



GLOBAL TASK FORCE ON
CHOLERA CONTROL

Fourth Meeting of the Water, Sanitation and
Hygiene (WASH) Working Group

12–13 February 2019

Les Pensières, Center for Global Health, Veyrier-du-Lac, France

Contents

Abbreviations.....	4
Introduction and objectives of the meeting.....	5
1. Welcome and opening remarks.....	6
2. Global Task Force on Cholera Control: update	6
2.1 Update on the implementation of the <i>Ending cholera roadmap</i>	6
2.2 Overview of GTFCC achievements in 2018	7
2.3 Overview of roadmap investment case.....	8
2.4 Discussion summary	8
3. Country panel discussion: presentations on national cholera action	9
3.1 Democratic Republic of the Congo	9
3.2 Haiti.....	9
3.3 Malawi.....	10
3.4 Nigeria	11
3.5 Zambia	11
3.6 Zimbabwe	12
3.7 Yemen.....	12
3.8 Main points emerging from country presentations	13
4. Implementation of the roadmap in countries: GTFCC support	13
4.1 Guidance on development of NCPs for control and elimination of cholera	13
4.2 Overview of WASH pillar of the NCP	14
4.3 Costing methodology for WASH.....	15
4.4 Discussion on implementation of roadmap in countries	16
5. Implementation of the roadmap in countries: group work	16
5.1 Group work introduction	16
5.2 Group work: feedback from group 1, WASH vulnerability	17
5.3 Group work: feedback from group 2, WASH advocacy and financing	18
6. Partner presentations.....	19
6.1 Effectiveness of case-area targeted response interventions against cholera: a quasi-experimental study in Haiti.....	19
6.2 One WASH.....	20
6.3 WASH mobile health as an innovative tool to facilitate behaviour change in Bangladesh: CHoB 17 mobile health programme	20
6.4 Water, sanitation and hygiene in outbreak response	20
6.5 Prevention and control of cholera: UNICEF update.....	21
6.6 Mapping access to safe water and sanitation in low- and middle-income countries: implications for disease control	22
6.7 Preventing cholera with water treatment: what works and implications for programmes	22
7. Risk communication and community engagement.....	23
8. Update on GTFCC research agenda	23
9. Identification of further technical guidance needed for the WASH package.....	24
10. WASH Working Group: way forward	25

10.1 Summary of WASH Working Group meeting and next steps 25

10.2 Final thoughts 27

Annex 1: Agenda.....28

Annex 2 : List of participantsError! Bookmark not defined.

Abbreviations

CATI	case-area targeted intervention
DFID	Department for International Development
DINEPA	National Drinking Water and Sanitation Directorate
GTFCC	Global Task Force on Cholera Control
IFRC	International Federation of Red Cross and Red Crescent Societies
NCP	national cholera plan
OCV	oral cholera vaccine
RCCE	risk communication and community engagement
SDG	Sustainable Development Goal
SWA	Sanitation and Water for All
UNICEF	United Nations Children's Fund
WASH	water, sanitation and hygiene
WHO	World Health Organization

Introduction and objectives of the meeting

The fourth meeting of the Water, Sanitation and Hygiene Working Group of the Global Task Force on Cholera Control (GTFCC) took place at Fondation Mérieux, Veyrier-du-Lac, France, on 12–13 February 2019. The meeting was an opportunity for participants to receive an update on *Ending cholera: a global roadmap to 2030* (the *Ending cholera roadmap*), and to discuss challenges and next steps for its implementation.

The specific objectives of the meeting were as follows:

1. to provide an update on the implementation of the *Ending cholera roadmap* and integration of water, sanitation and hygiene (WASH) into country national cholera plans (NCPs);
2. to discuss WASH-specific support to countries and follow-up from the third meeting of the WASH Working Group in February 2018;
3. to review the current status of the WASH research agenda;
4. to discuss and agree on the work plan and priorities for the WASH Working Group in 2019.

This document provides a summary of the presentations and discussions that took place over the two days of the meeting. Presentations are available on the website of Fondation Mérieux: <https://www.fondation-merieux.org/en/events/4th-meeting-of-the-global-task-force-on-cholera-control-gtfcc-wash-working-group/>

For each item, the key points of the presentation or discussion are presented as a series of bullet points.

Tuesday, 12 February 2019: morning session

1. Welcome and opening remarks

Tim Grieve, WASH senior adviser, UNICEF, and GTFCC WASH Working Group chair

- The global burden of cholera is still unacceptably high, with an estimated 2.9 million cases and 95 000 deaths per year.
- The majority of investment is in outbreak response. Yet outbreaks are predictable, and disproportionately affect disadvantaged populations, requiring investment in preparedness and prevention. This type of intervention is cost-effective and contributes to achieving Sustainable Development Goal 6 by 2030.
- While a multisectoral approach is required – including through surveillance, deployment of oral cholera vaccine (OCV), and case management – the water, sanitation and hygiene (WASH) sector represents over 85% of the total investment needed to eliminate cholera. A WASH-based approach is equity based and cost-effective, and provides multiple benefits beyond the elimination of cholera.
- The present meeting aims to build on the progress achieved by the GTFCC and the WASH Working Group during 2018 in developing the *Ending cholera roadmap* and the cholera investment case; to discuss how to support countries in development and implementation of their national cholera plans (NCPs), including through further refinement of the Cholera Elimination Framework; and to provide an update on the set of activities and interventions to support the WASH pillar of the NCP (the “WASH package”).

The wide range of partners represented at the meeting is an indication of the multisectoral, partnership-based approach needed to eliminate cholera. These include country representatives from the Democratic Republic of the Congo, Haiti, Malawi, Nigeria, Yemen, Zambia and Zimbabwe, who would present on the status of their NCPs; implementing partners, who would give insights into their in-country WASH efforts; representatives of donor and governmental agencies, who would present their interest in and support for NCPs; and colleagues from academia, who would contribute to strengthening the evidence base.

2. Global Task Force on Cholera Control: update

2.1 Update on the implementation of the *Ending cholera roadmap*

Dominique Legros, GTFCC Secretariat

- The objectives and axes of the *Ending cholera roadmap* were presented.
- Treating patients alone has been shown to have limited impact on transmission – in the long term, a WASH-based approach is vital for cholera elimination.
- The engagement of an increasing number of donors and partners is marshalling international resources to combat cholera.

- OCV is growing exponentially, especially in hotspots. A number of countries – including Haiti, Nigeria, Somalia, South Sudan, Yemen and Zimbabwe – have made significant progress in reducing the number of cholera cases, though greater integration of a WASH component is still needed.
- A number of challenges are still faced, including the failure of some countries to engage, for political or financial reasons, leading to underreporting and underestimation of cholera; lack of vaccines; inadequate integration of vaccine delivery and WASH; and insufficient GTFCC capacity for in-country support.
- The way forward will involve supporting priority countries to implement the roadmap; improving coordination and leadership mechanisms at global level; ensuring strategic vaccine supply, tailored to country needs; and undertaking advocacy on the investment case for WASH and cholera.

2.2 Overview of GTFCC achievements in 2018

Lorenzo Pezzoli, GTFCC Secretariat

- The GTFCC and its working groups were very active in 2018. Achievements include development of the first draft of the Framework to guide the development of NCPs to guide the development of national cholera control plans, finalization of the cholera investment case, support for research from the Wellcome Trust–United Kingdom Department for International Development (DFID) Joint Initiative on Epidemic Preparedness, and revision of the *Cholera outbreak response field manual* (the “yellow book”). Web- and phone-based versions of the manual are being developed as well as a smartphone app to provide practical tools for field workers. A pre-print version of the manual was distributed to the participants of the meeting.
- The working groups on WASH, epidemiology, laboratory, case management and OCV have all made significant progress in advancing the issues under their remits, including development of guidance, tools, and other materials, reviews of current practices, engagement in research agendas, country support, gathering and dissemination of data, and collaboration with partners.
- For the WASH Working Group, major achievements include the publication of the technical note on WASH and infection prevention and control in cholera treatment structures, collaboration with the Surveillance Working Group on the draft environmental surveillance technical note, contributing to the *Cholera outbreak response field manual*, supporting a presentation at World Water Week 2018, and a presentation at the University of North Carolina Water and Health Conference in November 2018¹.
- Country and partner engagement has increased notably since the launch of the *Ending cholera roadmap* in October 2017, with many examples of multisectoral country support and assistance in NCP development, for example in the Democratic Republic of the Congo, Haiti, Kenya, Malawi, Nigeria, Zambia, Zanzibar and Zimbabwe. In a number of cases GTFCC partners were directly involved, including the United States Centers for

¹ Technical notes can be found on the WHO’s GTFCC website: https://www.who.int/cholera/task_force/en/

Disease Control in Kenya and the United Republic of Tanzania, and WaterAid in Zambia.

2.3 Overview of roadmap investment case

Melissa Ko, MMGH Consulting

- The cholera investment case has been developed in order to estimate the costs and benefits of implementing the *Ending cholera roadmap*. It will act as an important tool for roadmap advocacy at global and country levels.
- Over 420 million people are estimated to live in cholera hotspots in the 47 cholera-affected countries. Best investment value would be achieved by concentrating on those hotspots.
- The estimated total cost of implementing the roadmap is US\$ 65 billion over the period 2018–2030, or US\$ 11 per person per year in hotspots. WASH capital costs within the scope of Sustainable Development Goal (SDG) 6 would increase and then decline by 2030, with WASH operation and maintenance costs taking an increasing share up to 2030 and beyond.
- WASH investment in cholera hotspots would represent less than 3% of the approximately US\$ 114 billion per year in WASH capital investments needed to achieve SDG 6 by 2030.
- Implementation of the roadmap would save 2 million lives by 2030, accounting for around 75% of the overall benefits.
- The benefit–cost ratio is highly favourable at 10:1 over the period 2018–2030, rising to 15:1 for 2018–2040 as all the benefits of WASH are realized and the period of investment is completed.
- An estimated US\$ 780 million additional dedicated funds are needed over 2018–2030 for roadmap success, or US\$ 60 million per year.
- In the next steps, the GTFCC, partners and countries will start using the global investment case as an advocacy tool for financing the roadmap pillars and other SDG-related initiatives. Countries will be able to adjust the model and key messages to fit their own contexts.

2.4 Discussion summary

- Given the changing role of the GTFCC and the increasing prominence given to WASH, there is an argument for adjusting the organizational structure to accommodate the advocacy dimension. An advocacy working group, for example, could help raise the profile of cholera and WASH at global and country levels.
- Attention was drawn to the discrepancy between the US\$ 65 billion estimated for implementation of the *Ending cholera roadmap*, and the UN-Water/Sanitation and Water for All (SWA) estimate of US\$ 114 billion per year until 2030 to achieve SDG 6. It was clarified that the latter figure is the total global investment needed for safely managed

WASH, while the former figure is a subset of that, as it pertains only to cholera hotspot populations in the 47 target countries. In addition, the cholera WASH estimate currently includes only household costs, and has not yet been calculated for institutional WASH, for example in schools and health facilities.

- The political challenges faced in presenting the cholera investment case and mobilizing support at the highest level were recognized. There is a need for investment not only in infrastructure but also in sustainable systems, in terms of improved local capacity and institutions. The nature of that challenge differs from country to country, requiring a tailored approach taking account of national specificities. Solutions should emerge as country-level assessments are carried out in coming years.

3. Country panel discussion: presentations on national cholera action

Updates, challenges and in-country support requirements for development and implementation of NCPs

3.1 Democratic Republic of the Congo

Ms Yvonne Ibebeke and Mr Mavard Kwengani

- The country's socioeconomic indicators reveal its vulnerability to waterborne diseases, including cholera, with a large proportion of rural and peri-urban inhabitants lacking access to safe drinking water and adequate sanitation and hygiene provision.
- Case incidence has stabilized following an outbreak in 2017, but case fatality rates remain variable. Most cholera hotspots are in the east and south of the country.
- The fight against cholera is based on the Multisectoral Strategic Plan for Cholera Elimination 2018–2022. Implementation of the plan is coordinated by the National Coordinating Committee for the Elimination of Cholera. Due to the size of the country, the plan has a strong provincial dimension.
- Challenges faced include weak coordination and inadequate involvement of some ministries; the scale of vaccination required; targeting big cities as sanctuary sites and outbreak hotspots; and implementation of sustainable WASH actions.
- In-country support requirements include finalization of provincial plans; greater resource mobilization; continued rehabilitation of water supply systems in large cities; and adoption of community mobilization in areas of persistence, based on the grid technique (house-by-house disinfection to prevent transmission).

3.2 Haiti

Mr Edwige Petit and Mr Paul Christian Namphy

- Haiti is a Caribbean country that has recently faced a number of disasters, including an earthquake, hurricanes, and a major cholera outbreak from 2010. The outbreak is on the wane, and the linkage between cholera incidence and rainfall has largely been severed.

Action to combat cholera has been focused on hotspots, using a cordon sanitaire approach supported by rapid response teams.

- The long-term plan 2018–2022 is coordinated by the National Drinking Water and Sanitation Directorate (DINEPA) in collaboration with the Ministry of Public Health and Population, and is supported at the highest levels of government. Elements of the plan include OCV, improved infrastructure in targeted communes, increased access to drinking water, water quality monitoring, improved sanitation, and ending of open defecation.
- Challenges still faced include maintenance of the response capacity until there are zero cases, ensuring that donor and stakeholder efforts are aligned with national priorities, ensuring that funds are disbursed efficiently, monitoring and evaluation of progress made, embedding WASH behaviour changes, and coordination of efforts with the neighbouring Dominican Republic. The main budgetary allocation is on infrastructure and drinking water services.

3.3 Malawi

Mr Emmanuel Mbawa

- Malawi is a landlocked country in south-east Africa. Cholera outbreaks of varying intensity occur most years, especially in the rainy season. The main hotspots are the Lake Chilwa basin, the shores of Lake Malawi, and the major cities.
- The National Cholera Epidemic Preparedness and Response Plan is an integrated, multisectoral plan aimed at the main hotspots. It is a multiyear plan providing a flexible response within the overall National Cholera Prevention and Control Plan.
- Areas covered under the response plan include coordination, surveillance, case management, OCV, WASH, and social mobilization and communication. Examples of WASH interventions are the open defecation-free initiative, community-led total sanitation, drilling and maintenance of boreholes, provision of piped water, water testing, and promotion of handwashing.
- In-country support is needed to address the challenges faced, including through construction of sanitary facilities in schools and public places, engagement of local entrepreneurs in latrine construction, community sensitization for hygienic behaviours, soap distribution, providing access to safe water, and combating contamination and salinization of water supplies.
- Sanitation in urban areas, where many households live in rented accommodation, presents a particular challenge. Different approaches are being used to increase coverage, including sanitation marketing.

3.4 Nigeria

Mr Sebastien Yennan

- The cholera outbreak of 2018 particularly affected the northern states, where insecurity presents access problems. Statistical techniques have been applied to define hotspots to the level of local government area.
- The National Strategic Plan of Action for Cholera Control 2018–2023 has been used to prioritize the 2018 OCV campaigns, though budgeting for the plan has yet to be finalized. The WASH section of the plan aims to increase access to safe water supply, reduce open defecation, and increase access to improved sanitation and hygiene. There is considerable competition for scarce resources, and other diseases are often prioritized.
- A number of challenges are faced. The sheer size of the country makes it difficult to generate political will and funding at all levels (national, state, local government area); to coordinate and mobilize key actors, including donors, many of whom come with their own priorities; to detect and report cholera cases in a timely manner; and to ensure adequate coverage of designated facilities for screening and treatment of cholera.
- In-country support is needed for advocacy at all levels to increase government and partner funding; to provide technical support (for which a GTFCC consultant would be beneficial); to strengthen capacity, including at the National Reference Laboratory; and to launch the partnership for longer-term WASH programme, which holds promise for private sector involvement.

3.5 Zambia

Mr Francis Bwalya

- Cholera outbreaks have occurred regularly in Zambia since 1977. In response, a plan has been developed with the goal of eliminating cholera by 2025. The plan adopts a three-pronged strategy aligned with the *Ending cholera roadmap*, comprising early detection and quick response; a coordinated, multisectoral approach targeting hotspots; and an effective mechanism for technical support, resource mobilization and partnership.
- WASH components of the plan include upgrading slums; enhancing the capacity of water utilities to supply safely managed water; enhanced communication and community engagement for behavioural changes and improved hygiene practices, including by engaging community leaders as agents of change; and adoption by the Ministry of Health of a Health in All Policies approach.
- High-level political commitment is demonstrated by the placing of the leadership and coordination arm for cholera elimination in the Office of the Vice-President, as part of the strategic objective of interministerial and interagency coordination, and effective mobilization of all partners.
- Challenges remain, including resource mobilization and OCV availability, and the porous borders with neighbouring cholera-affected countries. The aim is to demonstrate national commitment by financing 90% of the budget for implementation of the plan

from local resources, based on the balance of financing allocated for management of the 2017–2018 outbreak.

- In developing the plan, some consideration was given to the costing methodology used for the GTFCC investment case, though further guidance is needed. WASH interventions account for the major part of budget requirements but the amount is still little compared to national ambitions, for example in the area of slum upgrading.

3.6 Zimbabwe

Mr Brighton Sibanda

- Zimbabwe has had 15 cholera outbreaks in the last 20 years, including the current one. The main hotspot areas are Harare and north-eastern parts of the country. Contributory factors include the decline in water and sanitation services, the difficult economic situation, and human mobility across borders, for example for work in the mining sector.
- Cholera response plans are in place, and a range of stakeholders, including government actors and national and international partners, have been mobilized to develop the NCP. There is a need to maintain long-term focus on preventive actions, including WASH, following the end of an outbreak.
- More accurate targeting of outbreak foci within hotspots is needed, which in turn requires capacity-building at all levels. Ranking of hotspots would enable more efficient allocation of limited resources.
- In-country support requirements include assistance with vaccination programmes, capacity-building and knowledge sharing (for example through regular workshops), and activation of health clusters and other operational entities, several of which currently lie dormant.

3.7 Yemen

Mr Abdul Malik Mofadal

- The present conflict has had a devastating effect on the population, including through displacement, damage to water and sanitation infrastructure and health facilities, and breakdown of governance, leading to widespread incidence of cholera, especially in the more populated western areas of the country.
- WHO and the United Nations Children’s Fund (UNICEF) have assisted in maintaining some provision of services, including through operation of health facilities, infrastructure repair, capacity-building of staff (for example, for water quality testing), and water chlorination.
- The vaccination campaign of May–August 2018, supported by WASH activities, succeeded in reducing the number of cholera cases.
- Remaining challenges include lack of a WASH-enabling environment, lack of budget for operation and maintenance of health facilities, and continuing impact of the conflict on the ability of the government and other partners to mobilize resources.

3.8 Main points emerging from country presentations

- There is a need for strong political engagement at all levels to ensure continued involvement in cholera control, including in non-outbreak periods.
- Financing and resource mobilization are essential for sustainability.
- Operation and maintenance costs are the long-term responsibility of local governments, who require capacity-building in that area.
- Support for in-country advocacy is of crucial importance to raise and maintain the profile of cholera at national level.
- Leveraging resources for cholera control can be testing in instances where there are multiple competing priorities for limited resources, for example where other diseases are high on the political agenda.
- While forums such as the GTFCC can shape the global agenda, cholera control is essentially a country-driven process, reflecting the dynamic nature of the disease and the need for a flexible, knowledge-based approach at country level.
- In that regard, multisectoral engagement of all stakeholders – government, donors, and other national and international partners – is crucial in the development of the NCP and the formulation of the cholera investment case.

Tuesday, 12 February 2019: afternoon session

4. Implementation of the roadmap in countries: GTFCC support

4.1 Guidance on development of NCPs for control and elimination of cholera

Lorenzo Pezzoli, GTFCC Secretariat

- A core component of the work of the WASH Working Group is support for countries with their national cholera control or elimination plans (NCPs), and multisectoral implementation of the *Ending cholera roadmap* at country level.
- The two main workstreams focus on (a) practical guidance to countries and partners on NCP development, implementation and monitoring; and (b) the GTFCC process of receiving, reviewing and endorsing NCPs as they are developed.
- The NCP development process has five main stages: (a) country signals interest; (b) country conducts situational analysis; (c) country establishes multisectoral programme; (d) country develops plans and budgets; and (e) country endorses NCP.
- The situational analysis has two main components: (a) cholera risk assessment, including historical review, mapping of hotspots and evaluation of contextual factors; and (b) assessment of the main pillars of the NCP, namely surveillance, case management, OCV, WASH, community engagement and coordination. The situational analysis then feeds into the development of the NCP.

- Finally, the GTFCC endorsement process involves consideration of the NCP by the Technical Review Panel; work with the country to improve the plan; and endorsement of the final draft.

4.2 Overview of WASH pillar of the NCP

Monica Ramos, GTFCC WASH Working Group coordinator (UNICEF)

- The WASH pillar is a major element of the situational analysis conducted for an NCP. Under the situational analysis, the cholera risk assessment includes an overview of WASH practices and risk behaviours, as well as other contextual factors; while the capacity assessment considers WASH vulnerabilities, current policy and regulatory frameworks, existing services and programmes, and the feasibility of the sector to deliver the envisioned WASH package.
- Common WASH gaps identified include insufficient data; limited knowledge of effective interventions; insufficient funding and cost recovery; lack of prioritization of WASH interventions in hotspots; lack of adherence to the regulatory framework; poor linkages with non-WASH interventions; and absence of water quality surveillance in hotspots.
- The objectives of the WASH pillar are aligned with SDG 6 (although with 80% rather than 100% coverage targets), and include access to safely managed water and sanitation in cholera hotspots; effective governance, legal frameworks and accountability; and engagement with communities, local government and service providers.
- WASH is an important component of both axis 1 (cholera outbreak response) and axis 2 (multisectoral action to prevent and control cholera) under the *Ending cholera roadmap*.
- For Axis 1, this includes the following: (a) technical guidance through the elaboration and endorsement of key guidance on such topics as WASH and infection prevention and control in cholera treatment centres, water quality surveillance, and WASH for affected and at-risk populations; (b) WASH interventions, including the types of interventions to target households, communities and health care facilities (along with other public places), and WASH for OCV campaigns; and (c) training framework, including mapping of existing trainings, outline of standardized modules and content, and training and capacity-building plans.
- For axis 2, this includes a process-driven approach through a series of key steps, as follows: (a) technical assessment of existing WASH infrastructure and master plans to identify gaps and solutions; (b) development of costed, budgeted plans for recommended WASH solutions; (c) development of cost recovery and operation and maintenance plans for recommended WASH solutions (assessing financial viability and return on investment); (d) defining a monitoring plan based on key performance indicators for service provision; and (e) outline of framework for training and capacity-building plans.
- In 2019, UNICEF will support a consultancy in four countries to develop, test and pilot this process-driven approach and produce a costed NCP WASH guidance package. The

outcome of this consultancy will directly support the elaboration of guidance for WASH to support countries with their NCP development (axis 2)..

- Cholera hotspots constitute the entry point to roll out of WASH programmes, using existing in-country financial resources where possible. The viability and feasibility of cost recovery is a particularly important consideration for sustainability, given the long-term nature of operation and maintenance costs. .

4.3 Costing methodology for WASH

Guy Hutton, UNICEF

- To support the GTFCC global investment case for cholera, a costing methodology has been developed to evaluate the costs and benefits of investment in WASH in the 47 target countries.
- For long term/development WASH, the methodology is based on three levels of intervention: basic-plus water, basic sanitation and basic hygiene. The methodology also takes account of to whom the intervention is delivered by estimating the target population in hotspots compared to the baseline population. A minimum of 80% population coverage in the target year is estimated as a reasonable target for cholera elimination.
- For the costs, the three main categories are capital or infrastructure cost; demand creation and behaviour change; and operation and maintenance costs. The unit costs are derived from a World Bank study, validated at country level.
- For emergency WASH, interventions include chlorination, temporary WASH services, and hygiene behaviour change, delivered to 90% of the population in the outbreak area.
- The methodology estimates WASH capital costs globally as US\$ 2.6 billion per year, or US\$ 5.6 per person per year across hotspot populations; WASH operation and maintenance averaging US\$ 1.6 billion per year, or US\$ 3.4 per person per year; and emergency WASH costs of US\$ 445 million per year, reducing to US\$ 115 million per year after 2030.
- WASH capital costs and operation and maintenance costs account for over 90% of the total estimated, with those costs to be borne by countries and bilateral donors, while Gavi, the Vaccine Alliance, would be responsible for most OCV costs.
- Countries can use the costing methodology to estimate their own costs and benefits for developing their NCP and for advocacy purposes in presenting the cholera investment case.
- WASH is the major cost of the *Ending cholera roadmap* and brings many benefits besides cholera elimination, including reduction of other diarrhoeal diseases. Further data are needed to refine the methodology for micro-planning purposes.

4.4 Discussion on implementation of roadmap in countries

- Data gathering presents challenges, for example in instances where local events (such as earthquakes) can skew data trends over time. Such events are usually of more significance at the local level, and require flexible, local solutions.
- Of crucial importance is the transition from outbreak preparedness and response to cholera prevention and control in order to break the cycle of alternate periods of outbreak and abatement, thus achieving elimination of cholera. The pillars and axes of the roadmap are interdependent components of that process.
- Data are still being gathered to further develop the pillars and axes, for example the planned UNICEF work at country level to refine costings.
- There is a complementary relationship between the global roadmap and activities under the NCP. The roadmap aims to provide a global strategy, while the NCPs develop a multisectoral action plan at country level.
- Countries are at different levels and stages in their efforts to eliminate cholera, and are developing their NCPs in line with national specificities.
- When developing NCPs, it is important to view preparedness and response as an integrated element of prevention and control, rather than as a separate set of activities.

5. Implementation of the roadmap in countries: group work

5.1 Group work introduction

Two groups were formed to discuss questions related to a) WASH vulnerability and b) WASH advocacy and financing within NCPs..

Group 1: WASH vulnerability

1. What are the WASH factors that should be considered to contribute to the identification of hotspots to guide the development and targeting of NCPs?
2. How can these WASH factors be measured and assessed when conducting a situational analysis in cholera hotspots?
3. How should they be incorporated into the elaboration of an NCP to address gaps?
4. How can they be used to monitor progress in implementing the *Ending cholera roadmap*?

Group 2: WASH advocacy and financing

1. Which tools are most useful to support advocacy and financing of WASH investments in the NCP?
2. What is required in country to support advocacy and financing of WASH investments in the NCP?
3. How can the GTFCC be engaged at different levels, including global, national and subnational, to support advocacy and financing of WASH investments in the NCP?

Wednesday, 13 February 2019: morning session

5.2 Group work: feedback from group 1, WASH vulnerability

Key discussion outcomes

- Identification of hotspots remains a particular challenge. Criteria include historical incidence of cholera; WASH vulnerability indicators; and other indicators, such as presence of open-air markets.
- WASH vulnerabilities are present in varying degrees in different locations, and contribute to a ranking of hotspots and vulnerable locations in order to prioritize interventions. Targeting potential outbreak sources is of prime importance.
- The link between WASH and the cholera disease burden is not always clear, presenting a challenge in identifying specific transmission risk factors as a basis for intervention. Experts and researchers can join forces to provide quantitative and qualitative support for the incorporation of WASH vulnerabilities into hotspot identification.
- Making the WASH investment case requires decision-making on which activities are most effective in the short term, and which require longer-term investment.
- Data can be developed for core indicators related to households, schools, and health care settings, supported by more specific indicators for behaviours and other criteria.
- A quality assurance sampling tool can enable smaller sample sizes for regular monitoring.
- Investment in cholera elimination should be positioned within the wider goal of achieving the SDGs.

Main take-away messages

1. Keep it simple. Any methodology developed should be replicable and feasible at country level within a short time period. Short, coherent guidance documents can assist countries in developing NCPs.
2. To quantify WASH vulnerabilities use existing data and data sets where possible, including the Joint Monitoring Programme on Water Supply and Sanitation, multiple indicator cluster surveys, and demographic and health surveys, including both direct and indirect factors. Some key factors such as access to and use of WASH services may not be available from these sources.
3. Develop a typology that is applicable to different settings and allows country-level contextualization.
4. Ensure continuity between the data used for the baseline vulnerability assessment and for monitoring and evaluation.
5. Focus on root causes and the source of the problem.

Next steps

1. Create a smaller follow-up group or task team to define a typology for WASH coverage and metric formulation. The GTFCC Secretariat should support the process.
2. Develop a list of baseline WASH indicators and other criteria for inclusion in the NCP framework being developed.
3. The framework can be a useful tool for integration of WASH indicators in NCPs.
4. Vulnerability data developed by the WASH task team should complement epidemiological data indicators identified by the Surveillance Working Group.

5.3 Group work: feedback from group 2, WASH advocacy and financing

Key group work outcomes

- Guiding objectives for WASH advocacy efforts include better understanding of political engagement (such as what models and messages work best); putting countries at the centre of the process; ensuring appropriate implementation modalities (for example through analysis of existing systems); monitoring implementation; and achieving alignment between advocacy efforts at global, national and local levels.
- A range of tools are available or will need to be developed to support advocacy efforts to finance WASH investments, including NCPs; appropriate messaging; hotspot analysis (with cholera as an indicator to target broader interventions); the cholera investment case; and an advocacy toolkit, including training materials.
- In-country requirements to support advocacy and financing of WASH investment in NCPs include top-level political engagement; community demand and participation; donor perspective and support; and private sector engagement.
- The GTFCC can be engaged at various levels, including developing a global advocacy strategy; supporting countries to translate the global strategy to national and subnational levels; developing a training package for country-level advocacy; and leveraging of existing platforms and partnerships at global level.

Other discussion outcomes

- Country-level ownership of the advocacy process is important. Key actors should be targeted and involved, including political and administrative representatives at all levels.
- Mechanisms and tools are necessary for advocacy and financing at regional level in order to address transboundary hotspots.
- Opportunities should be sought not only to address WASH in cholera plans, but also to ensure that national WASH plans incorporate a cholera focus.
- There is a global need to strengthen the WASH sector and ensure no one is left behind. Intersectoral linkages need to be explored to remove bottlenecks and accurately target resources and services to populations living in hotspots.

- Engaging consumers and end users is crucial for long-term financing of operation and maintenance, requiring careful consideration of cost-recovery modalities. Social accountability tools are available for garnering community support.
- The political cost to a country of the presence of cholera is a powerful advocacy tool.
- Cross-fertilization of ideas between the GTFCC working groups would benefit the work of all groups.

Main discussion points

1. The preliminary results of a report from a consultancy coordinated by the Global WASH and Health clusters, focusing on coordination for preparedness and response to cholera outbreaks show that the roles and responsibilities of different platforms (e.g. Health and WASH clusters, Humanitarian Coordination Team) in the field are unclear. Following a side meeting sharing these preliminary results, the GWC requested that the GTFCC participate in ongoing discussions in order to clarify roles and responsibilities. Clarity is specifically requested about the role of any in country GTFCC coordinator particularly relating to outbreak preparedness and response and in relation to existing coordination mechanisms.
2. An advocacy strategy would not only be global in nature but would link with advocacy processes at national and subnational levels.

Next steps

1. People interested to contribute to further development of cholera advocacy were asked to identify themselves to the GTFCC Secretariat..
2. Operationalize the country support platform to reinforce the capacity of the GTFCC at country level, including activities to support research, monitoring and evaluation, advocacy, and operational aspects.

6. Partner presentations

6.1 Effectiveness of case-area targeted response interventions against cholera: a quasi-experimental study in Haiti

Stanislas Rebaudet, APHM, Hôpital Européen Marseille, France

- Case-area targeted interventions (CATIs) offer promise for dealing promptly and effectively with cholera outbreaks, but have not previously been properly evaluated.
- A nationwide alert-response strategy has been deployed in Haiti since 2013, using mobile teams targeting implementation of a WASH package and distribution of antibiotics in case households and neighbouring households within 48 hours of a case being reported. Early intervention is key.
- Prompt and repeated CATIs were found to reduce the number of cases and shorten the duration of local cholera outbreaks in rural and semi-urban areas of Haiti. This includes evidence that CATIs conducted less than or equal to one day, resulted in reduced accumulated cases by 74% and outbreak duration of by 64%

- Further research on this type of intervention in different contexts is necessary.

6.2 One WASH

Chris Brewer, International Federation of Red Cross and Red Crescent Societies (IFRC)

- One WASH is a global, integrated approach to combine health, WASH, nutrition and environmental sanitation in cholera high-risk areas.
- The approach focuses on three actions that are closely interlinked with the GTFCC roadmap: improved preparedness and response; long-term WASH projects to reduce mortality and morbidity; and internal and external advocacy and commitment.
- The approach is based on the IFRC comparative advantage of long-term, community-based action, including training, surveillance, support to OCV campaigns, and advocacy.
- One WASH projects are at the inception stage in a number of countries. Other partners and donors are encouraged to add to the seed funding provided by the IFRC.

6.3 WASH mobile health as an innovative tool to facilitate behaviour change in Bangladesh: CHoB17 mobile health programme

Christine Marie George, Johns Hopkins Bloomberg School of Public Health

- The CHoB17 mobile health programme responds to the fact that household members of cholera patients in Bangladesh have a 100 times greater risk of developing a cholera infection than the general population in the seven days following admission of the first household cholera patient.
- In a randomized controlled trial, three arms were compared: (a) a specifically designed hygiene intervention delivered at the hospital prior to discharge; (b) the same hospital hygiene intervention supported by mobile phone messages to prompt WASH action at household level; and (c) the same hospital and mobile messaging programme with additional home visits to strengthen hygiene messaging.
- Both intervention arms of the CHoB17 mobile health programme resulted in increased handwashing and improved stored household water quality at both seven days and nine months follow-up. The study findings demonstrate that mobile health presents a promising approach to facilitating WASH behaviour change during cholera outbreaks, and could usefully be piloted in other locations.

6.4 Water, sanitation and hygiene in outbreak response

Daniele Lantagne, Tufts University

- A systematic review found that the evidence base for certain WASH actions commonly undertaken during outbreaks is limited. Laboratory research, and mixed-method field research of existing programmes, were carried out with the aim of filling some of the gaps.
- This research included the following: (a) efficacy of bucket chlorination, household spraying and household disinfection, and methods for cleaning jerry cans and taps and

dealing with fouling in membrane filters (in the laboratory); (b) effectiveness of programmes implementing water trucking, bucket chlorination, household spraying and household disinfection kits and hygiene kits, cash transfers and shared latrines (in the field); and (c) chlorine tablet selection and alignment, and impact of coordination and quality of response (policy issues).

- Tests indicated the importance of implementation. For example, the effectiveness of household spraying with chlorine tested at different intervals (i.e. after 30 minutes and 24 hours), depends on such factors as a systematic approach and the thoroughness of the spraying. The work did not evaluate the effect of these interventions on transmission of cholera.
- For bucket chlorination there was high variability in the components of and implementation of programmes, but most were effective at reducing bacterial loads in drinking water to < 1 CFU per 100 ml of water sampled in 90% of households. More work is necessary to ensure consistency of field implementation.
- Further research is needed to show the actual impact of improved methods on cholera reduction, and the critical factors for success.
- It also remains unclear how the research findings could inform the contents of a WASH package, with an effective balance between shorter-term control measures and more general WASH interventions in longer-term programmes.

6.5 Prevention and control of cholera: UNICEF update

Carlos Navarro Colorado, UNICEF

- Regarding cholera control, the main focus of UNICEF's work is preparedness and response.
- The main comparative advantage of UNICEF is its presence on the ground in many countries, as a result of which it is often the first responder in health emergencies.
- UNICEF has chaired the WASH Working Group since 2017, and makes major contributions in such areas as technical guidance and support, country-level support, research, and advocacy, including development of the cholera investment case.
- UNICEF gives strong support to the regional cholera platforms in western and central Africa, in eastern and southern Africa, and in the Middle East and North Africa. These multisectoral operational platforms operate at the regional level to support knowledge and information exchange; monitor country progress towards control and elimination; and provide human and technical support to countries of the subregions before, during and after a cholera outbreak.

6.6 Mapping access to safe water and sanitation in low- and middle-income countries: implications for disease control

Ani Deshpande, University of Washington, Institute of Health Metrics and Evaluation

- The mapping access project was developed in response to the fact that accurate targeting of water and sanitation interventions can prevent exposure to enteric pathogens, reducing the disease burden and outbreak vulnerability.
- The project adopts a geospatial approach to mapping water and sanitation facilities, capturing spatial and temporal trends using a wide variety of data sources.
- The mapping exercise has a number of applications, including monitoring progress towards SDG 6 by measuring geographical equity; identifying locations for targeting interventions of infrastructure development or risk mitigation; and assessing vulnerability to enteric disease outbreaks and the burden of endemic diarrhoeal diseases.

6.7 Preventing cholera with water treatment: what works and implications for programmes

Maggie Montgomery, WHO

- The WHO International Scheme to Evaluate Household Water Treatment Technologies has tested 30 different products in two rounds. The household water treatment market is diverse in both products and performance, and an independent, health-based performance evaluation guides country-level selection.
- Regarding chlorination, testing indicated that chlorine demand is variable and affected by a range of parameters, requiring a site-specific approach.
- The evaluation scheme found that manufacturing quality control for many product types is weak; performance claims are often overstated; and instructions are often unclear and inconsistent.
- The performance of many product types was highly variable. It is important to remember that distribution of products that do not work has no benefit and can have negative ethical consequences and impacts on the health and well-being of recipients. Effective chlorination requires regular monitoring and adjustments.
- Results are communicated to manufacturers. Capacity-building is undertaken at national level to strengthen regulatory oversight, and to fast-track products that work.
- Round III is being launched and WHO is interested in receiving further products for testing.²

² For more information, contact: hhwater@who.int. The test results for round I are available at http://www.who.int/water_sanitation_health/water-quality/household/scheme-household-water-treatment/en/ and round II will be published in April 2019.

7. Risk communication and community engagement

Eva Niederberger, Oxfam, and Ketan Chitnis, UNICEF

- The Ebola outbreak gave renewed stimulus to the importance of interagency coordination in refining risk communication and community engagement (RCCE) interventions. RCCE involves an integrated effort across sectors and clusters.
- Within the cholera sphere, there is an opportunity for RCCE to go beyond the usual strategic areas of hygiene practices, vaccination and care seeking to embrace other areas, including community surveillance and feedback, preparedness, and rapid response.
- Positive outcomes of RCCE include behaviour change, community feedback and accountability, community partnership and ownership, and improved advocacy.
- An RCCE approach in remote areas of Yemen improved local-level preparedness, while work in the Democratic Republic of the Congo showed the value of mobile technology for community feedback in outbreak responses.
- Challenges to the RCCE approach include closing the feedback loop between community perspectives and response mechanisms; improved coordination between the different pillars of community engagement; gathering timely information on epi trends to align social data analysis with RCCE; aligning the responses of different actors; and importantly, the inclusion of RCCE within each pillar of the NCP.

Wednesday, 13 February 2019: afternoon session

8. Update on GTFCC research agenda

Monica Ramos, GTFCC WASH Working Group coordinator (UNICEF)

- The GTFCC research agenda has three main phased focus areas: (a) pre-implementation, including burden of disease, identification of hotspots and transmission dynamics; (b) implementation, including community-level optimization of interventions (such as WASH), behaviour change, OCV, and synergies of interventions; and (c) post-implementation, including monitoring and evaluation and effectiveness. Social science aspects, impact and cost-effectiveness are cross-cutting areas.
- A mapping exercise showed six main research priorities for WASH and cholera, identified for the WASH Working Group and aligned with the GTFCC research agenda:

GTFCC research agenda	Mapped research priorities
Optimization of interventions at community level	• Filling evidence gaps on impact of interventions
	• Effectiveness and impact of targeted WASH household responses (including rapid response teams)

Transmission dynamics	<ul style="list-style-type: none"> • Minimum WASH package – case studies and evidence-based design
Synergies of interventions	<ul style="list-style-type: none"> • OCV and WASH
Changes in attitude, behaviour	<ul style="list-style-type: none"> • Behaviour practices and improvements – identification of motivators and barriers
Social sciences and impact	<ul style="list-style-type: none"> • Integrated health and WASH responses

- In 2019, UNICEF will support a consultancy to develop a research plan to support advocacy and resource mobilization efforts, and develop a harmonized approach to research. The work conducted under this consultancy will directly support the WASH Working Group research priorities and GTFCC research agenda.
- A joint Wellcome Trust/DFID call for proposals for cholera related-research was issued in November 2018. The outcome of submissions should be provided in February 2019. There were no further updates provided.

Discussion points

- A balance is needed between well coordinated research and leaving the door open for “out-of-the-box” thinking. The potential for long-term support for research in the cholera domain is promising.
- It is important to ensure effective knowledge management and transfer of knowledge, in addition to knowledge generation.
- There will be opportunities for the working groups to discuss the establishment of a research platform as part of the GTFCC setup and country support platform for the elimination of cholera.

9. Identification of further technical guidance needed for the WASH package

Jean Lapegue, Action contre la Faim, with Monica Ramos, GTFCC WASH Working Group coordinator (UNICEF) and Pierre Yves Oger, regional cholera platforms, eastern and southern Africa (UNICEF)

- Identification of further technical guidance needed for the WASH package is mainly centred in axes 1 and 2, and considers two main questions: What technical guidance and training materials already exist? and, What technical guidance and training materials are missing and need to be prioritized?
- The issue of rolling out WASH activities to accompany OCV campaigns has already been discussed at, and welcomed by, the OCV Working Group, and an initial framework of possible activities in outbreak and endemic settings has been developed as a possible basis for an OCV–WASH package.
- Work is needed to ensure that the GTFCC repository is kept up to date with recent training materials and packages on a range of topics, and that the materials are made accessible to actors and partners at all levels.

- Ways forward for capacity-building include multisectoral gap analysis at country level; prioritization of rapid response; clarification of the role of different partners; monitoring and evaluation of capacity-building; possible GTFCC validation of training packages or minimum competencies; links with other diseases; and options for sustainability.

Discussion points

- For each of the main elements of axes 1 and 2, there is considerable variation in the available technical guidance and training materials, and the need for further evidence-based guidance and materials, that and promote best practices..
- Points stressed with regard to knowledge management and training include
 - the need to ensure sharing of the information gathered through monitoring;
 - the importance of adopting an integrated approach to data gathering and to guidance and training;
 - the potential value of setting up a platform to help organize activities and ensure countries benefit from the experience;
 - the importance of sharing methodology to countries as well as delivering training, in order to ensure consistency, quality and sustainability;
 - the need to ensure a sound evidence base before disseminating guidance; and training of trainers as an essential prerequisite for national capacity-building.
- On policy and organizational matters, points highlighted include the need to adopt a flexible approach according to local circumstances; the importance of knowing what other actors are doing in order to avoid overlap or resource wastage; and the value to be gained from a regional or transboundary approach.

10. WASH Working Group: way forward

10.1 Summary of WASH Working Group meeting and next steps

Lorenzo Pezzoli, GTFCC

Countries. There was good participation from countries at various stages of NCP development, with the following common threads:

- NCP development is a country-driven process, requiring technical and advocacy support.
- Political engagement and will go beyond single ministries, requiring a multisectoral approach.
- Financial commitment is essential to ensure sustainability.
- WASH interventions should be targeted at hotspot level.
- In the next stage, the NCP framework (including the budgeting tool) will be piloted and targeted at country level.

NCP framework finalization. The following main points emerged:

- It is important to transition from emergency (acute) WASH to long-term development WASH.
- A balance is needed between a cholera-specific (“laser”) approach and a broader approach that addresses the SDGs and other diseases.
- Group 1, on WASH vulnerabilities, highlighted the need to systematize WASH indicators (risk factors) for hotspot analysis and NCP targeting (in collaboration with the Surveillance Working Group). A task team would work on the matter in 2019.
- Group 2, on advocacy, stressed the importance of national advocacy (technical and political, including resource mobilization). As noted above, participants interested in contributing to the advocacy agenda were asked to identify themselves to the GTFCC Secretariat.
- **Research.** The main points included:
 - the importance of transitioning research into practice;
 - synergy with all other working groups;
 - the need for flexibility between focusing on priorities while also leaving space for innovation;
 - the importance of knowledge management after the generation of knowledge through research, supported by a research platform.

WASH and cholera training. Key aims identified were as follows:

- measuring capacity and needs at all levels;
- asking partners to share existing guidance and trainings;
- cleaning up the repository.

Additional technical guidance needed in the WASH package. Key suggestions were as follows:

- cholera hotspot identification: prepare guidance on vulnerabilities for WASH and epidemiological criteria;
- WASH and OCV in hotspots: prepare guidance on combined interventions and implementation of WASH during vaccination campaigns;
- rapid response teams: develop terms of reference and operational guidance based on existing experiences and evidence;
- community engagement: adopt a more evidence-based, analytical approach;
- training framework: outlined of standardization of essential modules and technical content to be included in WASH and cholera trainings;
- NCP technical guideline (UNICEF-supported consultancy): develop costed technical tool, monitoring framework, training etc.

10.2 Final thoughts

Tim Grieve, Senior WASH Advisor, UNICEF and GTFCC WASH Working Group Chair

The WASH Working Group has made significant steps towards supporting national-level cholera elimination and control programmes. Progress has also been made in the following areas: (a) moving towards operationalization of NCPs; (b) development of the “WASH package” to end cholera (agreed under the umbrella of a multisectoral cholera control intervention demonstrating a strong alignment to the SDGs); (c) development of the Cholera Elimination Framework; (d) refining the WASH vulnerability and WASH advocacy and financing elements of NCPs; and (e) developing the cholera investment case.

Highlights included:

- The global investment case to end cholera was informally launched, demonstrating a 10:1 benefit cost ratio. A strong advocacy point is that WASH investment in cholera hotspots would represent less than 3% of the approximately US\$ 114 billion per year in WASH capital investments needed to achieve SDG 6 by 2030.
- Donors such as DFID publicly announced their interest in funding cholera control.
- All seven countries present agreed to a greater focus on the implementation of NCPs, as the GTFCC actively shifts to supporting at the national level.
- New evidence was presented demonstrating the efficacy of rapid response teams in cutting transmission early in emergency contexts, as well as innovations such as geospatial mapping for better targeting and effectively scaling up hygiene promotion to cut cholera transmission through mobile phone technologies.
- It was generally agreed that risk communication and community engagement needed strengthening, with the support of UNICEF’s Communication for Development (C4D) programme and Oxfam.
- It was agreed that the regional cholera platforms that are predominantly supported by UNICEF in western and central Africa, in eastern and southern Africa, and in the Middle East and North Africa would benefit from linking into the GTFCC governance structures. The regional platforms have a strong role to play in providing technical assistance and coordination in cross-border transmission, fundraising and assisting countries with their NCPs.

Annex 1: Agenda

Topics	
TUESDAY, 12 th FEBRUARY	
8.30 - 9.00	<i>Welcome coffee</i>
9.00 - 9.30	INTRODUCTION Opening Remarks – <i>Tim Grieve, WASH WG Chair</i> Introduction of participants and meeting objectives
9.30 – 10.30	GTFCC UPDATE Update on the implementation of the <i>Ending Cholera Roadmap</i> and countries engagement – <i>Dominique Legros, GTFCC Secretariat</i> Overview of GTFCC achievements in 2018 – <i>Lorenzo Pezzoli, GTFCC Secretariat</i> Overview of Cholera Investment Case – <i>Melissa Ko, Consultant</i> <i>Group discussion</i>
10.30 - 11.00	<i>Coffee Break</i>
11.00 – 13.00	COUNTRY PANEL DISCUSSION – Updates, challenges and in-country support requirements for the development and implementation of National Cholera Plans (NCP) Expected country presentations by DRC, Haiti, Malawi, Nigeria, Zambia, Zimbabwe and Yemen <i>Panel discussion with prompted Q & A</i>
13.00 - 14.00	<i>Lunch Break</i>
14.00 - 15.00	IMPLEMENTATION OF THE ROADMAP IN COUNTRIES – GTFCC SUPPORT Overview of Cholera Elimination Framework for the development of NCPs - <i>Lorenzo Pezzoli, GTFCC Secretariat</i> Overview WASH Pillar of NCPs – <i>Monica Ramos, WASH WG Coordinator</i> Overview of costing methodology for WASH – <i>Guy Hutton, UNICEF</i> <i>Group discussion</i>
15.00 - 15.30	<i>Coffee break</i>
15.30 - 17.00	IMPLEMENTATION OF THE ROADMAP IN COUNTRIES – GROUP WORK Group 1: WASH Vulnerability: identification and measurement of WASH vulnerability for situational analysis, planning and monitoring NCPs <i>Group leads: Monica Ramos, WASH WG Coordinator & Lorenzo Pezzoli, GTFCC Secretariat</i> Group 2: Role of GTFCC for WASH Advocacy and Financing: outline an advocacy plan for funding of NCPs <i>Group leads: John Oldfield, Global Water 2020 and Francis Bwalya, Zambia Mission</i>
OPTION AL 17.00 - 18:00	INTERACTIVE PRATICAL SESSION FOR COUNTRIES ON THE WASH COSTING TOOL <i>Facilitated by Guy Hutton, UNICEF</i>
FROM 18.00 DRINKS WILL BE FOLLOWED BY DINNER AT FONDATION MERIEUX	

WEDNESDAY, 13 th FEBRUARY	
9.00 – 10.30	IMPLEMENTATION OF THE ROADMAP IN COUNTRIES – FEEDBACK FROM GROUP WORK Group 1: WASH Vulnerability: identification and measurement of WASH vulnerability for situational analysis, planning and monitoring NCPs Group 2: Role of GTFCC for WASH Advocacy and Financing: outline an advocacy plan for funding of NCPs <i>Group discussion</i>
10.30 – 11.00	<i>Coffee Break</i>
11.00 – 12.30	PARTNER PRESENTATIONS <ul style="list-style-type: none"> • Assistance Publique-Hôpitaux Marseille (AP-HM) – <i>Stanislas Rebaudet and Renaud Piarroux</i> • IFRC – <i>Alexandra Machado and Chris Brewer</i> • Johns Hopkins University – <i>Christine Marie Georges</i> • Tufts University – <i>Daniele Lantagne</i> • UNICEF – <i>Carlos Navarro Colorado</i> • University of Washington – Institute of Health Metrics and Evaluation (IHME) – <i>Ani Deshpande</i> • WHO – <i>Maggie Montgomery</i> <i>Group discussion</i>
12.30 – 13.00	RISK COMMUNICATION AND COMMUNITY ENGAGEMENT Role of risk communications and community engagement in NCPs – <i>Ketan Chitnis, UNICEF and Eva Niederberger, Oxfam</i> <i>Group discussion</i>
13.00 – 14.00	<i>Lunch Break</i>
14.00 – 14.30	UPDATE ON GTFCC RESEARCH AGENDA Update on the GTFCC Research priorities - <i>Monica Ramos, WASH WG Coordinator</i> Update on the DFID/Wellcome call for proposal – <i>Zoe Seager, Wellcome Trust</i> <i>Group discussion</i>
14.30 – 15.30	IDENTIFICATION OF FURTHER TECHNICAL GUIDANCE NEEDED FOR THE “WASH PACKAGE” WASH Light for OCV campaigns – <i>Monica Ramos, WASH WG Coordinator</i> Overview of WASH and Cholera training – <i>selected partners</i> <i>Group discussion</i>
15.30 – 16.00	<i>Coffee Break</i>
16.00 – 17.00	WASH WG AND NEXT STEPS <i>Chair: Tim Grieve, WASH WG Chair</i> Summary of main points agreed during the meeting and agreement on agenda of work – <i>Lorenzo Pezzoli, GTFCC Secretariat</i> Work plan and 2019 priorities Final words - <i>Tim Grieve, WASH WG Chair</i>
END OF MEETING	

Annex 2: List of participants

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