop were recorded. Both workshops prioritised sanitation issues, particularly in urban contexts but also more generally.

Overall, the GWC noted concerns about sanitation 11; hygiene 4; Water 3; Other 2.



In the 2012 exercise, the highest sanitation priority was identified as ‘excreta disposal in difficult environments, including final deposition site for desludged excreta’. In 2013 the challenges identified in order of priority were:

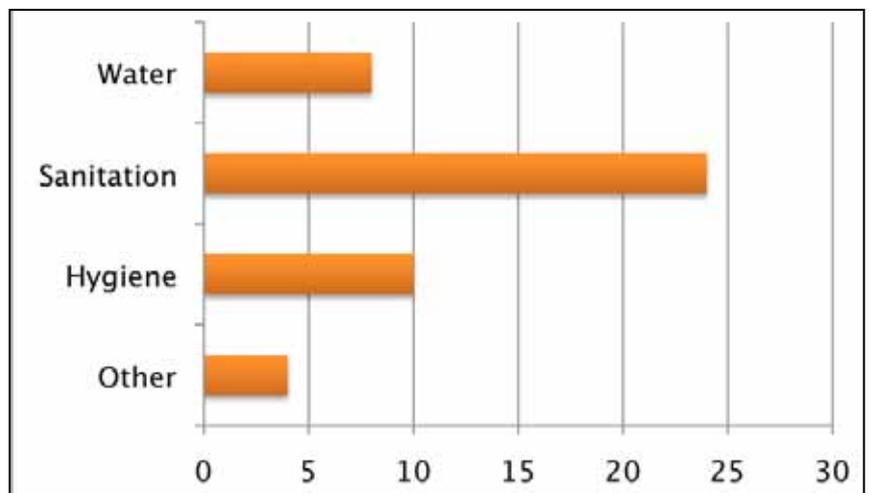
1. urban sanitation
2. urban water and hygiene promotion
3. desludging latrines (all contexts)
4. sanitation in other contexts (non-urban)
5. household sanitation

Urban water and hygiene promotion was also the second highest priority in 2012. Hygiene promotion overall was high on the 2012 agenda and the need for an evidence base of what does and doesn’t work in HP and community mobilisation.

Donor responses to the Questionnaire

In March, 2013, a questionnaire was sent to the five major donors to humanitarian programming (OFDA, DFID, ECHO, UNICEF and UNHCR) requesting their response and inviting them to hold their own internal discussion/workshop if appropriate. We received a good response including contributions from most of the ECHO regional offices as well as its head office. More details of individual donor priorities are included in [Annex 9](#).

In summary, sanitation was the major priority with 24 references, followed by hygiene promotion (10), water (8) and ‘other’ (4).



Summary of key findings from Donors

Sanitation was again the major concern of the donors consulted during the research. The highest priority was available sanitation options in difficult environments such as floods, rocky soil contexts as well as urban situations. This was closely followed by excreta containment and disposal problems, especially in floods and urban environments, for example off-site excreta disposal, the sustainability of excreta disposal and low-cost sewerage options. The need for sustainable and eco-friendly latrines was raised several times. The importance of identifying the existence of wastewater treatment facilities located elsewhere in a country was also raised, as wastewater removal may be more important than treatment. Related to this was the suggestion of a checklist for incremental upgrading of sanitation and wastewater treatment.

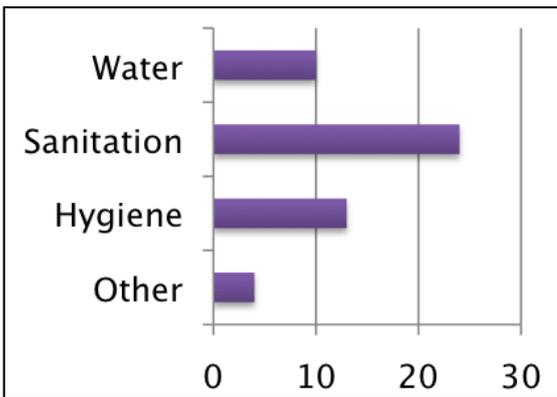
Hygiene Promotion was the second priority. Many of the ten references related to handwashing, including hardware that would function properly in communal toilets and how to sustain local soap supply. Issues were raised about how to measure and maintain behaviour change, how to better evaluate methodologies and innovative activities for conducting hygiene promotion and about better communication with beneficiaries generally.

Water accounted for 8 references. Some focussed on HHWT, especially for very turbid water and, for example, the possible use of solar power for distillation and/or heating. The major priority for UNICEF was 'a failsafe way of monitoring water tankering'.

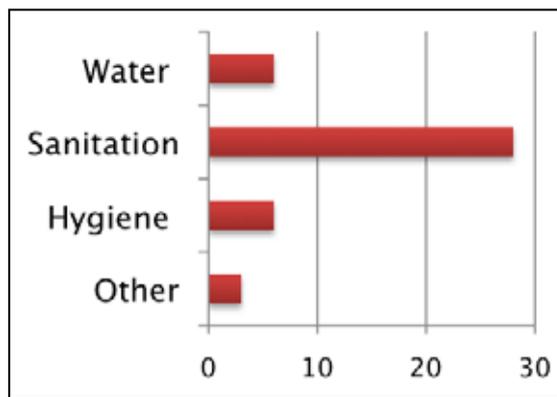
Issues included in the 'other' category were: improving the evidence base across WASH with the support of academia, as well as improved data collection and management. Suggestions also included establishing a household WASH kit, proposed guidance to underline the chain of public health priorities alongside common constraints/considerations and a comparative analysis of all the technical choices to identify the best option for the context. The lack of clearly developed technologies and approaches in urban contexts was also raised by donors.

Consultation findings and discussion of priority gaps

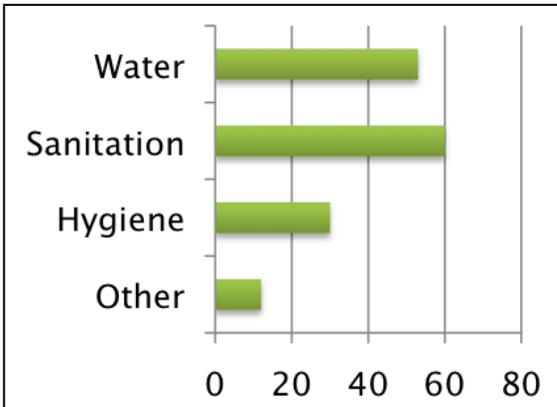
Summary of the findings across the data collection approaches, as detailed above.



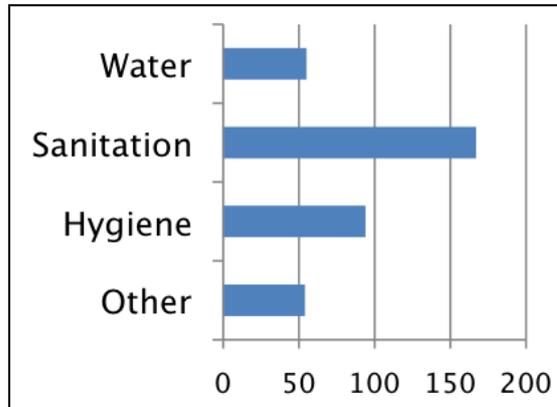
Literature



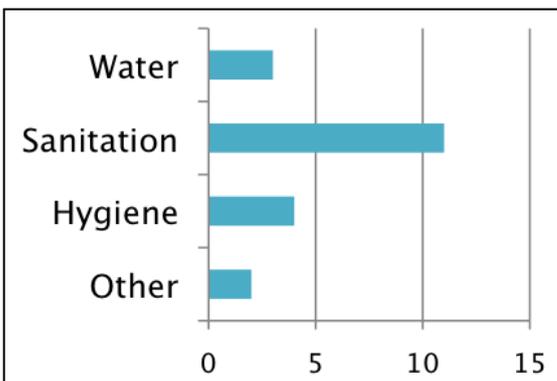
Beneficiary consultation



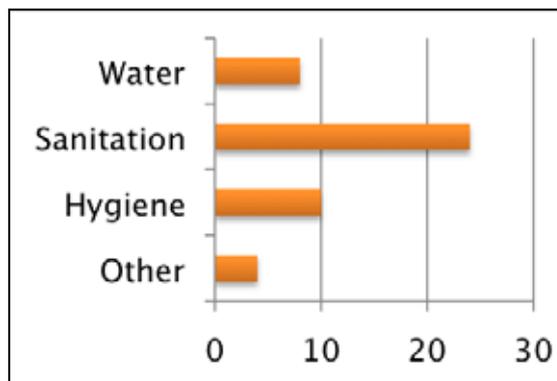
Country and sub country level



Practitioner's survey



Global WASH Cluster



Donors

In all six component parts of the research methodology, sanitation was identified as the area with the most scope for innovations to be explored. This was followed by hygiene in four of the six parts, with the exception of the country and sub country WASH sector groups and the beneficiary groups. They selected water as the second priority and hygiene third.

A constraint encountered during the analysis of the data was the variation in the allocation of issues to different categories by participants. Some categories overlap, for example cleaning and sustainability of latrines could be identified as a sanitation or hygiene promotion issue. For the purposes of this report this example was recorded as an excreta disposal issue. However, the overall emphasis on sanitation was so distinct that some re-categorisation would not affect the overall order of priority of sanitation, hygiene and finally water.

The identification by field-based groups of sanitation as the top priority was a striking finding of the project. A number of factors might explain this, stemming both from the nature of the research design and changes in the external context. In relation to bias that may stem from the research design, the lack of respondents or data from first phase response, and the particular characteristics of the countries that participated in the study may have impacted on the findings. For example, in countries experiencing insecurity, open defecation is much less of an option; while in many of the participating countries, lack of privacy is also culturally unacceptable. Despite these issues, the strong emphasis on sanitation as the area with the most potential for innovation is consistent across the component parts of the gap analysis. The prevalence of sanitation issues in the gap analysis may instead be a consequence of improvements in water responses in recent years, which have out-paced developments in sanitation and health. This is in part perhaps a result of interest in humanitarian water technologies by a number of private sector actors.

The table below shows the top 26 individual issues raised by all stakeholders, listed in order of the number of times mentioned or prioritised. Issues that were raised less than ten times are not included here, as gaps identified less than ten times (out of a total of 909 people) were judged not to be considered a global priority. The full list of all issues and the number of times they were raised is included in [Annex 3](#).

Emergency WASH gap analysis		
No	Issue raised	Scoring
1	Latrines where no pits are possible (Urban, high watertable, floods, rock, snow, sands)	37
2	Community participation/empowerment of vulnerable groups inc M&E from beginning	27
3	Latrine emptying /desludging	26
4	HP - importance of context, understanding, including socio-anthropology	26
5	CLTS and sanitation marketing	23
6	Urban alternatives for excreta disposal	22
7	Exit strategies and sustainability issues to be considered from the start of a response	22
8	Final disposal options after desludging + treatment	19
9	Further development of non-toilet options/early response/mobile options	19
10	Hand washing hardware+promotion & sustainability+soap/non soap options	18
11	Water treatment - bulk vs. POU, filters, HHWT, cost, sustainability, mobile unit	18
12	Need low-tech solutions acceptable and sustainable by locals	18
13	Emerg-dev continuum including listening to existing field knowledge	18
14	Ecosan + biogas – ecofriendly solutions	17
15	Latrines - facilitating anal cleansing	16
16	Water management including to involve private sector	15
17	General drainage from showers and wash units	15
18	Menstrual hygiene provision	14
19	Maintenance, (latrines) sustainability, cleaning, cash4work	13
20	Maintenance of water sources and supply, spare pump parts, monitoring	12
21	Community behaviour change	12
22	Environmental concerns (wastage at pump, poor drainage)	12
23	Shared & Family latrine sustainability / replicability	10
24	Solid (rubbish) waste management systems inc poss recycling	10
25	Hygiene promotion extended to schools and community groups, health clubs	10
26	Improved integration of DRR in WASH and enable community water safety plans	10

It is obvious from the table that excreta disposal is by far the most dominant gap identified. Gaps cover all stages of the latrine management cycle from construction of toilets to desludging and safe management to the final disposal site. The other major issues were hygiene promotion and community mobilisation.

The challenge for the next phase is to establish which of the top 26 issues lend themselves to innovative solutions that are not currently being addressed by other initiatives. This work will be addressed in the next phase of the WASH Humanitarian Innovation Fund project.

Annex 1: Terms of Reference

The Humanitarian Innovation Fund (HIF) WASH Stream is managed by ELRHA and funded directly the Department for International Development, UK (DFID).

This project seeks to identify the major challenges that require innovative solutions in the humanitarian WASH sector. The focus of this work is on humanitarian programming and response and will only concentrate on challenges that can be solved by tangible innovation.

Phase 1 To carry out a multi level emergency WASH gap analysis to establish global prioritisation of WASH challenges.

Activities

- Carry out a review of all past and current humanitarian literature that identifies challenges in humanitarian WASH
- Design a gap analysis flyer that can be used by the project to inform all in-country WASH cluster coordinators or WASH sectoral leads
- Enable the Global Cluster Coordinator to inform all WASH clusters of this process
- Design a WASH gap analysis workshop session to be carried out by in-country WASH clusters and WASH forums
- Write to and call 33 WASH clusters and 10 WASH forums to explain the gap analysis session
- Devise an approach to involve beneficiary feedback on WASH gaps
- Write to and call 4-5 regional WASH networks and enable them to hold WASH gap analysis sessions
- Identify key informants that capture work in other work streams and interview
- Devise and implement a gap analysis from a humanitarian donor perspective
- Hold a 2nd gap analysis session at the Global WASH Forum
- Send out and receive at least 30 gap analysis questionnaires aimed at WASH field practitioners
- Collate all the information from the in-country, regional and global and questionnaires
- Write up and present gap analysis

Outputs:

A full report of all the data collected and a synthesis of the challenges identified prioritised by their potential impact on the sector.

Annex 2: Timeline

The timeline for these various activities is noted below.

	Jan	Feb	Mar	Apr	May	Jun
Alert GWC and ask if any previous gap analysis or relevant literature	X					
Design:						
gap analysis workshop	X					
beneficiary focus group discussion questions and questionnaire for practitioners	X					
Test beneficiary FDG questions		X				
Write/call WASH Clusters/forums and explain and encourage to do workshop	X	X	X			
Beneficiary feedback (via WC/RECA or other contacts)		X	X			
4-5 WASH networks workshops via RECA		X	X			
Donor feedback (individually)		X	X	X		
GWC workshop			X			
30 questionnaires to field practitioners (via survey monkey?)	X	X	X	X		
Collate information, write up					X	X
Final presentation						X

Annex 3: List of issues raised by each stakeholder group in order of priority

HIF Gap Analysis in WASH 2013								
List of individual items in order of priority								
Headings: Literature (Lit); FGD; Workshops (WS); Survey Question 4 (SQ4); Survey Q1-3(SQ1-3); GWC; Donor (Don)								
Issue	Lit	FGD	WS	SQ 4	SQ 1-3	GWC	Don	Total
Latrines where no pits are possible (Urban, high watertable/floods,rock,sand)	4		6	9	13	1	4	37
Community participation/empowerment of vulnerable groups inc M&E from beg			7	8	12			27
Latrine emptying /desludging	2	1	6	7	8	1	1	26
HP - importance of context, understanding, inc socio-anthropology	1	1	5	6	11		2	26
CLTS and sanitation marketing	2		6	4	10		1	23
Urban alternatives for excreta disposal	4		2	4	7	1	4	22
Consider exit strategies and sustainability issues from the start	1	1	4	4	10	1	1	22
Final disposal options after desludging + treatment		1	2	4	7	1	4	19
Further development of non-toilet options/early response/ mobile inc peepoo	3		5	1	6		4	19
Hand washing hardware+promotion & sustainability+soap non soap options	1		4	4	3	2	4	18
Treatment - bulk v POU, filters, HHWT, cost, sustainability, mobile unit	2		5	6	3		2	18
Need low-tech solutions acceptable and sustainable by locals	3		7	4	2	1	1	18
Emerg-dev continuum inc listen to existing field knowledge	2		1	5	8	1	1	18
Ecosan + biogas	1		6	1	6		3	17
Latrines - facilitating anal cleansing	1	2	2	2	9			16
Water management/WRM inc involve private sector			8	3	3		1	15
General drainage, from showers and wash units eg rapid onset	1	5	4	1	4			15
Menstrual hygiene provision	1	6	2	1	4			14
Maintenance, (latrines) sustainability, cleaning, cash4work		1	1	5	6			13
Maintenance water source and supply, spare pump parts, monitoring		1	5		3	1	2	12
Behaviour change	2		2	2	5		1	12
Environmental concerns (wastage at pump, poor drainage)	1			7	4			12
Shared & Family latrine sustainability / replicability			1	2	5	1	1	10
Solid (rubbish) waste management systems inc poss recycling	1	6	3					10
Hygiene extended to schools and cmnty groups, health clubs	3			3	4			10
Improved integration of DRR in WASH and empower cmnty, water safety plans	1		3	4	2			10
Pit Soil Stability / lining	1	1	1	3	3			9
Need for mapping and sharing info about groundwater	1		3	3	2			9
Latrines for children and disabled	1	1	1	2	2	1		8

Low carbon desalination, salinity issues, alternatives			4		3	1		8
Slabs & cheap construction materials	2	1	1	1	1		1	7
Hygiene kits, content, timing, standardisation and evidence of impact	1		2	1	2		1	7
Rapid borehole siting & low cost drilling			1	1	5			7
Trucking / tankering, how to exit, how to avoid, how to prove impact		1		2	3		1	7
Water quality monitoring and testing at HH	4		1	1				6
National capacity, (low), capacity building, local participation of CBOs					6			6
Sanitation lighting		1		1	3			5
Appropriate low cost sewerage options	2		1	1			1	5
Awareness activities, campaign (inc radio x1, posters x1, tv x1)		2	1	2				5
Management of water, latrine, waste and drains during and after emergency				1	3	1		5
More research for evidence base for all WASH activities	1		2	0	1	1		5
Cholera HH v other approaches (inconsistency across agencies)			2		2			4
Collapsible jerry can			3				1	4
Smallscale piped network design and mgmt					4			4
Rainwater catchment and reuse of water for garden			1	1	1			3
Chlorination issues - hardware for treatment and community options			2		1			3
Lack of adequate and appropriate water storage instruments		1	1					2
Cleaning jerry cans			2					2
Evidence base and better structured link with academia							2	2
Real time GPS mapping of cholera in urban			1				1	2
Contamination of groundwater by pit latrines			1					1
Targeting 'mother and malnourished child' (WASH and NUT)					1			1
Separate HP for men, women and children		1						1
Bed nets and/or insecticide for flies		1						1
Issue of payment versus free water				1				1
Market based approaches in WASH			1					1
Checklist for increasing sanitation and waste water for upgrade							1	1
Monitoring with the community re maintenance (SMS for repairs etc)			1					1

Annex 4: Detailed Results from the Literature Review

A literature review was carried out and the Global WASH Cluster and other key actors invited to send any relevant literature (formal or informal) to us. Key recommendations and suggestions from the literature were then grouped under appropriate headings and an overall summary compiled.

In summary:

Sanitation

There were several areas of concern regarding excreta disposal:

- excreta disposal and sludge disposal including storage, treatment, final disposal
- sewage, waste water and general drainage
- sanitation in difficult environments (high water tables, urban setting, unstable soil situations) and suggestions of pit/latrines lining kits potentially and other options for flooding (raised latrine, rings, sealed tanks)
- further development of non-toilet options (biodegradable bags etc) especially for initial onset
- mixed message if some agencies build latrines and others promote CLTS

Closely related to excreta disposal but specifically focussed on latrines:

- alternatives to the classic plastic slab
- variations in the slab (urine diversion; sitting; children's; disabled)
- durable, environmentally sound alternatives to the classic plastic sheeting and wooden poles superstructure (also important for privacy issues)
- raised latrines which enable urine diversion and septic tanks

Closely linked to both of the above were the specific issues raised by an urban context:

- need for close-the-loop approaches e.g. eco-sanitation
- vulnerability issues, cost, the right to water

Hygiene

- recognition that HP activities/software has increased but potential to see if PHAST and/or CLTS can be used in emergencies: need more evidence
- adherence to e.g. POU water treatment and safe storage remains low, needs more research and perhaps new approaches
- uptake and sustained practice of hand washing including no soap, no water options
- need for rapidly deployable hand washing stations for communal latrines and handwashing device in itself (that can be added to an existing household water container, conserves water, allows hands-free and sufficient flow)
- hygiene kits, content and timing (sometimes delayed beyond immediate emergency)
- hygiene education extended to schools and community groups
- WASH for children is poorly covered in literature and handbooks

Water

- mostly related to treatment, bulk versus POU, HHWT still shows relatively low actual clean water, involving women in using filters, cost, sustainability and acceptability of different water filters (needs more investigation)
- approaches to promote consistent, correct and sustained use of water quality interventions
- water resource knowledge, (hydrological parameters+)

Another significant area of concern is sustainability and exit strategy:

- emergencies happen within a context of longer-term development and we should think about exit strategies and sustainability issues from the start i.e. solid waste, latrines, social marketing but also long term maintenance of facilities by the communities
- environmental concerns, wasted water at pump, poor drainage, maintaining and encouraging tree cover

Other topics raised included: information management/coordination; integration with other sectors; drought response; research on gender; long term planning for cyclical; use of KAP studies.

Annex 5: Literature Review References

Below is a list of the papers included in the literature review:

Alam, K. (2008). *Flood disasters: Learning from previous relief and recovery operations*. ALNAP Lessons Paper. Available at: www.alnap.org/publications/pdfs/ALNAP-ProVention_flood_lessons.pdf

Johannessen, A (2011) '*Identifying gaps in emergency sanitation: Design of new kits to increase effectiveness in emergencies*', two day workshop 22-23 February 2011, Stoutenburg workshop, Netherlands

Oxfam GB (2011) *Urban WASH lessons learned from post-earthquake response in Haiti*. Available at: <http://policy-practice.oxfam.org.uk/publications/urban-wash-lessons-learned-from-post-earthquake-response-in-haiti-136538>

Brown, J., S. Cavill, O. Cumming, A. Jeandron (2012) 'Water, sanitation, and hygiene in emergencies: summary review and recommendations for further research', *Waterlines 31: 11-29*

Bastable, A., and J. Lamb (2012). '*Innovative designs and approaches in sanitation when responding to challenging and complex humanitarian contexts in urban areas*' *Waterlines 31: 67-82*

Wolfe Murray, M. (2010). Islamabad workshop April 2012: preparatory note, summary note, full report and PowerPoint presentation of findings as presented by DFID to the Pakistan WASH Cluster

Oxfam GB (2012). Public Health training: PHPs and PHEs workshop, May 2012

ACF International (2012): Policy: Water, Sanitation and Hygiene 2011, Sector WASH: ACF France: Strategic Frame 2011

Teafund (2012) Water Advocacy, Sanitation and Hygiene: Lessons learnt from Tearfund's global water, advocacy, sanitation and hygiene programme 2007-2012

Agency Responses:

SCF initial response, January 2013

Tearfund initial response, January 2013

IFRC initial interview response, January 2013

CARE initial response, January 2013

Other useful references

Davis, J. (1988) '*From emergency relief to long-term water development*', *Waterlines 6: 29-31*

Djonoputro, E.R., Blackett, I, Rosenboom, J.W. and Weitz, A. (2010), '*Understanding sanitation options in challenging environments*', *Waterlines 29: 186-203*

Harvey, P.A. and Reed, R.A. (2005) '*Planning environmental sanitation programmes in emergencies*', *Disasters 29: 129-51*

Nawaz, J., Lal, S., Raza, S. and House, S. (2010) '*Oxfam experience of providing screened toilet bathing and menstruation units in its earthquake response in Pakistan*', *Gender and Development 18: 81-86*

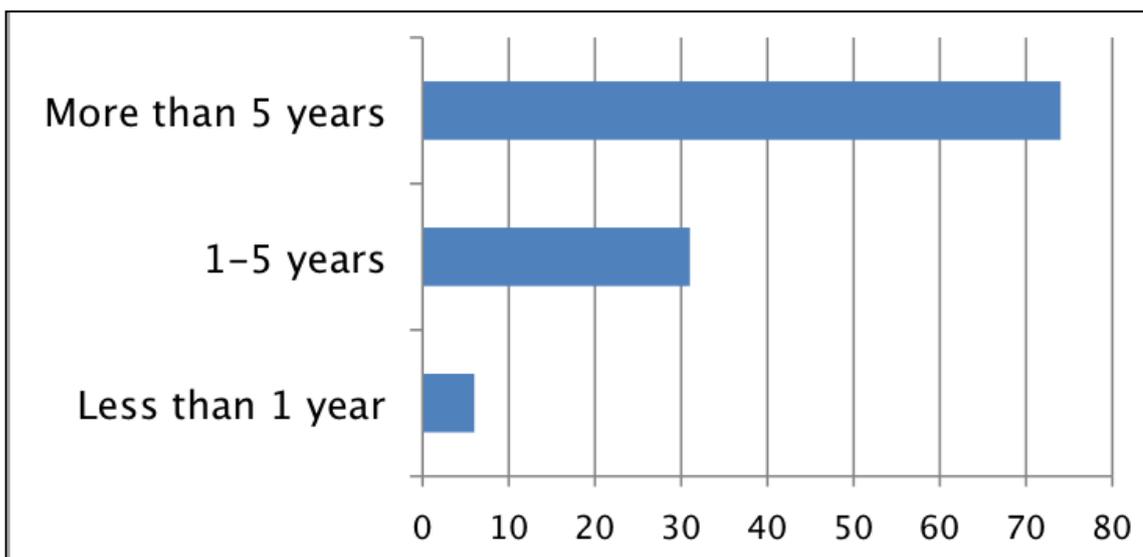
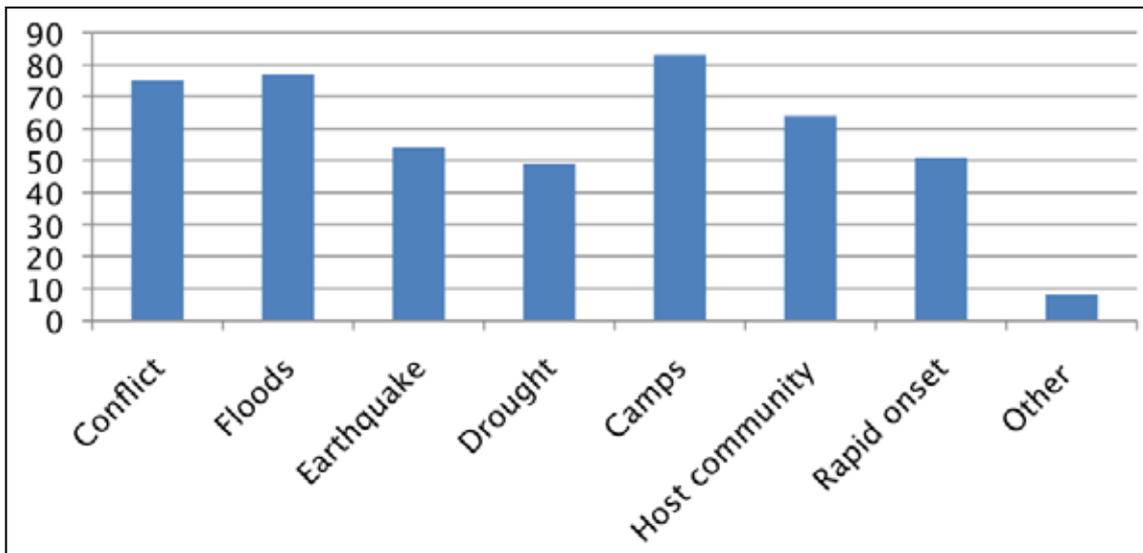
Smout, I. and S. Parry-Jones (1998) Lessons learned from NGO experiences in the water and sanitation sector: Water and NGOs workshop, 21 January 1998. Available at: <http://www.lboro.ac.uk/well/resources/Lessons%20Learned/Front%20page.htm>

DFID Research (2010). Providing better access to water in urban settlement, 25 Nov 2010. Available at: <http://r4d.dfid.gov.uk/project/5334/default.aspx>

Green, D. (2013) 'What do 6,000 people on the receiving end of aid think of the system?' Duncan Green blog article Jan 2013, available at: www.oxfamblogs.org/fp2p/?p=13492

Annex 6: Profile of Online Practitioner Survey Respondents

The online survey permitted detailed disaggregation of the data according to the respondents' experience. Of the 107 respondents many had experience of more than one humanitarian programme, working in different responses in camp settings (83), floods (77), conflict (75), host communities (64), earthquakes (54), rapid onset (51) and drought (49). Other included Tsunami (4), cholera (2), urban (1) and volcanic eruption (1). The vast majority had more than 5 years experience in the sector: 74 respondents had worked for five years or more and 31 had worked in the sector for between one and five years. As a result their feedback reflects considerable experience across multiple contexts.



Annex 7: Online Gap Analysis Survey for WASH Practitioners

The Gap Analysis survey was set up online in February, with the French and Spanish versions becoming available at the beginning of March and an Arabic version in April. The survey ran until 15th April 2013 (Arabic until 25th April). In May, given renewed interest, the survey was reopened until 5th June 2013. The response level was beyond expectation; 107 responses were received.

As mentioned in the main report:

- Sanitation was mentioned 167 times in the survey and 55 times as a priority issue.
- Hygiene promotion was raised 94 times in total and 37 times as a priority issue.
- Water was raised a total of 55 times overall and 26 as a priority issue.
- Other issues totalled 54 mentions and 24.

The main report identifies the priority gaps and challenges; this annex contains more detail of single-comment issues:

Sanitation

- *Excreta disposal*

One response raised the issue of the first 24 hours when something like biodegradable bags should be available before environmental pollution starts. They considered the biodegradable bags 'innovative, decent and biodegradable' and that organisations should stockpile them. Another raised biodegradable bags as a possibility in impossible-to-dig contexts.

The issue is much more about excreta waste management than waste water and the key issues are in urban and floods and rocky terrain. One respondent (working post Tsunami) described: Mounting the squatting slabs on HDPE tanks and emptying the tanks at regular intervals, however, it leads to a further problem of desludging and disposing of the excreta in a safe and hygienic manner when the dump site is also flooded. Other comments were the need for better onsite solutions to sanitation treatment and perhaps to try dry sanitation.

Children were mentioned specifically about potties, biodegradable bags, nappies. Eco-toilets separating urine was mentioned as a possibility though had had limited success and eco-friendly solutions in general mentioned – one suggestion was to 'view sewage as a high value resource rather than a waste (read: biogas, constructed wetlands, compost toilets)', another that 'pit latrine structure should be decomposable within a certain period of time'. In the face of the extreme difficulties faced in Haiti one suggestion was to establish a standard vehicle kit for emptying latrines (including pump, tank, pump clearing) and that this should be developed in preparation for future emergencies in similar contexts. Another specific request was for the design of kits for emptying latrines in urban areas, manually or semi-automatically.

For waste water treatment, (drainage from shower units was also mentioned) a suggestion was 'low cost environmentally-friendly pond-based solutions' and/or 'waste water pits' to then be pumped, treated elsewhere then used for agricultural or other purposes, 'stabilisation pools, transportable anaerobic tanks and pumps for emptying', the suggested installation of water tight septic tanks and secondary treatment for sanitation.

More broadly, the continuum between emergency – development was mentioned and echoed here with the comment 'surely we can think up some way to make these latrines 'continuous' rather than 'batch'. Also mentioned was the need to train up more locals, for the design of interventions to be more easily maintained. The link with CLTS was made for 'sanitation marketing' and the contradiction between CLTS and an ecological sanitation approach noted. Other comments included: the need to invest in the repair of conventional sewer and water systems before disinfecting family wells, the challenge of working on large, modern urban water and sanitation infrastructures, and the poor understanding of small scale piped network design and management.

- Latrines

As to be expected, a lot of comments about the challenges of digging a latrine because not being allowed, rock, soil, snow, space etc. There were several comments about maintenance, sustainability and cleaning and the link with having latrines more at family or even household level (depending on the context). Maintenance was also linked to the cash4work schemes which then ceased and potential lack of willingness. This links with the emergency – development discussion outlined below in ‘thinking more laterally’.

Then there was the call for the development of more models, some mentioned issues around using water for anal cleansing, others about being more eco-friendly, one about the material used for the slab. There was mention of access for disabled. One asked for ‘consolidation of various latrine designs for semi-permanent elevated latrines as were begun in Haiti’. There was also the suggestion of ‘flat packed raised toilets’; ‘mobile kit latrines’; ‘portable latrines’; even ‘floating’ latrines.

Lighting was another issues raised especially linked with gender based violence (GBV). And there was a call to improve the superstructure a) for environmental reasons and b) because of its importance for women in certain contexts (Pakistan for example).

Finally there was a reference to the need to accurately assess the need for latrines before embarking on programmes doomed to failure (alternatively setting up a defecation field away from the site and water points); reference to the need to further develop non-toilet options such as biodegradable bags or boxes, including if they would be mobile; and one reference to CLTS which resulted in the subsidised latrines being neglected and consequently unusable.

- Urban

Comments on urban issues confirmed the increasingly well documented issues: lack of space to dig latrines and dispose of excreta/sludge, inability to dig for various reasons and sanitation in general. Then there were other issues: waste management, the challenge of large, modern urban water and sanitation infrastructures, construction of minimum DWS networks in urban areas, quick fill-up rates of latrines and a plea that cholera interventions in urban environments could be better mapped by GPS to determine clusters of cases and thus target the areas most at risk. There was a general suggestion that it is not clear and/or standardised what technology or approaches are most appropriate for urban WASH and a specific request for the design of kits for emptying latrines in urban areas, manually or semi-automatically could end up repeating what is under sanitation and/or latrines.

Hygiene Promotion

Some commented that HP wasn’t as prominent as it should be ‘[it is] of paramount importance that management ensure that hygiene is a component just like water and sanitation’, one said there was a need for advocacy to greater integrate HP into all plans. In contrast, one commented that we should better evidence the actual impact, especially of HP NFI kits. Many felt that community participation and empowerment should be the first priority especially to better involve youth, the disabled and men. The importance of engaging with women and girls was raised as well as elders. There were several comments about an enabling environment, national and sub national capacity building, strengthening of community institutions to encourage ownership, supporting local NGO in a harmonised approach, using schools more effectively, putting a safety plan in place, promoting health clubs. One example given was the ‘healthy village and healthy school programme’ in DRC referring to rural communities. One of the challenges raised was the low commitment of some stakeholders, including low national capacity and/or local participation.

Sustainability and maintenance was raised which is linked to the above suggestions about better involvement of and ownership by the beneficiaries and providing training. This included HHWT which should be affordable and applicable to the local cultural context. Behaviour change was raised and the ethical concerns as well as the fact that it takes time including finding appropriate resources which should be stockpiled. Also, how to maintain behaviour change long term and measure it.

- Children and vulnerable groups

Comments ranged from how to improve the participation of vulnerable groups, to specifically talking about children and youth and how to reach them and involve them, through WASH in schools and other spontaneous sites, CHAST, within a CLTS approach. And the specifics of babies' and infants' excreta disposal, consulting mothers, compostable nappies and/or liners. Then there were comments about women's needs for proper screening around latrine and/or shower units, so they can wash properly during menstruation and to consider providing a separate bowl for washing menstrual items, a rope for hanging line etc. There were also a couple of comments about access to latrines for young (small) people and the disabled.

Water

Then there were the usual concerns about household water treatment, water quality including a suggestion about trying low-carbon desalination and tackling salinity in general and there were comments about manual drilling, wells, trucking/tankering issues and the need for better training of NGO personnel.

Other issues

There were numerous comments about the need to better integrate **emergency – development**, need for better understanding, thinking long term from the start, use of local knowledge that is already there.

Several respondents raised the importance of **exit strategies** as important to stability and ownership by the local community (or government) suggesting that this should be through greater participation at the start, avoidance of dependency, what to do when payments stop (for promoters, cleaners, waste disposal etc)

And several comments related to the **environmental aspect**, with concerns about more need to consider it, integrate it, use low-tech options, pollution of groundwater and a comment was about the need for water conservation and others about alternative power (e.g. solar pumps) being more appropriate.

Then there were many specifically concerned about **maintenance and sustainability** long term, maintenance of both facilities and sustainability of behavioural practice, how to ensure things don't always go back to how it was before the emergency, for example.

Finally, a few respondents related the need for more attention on **preparation and resilience** against emergencies.

Spare parts networks needed - Community have to be trained on how to operate and maintain the facilities, to do this they need to be involved in the project at the onset. Need for availability and accessibility of spare parts, hence the need to put in place a spare parts network, perhaps through close collaboration with NGO, Governments and business at different levels.

Annex 8: Summary of 'Other' Issues raised

As to be expected, there were many issues raised that were beyond the scope of this project as they do not lend themselves to innovative solutions, but are nonetheless of interest and relevance to the Global WASH Cluster. Below is an overview.

The most significant 'other' areas of concern are **sustainability, the emergency-development continuum and exit strategies**.

In the Literature it was noted:

- emergencies happen within a context of longer-term development and we should think about exit strategies and sustainability issues from the start e.g. solid waste, latrines, social marketing but also long term maintenance of facilities by the communities
- environmental concerns, wasted water at pump, poor drainage, maintaining and encouraging tree cover

Other comments on this:

- In 'other' issues from the Country workshops: several of the country discussions mentioned the need for exit strategies and sustainability as well as preparedness. Some mentioned the need for better stockpiling of supplies having suffered from a lack of water storage equipment
- GWC noted 'transition from emergency to development - policy and practice and sustainability issues' as number 3 in its 2012 priorities

Coordination

The largest area in the Survey related to coordination was around **involving country governments (central and local)** and the generally agreed importance of coordination. State actors often fail to provide any assistance/information; local government actors may be overly dependent on NGOs, lack funds, technical knowledge, monitoring systems, strategy or policy. There are some positive examples, such as a forthcoming national hygiene promotion strategy in Liberia but generally, when the state plays a strong role, it only requires non-state actors to do one part of the work (HP for example). Suggestions included the importance of linking with state actors

(local and/or central) and, where appropriate, maintaining an information flow to local authorities, encouraging them to take on their responsibilities and potentially involving them in the monitoring and maintenance of WASH.

Greater involvement and **coordination with existing local NGOs and NGO development programmes** was raised to promote the use of local knowledge and develop emergency preparedness (this was raised again under training and human resources issues below). **Integration with other clusters** was mentioned, particularly health and nutrition. Remote and semi-remote management was raised as well as quality issues and a potential need for external monitoring (perhaps by the state or by the WASH Cluster).

Some other relevant comments from other contributors:

- 'How to integrate WASH with other sectors. ... The tools and approaches necessary to make integrated approaches work are poorly defined, despite our best efforts to date
- WASH in health facilities
- Coordination among WASH and Health actors for epidemiological data sharing and mapping of cases (South Sudan, Dadaab, 2012-13)
- Different tools to facilitate the comprehension/interaction between Nut/Health and WASH actors could be thought of: by crossing the nutrition data with water and sanitation mapping data

Coordination-related issues such as **information management** and collection were raised and storing and sharing data efficiently. GIS mapping, graphics specialists to create HP materials and 'crowd sourcing' to support online innovative solutions were also raised.

Other comments:

- Mapping and information management - Create ad-hoc and harmonised tools for mapping (including training)
- needs for O&M of the systems
- cholera cases "real time" GPS mapping
- simple GIS tools and excel sheets

Funding issues were raised, particularly with reference to time lines, delays and limited time frames for longer-term outcomes such as behavioural change.

Other comment - 'Funding periods not realistically extending to or structured to realising behavioural change. Also, it seems that ECHO and OFDA are tightening even further on emergency WASH response, and so the possibility of incorporating more sustainable approaches which link to longer-term sustainability (ie the LRRD approach) is eluded'.

Training and Human Resources - There were several points made about the lack of trained Emergency WASH staff in-country; some called for better opportunities for cross training with development personnel or between countries. Another contribution referred to poor quality drilling expertise and the inadequacy of short borehole drilling courses.

Other comments:

- To have minimum training and provide a minimum knowledge to people who work in WASH
- Capacity building of local partners/national training initiatives

Several contributors would like to see more **preparation and prepositioning** of materials, especially in cyclical disaster areas. Other single comments included limited or absent participation of beneficiaries and their priorities in baseline assessments, corruption and the need for audits.

'Research into impact of **gender sensitive / women's empowerment programming** in emergency WASH programme (as a way of addressing gaps in the sector / evidence).

Evaluation, engaging with academia to help evidence base

Any innovation requires robust evaluation. As a sector, the emergency WASH community could work to develop an innovative way to engage academia to be more involved during emergencies to help us to evaluate our work and provide recommendations to improve emergency response activities. It is a struggle to get academia involved to evaluate work conducted in a real-time manner. Especially if we are considering new "technical innovations" we should think about ways to improve the way evaluations are done in emergency and to work more closely with academia. New "technical innovations" should not be scaled up until they are evaluated.

'Defining **KAP studies** – how to overcome issues of lack of time during early phases of a response and possibly combine questions in KAP surveys with those in rapid assessments so that meaningful KAP baseline data can be gathered right at the start. Defining statistical analysis appropriate for KAP studies.'

Data Collection and Management Test new platforms/technologies for quickly collecting and analysing Household level survey data. Methodology for quickly collecting information and analysing it. A more standardised survey process. This may or may not require or include technology such as smartphones.

A suggestion to support training of the community in operation and maintenance, to make spare parts accessible by establishing a **spare parts network** through collaboration with NGOs, government and business.

Ideas on **organisation of camps** as people arrive to make the response more effective 'Decongest the camps and have smaller groups with more space. Make groupings based on initial social tied (language, religion, ethnicity, village of origin) and return to the extended family. Maintenance can be done by these groups and help required for draining. The ethnological/sociological is important in early response, thus allowing to find more pragmatic solutions and stick to reality'.

Capturing WASH innovation globally - This is about not having to reinvent the wheel for each response and to widely disseminate viable solutions whether they are appropriate in a particular context, region or globally. The online shelter library is an example but the idea is to have a forum which would generate sharing across the globe in a way which the cluster (or clusters in other sectors) can't be expected to.

Other comment: Emergency and early recovery require different innovations and approaches, both should offer good value and where possible lasting solutions.

Transparency and respect for humanitarian commitment.

Community dependency on donors, high level of **corruption** in service delivery process.

Ensuring **quality audit** and monitoring of activities to ensure funds are properly used

There are no lines in the evaluation sheets to note the **view of beneficiaries** in prioritising actions, delaying or non-immediate response.

‘When implementing WASH programmes in disaster-affected and fragile states, it is vital to **consider broader and underlying issues** in order to avoid prolonging the emergency, creating secondary disasters and reinforcing harmful stereotypes. For example, environmental degradation in Darfur has been exacerbated by the conflict and subsequent relief efforts. And, if this problem is not tackled urgently, competition for scarce resources could be a driver of further conflict.’

Also: In complex emergencies, there are different socio-economic dynamics within communities which can slow down demand-led approaches as no construction subsidies are provided to communities. ... Many communities do not have access to livelihoods and therefore have low financial capacity. ... The tenant farmers did not see the need to invest in infrastructure due to their status as ‘squatters’.

Middle-income countries and our need to adjust - In some contexts, especially in SE Asia, many countries are shifting from low to middle income. Consequently Government capacity to meet their primary role for disaster management is increasing. This requires a shift from the international community in terms of its traditional approach in providing support.

Annex 9: Detailed Results from Donor Questionnaire

OFDA

1. Evaluation, engaging with academia to help evidence base
2. New ways to measure behaviour change activities such as handwashing
3. Data Collection and Management
4. Sanitation option in difficult environments, including handwashing
5. Innovative means of communicating with beneficiaries
6. Develop and evaluate new methodologies for conducting hygiene promotion

UNICEF

1. Failsafe way of monitoring water tankering
2. A better structured link to academia for evidence

UNICEF is also currently looking into:

- new collapsible jerrycans
- chlorine generators
- cholera toolkit
- support to menstrual hygiene
- archiving of cholera outbreak data (no reference exists globally)
- urban integration of humanitarian WASH with urban stakeholders
- training and orientation
- residual chlorine testers

DFID

1. Household excreta containment (especially in urban contexts) and off-site excreta disposal
2. Promotion of sustainable supply and use of soap
3. Household water treatment especially for very turbid water
4. Creating and costing a benchmark quality household WASH kit
5. Simple solar water heating
6. Capturing WASH innovation globally

UNHCR

1. Sanitation in first phase emergency
2. Sanitation in flooded and rocky soil contexts as well as urban situation
3. Handwashing facilities and their monitoring in communal toilets
4. Household water treatment

ECHO (summary of most relevant contributions from various offices)

- Durability is often forgotten in constructions and appropriate local technology (ie stabilised soil blocks; bamboo reinforced concrete; biogas latrines; use of 'moringa' plant)
- Emergency excreta disposal, especially in floods and potential of biodegradable bags
- Sustainable excreta disposal and low-cost sewerage options and checking in wastewater treatment happens elsewhere in the country so removal from the living environment may be more important than treatment
- Suggested check-list for incremental sanitation upgrading and similar for wastewater treatment
- Low-cost latrines, innovative construction models needed especially in floods in Asia
- More innovation in software activities, HP/ trainings (ie IC leaflet with information about disaster preparedness and HP messages alongside basic maths formulas so kept by school children for reference)
- Tools to facilitate interaction between nutrition/health including monitoring (ie. real time mapping of cholera in urban areas), could be GIS/excel sheets
- Better water treatment (ie water solar distillation in South Vietnam)
- Suggested selection matrix/guidance regarding the chain of public health priorities (from separating excreta from the immediate living environment, down to environmental protection) alongside common constraints/considerations (ie host government standards/norms/existing practices, knowledge, acceptance)

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