



Sanitation and
Hygiene Applied
Research for Equity

EMERGENCY ENVIRONMENTAL HEALTH FORUM 2012

Key Note:
Professor Sandy Cairncross

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London School of Hygiene & Tropical Medicine

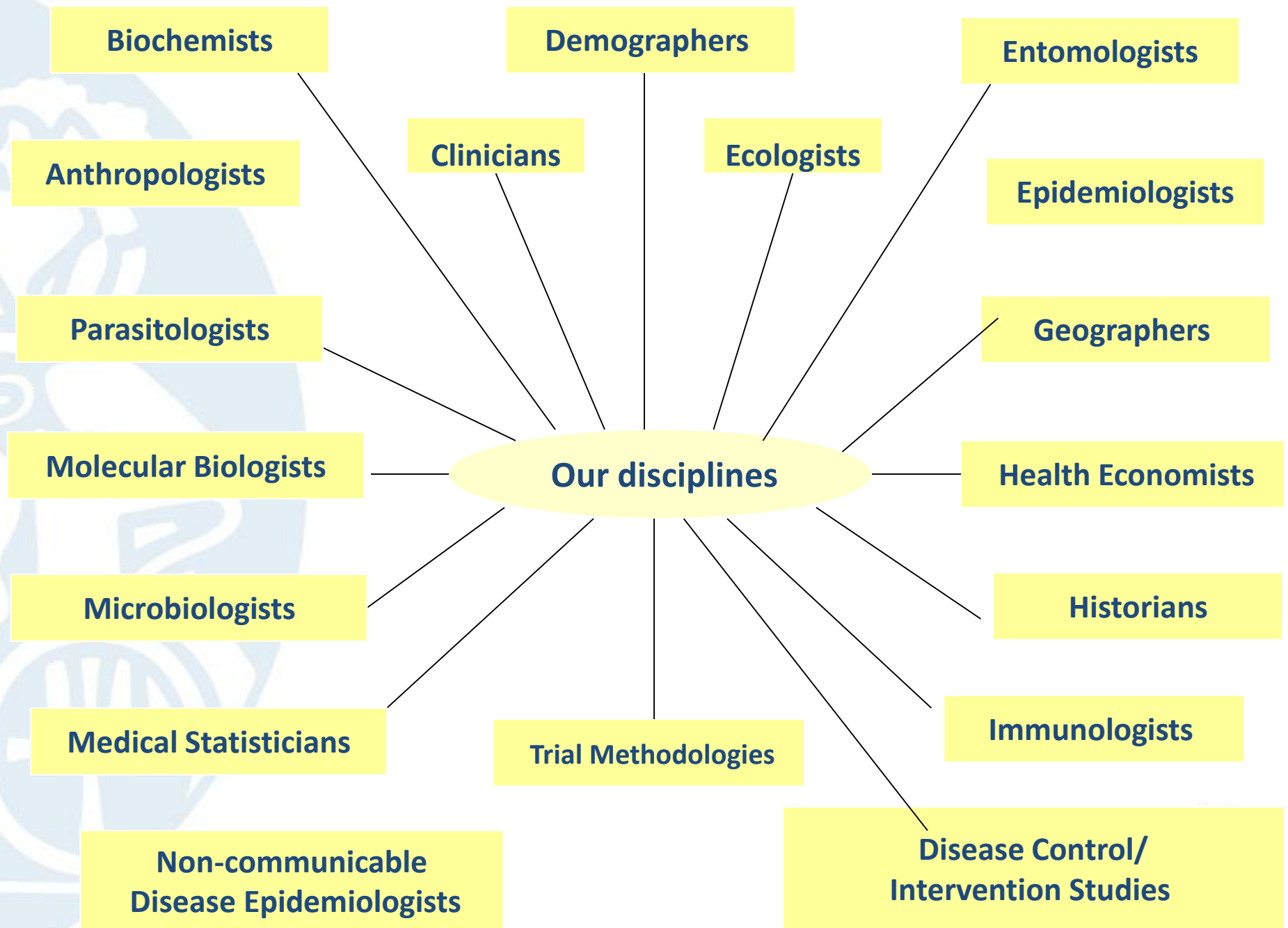
An international School:

- Students from over 120 countries
- Alumni in over 180 countries
- Staff from 45 countries
- Projects in over 100 countries

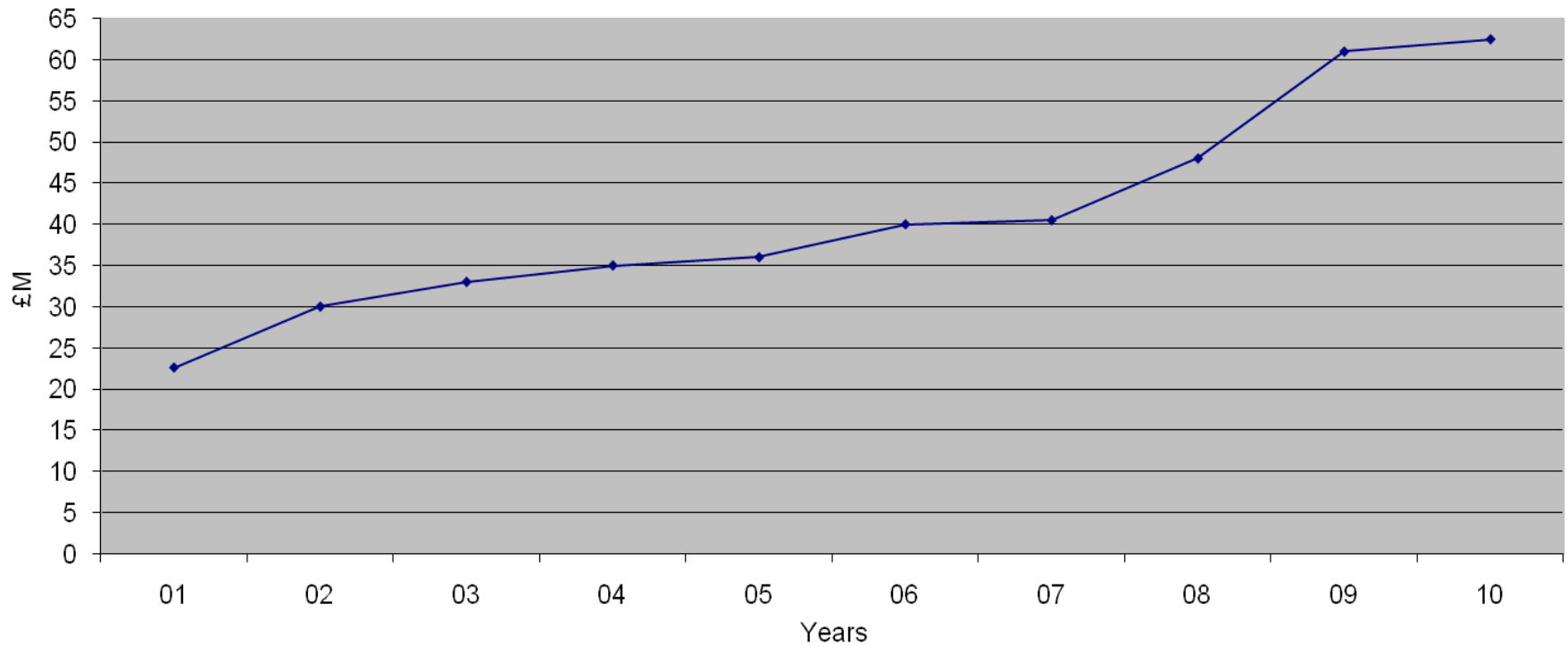


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Research Income



Teaching

MSc Courses *(London-based)*

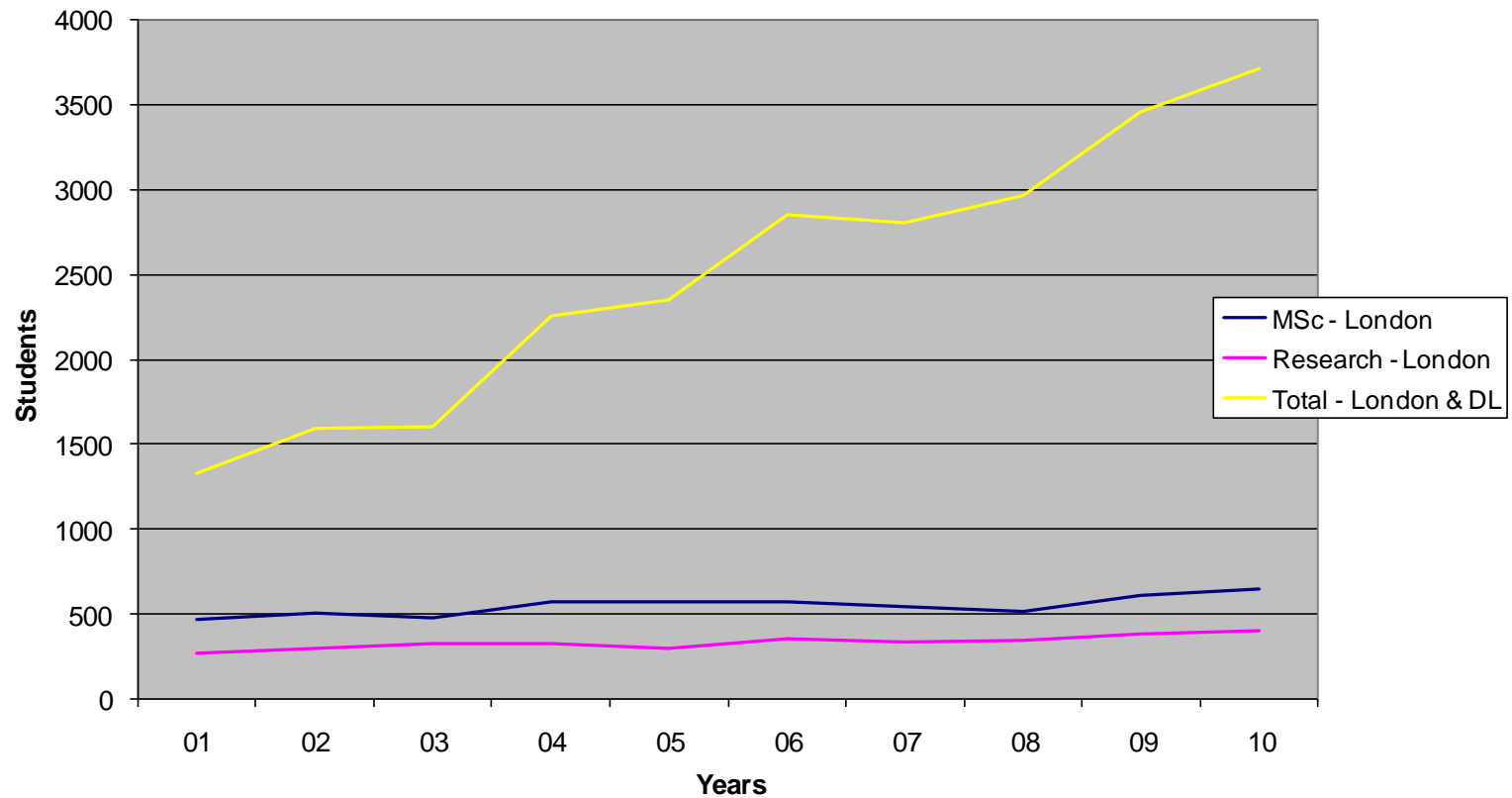
- 18 Masters courses
- Around 650 students from over 65 countries

Distance Learning

- Four MSc courses
- 3000 students in over 100 countries



LSHTM Student numbers



Sanitation, water & hygiene in emergencies; results of the SHARE review

Sandy Cairncross

London School of Hygiene & Tropical Medicine

Emergencies Environmental Health Forum

17 December 2012

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The SHARE review

- Joe Brown, Sue Cavill, Oliver Cumming & Aurélie Jeandron (2012) Water, sanitation & hygiene in emergencies; summary review & recommendations for future research. *Waterlines* **31** (1 – 2): 11 - 29





Outline

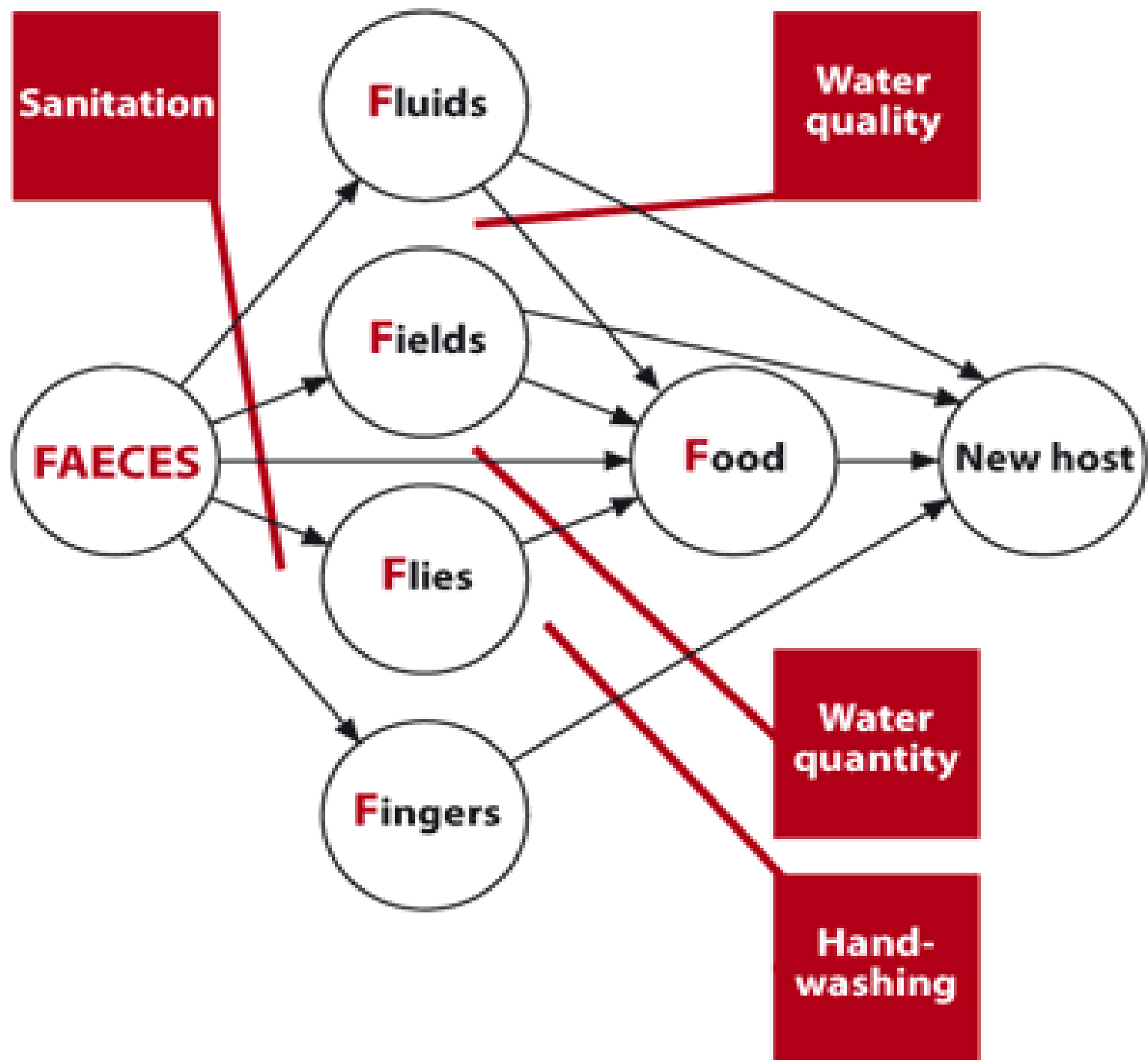
- Introduction
- Overview of the published evidence and research priorities:
 - Sanitation
 - Water supply
 - Hygiene
- Topics for research



Background

- During or after disasters or conflict, disease often kills more people than the primary event
 - Especially where existing infrastructure is inadequate
- In some cases, diarrhoea causes the majority of deaths
 - During the 1991 Kurdish refugee crisis, 70% of all deaths were due to diarrhoea (including cholera) (Toole and Waldman 1997)
- Faecal-oral diseases can cause more than 40% of deaths in the acute phase of an emergency,
 - > 80% of deaths in children < 2 years of age (Connolly et al., 2004)





Some common co-infections that may be prevented or reduced with WASH



- **Faecal-oral**
 - Hepatitis A,E; viral diarrhoeas; campylobacter; cholera; ETEC; salmonella; shigella; typhoid; paratyphoid; crypto; giardia; amoebas; *Toxoplasma gondii* and other opportunists
- **Water-washed**
 - Trachoma; scabies; conjunctivitis; louse-borne infections
- **Soil helminths and tapeworms**
 - Ascaris; trichuris; hookworm; taenia
- **Water-based**
 - cholera; legionella; leptospirosis; schisto;
- **Insect vectors**
 - Dengue, yllw fever, malaria, trypanosomiasis, filariasis, trachoma
- **Rodent borne**
 - Leptospirosis; hantavirus, tularemia

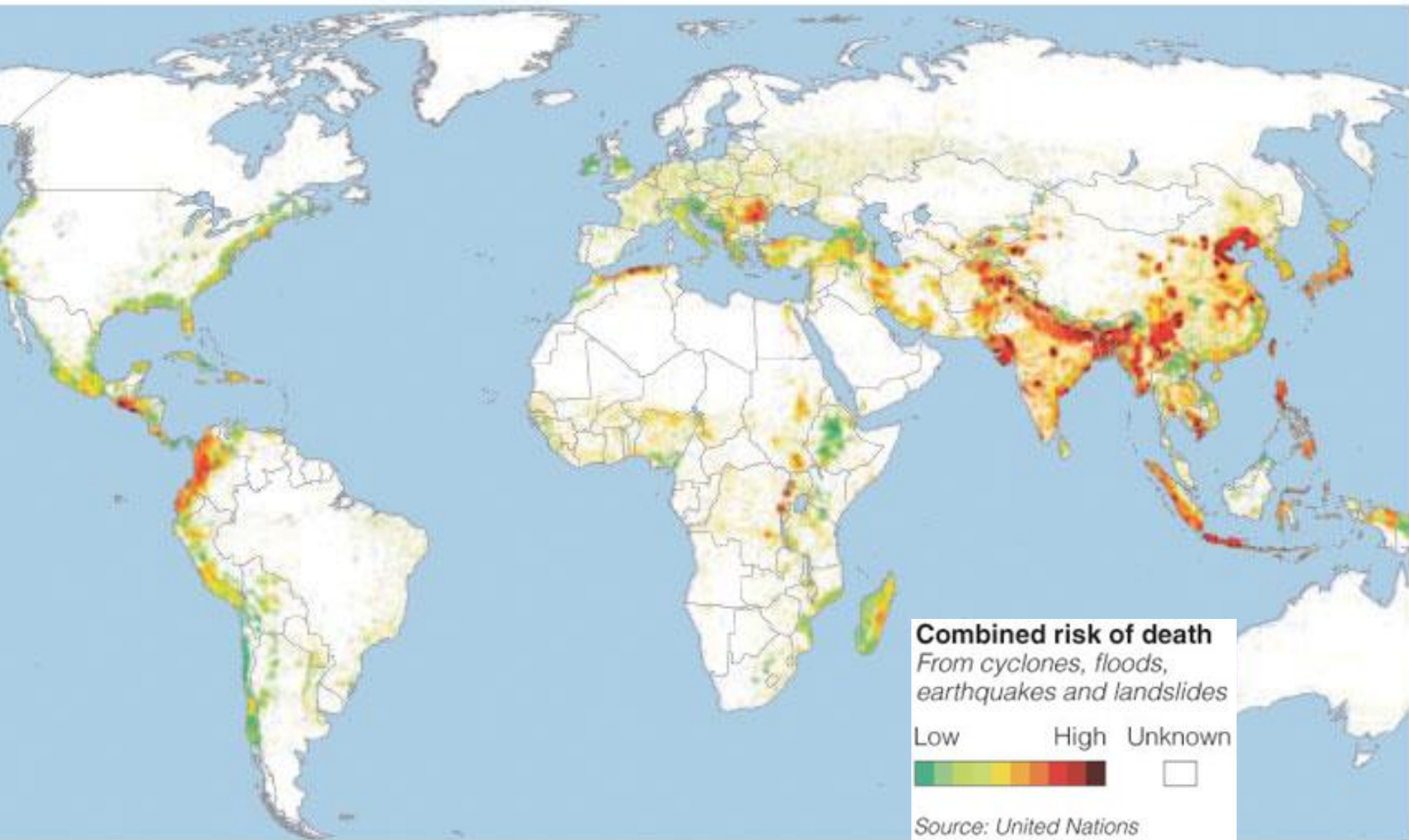


WASH control measures

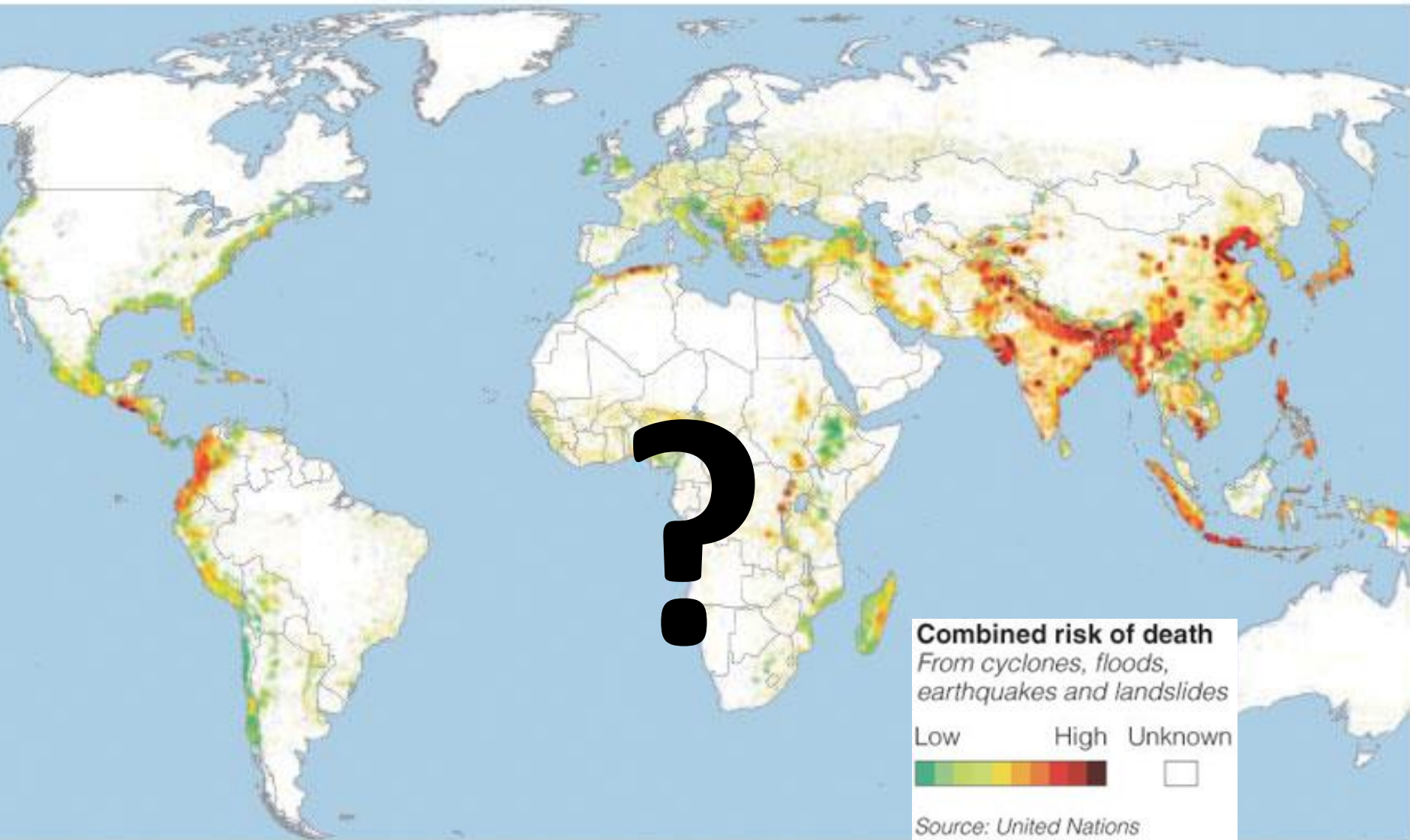
- **Improve water quality, water availability, hygiene**
 - Hepatitis A,E; polio; viral diarrhoeas; campylobacter; cholera; ETEC; salmonella; shigella; typhoid; paratyphoid; crypto; giardia; amoebas; *Toxoplasma gondii* and other opportunists
- **Improve water availability and hygiene**
 - Trachoma; scabies; conjunctivitis; louse-borne infections
- **Sanitation, hygiene, treatment of excreta before re-use**
 - Ascaris; trichuris; hookworm; taenia
- **Reduce contact with contaminated water, sanitation, treatment of excreta before re-use**
 - Cholera; legionella; leptospirosis; schisto; Guinea worm
- **Drainage, reducing breeding sites, insecticides/nets**
 - Dengue, yllw fever, malaria, trypanosomiasis, filariasis, trachoma
- **Rodent control, hygiene measures**
 - Leptospirosis; hantavirus, tularemia



2009 UN Global Disaster Vulnerability Map



2009 UN Global Disaster Vulnerability Map



Lisbon 1755



Haiti 2010



Sanitation



Sanitation: what we know now

- Safe excreta disposal is the first line of defence against faecal-oral pathogen transmission
- No one solution is appropriate for all cases
- Excreta need to be contained as quickly as possible, to prevent the spread of infection
 - But currently available options may not be adequate to meet the challenge of *rapid response*
 - Some emerging sanitation solutions are not developed or refined enough to be available for immediate dispatch in the first phases of an emergency



Sanitation in emergencies: research needs

- Wastewater and faecal sludge treatment and disposal
- Sanitation under challenging conditions
- Design innovation



Wastewater and faecal sludge treatment and disposal; more research needs

- Ultimate disposal is critically important to containing faecal-oral disease
 - Critically important & underappreciated
- Innovative, decentralized wastewater treatment options (membrane bioreactors, constructed wetlands, anaerobic filters) have been studied but not widely adopted
- Desludging and sludge disposal and treatment kits deserve more attention and innovation
- Containment and chemical disinfection of waste and wastewater from environments impacted by cholera- and other infectious disease
 - Chlorine, lime, and other means: more work is needed on effectiveness *in situ*





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000-00

Sanitation under challenging environmental conditions; another research area

- Unstable soils, high water tables, and flood-prone areas
- Alternative systems may be required, including
 - lining of pits to prevent collapse, or building raised latrines (when digging down is not an option)
 - septic tanks that can be rapidly constructed in areas with a high water table
- More work needed on the effect of existing and emerging strategies for sanitation on available water sources
 - Again, what happens to the waste is often a neglected point



Design innovation for sanitation

- Plastic sheeting as a superstructure material, used in rapid response, often gets ripped, which has implications for dignity and security and often means the latrine isn't used (Johannessen, 2011).
 - Oxfam's prefabricated superstructure(s) can be shipped or easily assembled with local materials and easily erected over latrines on site
- Sanitation options that are user-friendly for **women**, men, **children**, and **disabled persons** exist, but:
 - Innovation may increase available options' acceptability, effectiveness, safety, and maintenance over time
- Focused research is needed to evaluate emerging options



Water supply: what we know now

- There is strong evidence that both sufficient water (quantity) and safety (quality) are critical to interrupting disease transmission in humanitarian settings



Water supply: key evidence



- Cronin et al. (2008) observed that households reporting diarrhoea within the previous 24 hours had a mean 26 per cent less water
- In a seven-country review of 51 camps from 1998 to 2000, Spiegel et al. (2002) concluded that camps with lower than the recommended 15 litres of water per person per day had significantly higher under-five mortality
- Following the arrival of 800,000 Rwandan refugees into the Democratic Republic of the Congo in 1994, 85 per cent of the first month's 50,000 deaths were due to diarrhoeal diseases (cholera and shigellosis). The primary risk factor was lack of access to water
 - Per capita water allowance was 0.2 L per day in the first week of the crisis (Connolly et al., 2004).
- Water that is supplied must be accessible and acceptable to users
 - Atuyambe et al. (2011) found that the inconsistent nature of tanked water provision as well as taste acceptability issues resulted in camp residents using untreated surface water



Water supply: research needs

- Dispersed settings
- Safeguarding quality from recontamination
 - Narrow mouthed containers
- Designing for the long-term
- (POU adherence and use)



Hygiene



Hygiene: what we know now

- Providing soap works
 - 240 g bar soap per person per month resulted in a 27% reduction in diarrhoeal disease, refugee camp in Malawi
 - Peterson et al. 1998
 - Protective effect of hand washing with soap against cholera in outbreaks
 - Reller et al., 2001; Hutin et al., 2003



Hygiene: research needs

- Effective hardware and software
 - Cost-effective models to achieve rapid but sustained behaviour change
 - Handwashing stations?
 - Beyond the Tippy Tap – the Happy Tap?





Cross-cutting research themes

- Inclusion
- Transition to longer-term development
- Rapid deployability



Inclusion

- Women and girls
- People with disabilities
- Children
- People living with HIV/AIDS



Bridging the gap from relief to development

- Needed: WASH responses that are consistent with longer-term development
 - Some refugee or displaced persons camps are in existence for long periods, up to many years (e.g., Sudan, Palestine).
- Difficult because the focus is on short-term needs and ***rapid response***



Design innovation for rapid deployability



- The WASH response must be rapid to be effective: outbreaks happen quickly
- Whilst there are kit-based and other rapidly deployable solutions (particularly for water), this is an area that deserves further research and innovation to improve response time post-emergency.
- Few WASH agencies currently stockpile standardized kits, even though kits may often be necessary to achieve rapid response.



Rigorous evidence is hard to find

- Most experience on “what works” and “what doesn’t” is not published in the peer-reviewed literature
 - Voluminous grey literature
 - Institutional knowledge
 - Reporting/publication bias means that “negative” experience may not be as likely to see the light of day
 - Publication is an afterthought
- Experimental designs usually not possible or preferable: ethical and practical issues
 - Distilling lessons using ‘refined common sense’ and mixed methods



Acknowledgments

LSHTM

Environmental Health G

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John Adlam

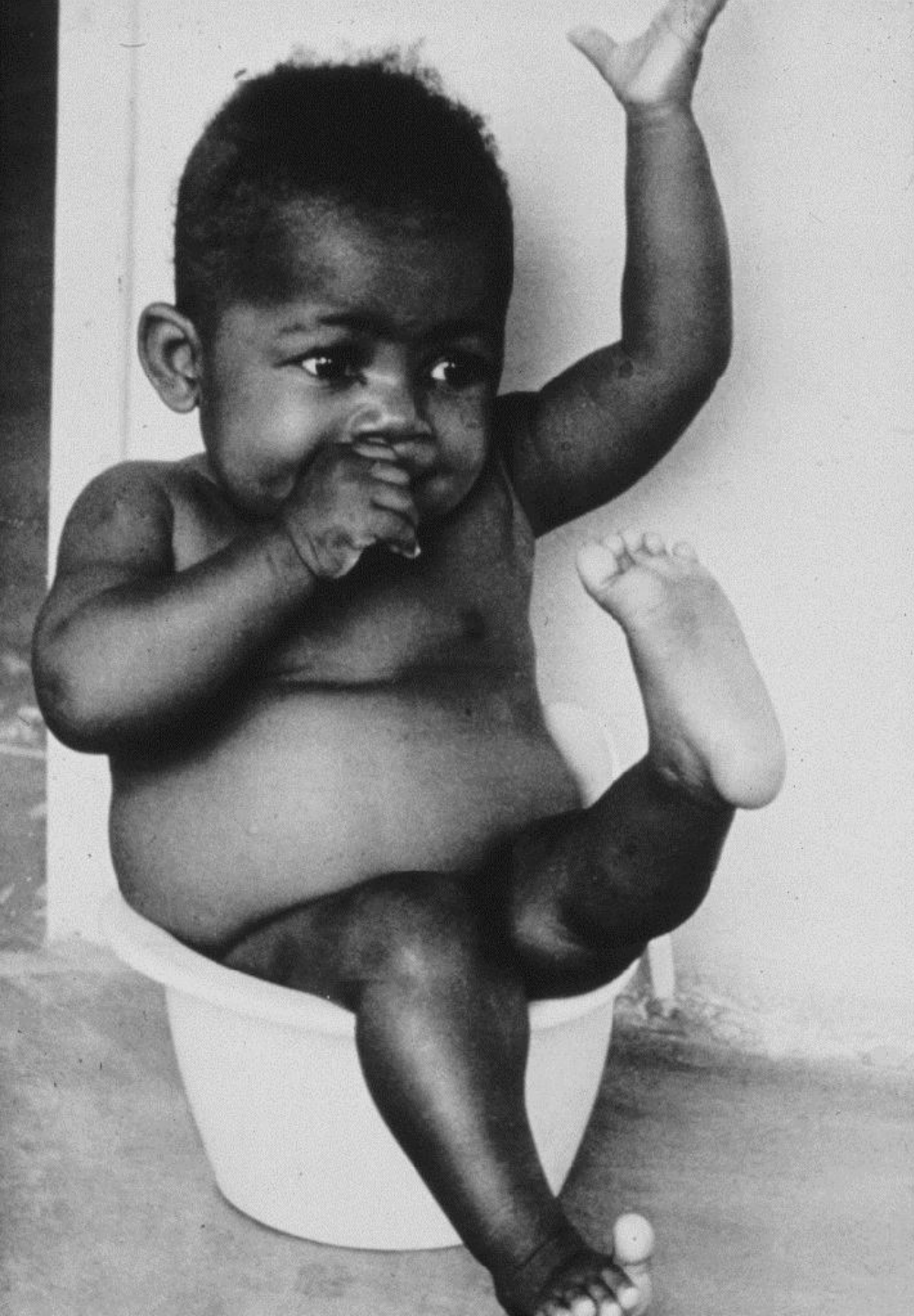
DFID

Brenda Coughlan

DFID

DFID - funding





Thank you

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Effective use as an
indicator for HWTS
success in
emergencies



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Thomas Clasen, Ph.D., J.D.

London School of Hygiene and Tropical Medicine

HWTS and Emergencies

- PoUWT has been shown in development context to:
 - Improve microbiological quality of water
 - Reduce diarrheal disease
- Increasingly, PoUWT is recommended for emergencies
 - Natural disasters, outbreaks, complex emergencies
- However, it is not known if PoUWT is as effective
 - Differences in risks, funding, implementation, timing
 - Most effective in high-diarrhea disease risk
 - Flooding, displacement, outbreaks

LSHTM Research Project

Supported by UNICEF and Oxfam to answer:

1. What role, if any, should HWTS play in emergency response?
2. What are the factors associated with feasible, and potentially sustained, implementation of HWTS in response to emergencies?

Deployment Criteria

1. Acute emergency
 - Study complete within 8 weeks of onset
2. High diarrhea risk emergency
 - Flood, outbreak, displacement
3. Multiple PoUWT options used
4. Water supply options used
5. Populations have various levels of exposure/training
6. Logistically feasible



Tool Kit (Research Plan)

1. Spatial analysis
2. Random household survey
 - ~400 in each location
3. Water quality testing
 - FCR, turbidity, MF micro
4. Qualitative interviews
5. Costs/logistics analysis



Use Evaluation Metrics

- Reported targeted
- Reported received
- Reported use
 - Ever use / use regularly / currently use
- Confirmed use
 - Can you give me a cup of your drinking water?
 - Is this water current treated? Stored safely?
 - Chlorination: Free chlorine residual
 - Filters: Is the filter wet/assembled?
- Effective use
 - Addresses whether the household needed the intervention

Effective use

% of surveyed households who report current treated water today
with the particular HWTS option

multiplied by

% of households who had $\geq 1^*$ *E. coli* CFU/100 mL in untreated
stored drinking water from the same source as treated water
with $< 1^*$ *E. coli* CFU/100 mL in stored drinking water

*: Also can be calculated with ≥ 10 and < 10

Can multiple this percentage by number recipients targeted to
calculate number of households effectively reached, and using
program cost can calculate cost / household effectively
reached.

Responses Evaluated

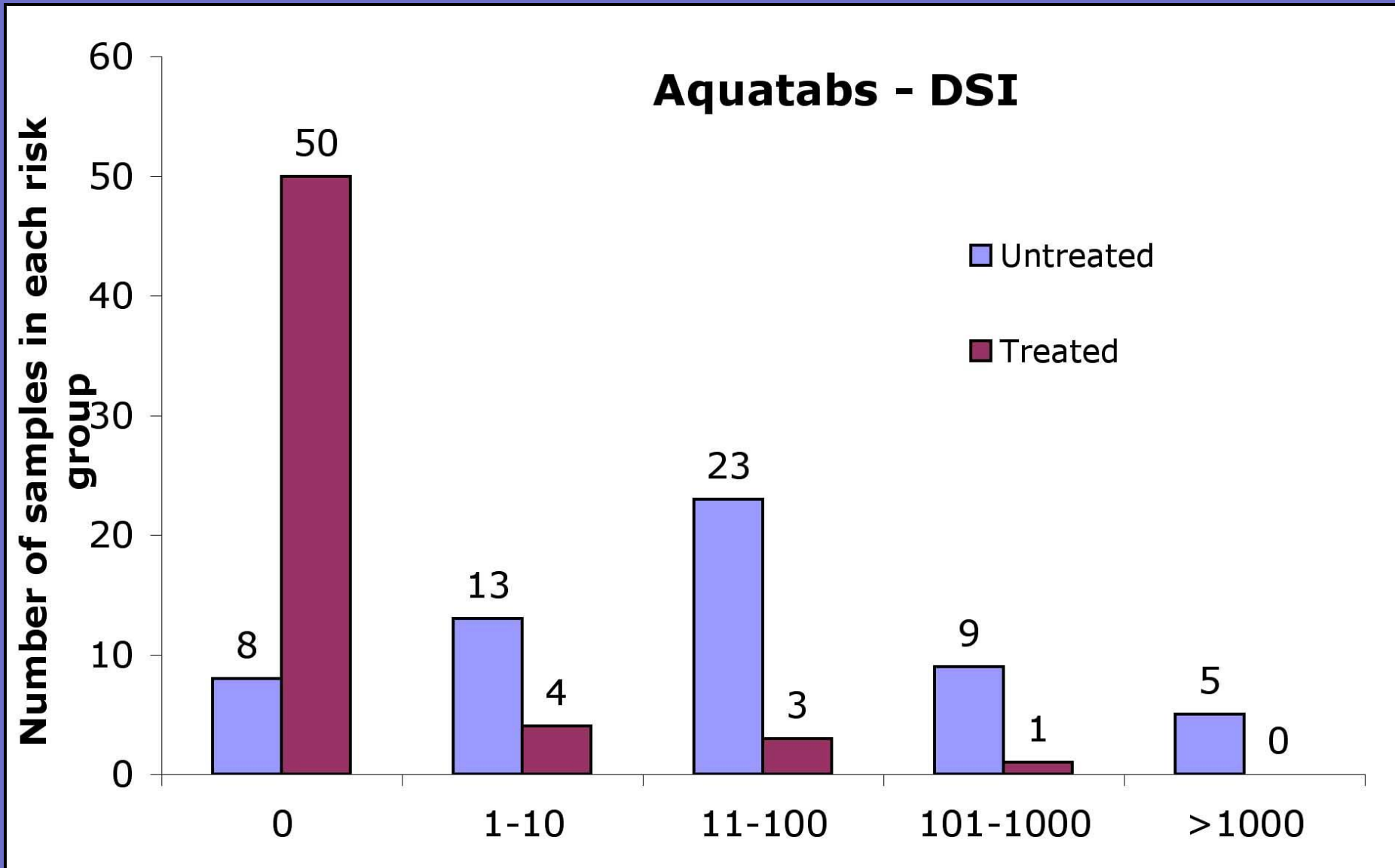
- Jajarkot, Nepal
 - Cholera, August 2009
- Pariaman, Indonesia
 - Earthquake, October 2009
- Turkana, Kenya
 - Flood/cholera, Jan-Feb 2010
- Haiti
 - Earthquake, Feb-Mar 2010



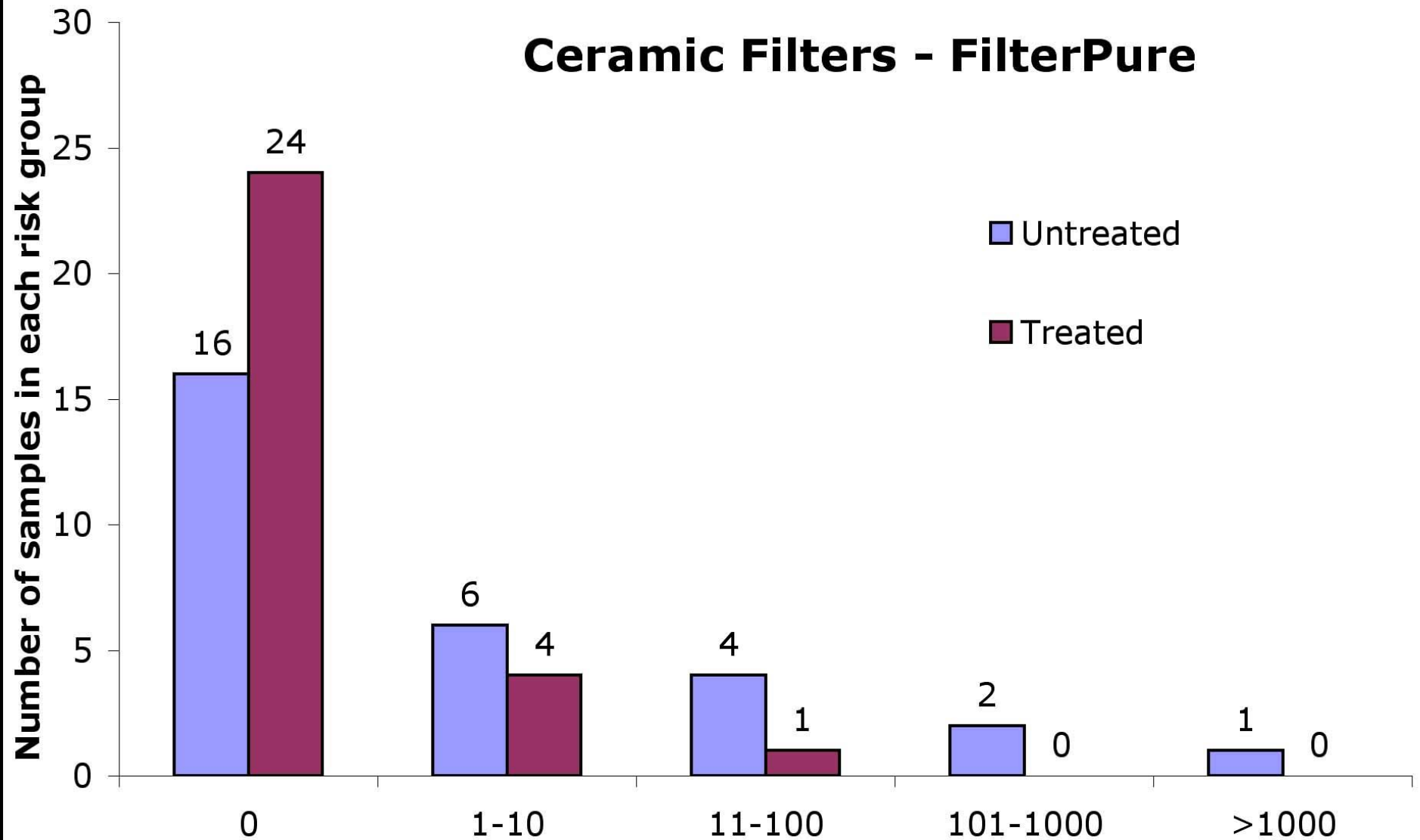
Summary Data Table

		Reported Use	Confirmed	Effective
Nepal	Aquatabs	8%	87%	7%
	Piyush	16%	51%	8%
	WaterGuard	6%	56%	3%
Indonesia	AirRahmat	3%	--	--
	Tabs	1%	--	--
	Boiling	88%	31%	27%
Turkana	Aquatabs	13%	42%	5%
	PuR	6%	39%	2%
Haiti	Aquatabs	24, 75-92%	62, 75%	15, 54-66%
	Ceramic	72%	27%	20%
	Biosand	53%	20%	8%

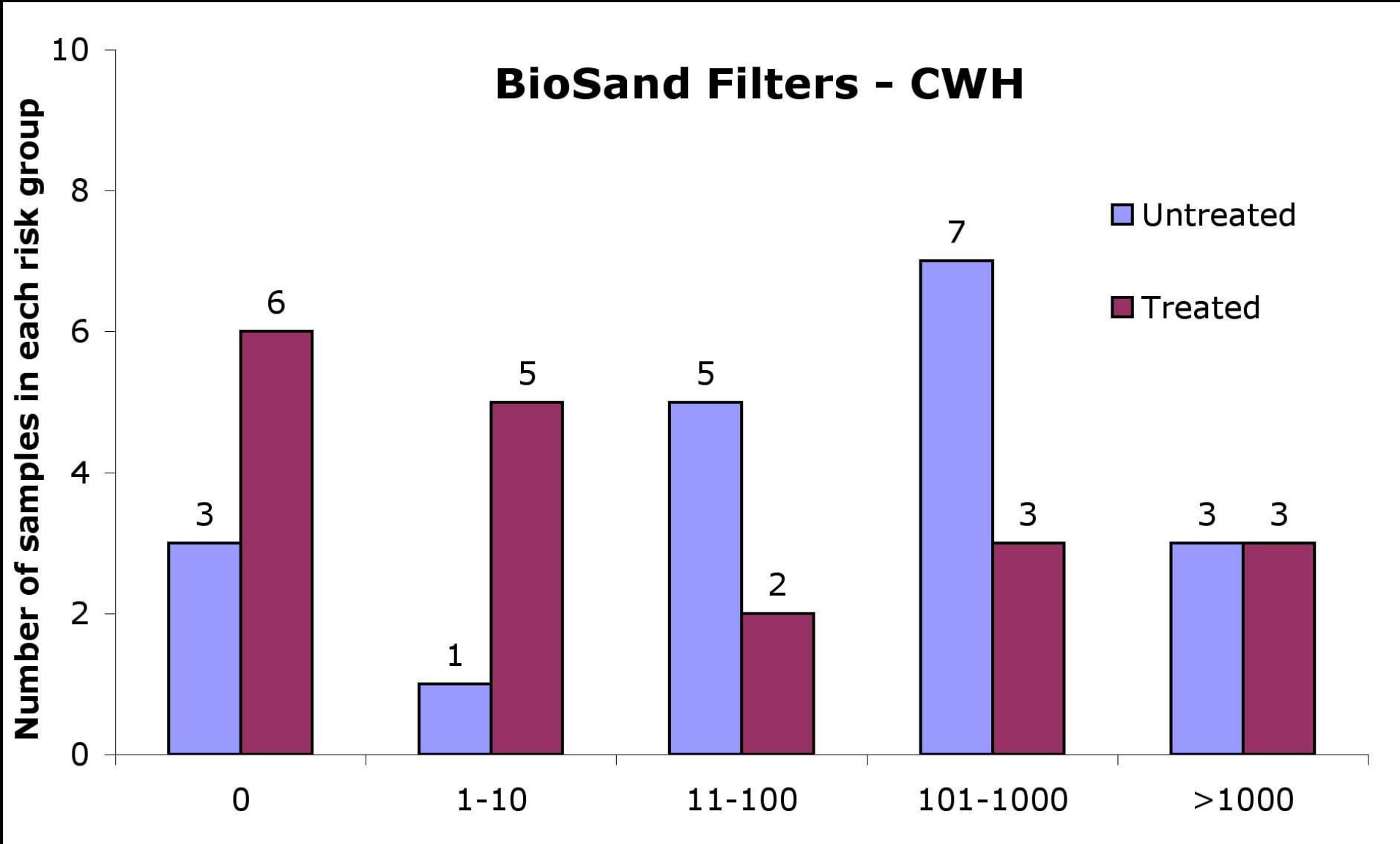
Treated-Untreated Water Pairs: DSI Aquatabs Treated Water E. coli

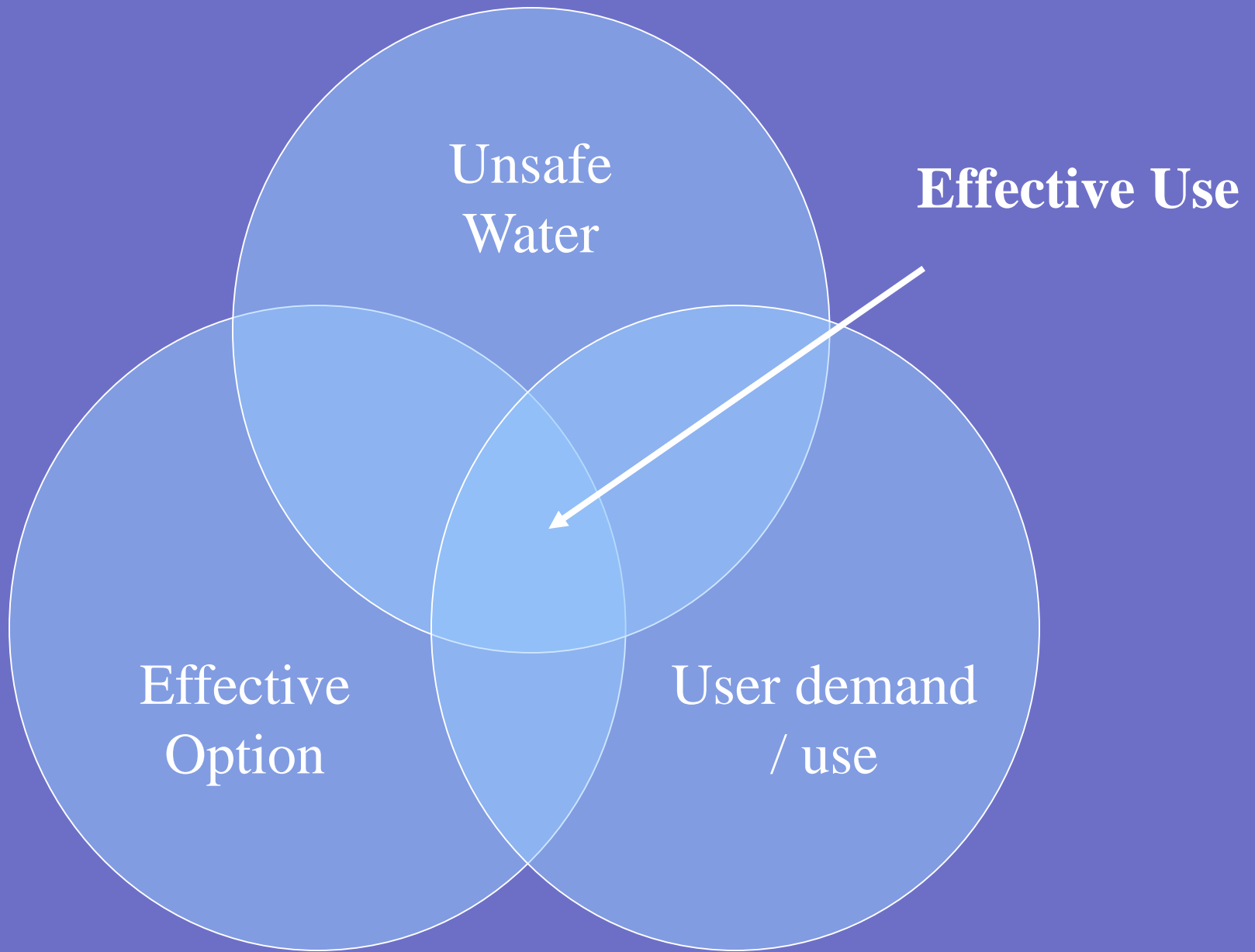


Treated-untreated Water Pairs: Ceramic



Treated-untreated Water Pairs - BioSand Suboptimal Use





Unsafe
Water

Effective Use

Effective
Option

User demand
/ use

Costs

- Nepal: 16,886 USD (2 VDCs)
- Indonesia: 4,331 USD (all NFI kits)
- Kenya: 37,750 USD (4 communities)
- Haiti: Unknown

Costs

- Nepal: 58.23 USD/HH with FCR
- Indonesia: None - boiling
- Kenya: 88.23 USD/HH with EU
- Haiti: Not enough data

Conclusions

- The emergency has high waterborne disease risk.
- The recipient population is correctly targeted.
- The water quality in the targeted population is contaminated.
- The target population is aware of HWTS before the emergency.
- The target population has the appropriate safe storage container for the HWTS option (and all the materials).
- Pre-preparedness has been completed.
- An appropriate HWTS option is selected for the emergency.
- Adequate trainings are conducted in the appropriate language.
- Behavior change is considered.
- An appropriate chlorine dosage is used.

Recommendations to implementing organizations

- Prepare.
- Strategize.
- Select.
- Provide.
- Train.
- Be realistic.
- Evaluate.



Summary Data Table - Sustained Use

		Effective	Reported Use 9 months	Sustained Effective
Turkana	Aquatabs	5%	--	--
	PuR	2%	--	--
Haiti	Aquatabs	54-66%	80%	46%, 41%
	Ceramic	20%	55%	0%, 19%
	Biosand	8%	57%	28%, 18%

Acknowledgments

The survey teams. *Namaste. Ma kasi. Asante sana. Meci anpil.*

The funders and designers:

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DEPROSC, NEWAH, PSI

Indonesia: UNICEF (Claire Quillet), Oxfam, CARE, ACF

Kenya: KRC

Haiti: DSI, CWH, HRC, FilterPure, Klorfasil, GoW
Filiarisis Guest House

Rick Rheinghans, Eric Mintz for technical support.



Thank you.

“The notion that ‘being humanitarian’ and ‘doing good’ are somehow inevitably the same is a hard one to shake off”

(Slim, 1997)

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Emergency Environmental Health Forum

17th – 18th December 2012



Focus on Public Health Promotion

By Melchizedek Malile

NRC WASH Advisor – HoA & Yemen



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Accelerated Hygiene Promotion (AHP) through Accelerated Alternative Basic Education (AABE) in Somalia



- NRC in Somalia is supporting 107 Schools with over 15,192 ABE pupils.
- The ABE program targets children from the age of 9-14 years, who have been unable to join formal education due to displacement and their age bracket.



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ABE programming as an avenue of behavioral change



- Over 1200 trained teachers under ABE
- Over 800 Community Education Committee members
- Combined with over 50,000 pupils in the formal education



Is ABE Approach another HP avenue?



- Hygiene promotion sessions encrypted in the ABE curriculum
- Hygiene promotion done as a life skill
- Creating WASH friendly facilities like latrines with lounge, mirrors, sanitary pad disposal bins etc

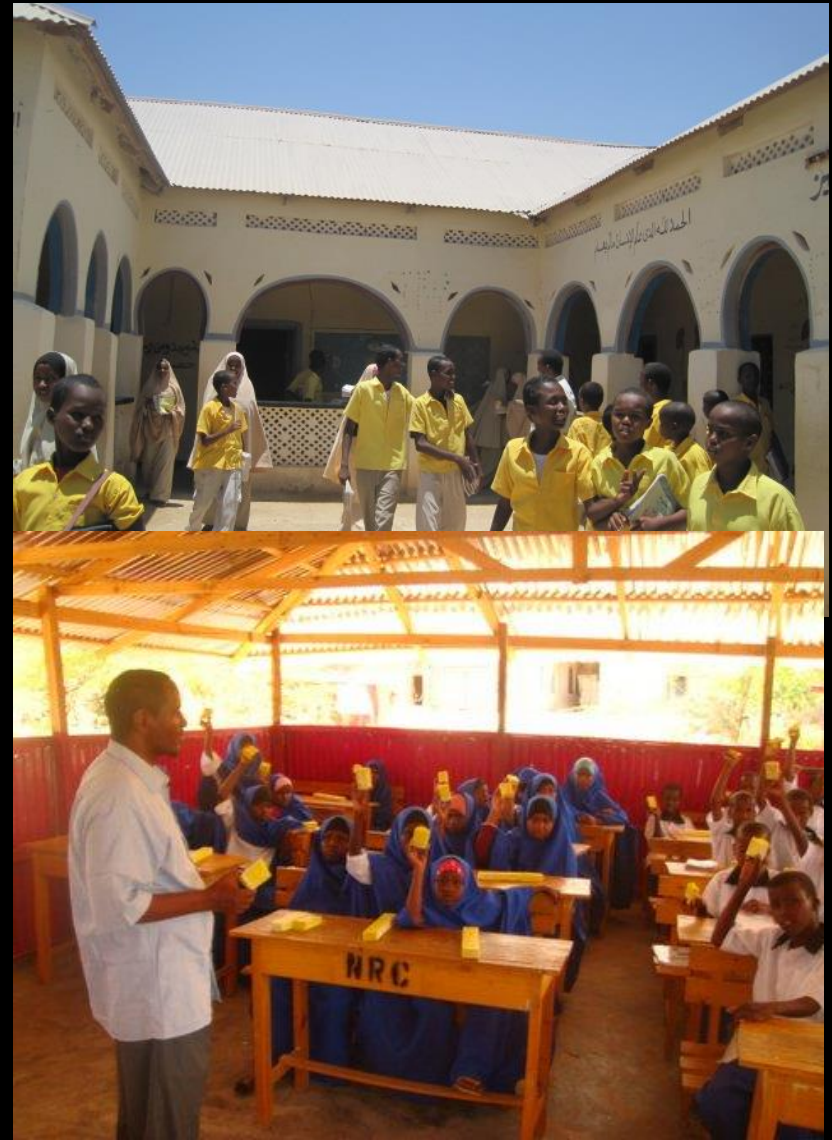


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Can we sustain Behavioral change through ABE Approach?



- All ABE teachers and CEC trained as agents of behavioral change
- Formation of ABE clubs motivated
- Easy channel to reach also pupils and teachers in the education formal system
- ABE students sensitized to be role models in their homes and settlements



Does ABE have a multiplier effect in schools?



- Handwashing with soap in schools is a trigger that has made sustainable improvements in behavioral change – after toilet use, before eating (school feeding),
- Hand washing “disc” or “monitor” does it promote handwashing?
- Positive reinforcement through rewarding those with sustained habits through out the term



Creating 4 star schools approach



- Classification of rating ABE Schools
- Higher star rating indicate luxury in the school
- Assessment for rating based on systems and facilities provided
- Also on function and usage of the facilities



Creating 4 star ABE schools



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Conditional cash programming



- Made to keep ABE pupils in Schools
- In support of girl child education and retention
- Improving hygiene and nutritional levels in the family especially the extremely vulnerable families and those without clan protection



Materials for Conditional cash programming



- Stationary materials
- Food
- Reusable sanitary pads
- School Hygiene kits – soap, Ibrig, nail cutters, combs



Lessons

- Create realizable synergies
- Find out what are the other approaches have been used to encourage sustainable behavioral change
- Establish target group and establish what triggers them to change daily habits and how to sustain it
- “There’s a way to do it better – find it” – Thomas Edison



THE END

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THANK YOU



Behavior Change in Emergency Contexts: Handwashing Promotion in Post-Earthquake Haiti and Drought Response in Borena Zone, Ethiopia

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Prof. Dr. phil. et dipl. zool. Hans-Joachim Mosler mosler@eawag.ch

Background

Handwashing promotions in emergencies

Handwashing promotions are especially important in disaster relief, but:

- Rarely studied in an emergency context (Parkinson, 2009)
- Hardly grounded on theories of behavior change (Aboud & Singla, 2012; Curtis et al., 2011)
- Focus on awareness-raising and knowledge building (e.g. PHAST approach, WHO & UNDP, 1997)
- Behavioral factors related to handwashing are understudied (Curtis et al., 2011).



Two studies evaluating the effectiveness of Oxfam's handwashing promotions in post-earthquake Haiti and in the drought response in the Borena Zone, Ethiopia

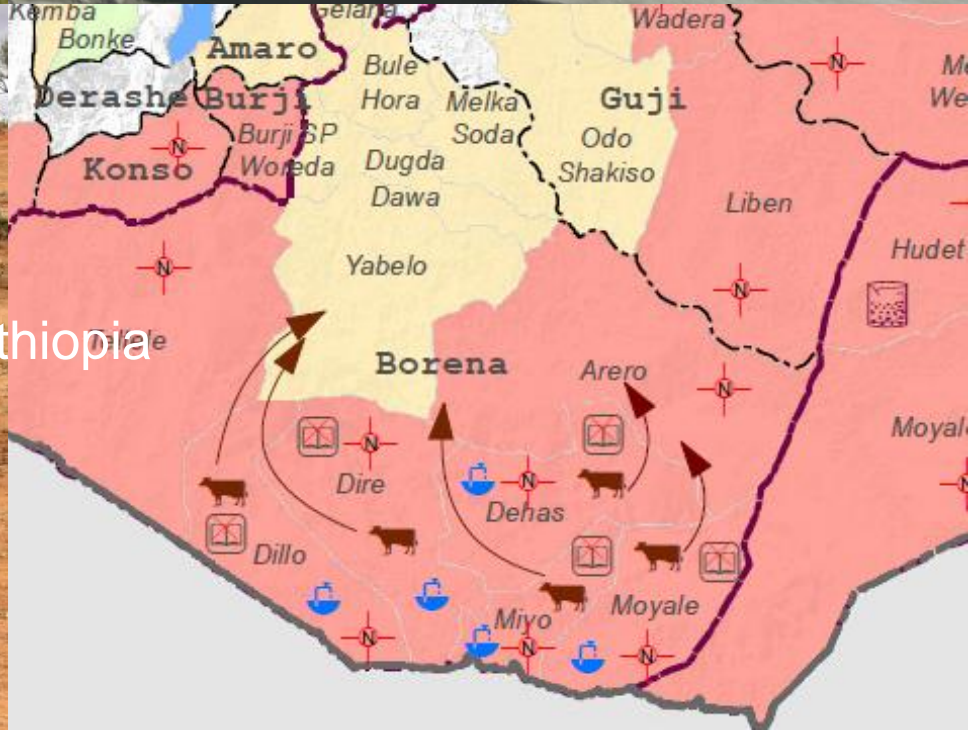
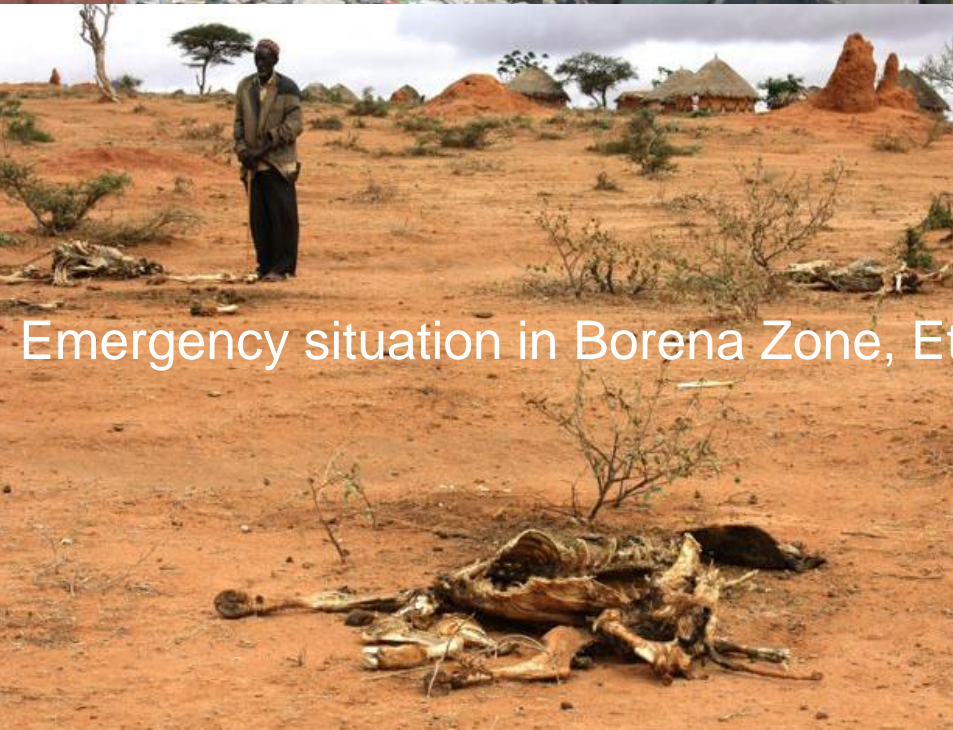
Background



Emergency situation in Haiti



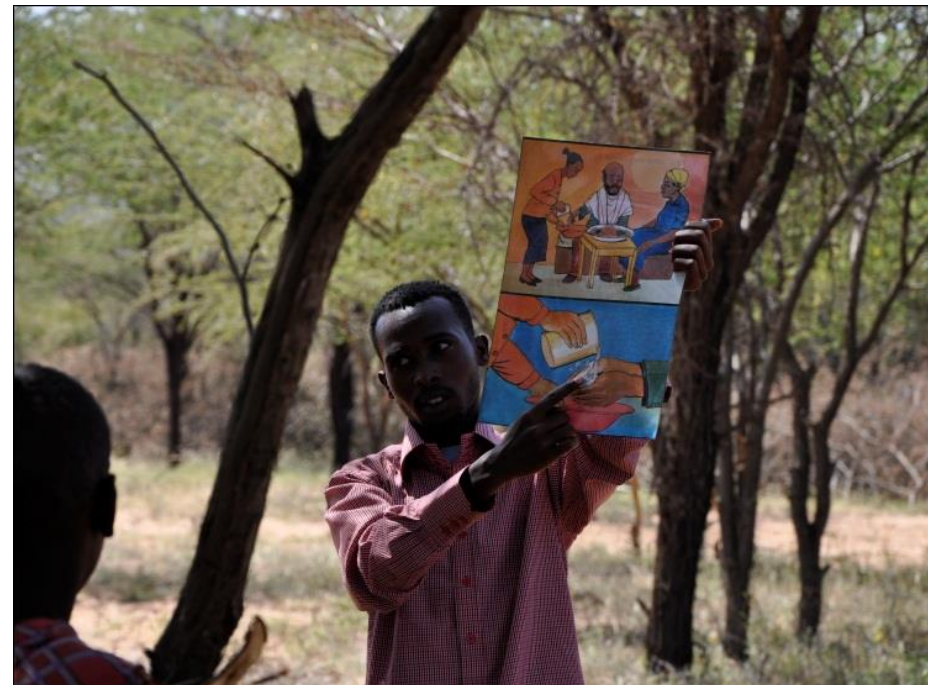
Emergency situation in Borena Zone, Ethiopia



Background

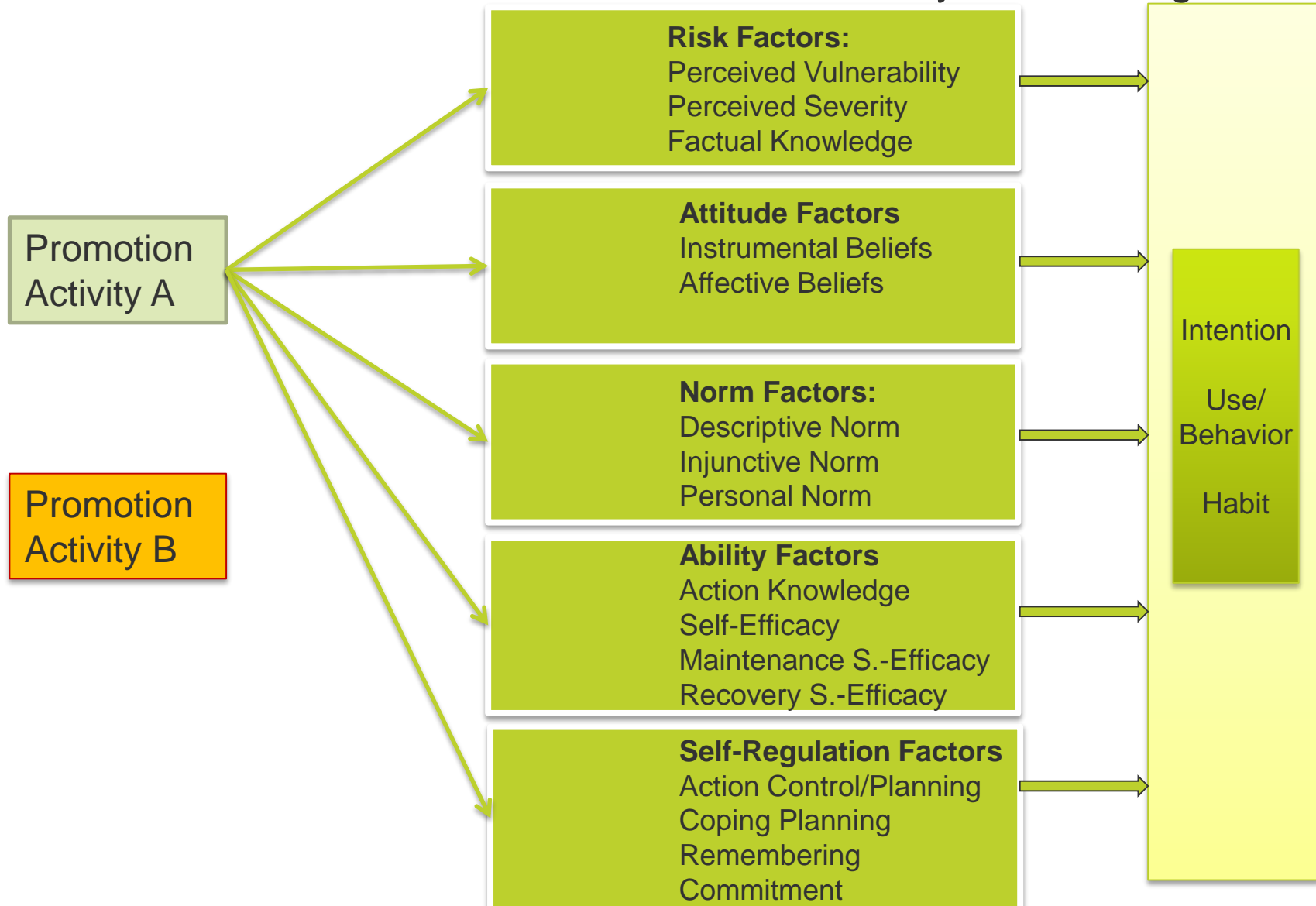
What kind of promotion activities?

- Primarily knowledge formation and mutual learning
- E.g. pictures and paintings, material distributions with demonstrations or special hygiene days
- Around 17 activities in Haiti (!) and 9 in Ethiopia



Theoretical background (Mosler, 2012)

The RANAS-Model: **R**isk, **A**ttitudes, **N**orms, **A**bility and **S**elf-regulation



Research questions

1. Which behavioral factors are most important in explaining handwashing with soap?
2. Which promotion activities are associated with these behavioral factors and, with that, with handwashing with soap?

Method

Data Collection

- Cross-sectional design
- Displacement camps and poor quarters in Haiti ($N = 811$)
- Rural villages in southern Ethiopia ($N = 463$)
- Within a site: every third household (random-route technique)
- Structured face-to-face interviews
- Team of 10 local students and scientists
- Target: primary caregiver
- Measures:
 - **Self-reported** handwashing behavior at key times
 - Behavioral factors related to handwashing
 - Recalled promotion activities and their evaluation



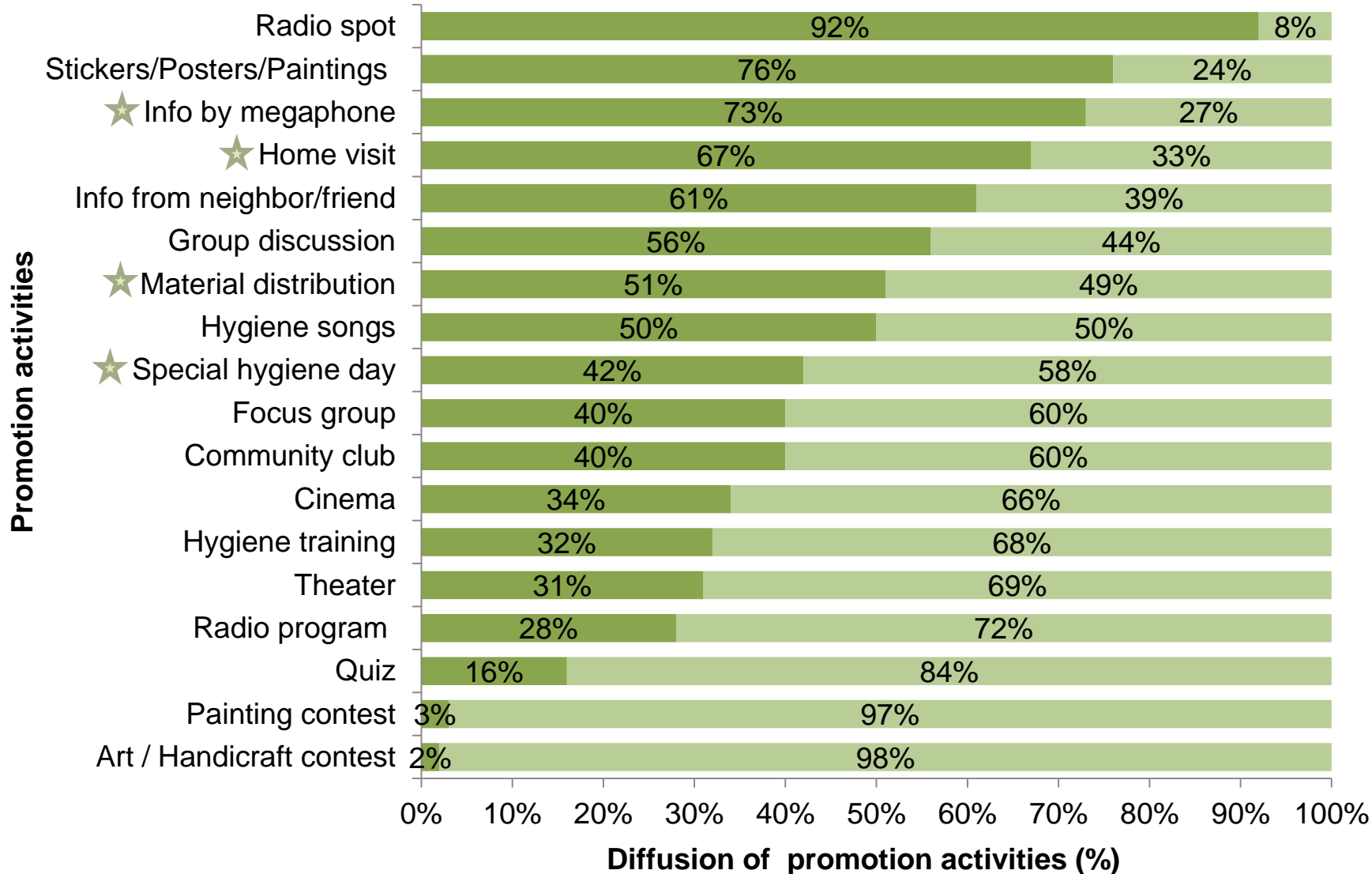
Method

Questionnaire and measures in Haiti

Construct	Item example
HWWS behavior Food related Feces related	In general, how often do you wash your hands with soap... ...before eating? (0: almost never – 4: almost always) ...after defecation? (0: almost never – 4: almost always)
Risk factors: Severity	Imagine that you contracted cholera, how severe would be the impact on your life in general? (0: not severe at all – 4: very severe)
Attitudes: Smell of soap	How much do you like or dislike the smell of soap? (-4: dislike very much – +4: like very much)
Norms: Descriptive norm	How many of your family members wash hands with soap after defecation? (0: none of them – 4: all of them)
Ability: Perceived behavioral control	How difficult or easy is it to always wash hands with soap after contact with stool? (-4: very difficult – +4: very easy)
Self-regulation: Coping planning	Have you made a detailed plan regarding what to do if the hand washing station is out of order? (0: no detailed plan at all – 4: very detailed plan)
Recalled promotion activities	Since the earthquake, have you gained information about hygiene, handwashing, cholera or diarrhea from a radio spot? (4: yes / 0: no / -99: don't remember)

Results

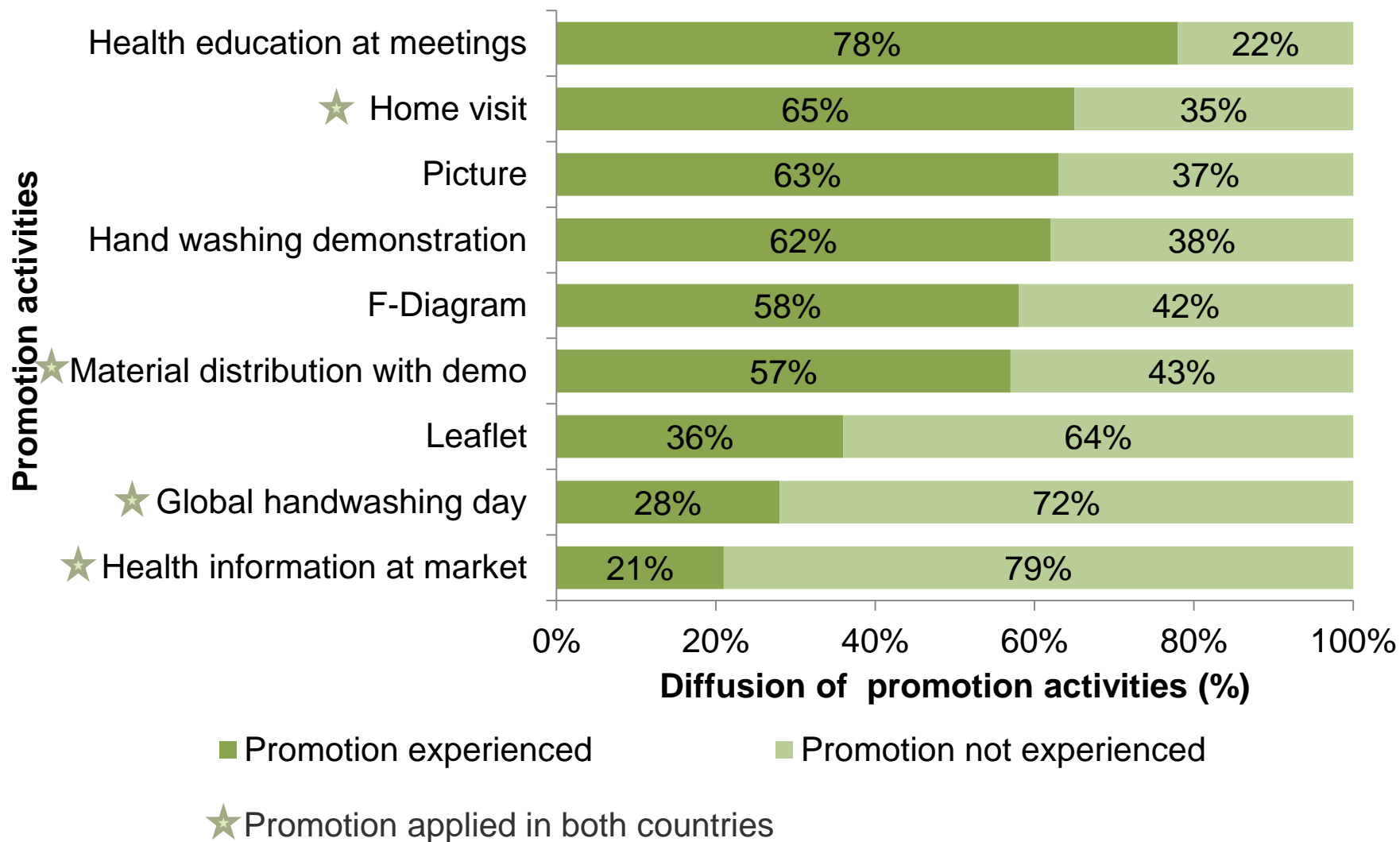
Promotion activities – types and reach in Haiti



■ Promotion experienced ■ Promotion not experienced ★ Promotion applied in both countries

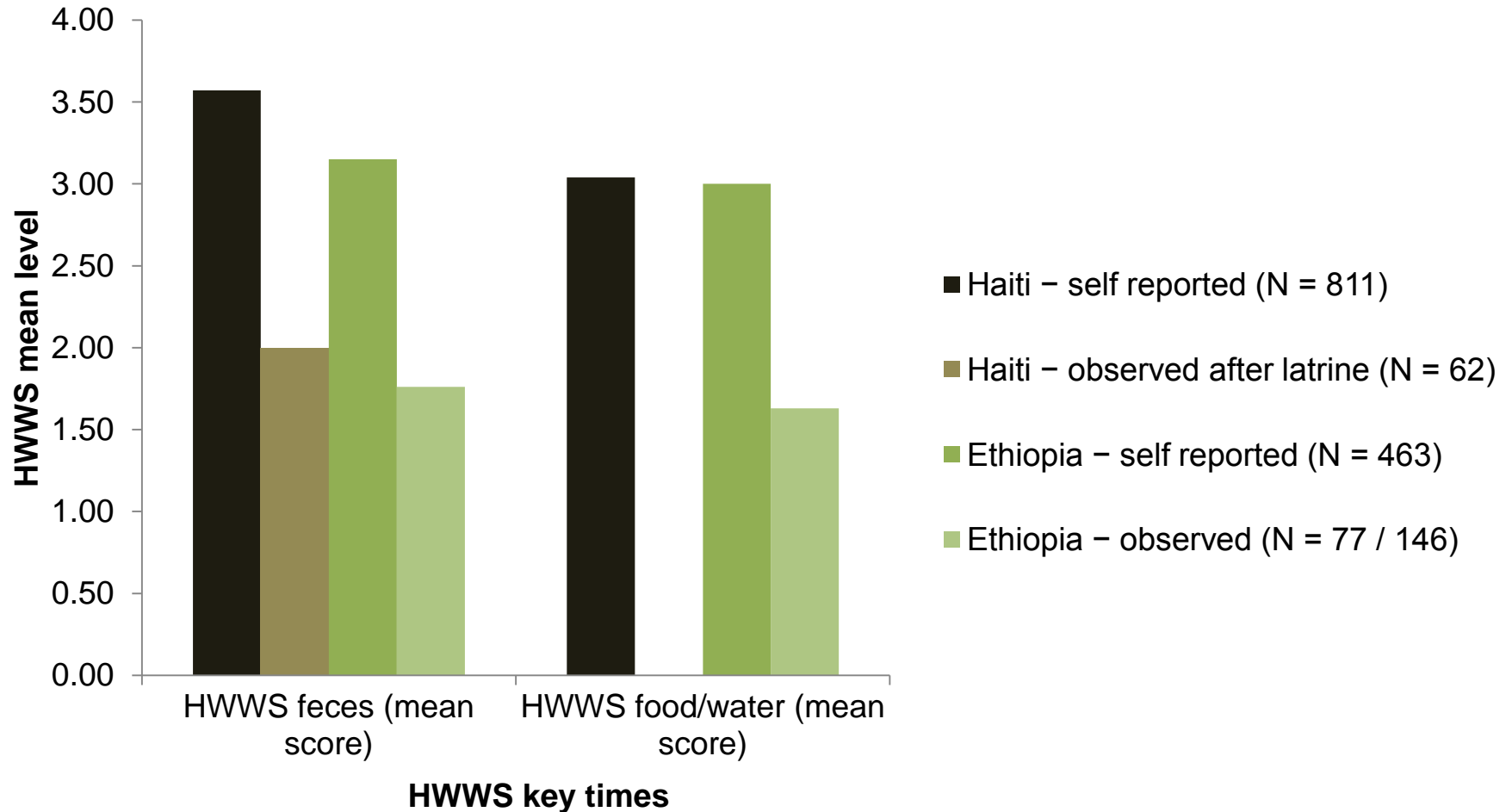
Results

Promotion activities – types and reach in Ethiopia



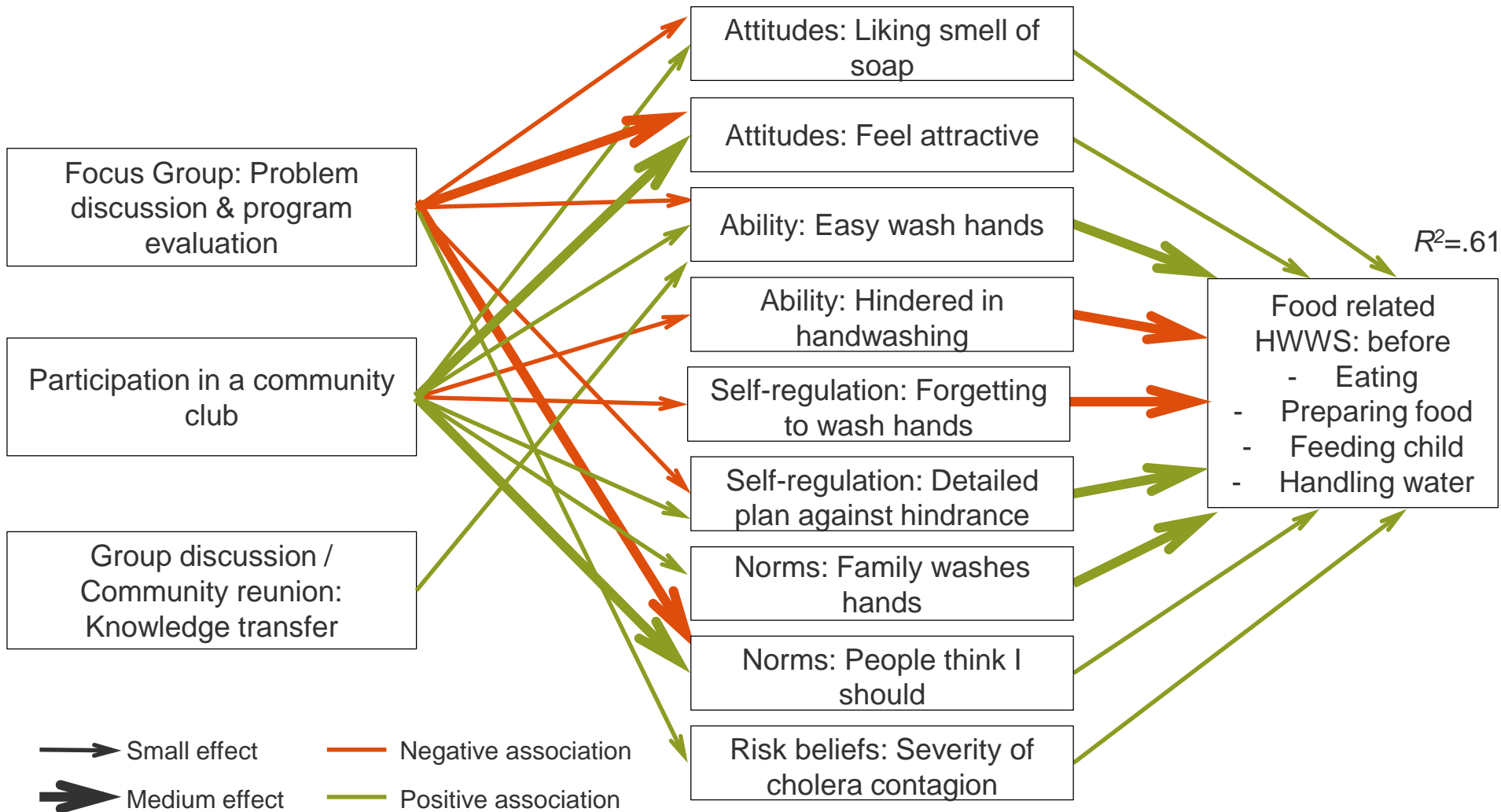
Results

Mean values of feces and food related handwashing



Results

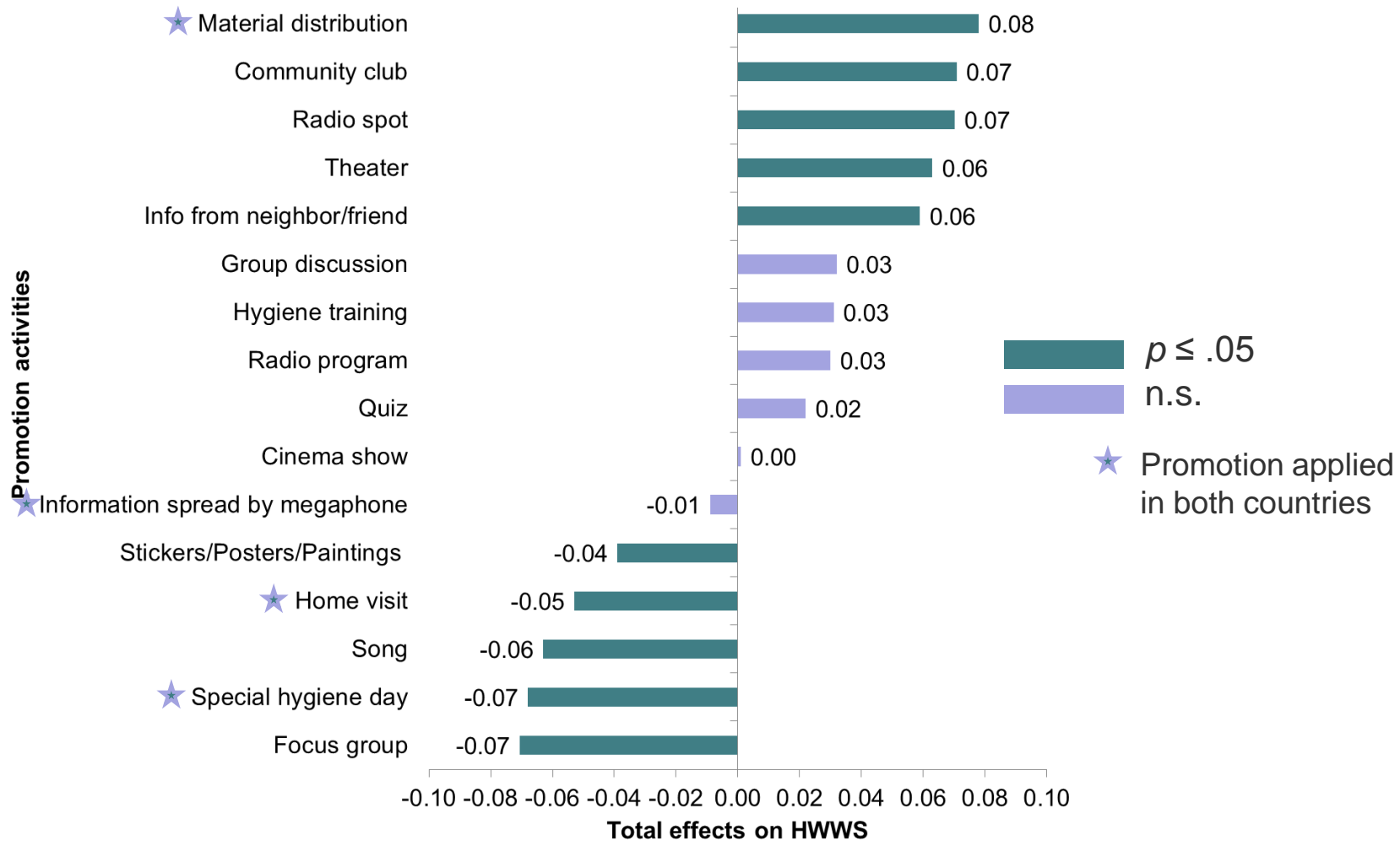
Research question 1 – behavioral factors explaining food related HWWS in Haiti



Notes. N = 701. Unstandardized regression coefficients. Only significant coefficients with $p < .05$ are presented.

Results

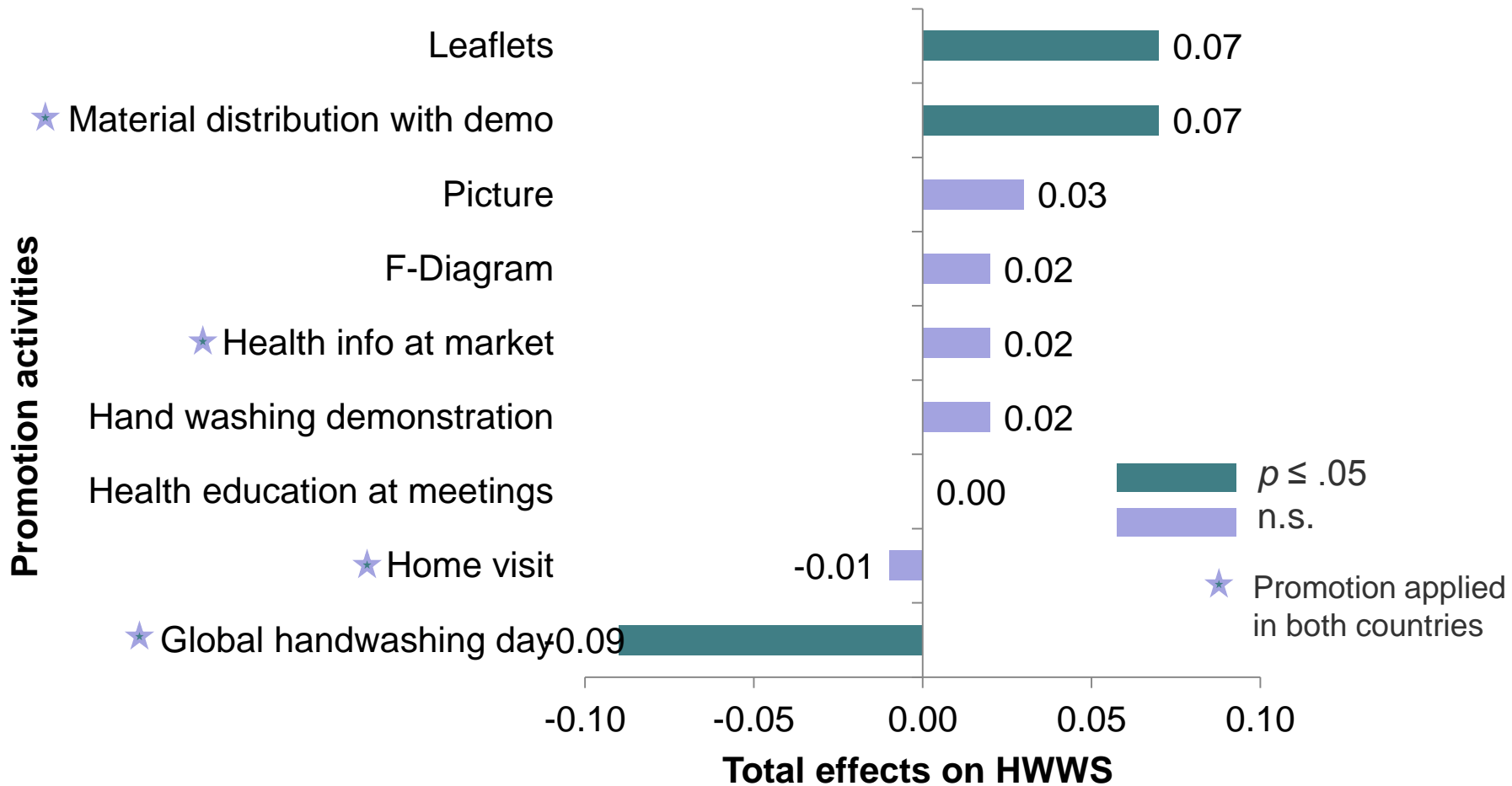
Research question 2 - total promotion effects on food related HWWS in Haiti



Notes. $N = 701$. Total unstandardized effects of promotion activities on food related HWWS.

Results

Research question 2 - total promotion effects on food related HWWS in Ethiopia



Notes. $N = 443$. Total unstandardized effects of promotion activities on food related HWWS.

Summary and conclusions

Behavioral factors

- Attitudes, norms and ability factors are especially important in explaining handwashing with soap.
- Risk factors are of only minor importance.

Promotion activities

- Some are positively related with handwashing with soap.
- Some are unrelated to handwashing with soap.
- Some are negatively related with handwashing with soap
⇒ Instead of enhancing handwashing behavior, they might hinder it.
- Test theory-driven hygiene promotions instead of developing ad hoc and intuitively:
 - To heighten effectiveness: promotion activities with no association
 - To prevent unintended harmful effects: promotion activities with a negative association.

Some limitations

- Cross-sectional studies
- No formal control groups
- No randomization of the interventions
- Self-reported data
- Interactions between promotion activities not tested, i.e. no multivariate analysis
- Small effect sizes

Acknowledgment

I would like to thank...

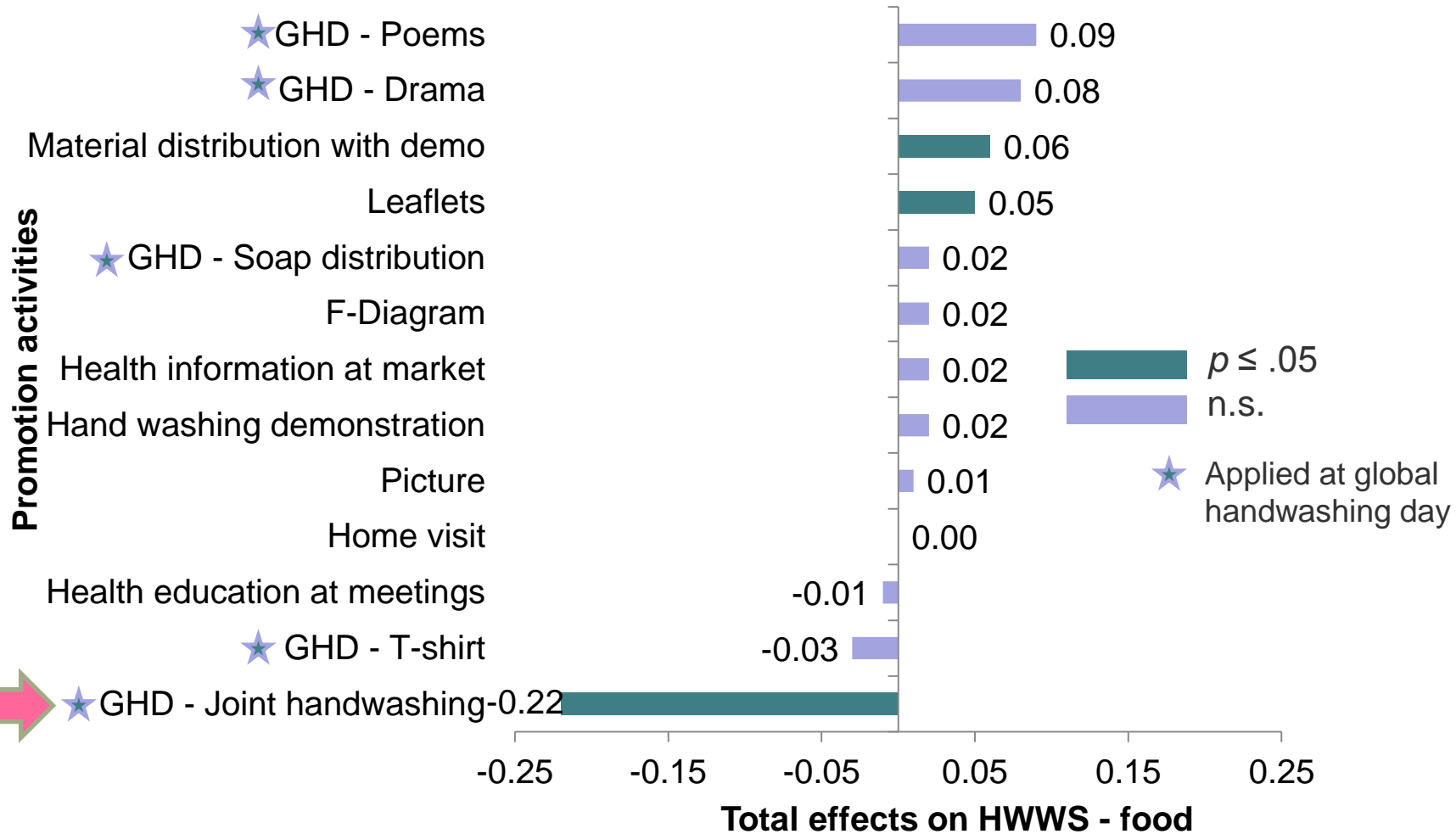
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- Oxfam America, Oxfam Great Britain, Oxfam Québec, and Intermón Oxfam for their collaboration
- Myra Foster, public health specialist Oxfam America, for initiating and continuously supporting and advising the project
- Master students Johanna Braun and Sarah Zraggen for assisting in the field work
- Data collectors for conducting the interviews
- Interviewees for participating in the survey

Thank you for your attention!

Contact: nadja.contzen@eawag.ch

Results

Some results regarding global handwashing day activities in Ethiopia



Notes. $N = 437$. Total unstandardized effects of promotion activities on food related HWWS.

Women's WASH Platform (WWP)

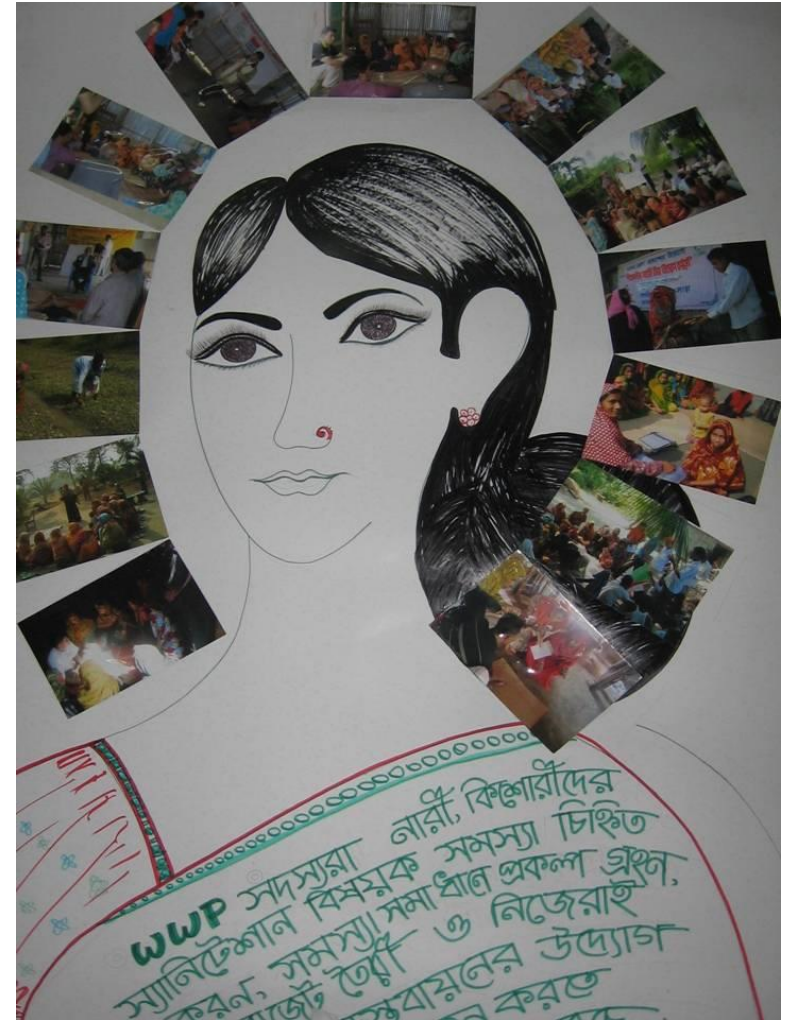
Empowerment in WASH

**Golam
Morshed**
Oxfam Bangladesh
Programme



Women's WASH Platform

- Project background
- Objectives
- Activities
- Outputs
- Outcomes
- Lessons Learned
- Way Forward

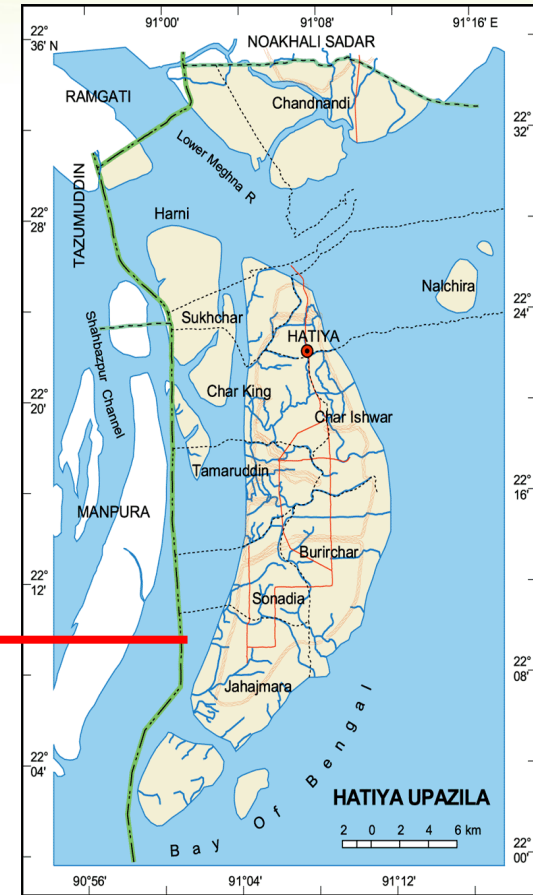
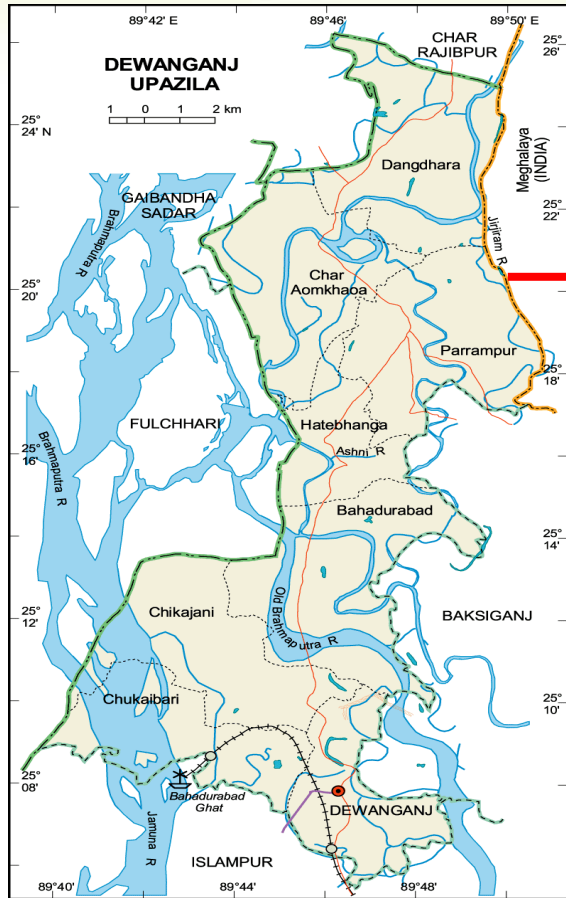


Women's WASH Platform (WWP)

Self motivated and proactive groups of women who address women's specific needs for WASH services in flood prone areas of Bangladesh



Project Location



**Flood prone river basin
Jamalpur District**

**Bangladesh
Over populated , most
disaster prone and
vulnerable to CC**

**Cyclone and saline
affected Coastal char
Noakhali District**

Project Background

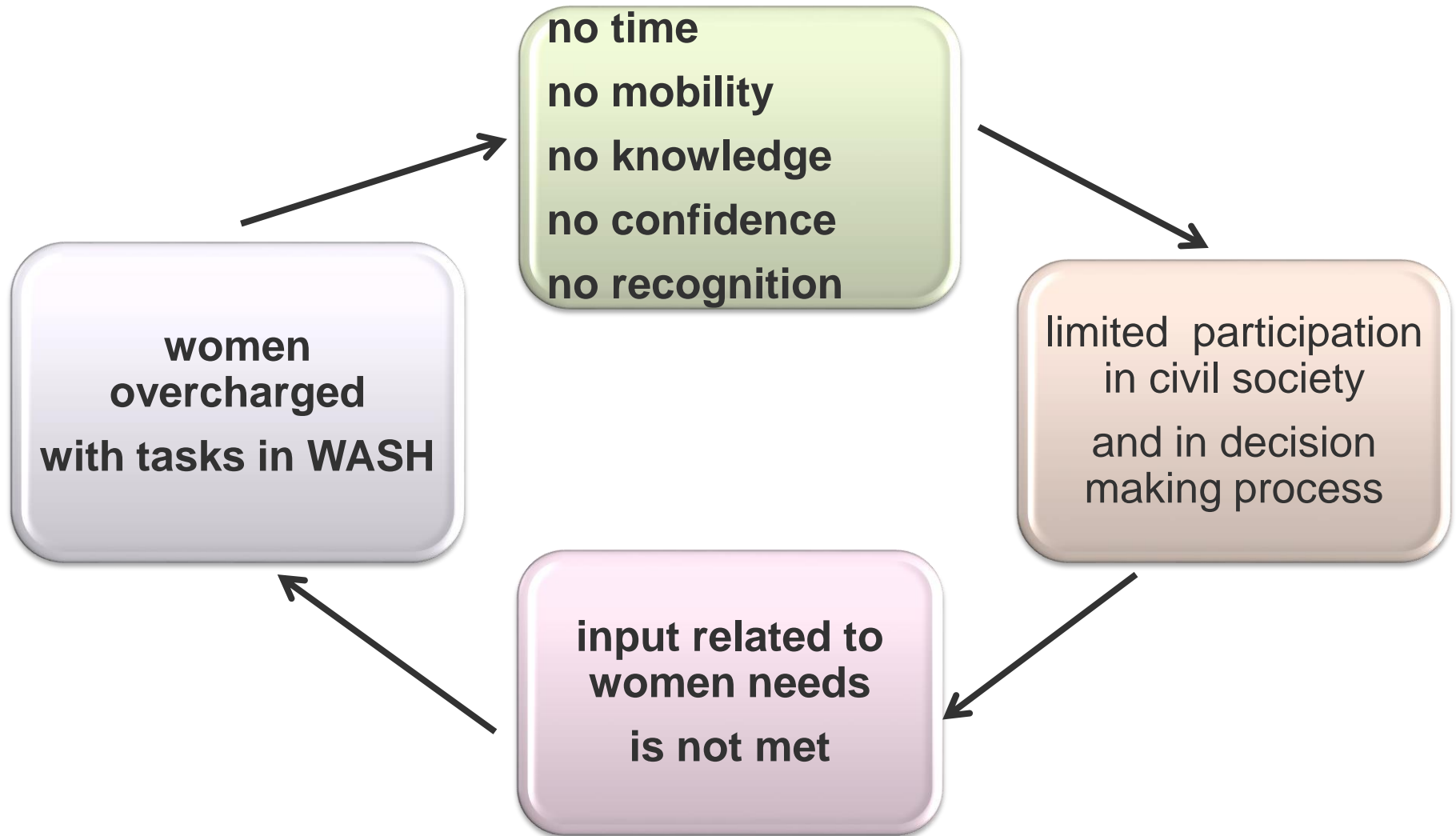
Access to WASH:

- **Water collection time is 31 minutes one time round trip in Noakhali. They collect water two times a day.**
- **In dry season water scarcity and salinity is extreme in Noakhali - most ponds are dried up and hand pumps are not working**
- **Overall 52% HH have access to latrine. Out of these 11% are hygienic. Most latrines do not provide privacy for women.**
- **68% latrine inundated in flood water in Jamalpur**

Lack of Women's Inclusion in Project Design by government or during HH level WASH installation

- **Low percentage of women were consulted during water point and latrine installation – Noakhali – 21%, Jamalpur – 56%**
- **In Noakhali, most married women complained - in dry season they cannot bathe regularly so feel unclean and shy to sleep with their husbands. This sometimes results in distrust and physical or mental abuse by their husbands.**

Baseline Information



Objectives of WWP

- **Women will be actively involved in designing, constructing and managing WASH facilities that meet their needs.**
- **Women will have the skills and confidence to manage the WWP**
- **Women will feel more confident to negotiate with men (and sometimes older women) and contribute to decision making on the provision of WASH**





WWP Formation



Problem Identification



Training



Access to market



Monthly Meeting



Project Planning



Completed Projects



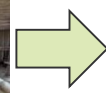
Water



Bathing



Latrine for Disabled



Way Forward and Sustainability

“We identified our problem and initiated schemes. We purchased the required materials by ourselves for our projects after verifying prices at several shops in three local markets to ensure lower price and best quality. We ourselves hired masons and carpenters to construct the bathing cubicles as per our agreed design. We did close monitoring during construction to ensure the quality and appropriateness”.

--Mohima Begum, Cashier, WWP, Noakhali

[Video clip](#)

Outputs

- **20 WWPs formed and trained (220 women)**
- **Construction of 125 bathing chambers including latrine and menstrual management facilities (20 – 30 family per chamber)**
- **302 unhygienic latrines has been raised and converted in to hygienic latrines**
- **770 sets (1 slab 5 rings) of rings and slabs were provided to poorest HH and provide technical support to construct disaster resilient latrine**
- **3 special latrines for differently able people were constructed**
- **Non-budgetary activities e.g. counseling with adolescent girls on menstruation management, personal hygiene specially in emergencies.**
- **250 menstruation kits distributed to adolescent girls**
- **Construction of 190 tube well raised aprons**

Outcomes



Women involved in the project said:

- “In the beginning we were confused, but now we are very confident”
- “We used to bath in alternate weeks, but now we bath every day with dignity and privacy”
- “Now, I do not allow my husband to enter home without washing hands when he came back from field”
- “We will continue our platform and have already started a savings group”

Outcomes

Rawson Aara never usually left her compound to go to market-someone else sold her goods for her. After joining the WWP , she started to sell her own produce and got 50000 Taka more than before.

“Now I understood I was cheated before. In future I will recheck the price in different markets and then sell my own beans”

Outcomes



"We are 11 people moving together. They (who have been resisting us) are afraid of us. Now they invite us to sit. They usually talk to the government representative, but now the talk to us too."

After one WWP member's (Rawson Ara) house has been destroyed by some muscle-man, all WWP members came forward to help her and also sought help from the police.

Lessons Learned

- **Involvement of husbands, mothers in law and/or elder women in different meetings and decision making processes (power sharing) creates enabling environment for the younger women.**
- **Go slow and steady in managing religious and social leaders.**
- **Women's mobility increased enabling them to use their bargaining power at local markets**
- **Not all WWPs performed to the same standard. 4 out of 20 WWP were under performing mainly due to social conflict and difficult access due to remote location.**
- **National level stakeholders, mainly government, showed interest in the project at the outset but did not get very involved . In future need to find ways of linking WWPs with local authorities.**

Way Forward

Strengthen the WWP and promote sustainability by:

- Addressing users contribution to O&M**
- Linking with institutions who can build women skills and capacity**
- Advocate at national level for recognition, scale up and replication**
- Investigate reasons for under performance of some WWPs**
- Increase DRR and resilience perspectives in all future capacity building initiatives**

Thank you



Menstrual hygiene in emergencies

**Building our own capacities to respond
to this ultimate taboo**

Sarah House, Independent Consultant, UK

Menstrual hygiene in emergencies

1. Realities of menstrual hygiene management for girls and women in emergencies
2. Why menstrual hygiene must be considered by emergency WASH and other sector actors (Health, Protection, Education etc)
3. Building our own confidence and capacities:
 - Resource materials
 - Training of trainers



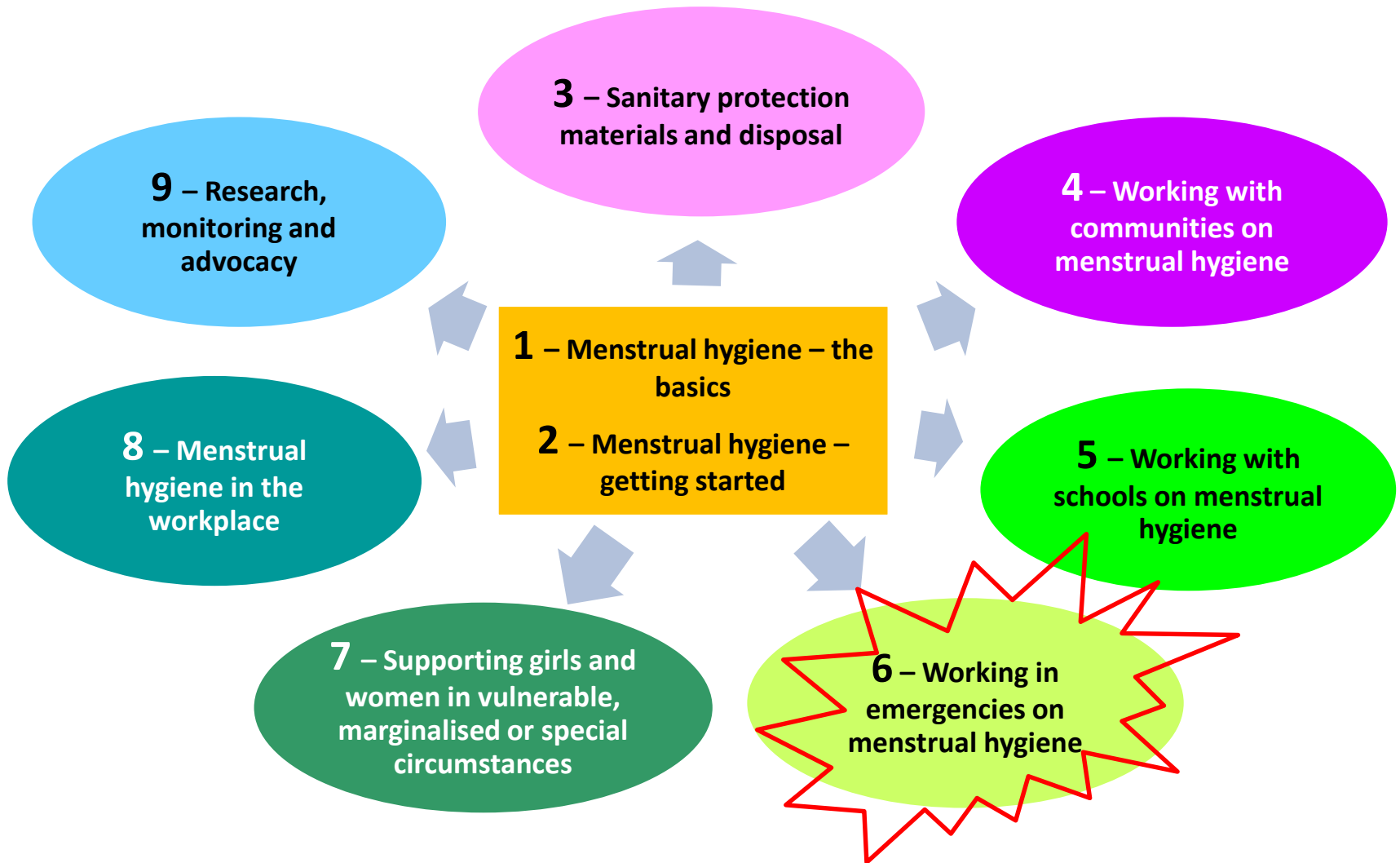
(Photo: WaterAid/ASM Shafiqur Rahman)

Well designed and appropriate water, sanitation and hygiene facilities that address menstrual hygiene can make a significant difference to the schooling experience of adolescent girls
(Photo: WaterAid/ASM Shafiqur Rahman)

Co-published by:

- Team:** Theresé Mahon, Sue Cavill and Sarah House
- Contributors:** Collaborative approach – inputs from individuals and organisations across the world - Reviewed by 21 experts - Co-published by 18 organisations
- Jointly funded by:** UK Aid from the UK Department for International Development (DFID) under the SHARE Project and WaterAid

Modules & Toolkits



Module & Toolkit 6 - Menstrual hygiene management in emergencies

Menstrual hygiene matters

Refer to the following sections for further details.


6.3.2 Sanitary protection materials in emergencies

Module 6 provides an overview of different sanitary protection materials, their production, the supply chain, drying and disposal.

Toolkit 6 includes further details on sanitary pad production and disposal.

Key considerations for sanitary materials selection in emergencies are:

- Preferences of women and girls.
- Facilities available for washing and drying re-usable materials.
- Disposal systems (from collection to transfer and final disposal).
- Cost, availability and sustainability of supply.
- Softness, absorbency, speed of drying.



Distribution of sanitary cloths and soap for internally displaced women and girls, Bangladesh (Photo: WaterAid/Thérèse Mahon)

Complications for sanitary protection distribution for refugee girls in schools⁹

"A challenge that can be faced when providing sanitary materials for girls who are refugees, is that schools may be populated by both girls who are refugees and girls who are from the local community. Funds may be available only for the sanitary materials for the girls who are refugees but local girls also face the same challenges with menstruation."
(UNHCR, Uganda)

Staged approach to the provision of sanitary protection materials in emergencies

It is often necessary to use a multi-staged approach to the provision of sanitary materials in emergencies:

- **Stage 1 - Identify** a general sanitary protection material (such as a dark coloured soft cotton cloth that can be adapted as sanitary protection) that can be incorporated into the pre-stock kits located in strategic regional locations. These will then be ready for immediate deployment in the case of a fast onset emergency.
- **Stage 2 -** At the onset of an emergency, **distribute** the pre-stock kits, including the sanitary protection material and usage information, to women and girls.
- **Stage 3 -** As soon as possible, **talk** to the women and girls (of different ages, ethnic backgrounds and cultural groups) about their menstrual hygiene needs and their preferences for sanitary materials and underwear.
- **Stage 4 - Purchase** samples, consult with women and girls on their appropriateness and distribute them discretely. Ensure the water, sanitation and hygiene facilities for washing, drying and disposing of sanitary materials are established, functioning and well maintained, and that users know how to use them.
- **Stage 5 - Monitor** use and satisfaction of the sanitary materials and facilities among different groups, encourage feedback and adapt your approach as appropriate.

- Getting started
 - Standards and guidelines on menstrual hygiene in emergencies
 - Practical menstrual hygiene interventions in emergencies
-
- Specific examples relevant to emergencies also in other modules:
 - **Module 3** – Re-usable pads made by women refugees in Dadaab Refugee camp , Kenya
 - **Module 7** - MakaPads (made from Papyrus) made by women and men abducted by the Lords Resistance Army, Uganda

Module & Toolkit 1 – The basics

Module one

Menstrual hygiene – the basics

1.4 Girls' first experiences of menstruation

A girl's first experience of menstruation can be a frightening time. If she does not know about menstruation she can be shocked to see blood coming out of her vagina. She may think she is sick or dying, or believe she has done something wrong and will be punished.

Adult women often feel shy talking about menstruation, so girls are not properly informed about what is happening to their bodies or how to stay healthy and maintain self-esteem. Making factual information available is vital to counter negative menstruation myths and support those with positive impacts. This can be done through the use of booklets for girls and women, and making them also available for boys and men to learn from.

Anonymous case studies from girls in your region, on their first experiences of menstruation and the advice they have for other girls, can be an effective way of sharing information on menstrual hygiene.

Refer to [Toolkit T1.2](#) for ideas on possible content and styles for menstrual hygiene booklets.

Included in this module are two examples of menstrual hygiene booklets, one from Tanzania (below) and another from Zimbabwe (see [Module 1.7.3](#)). These booklets have used anonymous case studies from girls on their first experiences of getting their menstrual period and advice they have for other girls.

Story 3

The first day I got my period I was in Standard 6. Because I was at school, I had to tell my very close friend. I wasn't able to tell the teacher because I was very afraid. I cried but my friend encouraged me and told me not to cry. I asked for permission to go home. When I got home, I washed my body. I told myself not to be afraid and I told my mother. She congratulated me but I was amazed because I thought it was something extraordinary. She gave me a lot of advice and I realised it was a normal thing.

For myself, I would like to advise my fellow girls who have not reached this stage that they should not be afraid when this happens because it is a normal thing. If they are afraid, I advise them to get rid of their fear because it is not a sickness. It is not a problem of any kind. It is a natural thing which God wanted us girls and women to have. Even if you have never heard anything about this, or if you have never been taught in school or by your parents or relatives, I want you to learn from me and see that it is a normal thing. If you would like to know more, I advise you to read books and attend seminars or ask your older relatives or even your mother.



Hadithi ya 3

Siku nilipovunja ungo nilikuwa shule. Ilibidi nimweleze rafiki yangu ambaye yeye ni rafiki wa karibu sana. Sikuweza kurwambia mwalimu wangu kwa sababu nilikuwa naogopa sana. Si hofu tu, hata kulia niliia sana lakini rafiki yangu alinipa moyo na kunishauri nisilie. Basi niliomba ruhusa nikarudi nyumbani. Nilipofika nyumbani, nilitanya usafi wa kimwili na kujitweka safi. Nikajikaza kuondoa hofu nikamwambia mama yangu. Alinipongeza lakini ililibidi nishangae kwa sababu niliona ni kitu cha ajabu sana.

Alinishauri mambo mengi nami pia nikiona ni kitu cha kawaida. Kwa upande wangu ninapenda kuwashauri wasichana wenzangu ambao hawajafikia hatua hii kuwa wasiwe na hofu jambo hili likiwatokea kwa sababu ni jambo la kawaida. Kama wanakuwa na hofu kuhusu jambo hili nawashauri wasiwe na hofu kabisa kwani si ugonjwa wala si matatizo; ni kitu cha kawaida ambacho Mungu alipenda sisi wasichana na wanawake tuwe hivi. Hata wewe ambaye hujawahi kusikia mahali popote wala hujawahi kulundishwa shuleni au wazazi wako au kwenye ukoo wenu, ninapenda ujifunze kutoka kwangu na uone kwamba ni kitu cha kawaida. Na endapo utapenda kujua zaidi nakushauri usome vitabu na kuhudhuria semina au ukipenda zaidi uwaulize ndugu zako wakubwa au mzazi wako.

Story of a girl's first experience of menstruation, Tanzania²²

- Why considering menstrual hygiene is important for all
- What is menstruation?
- Cultural and religious beliefs, social norms and myths on menstrual hygiene
- Girls' first experiences on menstruation
- Girls' experiences of menstrual hygiene in school and their impact
- Health problems related to menstrual hygiene
- How women and girls can keep themselves healthy during their menstrual period

Module & Toolkit 2 – Getting started

Module two

Menstrual hygiene – getting started

Involving men in women's business?

Many Bangladeshis believe that if a man walks past menstrual rags or sees menstrual blood, misfortune will befall him. Consequently, community hygiene promoter Nurul Islam was uncomfortable discussing menstruation hygiene, although it was a part of his role to educate the women and girls in his village about the dangers of using dirty rags.

Nurul shared his problem with fellow promoters during their weekly meeting. With their advice, he came up with a plan, "After our meeting, I invited Amina Khatun from Char Bramgacha to come to my village to speak about menstrual hygiene. I introduced her to everyone and we worked on the issue together. Because Amina is from a village that is very close to ours, some of the women knew her. This made it easier for her to work with them."

After Amina's first session with the women in Nurul's group, they were less shy. Having Nurul participate in the discussion was also helpful as it showed the women that they didn't need to be embarrassed about the issue in front of men.

Amina tries to involve men and boys in her menstrual hygiene sessions whenever possible. At school sessions in her own village, she includes the boys in some of the menstrual hygiene discussions. "I don't just include the girls because it is important for everyone to know about the proper practices," says Amina. "Boys and men can encourage their mothers, sisters and wives."

From UNICEF Bangladesh (2008)



Nurul Islam working with his female colleagues to promote discussions in communities (Photo: UNICEF, Bangladesh)

- What we should be doing at household, community, sub-national, national and international levels
- Institutional and sector responsibilities
- **Building confidence and competence**
- Men and boys' involvement in menstrual hygiene
- Resourcing for menstrual hygiene

Observation: training on MHM for emergencies is inadequate

1. If mentioned at all – often limited to mention that sanitary cloth or pads should be in NFI kits... possible mention of positive or negative of pads vs cloth
2. No discussion on infrastructure design requirements – latrines, privacy, water for hand-washing / cleansing, end disposal etc
3. No discussion on communication, information needs or obtaining feedback on MHM
4. ICRC manual on WASH in prisons does not mention MHM (...so assuming WASH training does not cover MHM...)
5. Trainers may be very experienced in other elements of emergency WASH – but not experienced in MHM for emergencies
6. Learning has been developing internationally over the past few years – need for updates

Trialling models for training on MHM in emergencies



Discussion session at ACF in Paris

(photo: S House)

Trialling models for training on MHM in emergencies



Group work as part of an NFI session on a UNHCR / REDR emergency WASH training, Kenya

(photo: S House/REDR)

Trialling models for training on MHM in emergencies



Discussion session on menstrual hygiene as part of the Hygiene Promotion Training by the Austrian Red Cross / REDR in Croatia (participants from Serbia, Slovenia, Croatia, Romania, Poland, Germany and Austria)

(photo: J. Graf / Austrian Red Cross)

Privacy for dealing with MHM?



The reality in the field...

‘Menstrual hygiene is still very low on the list of priorities. In emergencies it is water and latrines that make the list and sometimes even shower stalls.

Gender issues are usually considered after the initial emergency needs for water and latrines have been met or after it turns out that latrines and showers are not used by women because they are not appropriate for women’

(Emergency WASH NGO worker, 2011, providing feedback for the MHM resource publication)

Training of trainers...



Ana Zupanic from the Croatian Red Cross running a MHM session on the Mass Sanitation Module (MSM) ERU Training in Austria

(photo: J. Graf / Austrian Red Cross)

Enthusiasm and interest!



Participants from a WASH in emergencies course for UNHCR and partners, Uganda (REDR)

(photo: Moto Michikata / REDR)

Request – establishing interest?

1. Do you think a training of trainers day on improving menstrual hygiene components of emergency WASH training would be valuable?
2. Do you know any experienced trainers who may be interested?
3. If so please come and talk to me during the conference
4. Or email me on - Sjhouse.majisafi@gmail.com

Accessing the Menstrual Hygiene Matters manual

- Free download (complete copy or by module, high and lower resolutions) from: mhm@wateraid.org
- Poster on manual at EEH Forum & hardcopy for viewing
- USBs available – please ask myself, Sue Cavill or Suzanne Ferron



The world has around **8 billion** people in it

Of which approx **4 billion** are female

During any one month...

... approx **2 billion** menstruate



Menstrual Hygiene Management in Emergencies:

Taking stock of UNICEF supported MHM response

Outline

- * Background
- * Methods
- * Findings
- * Recommendations



Background

- * In 2010 estimated 43 million refugees and IDPs.
- * Populations often flee with few possessions.
- * Often living in very different environments.
- * Often lack of appropriate WASH infrastructure.



Why MHM in emergencies

- * Good MHM reduces risk of infection to girls and women.
- * Dignity and empowerment to engage in daily activities and survival in an emergency context
- * Provision of safe facilities to reduce risk of sexual abuse
- * Need for girls to participate in education during emergencies – need MHM friendly facilities at temporary learning spaces

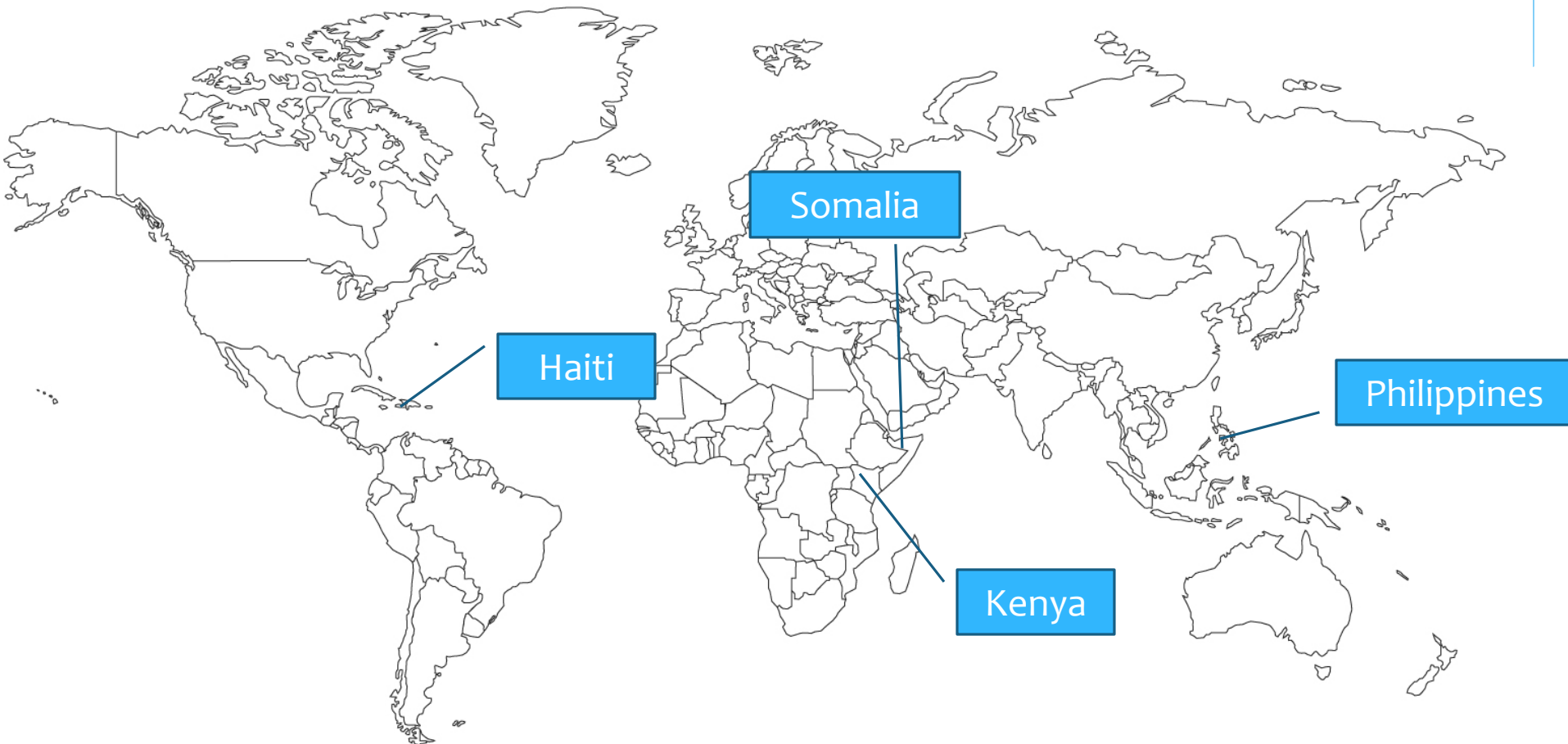
Questions

- * How do emergencies affect normal MHM processes?
- * What are the needs of menstruating girls and women during emergencies?
- * How can UNICEF support the needs of menstruating girls and women during emergencies?

Process

- * Project Protocol and draft FGD guide developed
- * Protocol sent to UNICEF CO emergency locations
- * Conduct workshop with data collectors
- * FGD data collection
- * Key Informant Interviews conducted
- * Data analysis
- * Report and follow up action.

Project locations



Methods - Qualitative Approach

- * Focus Group Discussions
 - * Beneficiaries affected by emergencies
 - * Use of a FGD question guide -
- * Key Informant Interviews
 - * With UNICEF WASH and CP staff





Findings Somalia



* Background

- * Beneficiaries in IDP camps
- * Muslim populations primarily nomadic community

* MHM background

- * Before arriving in camps – common for no absorbent support used
- * After arriving in camp use of cloth influenced by confined environment
- * Specific cultural/religious rules on MHM

* Identified Issues

- * Water and support facilities too expensive
- * Lack of private/appropriate washing drying facilities
- * Lack of information – how to conduct MHM in a confined environment

Findings Haiti



* Background

- * Beneficiaries in IDP camps
- * Urban population – poor sanitation background
- * Dependence culture

* MHM background

- * Before arriving in camps – various sanitary items – cost....
- * In camp use of disposable sanitary napkin
- * Very poor sanitation/facility support – has influence over preference

* Identified Issues

- * Water not immediately accessible at facilities
- * Poor maintenance of facilities
- * No washing drying facilities
- * Lack of information – How to prevent/ avoid infection



Findings Philippines

- * Background
 - * Beneficiaries in relocation centers
 - * Mixed population from flood affected areas
- * MHM background
 - * Before arriving in camps – different types of support used
 - * Pads issued in Hygiene Kit
 - * Good knowledge of MHM
- * Identified Issues
 - * Lack of clean water to wash
 - * Lack of private facilities in reception centre
 - * Issues of protection at facilities for younger girls



Common Findings

Enabling Supportive Environment

Informed approach

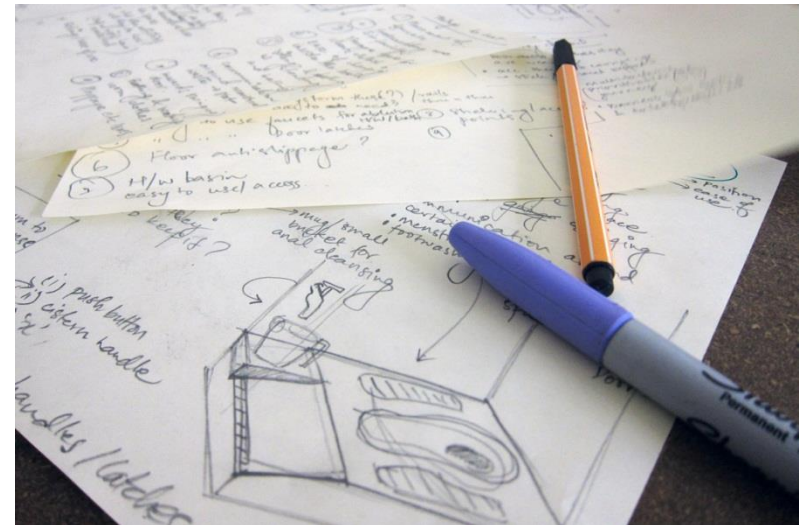
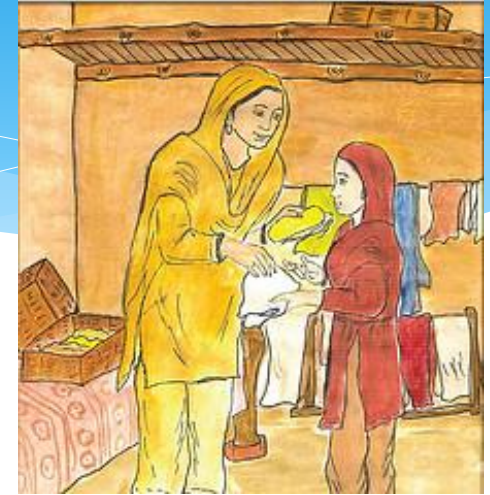
Lack of Beneficiary Consultation
All FGD participants agreed that this was the first time anyone asked them for feedback about Hygiene related issue.

Coordinated approach

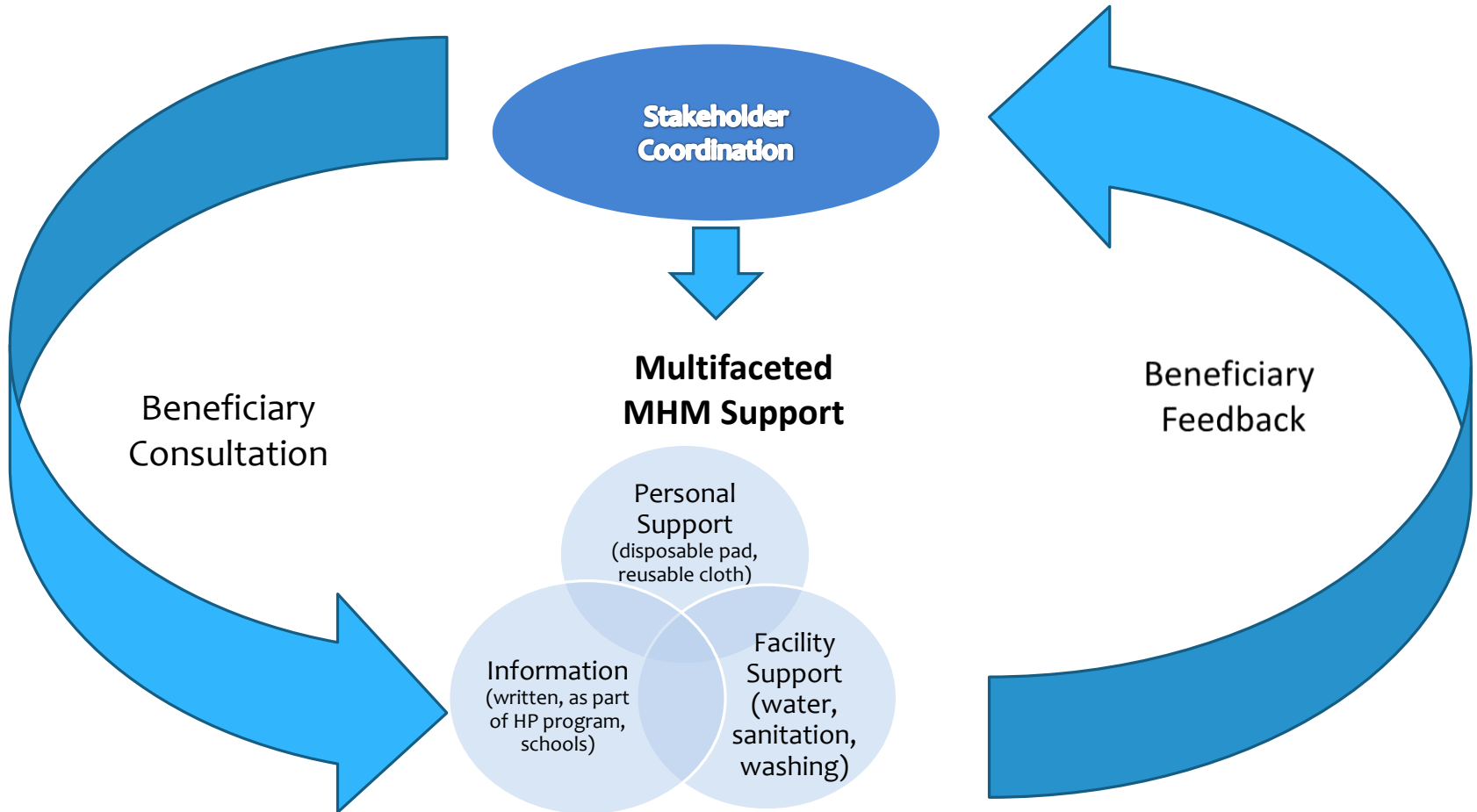
Lack of Sector Coordination
Activities conducted autonomously
Evidence of overlap
Confusion on responsibilities

Common Findings

- * Multi faceted Approach
 - * Personal Sanitary material
 - * Community hardware support
 - * Access to information



Enabling Environments to MHM support in Emergencies



Recommendations

- * Identify and recognise MHM as an issue to address.
- * Coordinated response: identify stakeholders and sector focal points
- * Informed Response
 - * Systematic approach to continued beneficiary feedback
 - * Cultural norms and how the emergency affects normal MHM practices
 - * Priorities and gaps of support
 - * Include women in design of facilities and make up of hygiene kits
- * Multifaceted Response
 - * Ensure response efforts address all aspects of MHM

Recommendations

* **Preparatory**

- * Identify and agree on roles and responsibilities
- * Identify cultural norms of MHM and potential coping mechanisms for emergencies
- * Design a communication strategy and supporting materials
- * Identify implementing partners for MHM response and if necessary, preposition agreements and supplies

* **Response and early recovery**

- * Ensure a coordinated response
- * Identify gender appropriate water, sanitation, hygiene and MH materials disposal facility requirements within initial rapid assessments, and design WASH response accordingly
- * Maintain gender specific beneficiary communication and feedback.

Acknowledgements

- * RedR Australia – Timothy Hayden (seconded to UNICEF HQ-WASH)
- * UNICEF CO WASH and CP staff (in project locations)
 - * Silje Heitmann – CP Somalia
 - * Tim Grieve – WASH Philippines
 - * Berangere Antoine – WASH Haiti
 - * Martyn Worth & Samuel Gitahi – WASH Kenya
- * Emory University - Jacquelyn Haver (coordinated data collection in Philippines)
- * UNICEF HQ staff: Andrew Parker, Jesus Trelles, Maria Carmelita Francois (supported data collection and analysis in Haiti), Murat Sahin
- * UNICEF SD – Tabinda Syed
- * GRT and Intersos (for data collection in Somalia)
- * IRC (for data collection in Kakuma)
- * ASAD (for data collection in Haiti)

Any questions?



CLTS in emergency and post-emergency contexts



tearfund

“Is CLTS ‘mis-matched’ for achieving safe sanitation at scale in the emergency / post-emergency context?”

Two primary reasons why this is a legitimate question:

- Vulnerability, and loss of wealth of beneficiaries (Re. no subsidy);
- Question of *inclusivity*, when community structure is virtually destroyed

From current understanding, CLTS most appropriate in:

- In the recovery and rehabilitation phase of natural disasters;
- With local (host) populations and returnees in complex emergencies;
- In the recovery / rehabilitation / and preparedness phases in areas prone to epidemics.



CATS Pilot in Haiti,

Fiorella Polo, Unicef, 2010 (**Context: IDPs in host communities**)



- CATS works well where improved sanitation already exists: it spurs people on to take ownership of cleaning and maintenance, and to proper latrine use* (Previously latrines were dismantled for materials. Therefore, ensure adequacy of shelters & family homes);
- Focus on disgust may not be appropriate to people who have already experienced shock;
- Success of “triggering” is more dependent on quality of facilitation than even the physical criteria;
- Avoid facilitating CATS/CLTS alongside several supply-driven projects.

* Similar finding to Oxfam in Pakistan during 2011 flood response

Community approach to Total Sanitation, Sudan,

Eltayib *et al*, WES, 2010
(Context: Long-term IDPs in host communities)

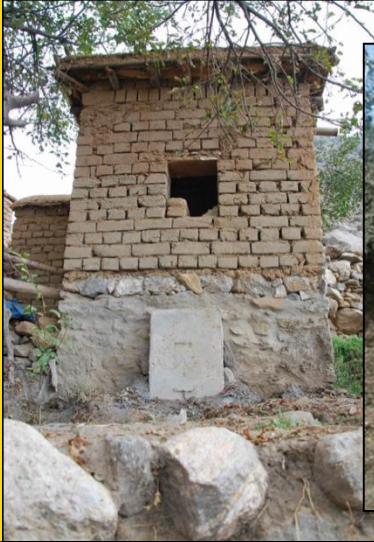
- CLTS (CATS) in a “Total Sanitation” context, incorporating water handling and use, food hygiene, and clean environment, besides safe excreta disposal;
- Embed the CATS process in a wider programme of improved WASH access, based on livelihoods approach (e.g. capacity building of local artisans and service providers);
- Strong use of local religious leaders (Moslem context) to disseminate messages of personal cleanliness and well-being.



Tearfund, Afghanistan

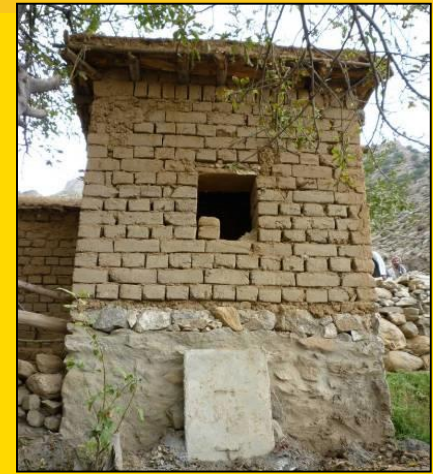
Murray Burt, 2011

(Context: Villages receiving returnees)



- As with WES in North Sudan, focus on facilitation, promotion, marketing, and training, leaving construction and distribution to local community, homeowners, and tradesmen;
- Combines CLTS with PHAST, to consolidate hand-washing practice;
- Religious leaders involved;
- Strong lobbying component to main Govt. Dept. responsible for WASH (“MRRD”): National WASH Policy now includes total sanitation concept, and “ODF” status.

Livelihoods Opportunities



- **Construction** of latrines was left for homeowners and local masons.
- Tearfund provided **training** to local tradesmen, including environmental considerations, latrine siting, design and construction quality.



Livelihoods Opportunities

- **Increased demand** for hand washing facilities met by local steel workers, producing small steel drums with a tap designed for hand washing.
- **Increased demand** for soap met by local shop owners.



Oxfam GB in Hyderabad IDP camps, Pakistan

Sonya Sagan, 2010

- CLTS in a “Total Sanitation” context, incorporating water handling and use, food hygiene, and clean environment, besides safe excreta disposal;
- Active children’s initiatives include “OD whistle blowing patrols”, daily clean-up campaigns, competitions between blocks, etc.;
- Follow-up to CLTS campaign is critical.



Tearfund, Tonga, North Kivu, DRC

(Context: re-settled community, post conflict, but with security issues)



"Before we were perishing because of lack of knowledge"

"There are less faeces lying around - people are throwing the stools they see into the pits"

"Malaria was a huge issue. Tearfund taught us to remove dirty stagnant water, and remove bushes"

"We are responsible for our own hygiene!"

- Communities are highly motivated and enthused through excellent facilitation, built on committed relationship and trust;
- A "Tools Bank" has enabled people to do their own construction;
- Good linkage with Unicef-led/Govt. favoured "*Village Assaini*" ("healthy villages") approach;
- Emphasis on the use of local materials providing adequate and useable latrines (Despite security risk of obtaining materials for construction)

Equitable access for all groups in the community – the “inclusivity” issue...



- Concept of the “Sanitation ladder” – will require advocacy component where national policy stipulates improved latrines
- Sharing latrines
- Low-cost solutions
- In camps / relief settings, IFRC seeks to apply “Smart subsidies” which target the most vulnerable (orphans, widows, elderly, single mothers)



Considerations from Oxfam's Humanitarian Learning WASH Forum, Oxford, May 2012

CLTS ultimately needs to be context-specific, and guidance of CLTS application and techniques is the key need, i.e. avoid a framework that is too definitively categorised

Maintain an emphasis on low-cost technologies

What appropriate humanitarian donor costs can be assigned to programming for CLTS?

CLTS seems more appropriate to slow-onset and complex emergencies, and the less appropriate to rapid-onset emergencies

Consider economic and market factors, such as the availability / scarcity of construction materials, including, for example, security issues hindering access to them


Consider CLTS as having application which is "transitional", from camp / environment "clean-up" in the early emergency phase, to operation & maintenance in the rehabilitation phase

It would be useful to have examples of CLTS programming & budgeting for the emergency & post-emergency context

CLTS in the context of “standard” emergency sanitation

We need to come to understand *when* and *how* CLTS can replace conventional emergency sanitation approaches as an appropriate way forward to achieve lasting and effective latrine coverage, i.e. *what are the circumstances where CLTS is not only appropriate, but beneficial over other sanitation approaches, given the prevalence of various criteria?*

Suggested Framework for applying CLTS in emergency / post-emergency context

Situation Typology 	Natural disaster (Rapid onset) e.g. Japan earthquake, Pakistan floods, Asian Tsunami.	Complex emergency e.g. Darfur, Somalia food crisis	+ Sub-groups: e.g. fragile states, epidemics
Displaced, and in camps			
Socially cohesive groups, or mixed social / ethnic groups			
Living in host communities – retaining social proximity, or integrated spatially with host community			
Security stable, or high risk. Fluctuations between..			
Affected pop anxious to move on/return, or in fear of return...			

Questions / Issues for debate

- 1. What are the key issues re. CLTS in emergencies / post-emergencies that require further investigation?**
- 2. Do we have enough knowledge to construct a CLTS-in-emergencies planning framework, or should we not attempt this, and instead form basic guidelines based on our experience of CLTS interventions in this context?**

EEHF, London, 18 December 2012

On site wastewater treatment in Cholera Treatment Centres

Jean-François Fesselet

Huw Taylor

Emanuele Sozzi



University of Brighton



EEHF 2010

- Presentation on same subject, as MSF had been confronted with similar situations.
- However, at the time, we had not yet found a real practical solution and we had limited/poorly documented experience

Why looking for a solution?

- Situations when wastewater cannot be treated with conventional treatment (latrines or septic tank + infiltration system):
 - Stringent national regulations
 - Limited space
 - Inappropriate ground conditions
 - Risks of contamination and pollution

Reasons in Haiti

- Lack of space (urban area)
- High water table
- Proximity to river or sea
- No off site treatment or appropriate disposal site
- Security linked mainly to possibilities



Objective and philosophy of treatment

- Remove *Vibrio Cholera*
- Remove organic matter
- Simple + rapid + easy to put in place (within days)
- Easy to manage
- Demonstrate and document feasibility at scale

Possible solutions:

- Off-site treatment/disposal
- Biological treatment
- Disinfection
- On-site chemical coagulation/flocculation

What choice in Haiti:

- Off site treatment: not available
- Disinfection: not feasible without prior treatment
- Biological treatment including membrane bioreactors:
 - Expertise + careful design
 - Weeks up to months to be fully functional
 - High risks of poor performance due to presence of high levels of chlorine and rapidly fluctuating inflow or raw water characteristics

Our choice

On-site chemical coagulation/flocculation

Starting point

Vibrio survival = pH 5 – 9.6

2 fundamentally different treatment methods

Method A

⇒ High pH > 11.4

- Lime alone (A)
- Lime + magnesium (A +)

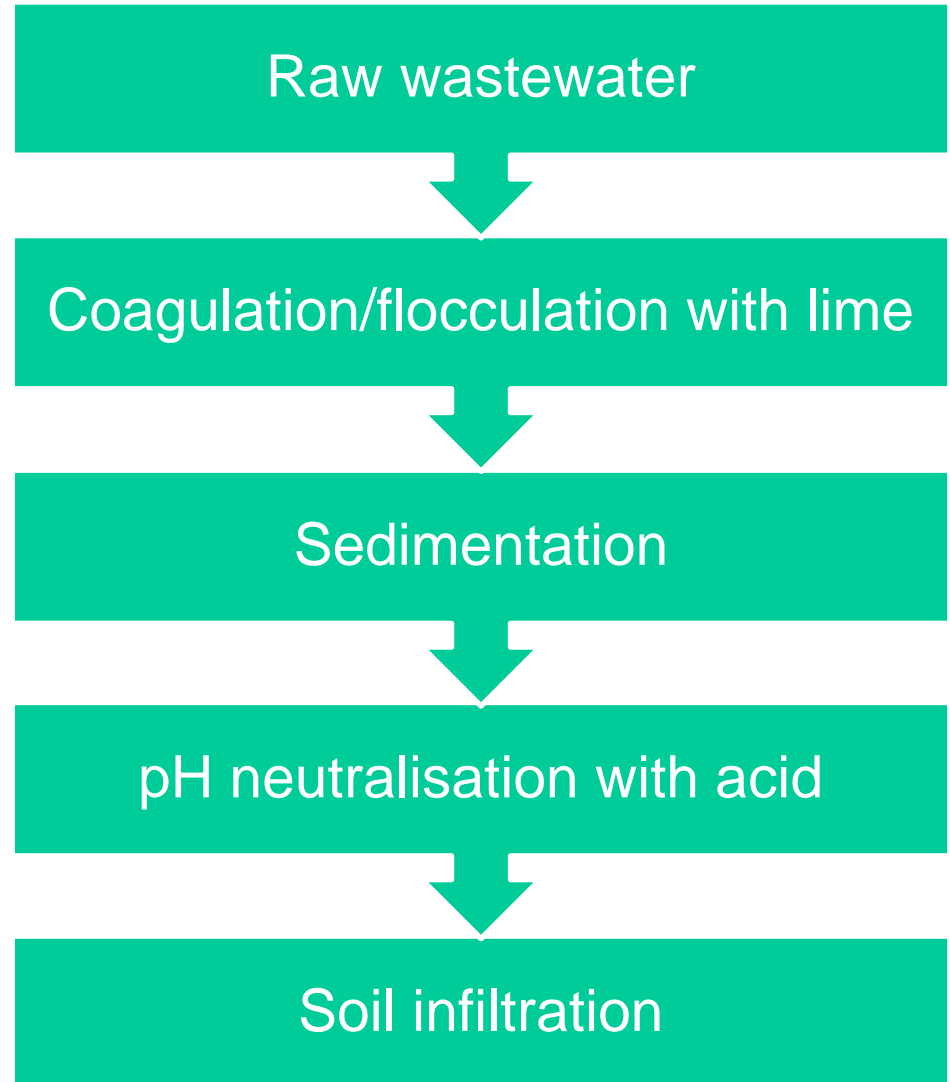
Method B

⇒ Low pH < 4

Acid + coagulant (B)

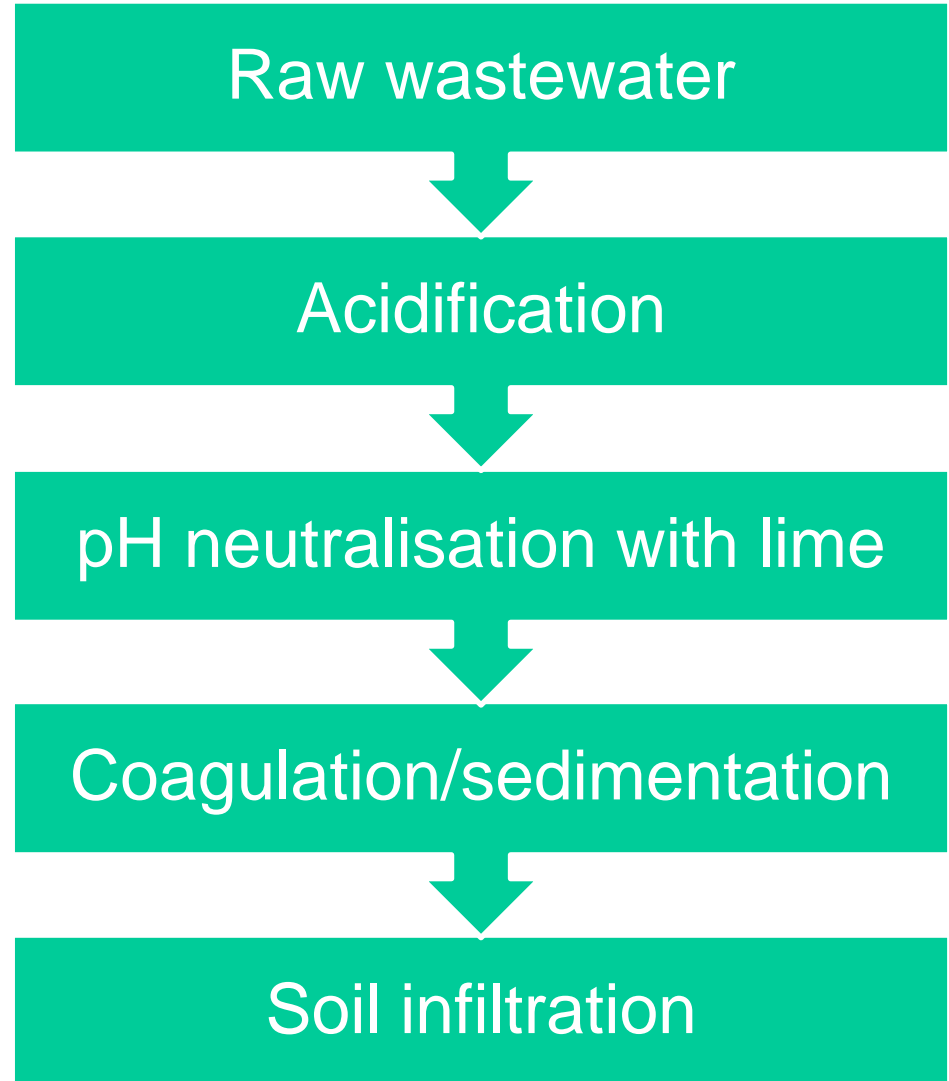
The treatment stages

Method A



The treatment stages

Method B









MEDISA SUI
MEDICAL SUPPLY

TUFF TANK
1000

HONDA
GENERATOR





Consolidated results of 3 different periods of implementation (Jan-Apr 2011, Aug-Oct 2011 Jan-Apr 2012) :

- Both treatments effective:
 - 90% reduction TSS
 - 94% reduction turbidity*
 - 90% reduction COD
 - 99% reduction *E. coli*

Sludge production

- Around 6% wet sludge
- 450 m³ of waste water treated so about 30 m³ of wet sludge

Method A	Method B
Sludge pH > 11	Sludge pH around 7
Storing sludge for 3 more days to increase disinfection	Storing sludge in closed tanks
Desiccation	Desiccation in small batches to control odor





Final disposal of sludge Used

- Incineration
 - Existing equipment for medical waste
- Organic Waste Pits

Considered

- Possible re-use, but we decided this was not an option in Haiti.



Challenges

- Convincing/misconceptions
- Time limitation/emergency pressure
- Data quality with field lab equipment
- Running/monitoring treatment plant still requires a specialist
- Need for simpler procedures + monitoring tools + more experiences in order to make possible a management by trained national staff.

Current research

- Validating field data with lab based experiments
- Looking specifically at fate of *V. cholera*
- Continue to develop the current SOP and simplifying monitoring procedures
- Looking at broader aspect of waste water treatment/disinfection in cholera context

Thank you for your attention



***The Haitian population facing cholera for the
first time: awareness efforts and applied
anthropology***

Fifth Emergency Environmental Health Forum 2012

Yasmine Al Kourdi

Health Promotion & Socio Anthropology Advisor MSF OCB

Introduction : General context

- Cholera outbreak in Haiti
October 2010
- No cholera reported in Haiti
for more than a century
- Medical interventions from
MSF-OCB from the start of the
emergency (October 2010)
- Health Promotion activities =
awareness, prevention, and
promotion of services



→ MSF OCB full management of CTCs

Petite Rivière 1 CTC in town (100b.)

x CTU in rural area

Jérémie 1 CTC in town (80b.)

x CTU in rural area

Port au Prince 1 CTC in Choscal (50b.)

1 CTC in Sarthe(150-250)

1 CTC in Martissant (100)

→ Technical Support to MoH
(trainings)



Anthropological survey to identify popular knowledge on the epidemic and the dimensions of the illness that could affect our medical intervention.

Socio-cultural context : voodoo

- Voodoo = syncretism, very present in Haiti but hidden because of bad reputation
 - Houngan = voodoo priest who can access the supernatural & invisible world through the Spirits.
 - Two big categories of diseases: natural diseases (biomedicine) and supernatural/mystic diseases (traditional medicine).
- Distinction between these two groups of diseases and the therapeutic choices is not so clear.

Funeral rituals

- Death = social event with lots of codes :
bath + nice clothes + hair + exhibition of the body
- Funeral wake involve physical contact: touching, kissing
- Burial in caves with other family members
 - Big business, costly so sometimes death bodies moved, caves opened without precautions etc
- Important collective entertainment : meal after the ceremony : washing hands in the same bowl of water + oranges + lemon



- Qualitative exploratory study between 17th of November and 17th of January 2010
- 129 semi structured interviews, 136 focus group discussion

Participants :Local authorities members

Religious leaders

School directors & teachers

Health professionals

Traditional healers

Taxi drivers

Radio animators

Beneficiaries (patients and care takers)

Gravediggers

Cemetery responsible

- Location of data collection : MSF supported health facilities (both CTC in urban areas and CTU in rural areas), surroundings of the health facilities and markets
- Three anthropologists using the same interview grid and thematic analysis
- Biais: use of translators, MSF identification, MSF "security rules", short timing (two months), survey started shortly after the awareness campaigns

Results 1: Origin of cholera

- Unknown disease in Haiti : form of psychoses in the country and association with many causes : lack of hygiene, plot against the Haitian nation, divine curse, mystical powder.
- Double belief: **good** cholera → due to microbe (natural agent)
bad cholera → due to "coup de poudre"
= "slap of powder"
- Consequence: violence against voodoo priest, different therapeutic choices : good cholera with herbs or medicines (ORS, antibiotics ...), bad cholera with intervention of a sevite lwa (hougan or mambo) : exorcism

Results 2: Transmission

- Mystical powder : circulating through air & through water
- Dead bodies: associated with wandering spirits and evil practices
- Contaminated air (dust, smell, breath of cholera patient) : explaining the quick transmission & similar to other diseases such as TB
- Contaminated objects, food, flies & lack of hygiene (dirty hands diseases)

Results 3: Prevention

- People aware of hygiene rules : recognition of limits due to structural needs in water & sanitation, misuse of chlorine solutions, and belief in bad cholera (intentional spread)
- People belief: need for additional precautions : syrup from plants (guava leaves) ,antibiotics, clairin (local alcohol) , masks , etc.
- People belief : special protection, existence of a vaccine that protect the responsible of the epidemic

Results 3: Prevention

- Bad management of dead bodies due to confusing recommendations, poorly defined responsibilities and strong socio-cultural funeral rituals
- Funeral rituals (conducted without respecting standard precautions) protection against further cholera contamination
- Fear around contamination by death bodies and abandonment of bodies (mostly in rural areas)

Results 4 :Treatment

Good Cholera

- CTC with a high preference for IV fluids & antibiotics rather than ORS
- Some barriers : fear because open space difficult to get mystical protection; stigmatization; bad perception

Bad Cholera

- Intervention from voodoo priest : treatment with baths and powders

→ Combination of several therapeutic choices : traditional treatments, auto medication, prayers, exorcism, etc

→ Consequence: late arrival at CTC

Recommendations

- Use of the results to constantly adapt the HP strategy throughout the intervention : activities and messages
- Organize visit of the CTC for community leaders
- Collaborate with the different categories of therapists rather than deny their influence
- Conduct meetings with the community before the installation of a CTC & CTU
- Advocate for prompt & correct management of dead bodies
- Advocate for technical solutions regarding water and sanitation problems

Recommendations

- Possible cholera vaccination campaign: take into consideration local perception of cholera and raise awareness on expected vaccine efficacy



Conclusions

- Main results fit into the existing socio cultural system : natural disease, mystic disease
- Anthropology bring its perspectives to support the cholera emergency intervention, in combination with health promotion
- Limitations : concomitance of the awareness efforts and the collection of information

Many thanks to :

- The Haitian authorities especially the ministry of Health
- The research team (anthropologists, translators, medical staff)
- The patients
- The colleagues at MSF headquarters

Cholera response and prevention: lessons from Chad, Cameroun and Zimbabwe



Jean Lapegue, senior WASH Advisor ACF-France
jlapegue@actioncontrelafaim.org

Key humanitarian expectations on a cholera outbreak

We need to produce a **more effective and efficient response**, by:

→ improving context and disease knowledge (this will also be used for the shield positioning) to orientate or re-orientate the response
(**operational research**)

Key humanitarian expectations on a cholera outbreak

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(operational research)

→ Anticipate the outbreaks (**Regional approach**)

→ Make response is mobile, fast and flexible (**WERU approach**)

Key humanitarian expectations on a cholera outbreak



Key humanitarian expectations on a cholera outbreak



Ideally, we would prefer not to have to respond, then we should cancel the risk of cholera outbreak through prevention outside of outbreaks periods or in not yet affected areas (shield strategy)

Key humanitarian expectations on a cholera outbreak

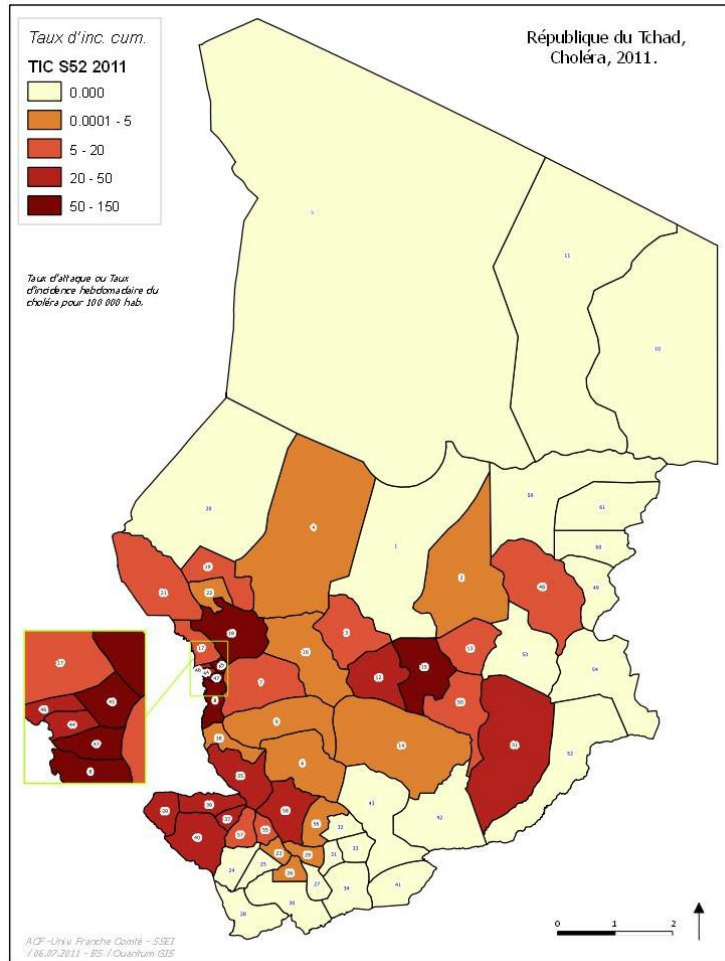


1 - The importance of understanding the context and the disease for response, preparedness and prevention:

operational research
(Chad & Cameroun)

Situation

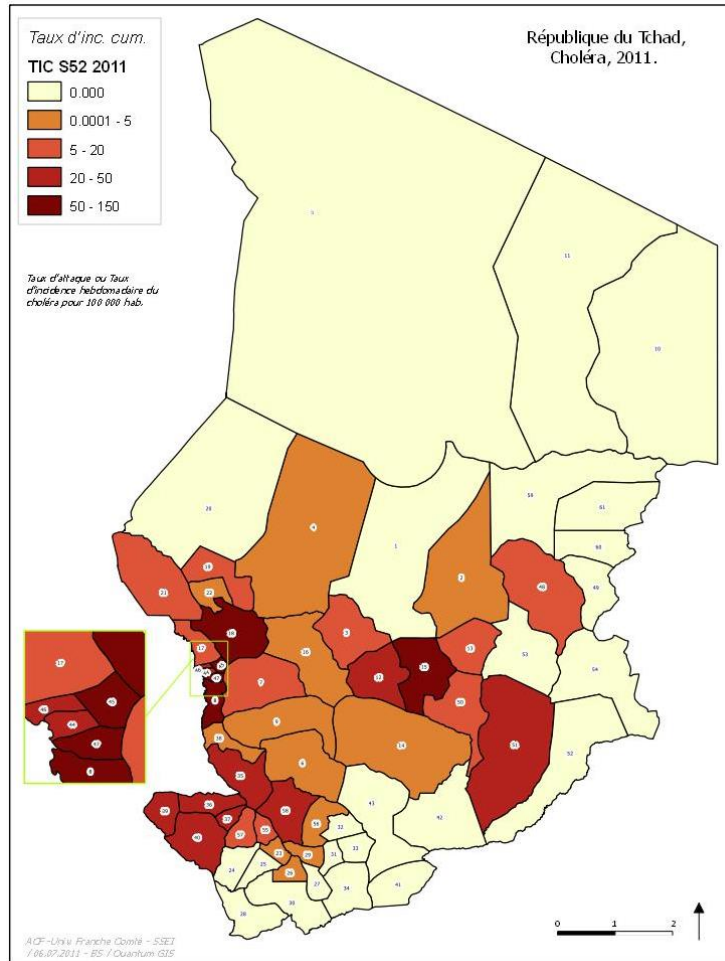
- Cholera has been present for the last 40 years in Chad



The spread of cholera in Chad as of December 2011

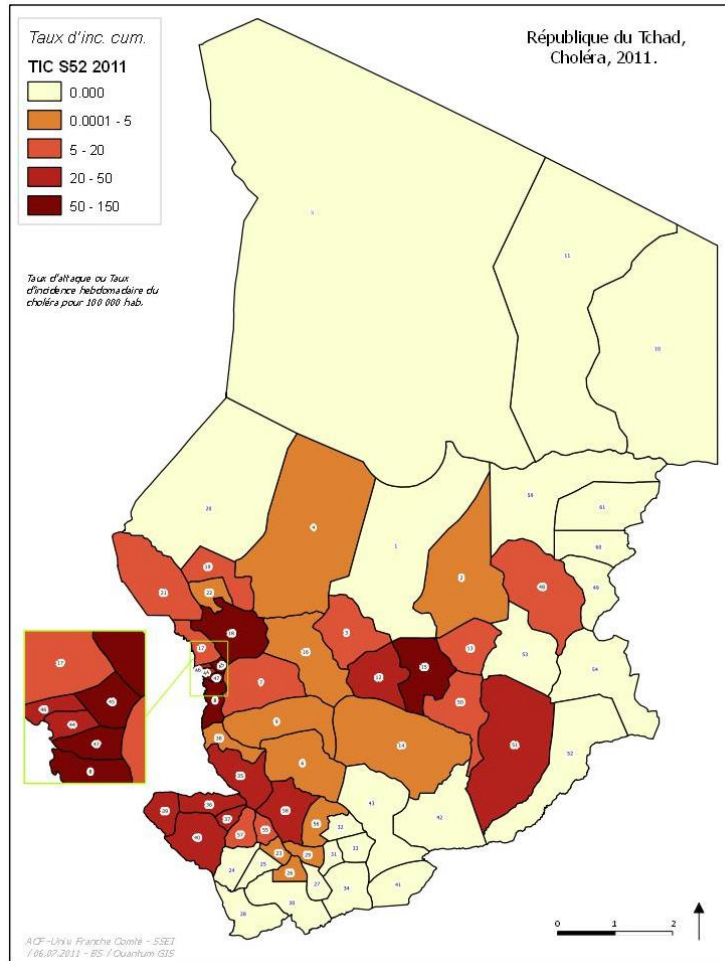
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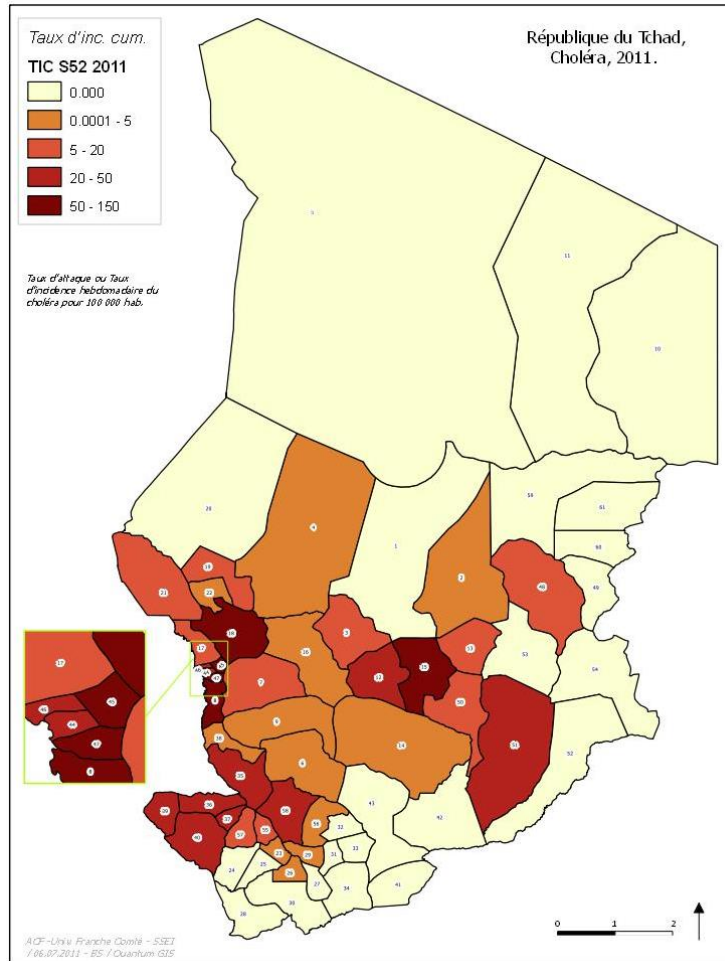
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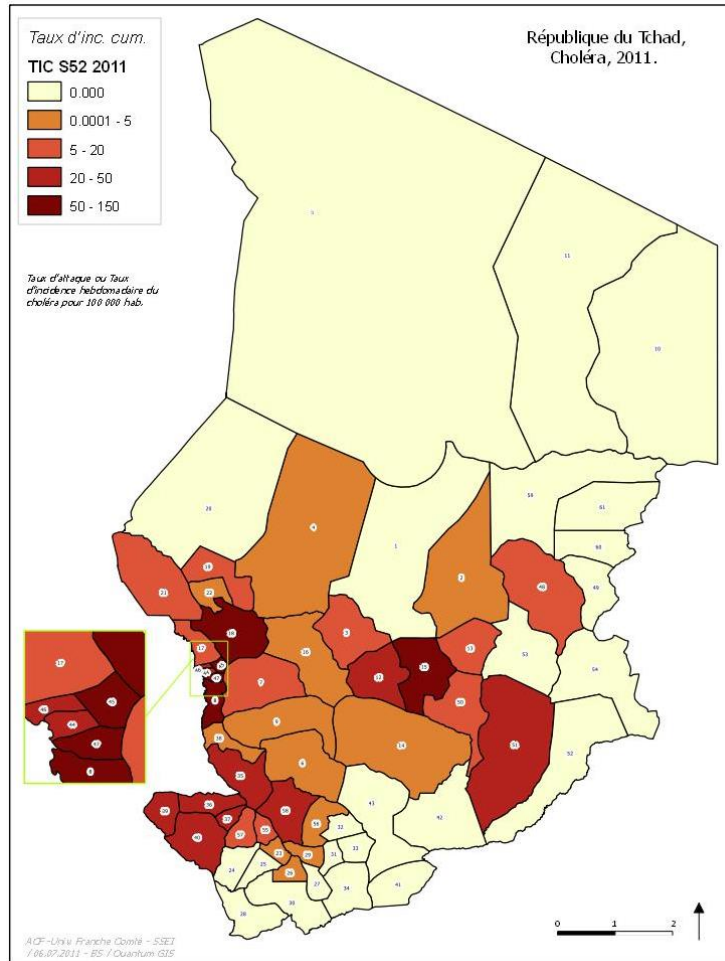
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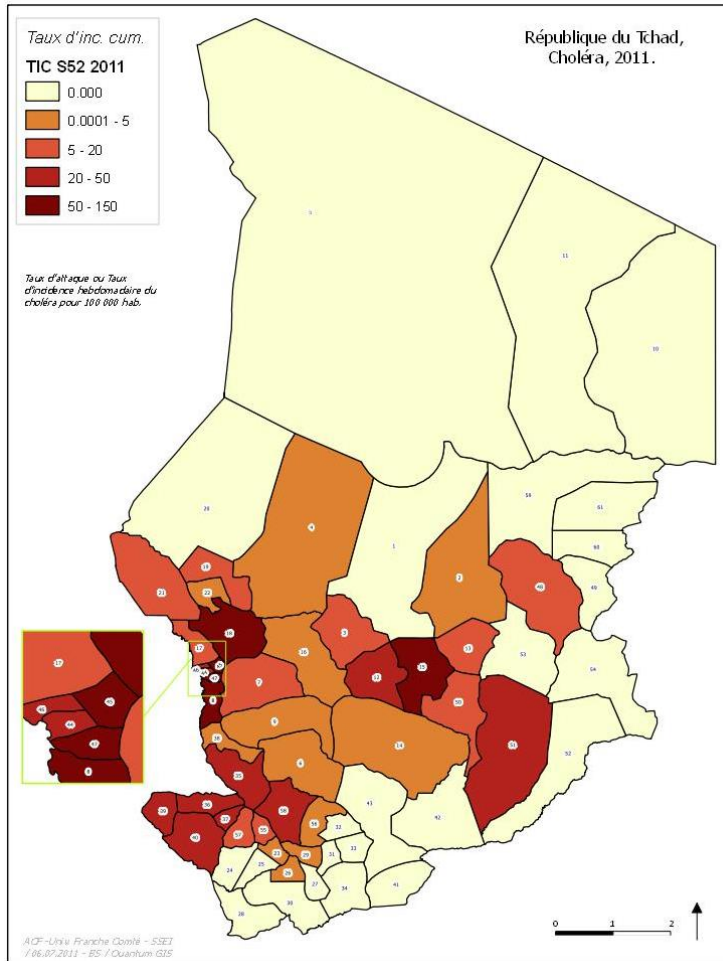
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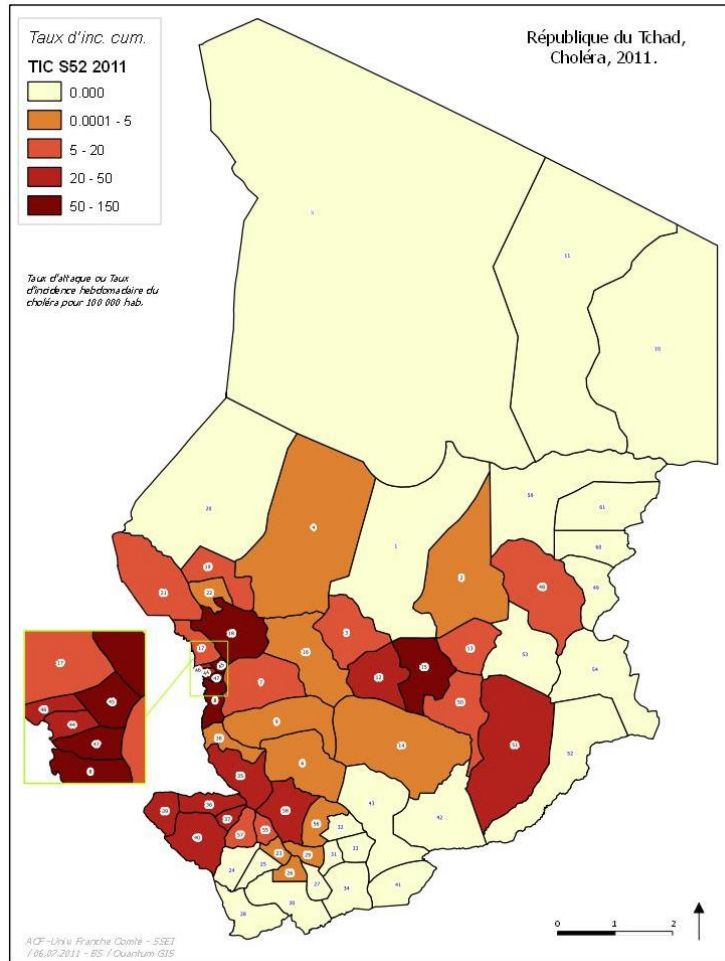
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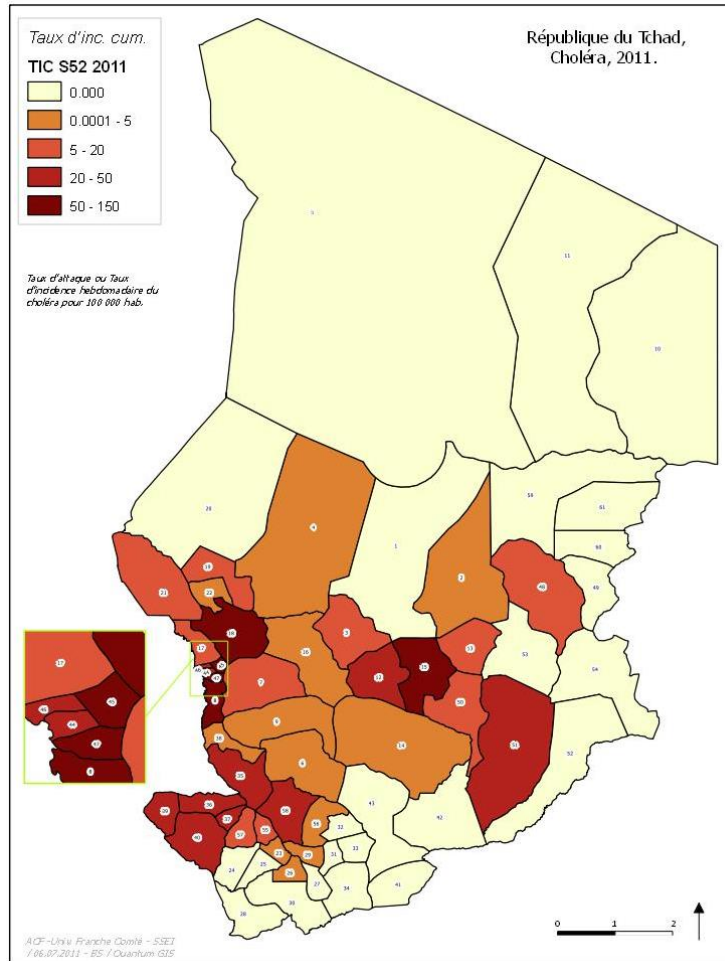
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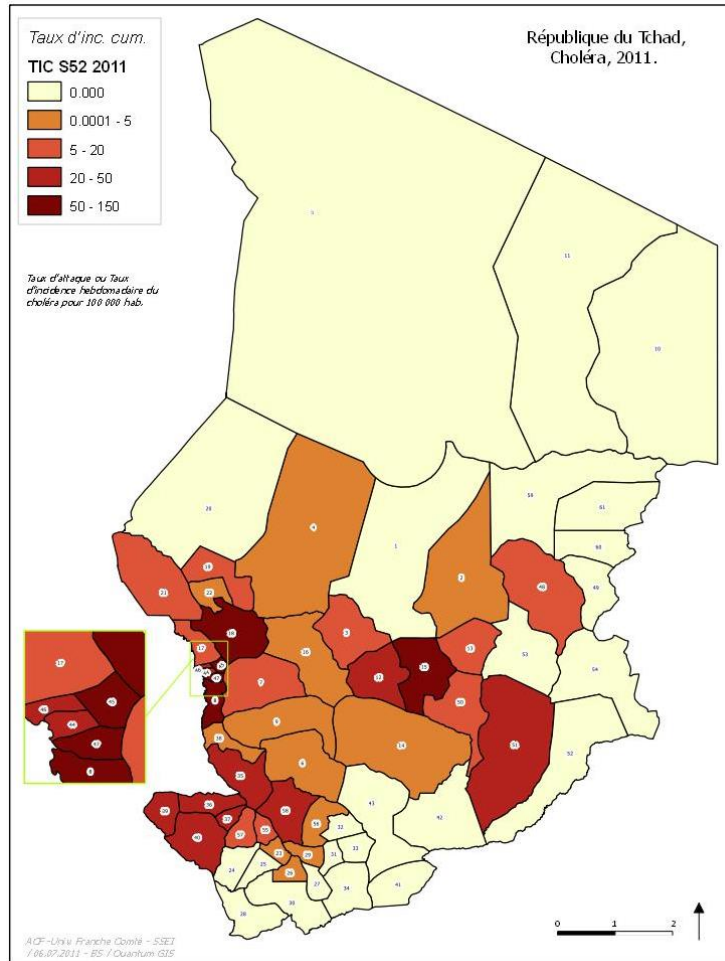
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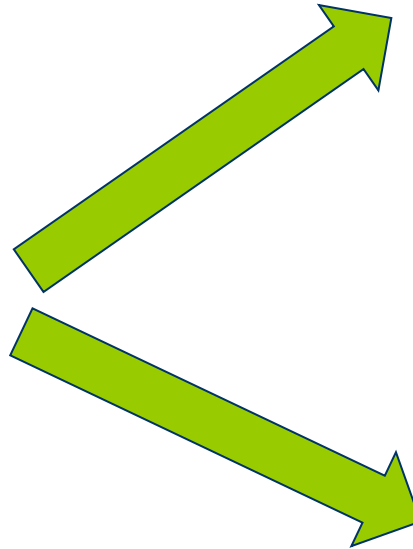


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- Cases doubled between 2010 and 2011
- significant spread 2011, with 37 of the country's 61 districts affected

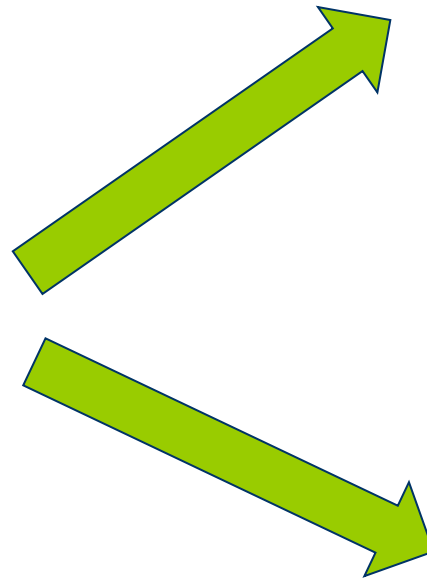
Operational research purpose

Operational research means improving
context and disease knowledge



Operational research purpose

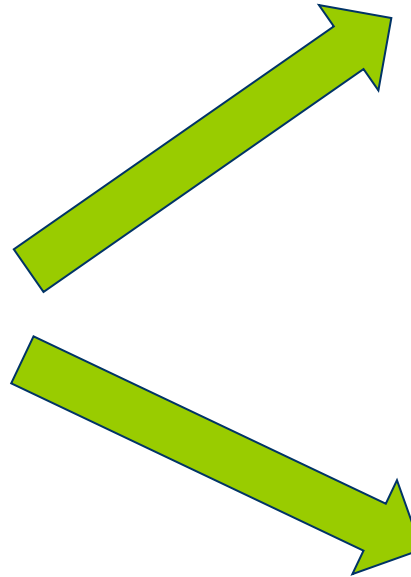
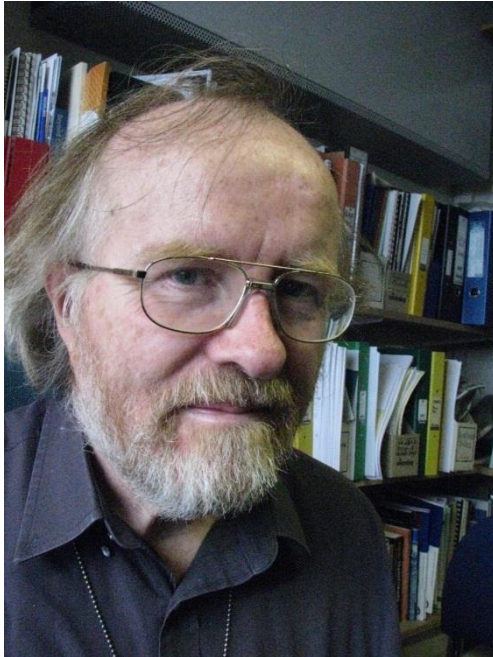
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Supports **preparedness**
(prepositioning, etc)
and
in **orienting** or **re-orienting**
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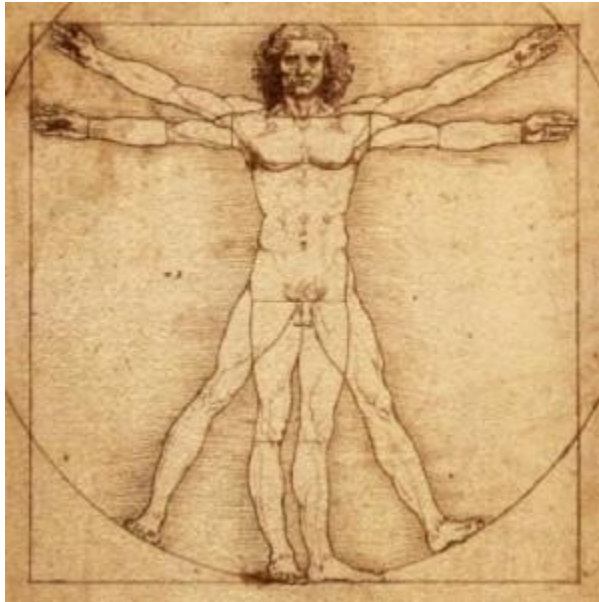


Supports **preparedness**
(prepositioning, etc)
and
in **orienting** or **re-orienting**
the response

Supports **prevention**
in identifying
zones, or
practices, to be
targeted in order
to avoid or
mitigate an
outbreak

Operational research dimensions

Operational research means improving context and disease knowledge



Better having 4 arms



Anthropology

Epidemiology

Environmental parameters

Microbiology

1 - Anthropology

Objective 1: Analyse of **transmission contexts** / risk practices & behavior / population profile / displacements of population

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Objective 2: Analyzing **how do the population perceive** the cholera and the cholera response (understanding of the IEC messages)

1 - Anthropology

Objective 1: Analyse of **transmission contexts** / risk practices & behavior / population profile / displacements of population

Objective 2: Analyzing **how do the population perceive** the cholera and the cholera response (understanding of the IEC messages)

→ Process on Chad transmission contexts analysis:

- **Burial practices** (cholera patient) in community and at hospital (funerals and washing the dead body, location of the funerals)
- Transmission inside a CTC / CTU (on-call medical personnel, CTC / CTU visits, CTU / CTC location - sharing water point, diagnostic problem, people accompanying the sick patient, contamination at the CTC, contamination of the medical personnel)
- Intra-domiciliary transmission (family members, relatives visits to the HH)
- **Gathering locations** (traditional ceremonies, markets, train stations, schools, **seasonal fishing practices**)
- Hydric contamination (surface and non protected water points)

2 - Epidemiology (1)

Objective 1: Understanding **geographical** spreading of the disease and **seasonality**

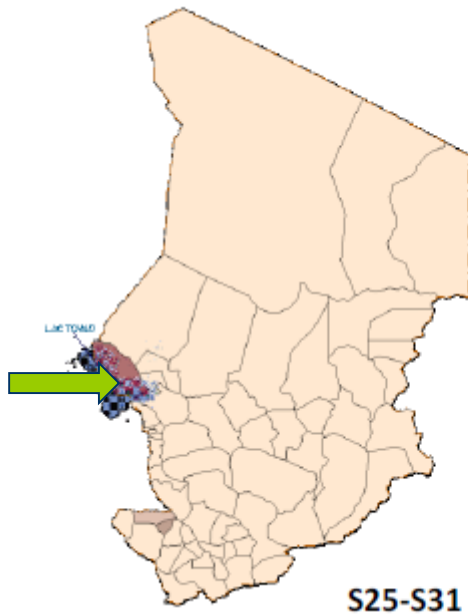
→ Why? to adapt the modality of response and prevention

→ Precondition: **Importance of monitoring tools, surveillance systems**

Context	Open (rural)	Closed (urban)	Confined (camp)
Attack rate	+	++	+++
CFR (%)	<5	2-5	<2
Duration	3 - 6 months	2 - 4 months	<1 month
Mobility	+++	++	+

2 - Epidemiology (1)

Objective 1: Understanding **geographical** spreading of the disease and **seasonality**
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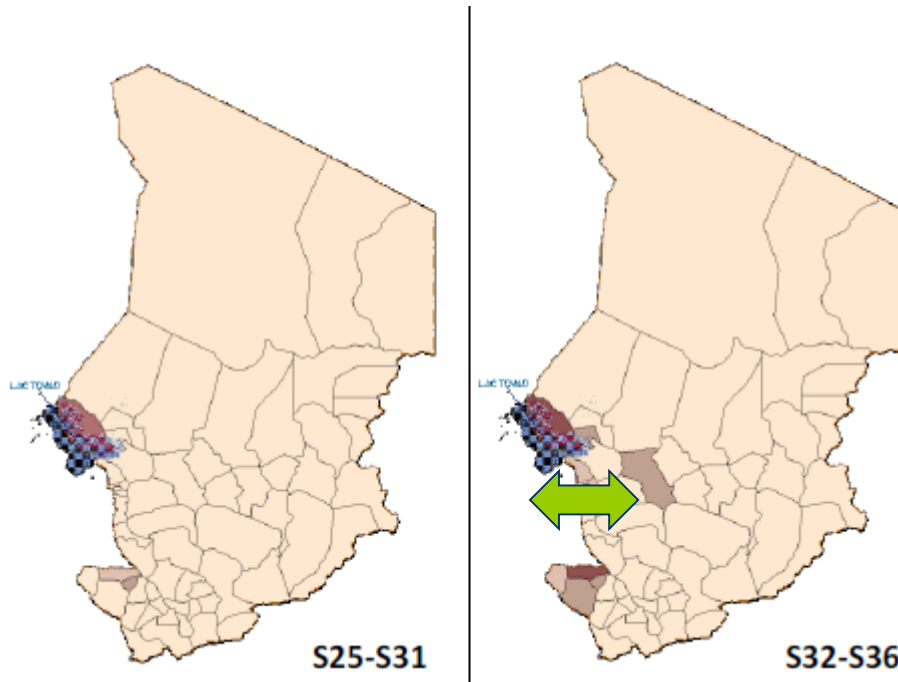
June - July 2010:

Beginning of the rainy season, cholera enters Chad from Niger and Nigeria, intensive fishing activity

Cumulative incidence rate 2010
 (Nb. Cases/10 000)

2 - Epidemiology (1)

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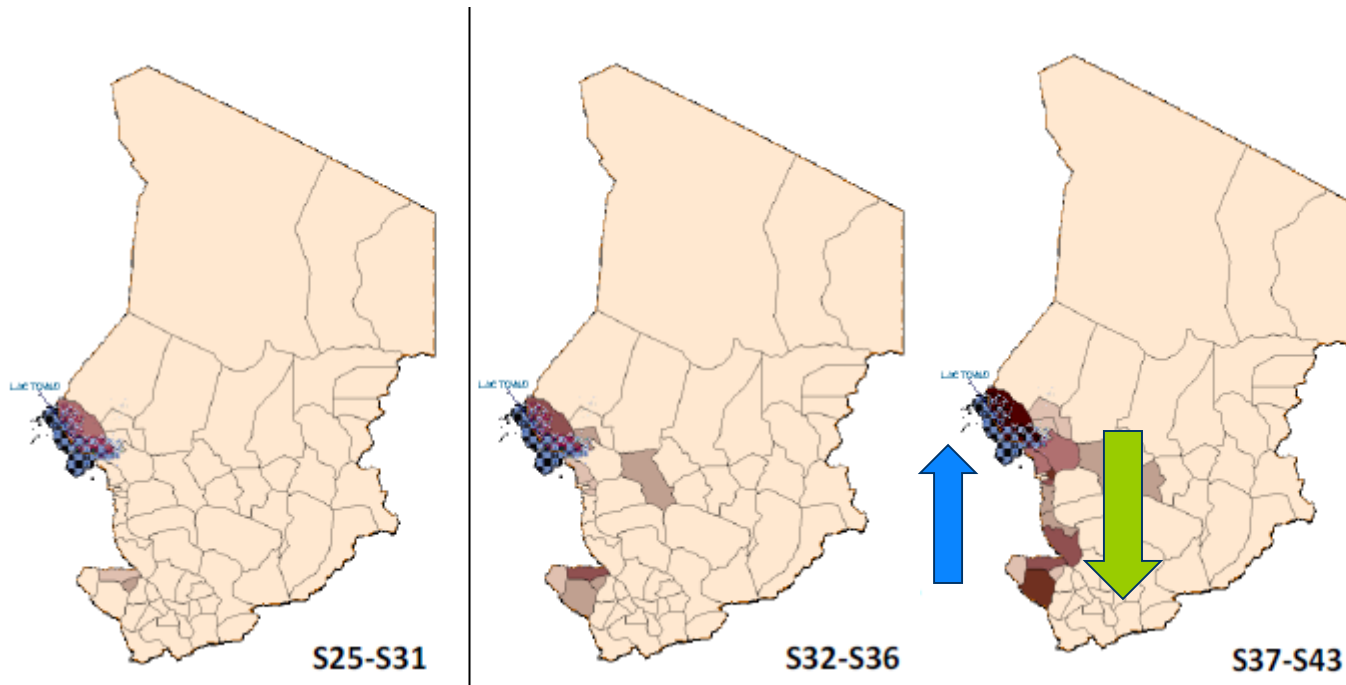
August - September 2010:

Rainy season, reducing possibility for displacements, but creating a flooded area on the Cameroun / Chad border

Cumulative incidence rate 2010
 (Nb. Cases/10 000)

2 - Epidemiology (1)

Objective 1: Understanding geographical spreading of the disease and seasonality
 → Importance of monitoring tools, surveillance systems



October - November 2010:

End of the rainy season, inter-personal transmission outbreak linked to fishing practices in ponds (Massa) due to low water levels

Population moves to the south of the country (opposite to Logone river flow)

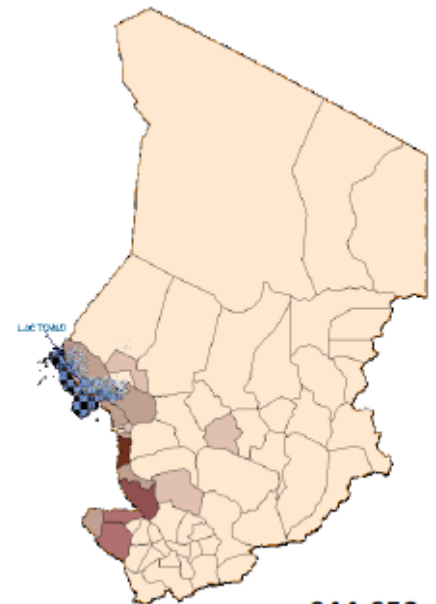
Cumulative incidence rate 2010
 (Nb. Cases/10 000)

2 - Epidemiology (1)

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December 2010:

Continuity of the outbreak through the dry season, up to 2011, creating a “short term endemicity cycle”

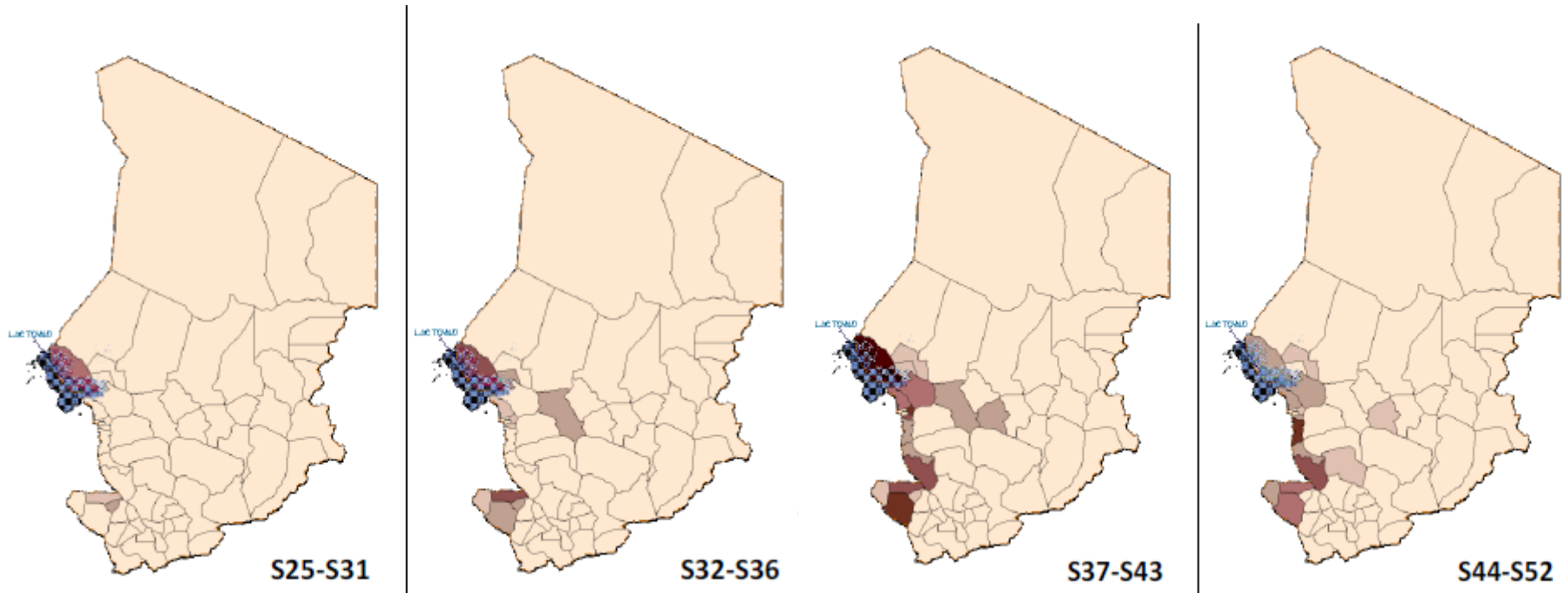


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2 - Epidemiology (1)

Objective 1: Understanding geographical spreading of the disease and seasonality
 → Importance of monitoring tools, surveillance systems



Cumulative incidence rate 2010
 (Nb. Cases/10 000)

2 - Epidemiology (2)

Objective 2: Validating, orienting, advocating for operational response options
 → impact of response programme on attack rate after 2 weeks

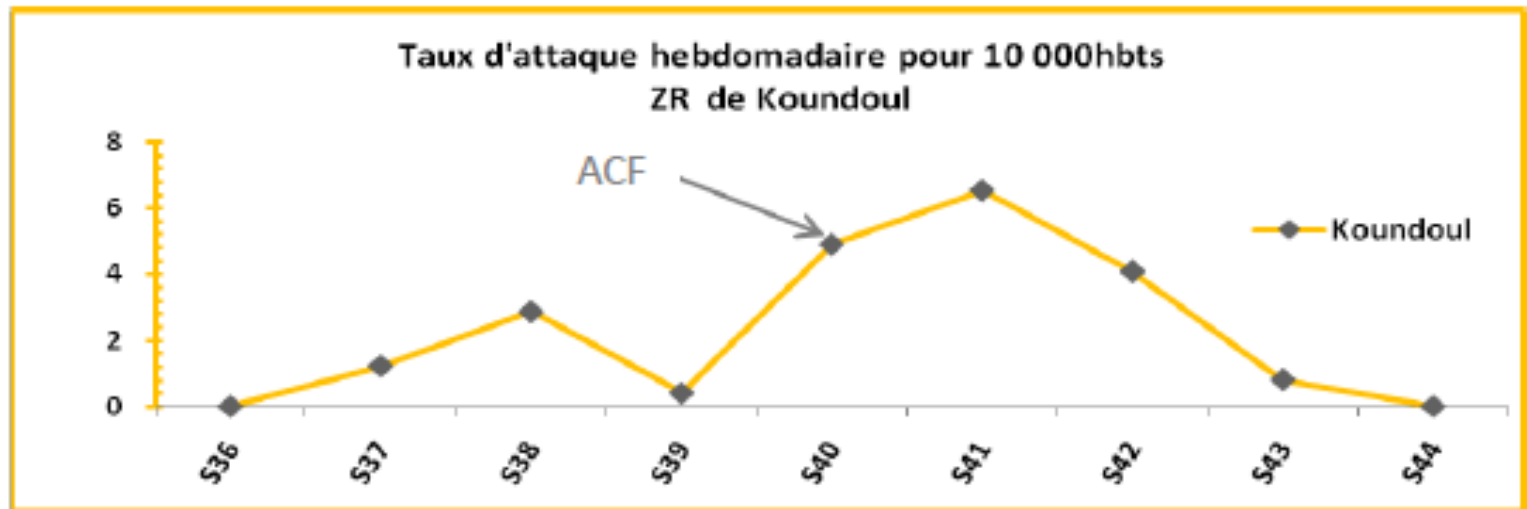
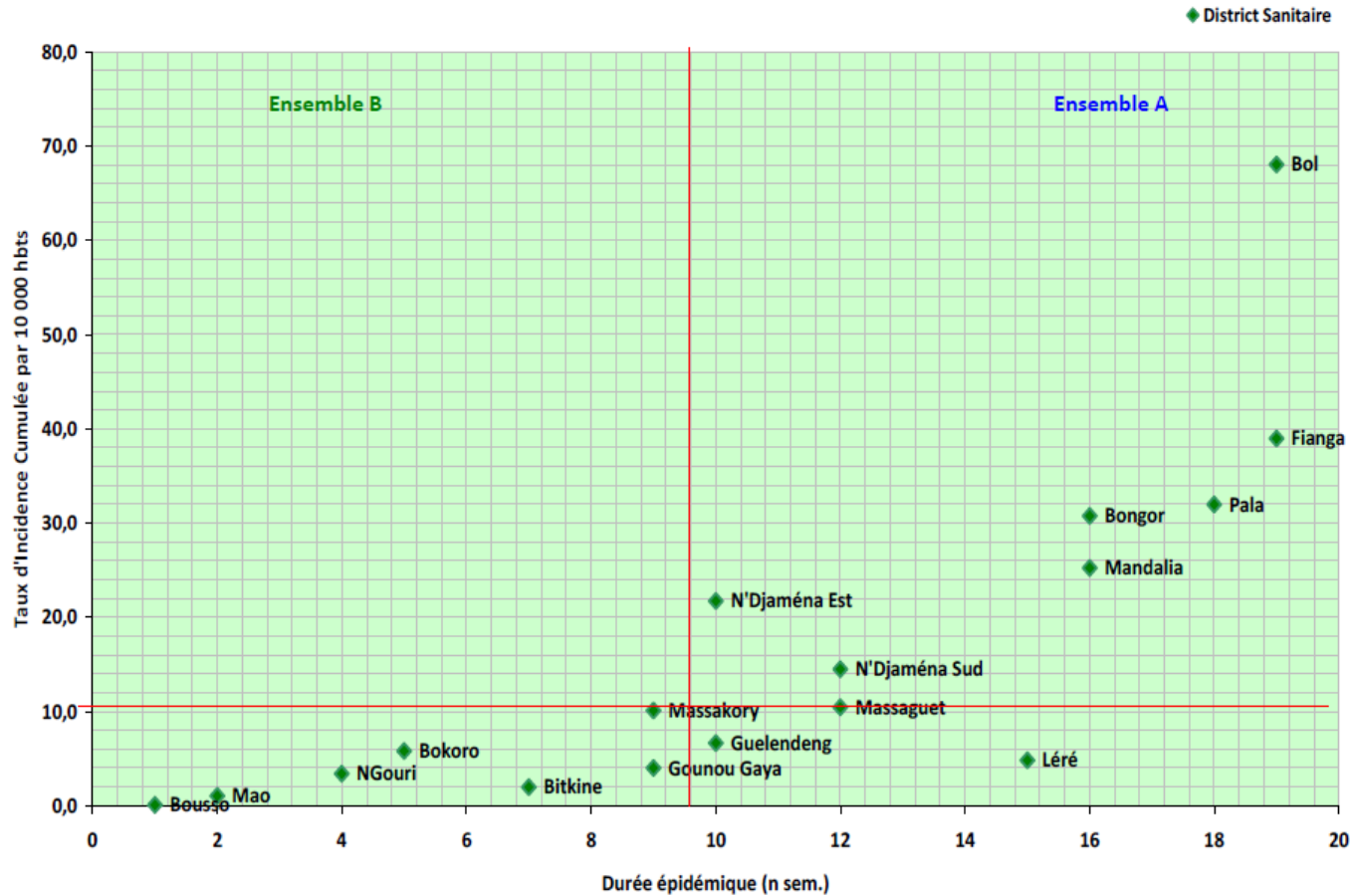


Figure 15 : Taux d'attaque hebdomadaire, ZR de Koundoul, district de Mandalia

2 - Epidemiology (3)

Objective 3: Identifying districts to be considered in next prevention strategy

Incidence et durée de l'épidémie de choléra par DS 2010



ACF TCHAD Février 2012 Rapport d'évaluation Eau, Assainissement et Hygiène

3 - Environmental parameters

Objective: to quantify hydric and interpersonal causality in transmission

Season	dry	rainy
type	explosive	Slow onset
extension	large	progressive
risk	+++	++
mobility	+++	+
transmission	interpersonal	hydric

3 - Environmental parameters

Objective: to quantify hydric and interpersonal causality in transmission

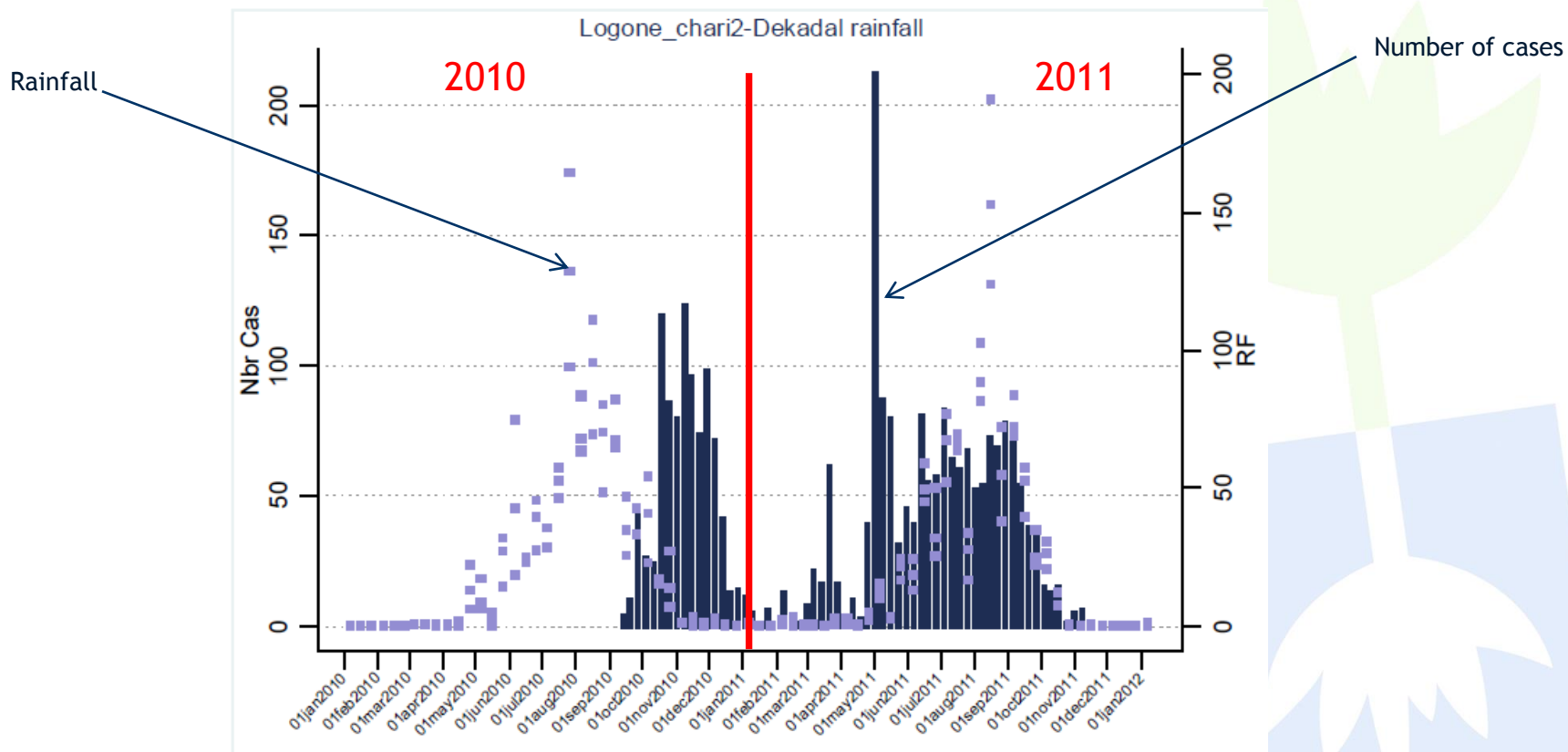
Process: Follow-up of specific hydro-climatic indicators (surface soil temperature, rainfall by decades, soil humidity per month, wetlands coverage per month)

3 - Environmental parameters

Objective: to quantify hydric and interpersonal causality in transmission

Process: Follow-up of specific hydro-climatic indicators (surface soil temperature, rainfall by decades, soil humidity per month, wetlands coverage per month)

→ pica during the dry season 2010, which indicates a transmission mainly interpersonal, outbreak continuity in 2011 (hydric transmission)



4 - Microbiology

Objective: To produce a more effective and efficient response

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Process:

- 1 - analysis of environmental samples (vibrio isolated in 73 samples of food and drinking water) during inter epidemic season
- 2 - creation of a strain bank (Chad reference hospital), 156 strains isolated (2010 & 2011)
- 3 - biomolecluar analysis (genetic profiles analysis) of the strains circulating in the environment
- 4 - Support to local laboratories (Chad, Cameroun Pasteur institute labs)

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 - 4 - Support to local laboratories (Chad, Cameroun Pasteur institute labs)
- No vibrio isolated in water samples confirms a dry season epidemic profile 2010 with mainly interpersonal route
- **Pluriclonal context at the beginning of the outbreaks, with an evolution in a monoclonal phase (75% Ogawa serotype)**
- Strain migration at regional level, among either hydric (Logone river) or interpersonal routes

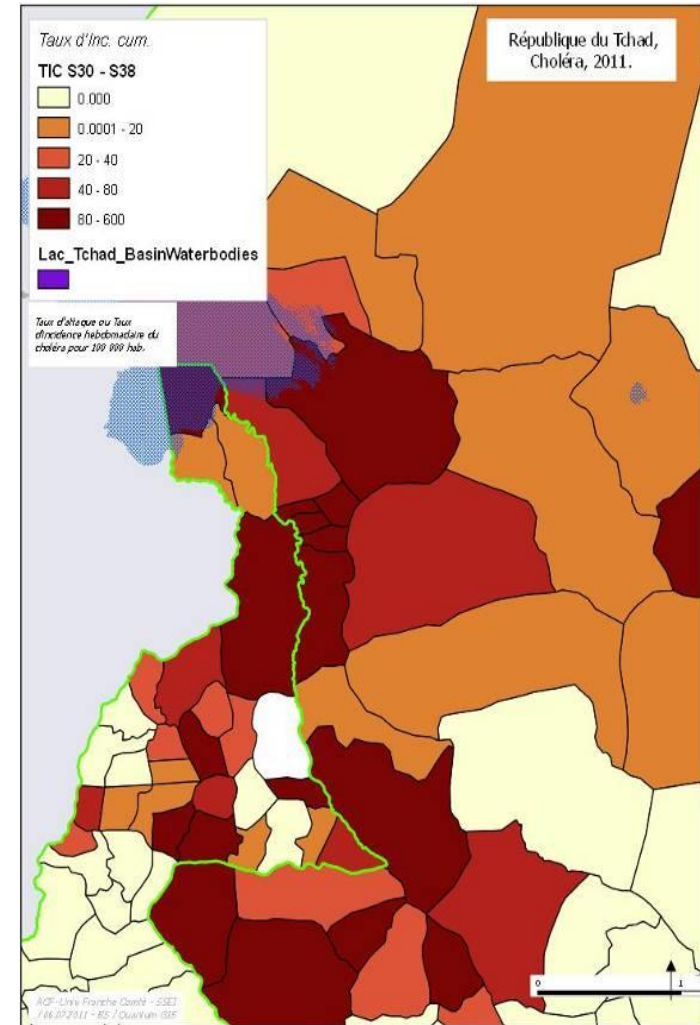
2 - Anticipate the outbreaks:

the power of regional dynamics

(Chad & Cameroun)

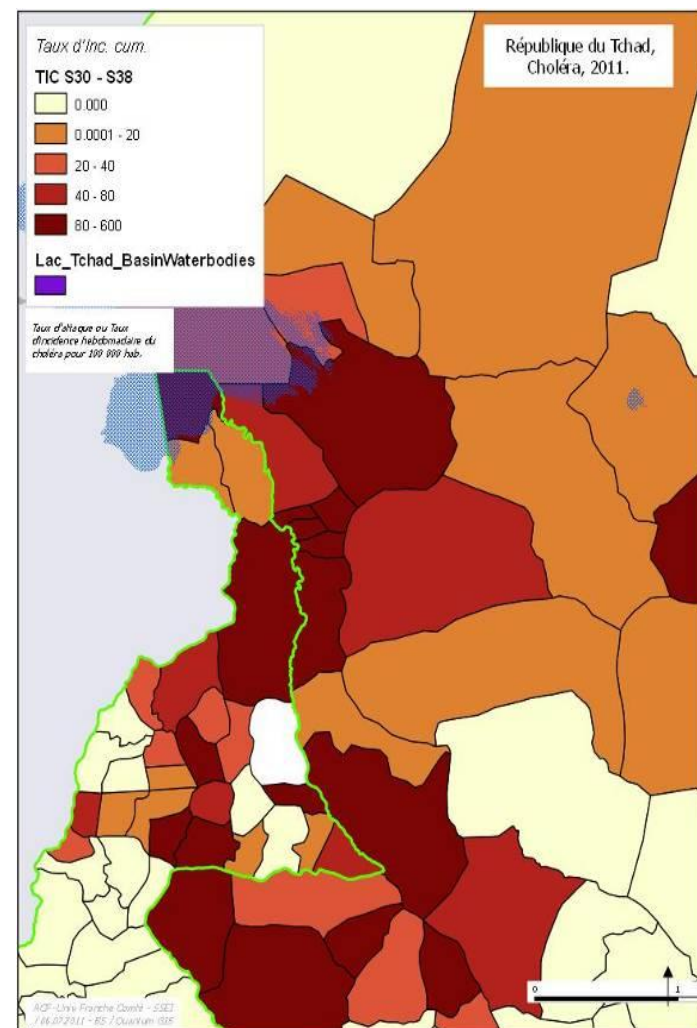
Objective is:

- Reinforce collaboration between MOHs (Standardize cases and death notification)
- Standardize cholera response activities and protocols (on wells chlorination, food quality control, IEC)
- Ensure transboundary surveillance/ alert during inter-epidemic season
- Improve coherence of the prevention (infrastructure coverage strategy)



Process is a set of transboundary meetings:

- Develop weekly regional epidemiologic reporting & maps
- Develop monthly regional operational meetings
- Promote high level biannual regional meetings to promote coherent and coordinated national strategies and policies
- Set extraordinary meeting in case of specific outbreak event (raise of the CFR, etc)

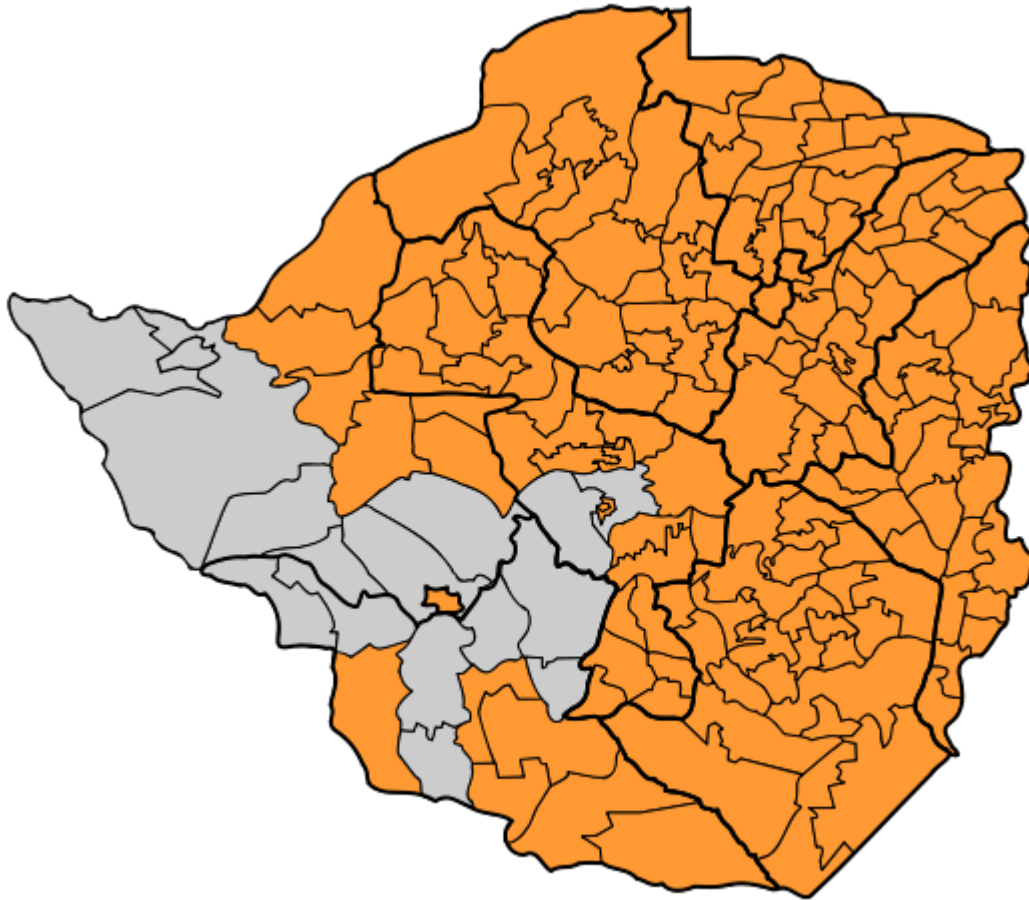


3 -Make response is mobile,
fast and flexible:

The WERU approach
(Zimbabwe)



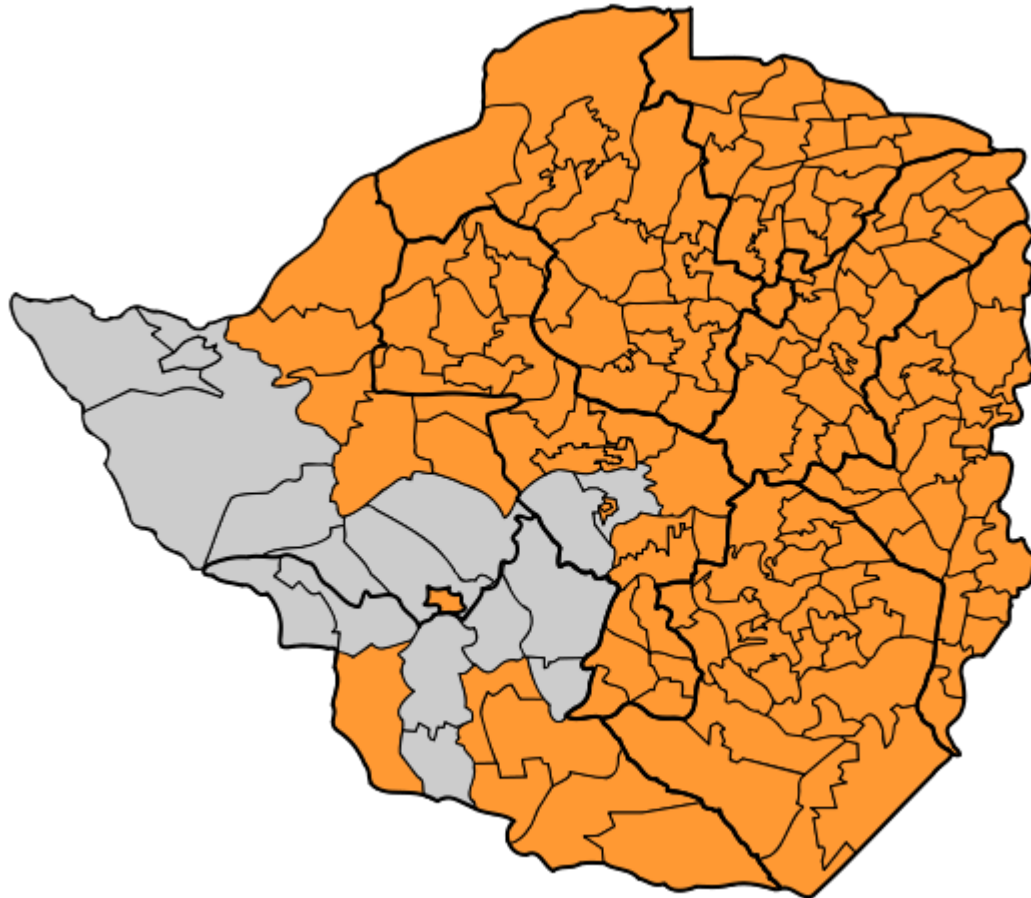
Situation



- Began in August 2008

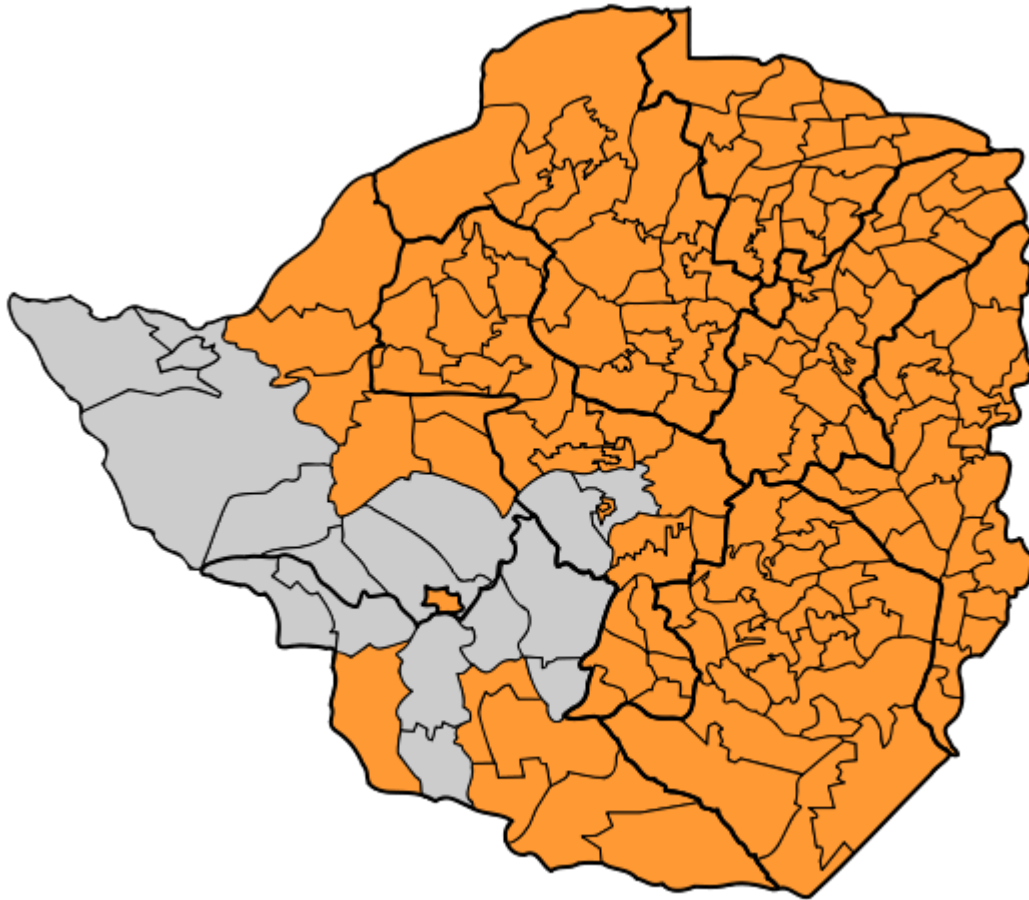
The spread of cholera in Zimbabwe
as of 19 February 2009

Situation



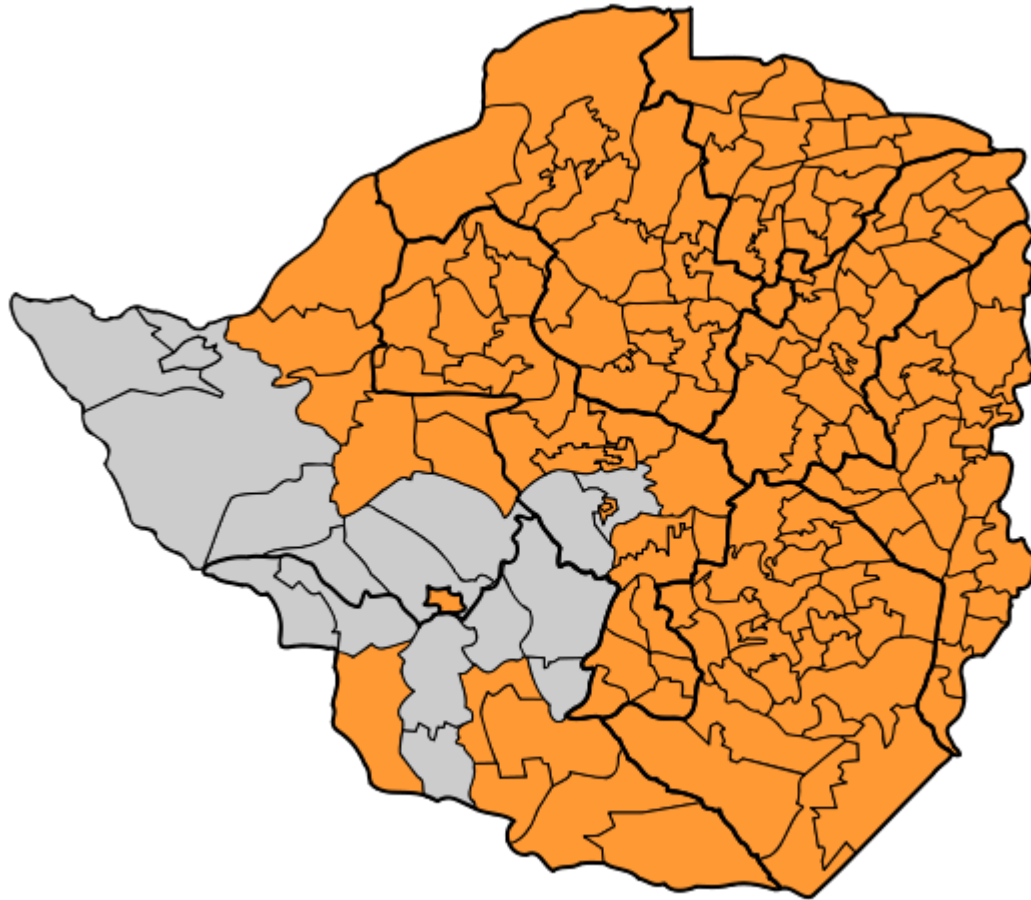
- Began in August 2008
- Swept across the country

The spread of cholera in Zimbabwe
as of 19 February 2009



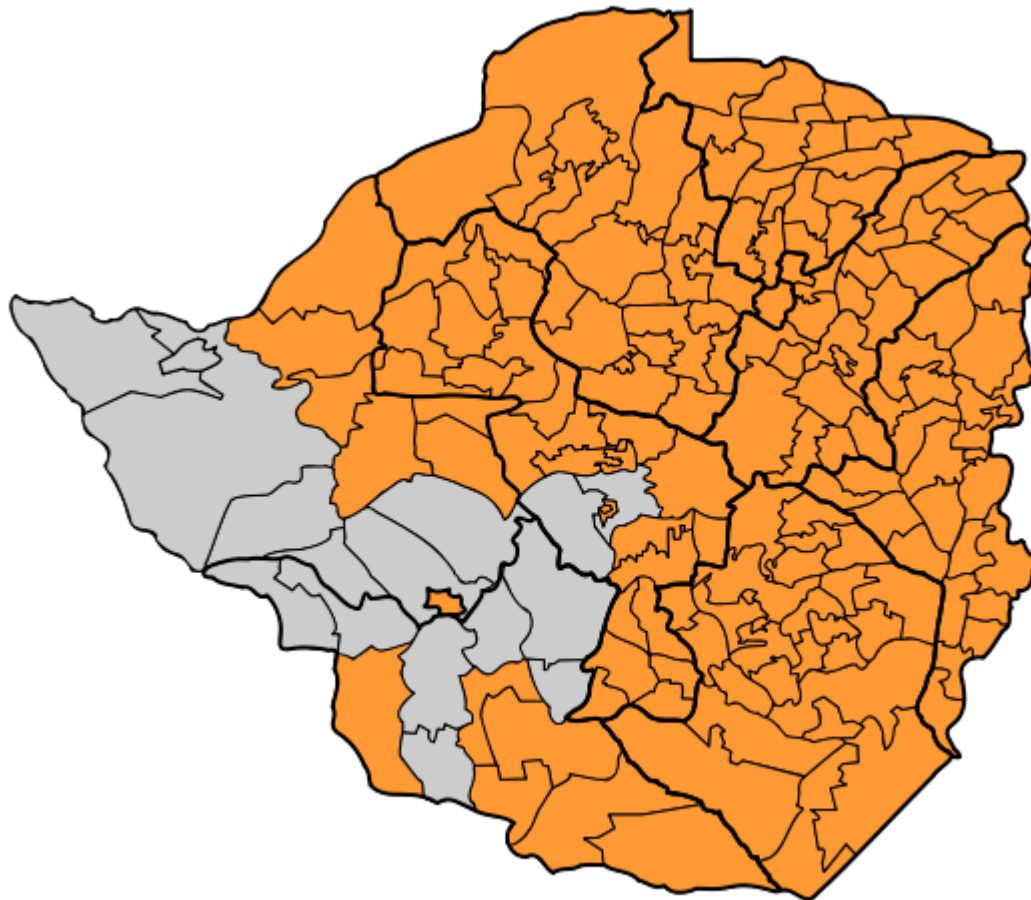
- Began in August 2008
- Swept across the country
- Spread to Botswana, Mozambique, South Africa

The spread of cholera in Zimbabwe
as of 19 February 2009



The spread of cholera in Zimbabwe
as of 19 February 2009

- **Began in August 2008**
- **Swept across the country**
- **Spread to Botswana, Mozambique, South Africa and Zambia**
- **deadliest African cholera outbreak in the last 15 years (more than 5,000 death toll)**



The spread of cholera in Zimbabwe
as of 19 February 2009

- **Began in August 2008**
- **Swept across the country**
- **Spread to Botswana, Mozambique, South Africa and Zambia**
- **deadliest African cholera outbreak in the last 15 years (more than 5,000 death toll)**
- **The principal cause of the outbreak is lack of access to safe water in urban areas and communities**

Key elements of the WERU (1)

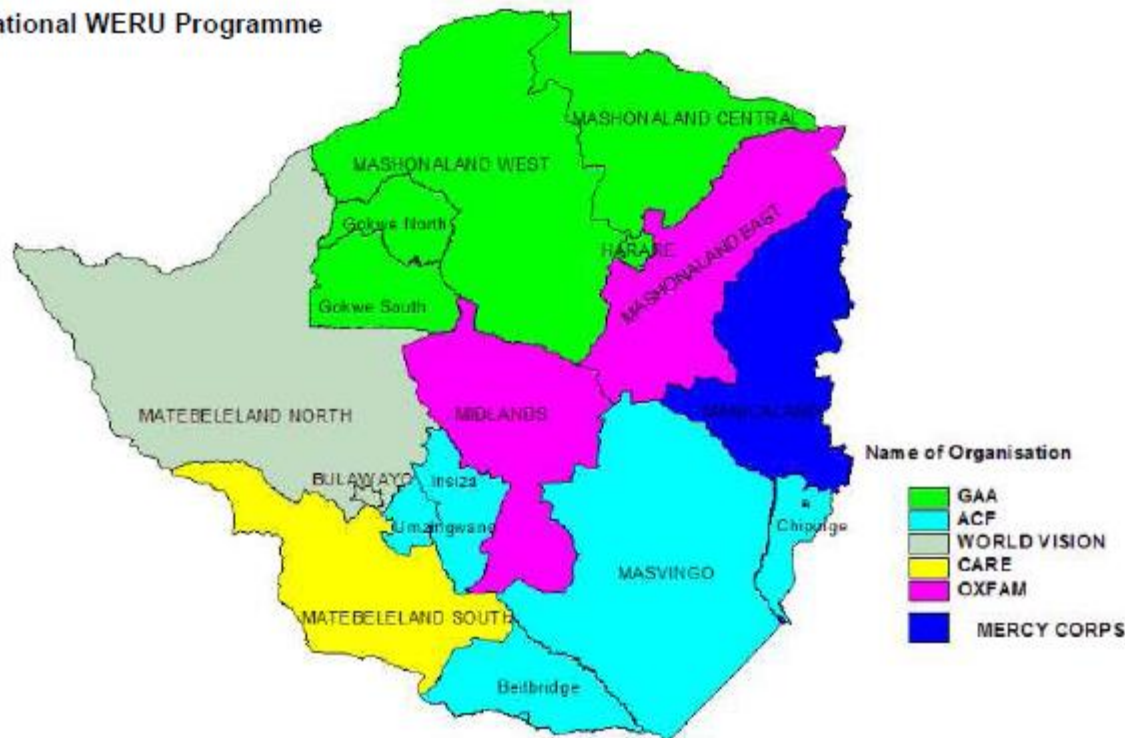
- 1 - A punchy response focused, mobile and fast, as a priority
- 2 - A coordination between WASH and Health sectors at all levels (national to sub-national)



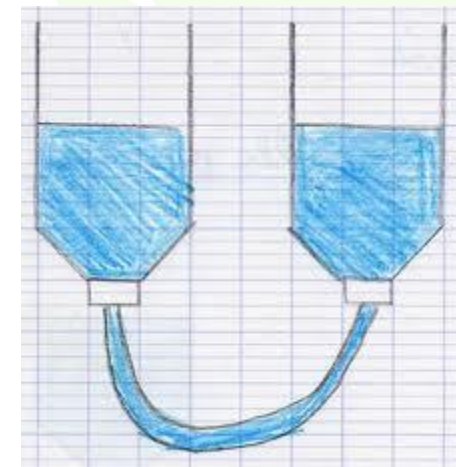
Key elements of the WERU (2)

- 3 - A geographical coordination between actors with recognised operational capacity
- 4 - A flexibility in the activities (response prioritised toward prevention activities), through presigned agreement with donor(s)

National WERU Programme



Response Prevention



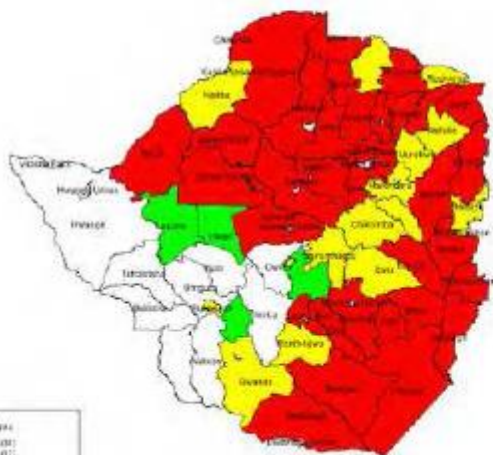
1 objective

Key elements of the WERU (3)

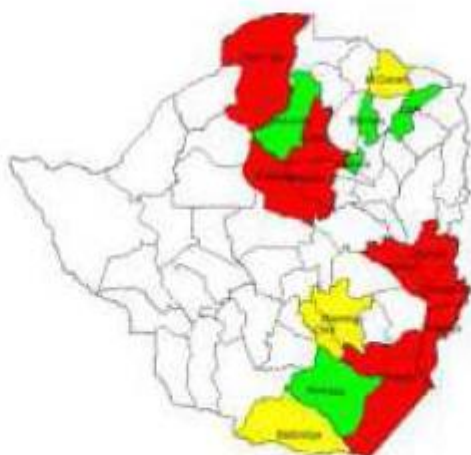
5 - An advocacy tool and a good practice to be shared with donors and institutions

National Occurrence Cholera

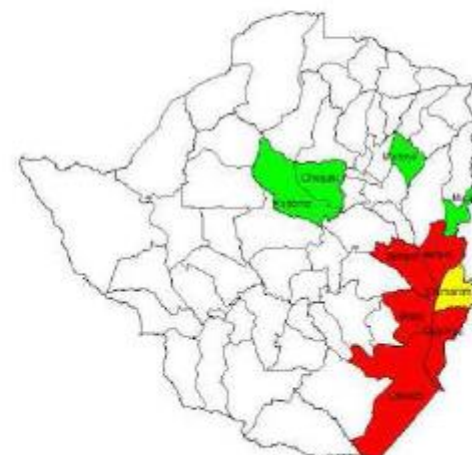
2008-09



2010



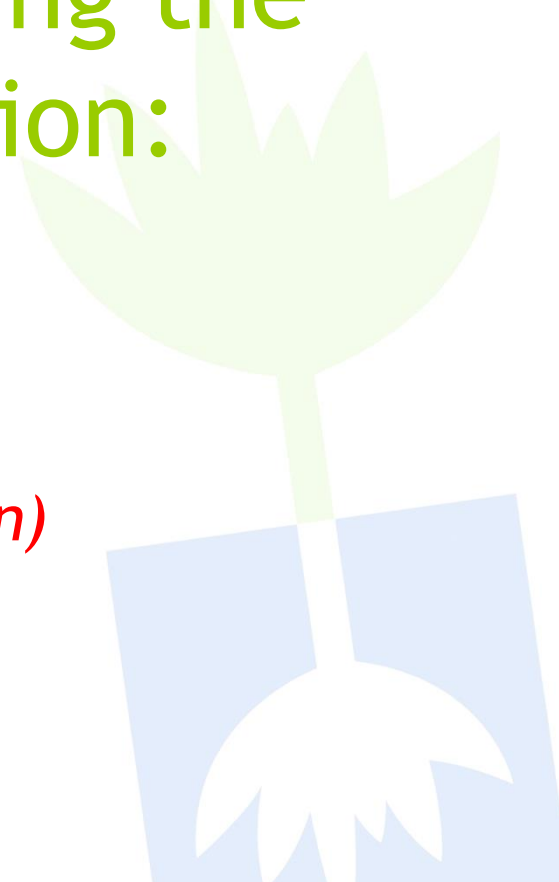
2011



4 - we would prefer not to have to respond, then avoiding the risk through prevention:

Shield strategy

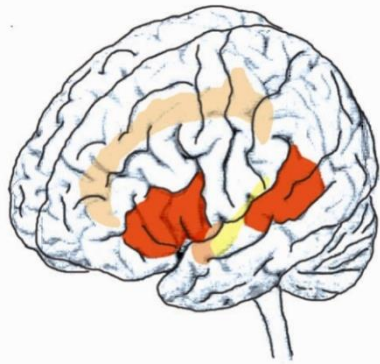
(Zimbabwe, Chad, Cameroun)



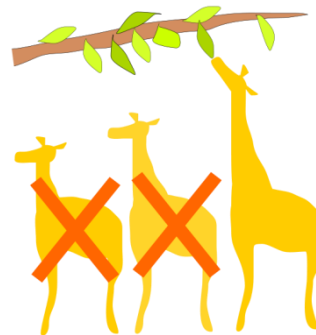
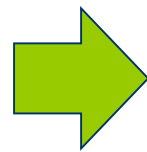
Key elements of the SHIELD (1)

The shield strategy is to prevent, in **endemic cholera areas** and in **not yet affected epidemic areas**, any outbreak by reinforcing communities **resilience**, especially through WASH and FSL ‘large coverage development types projects’

This strategy allows a **LRRD** approach, with two type of donors (emergency and development) possibly working on the same areas



1 - Operational research

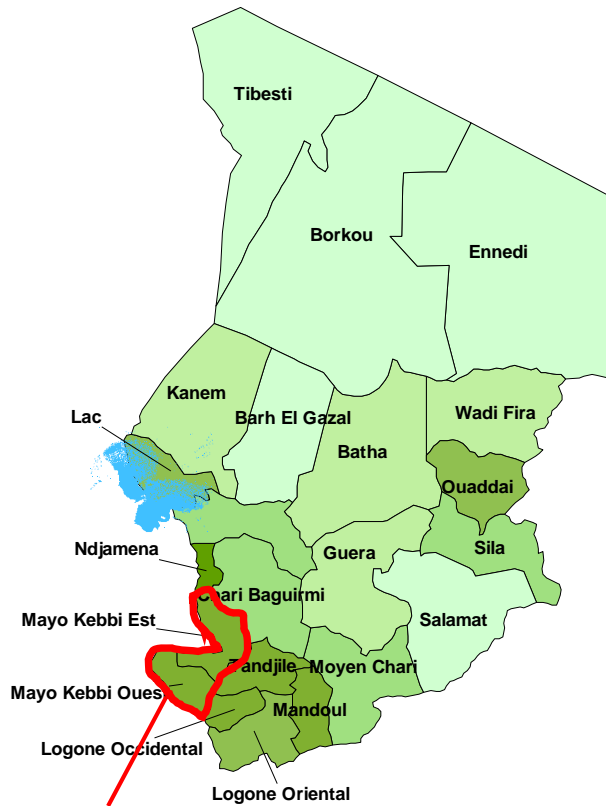


2 - Areas Selection



3 - Development programme (infrastructure coverage, institutional capacity building, contingency)

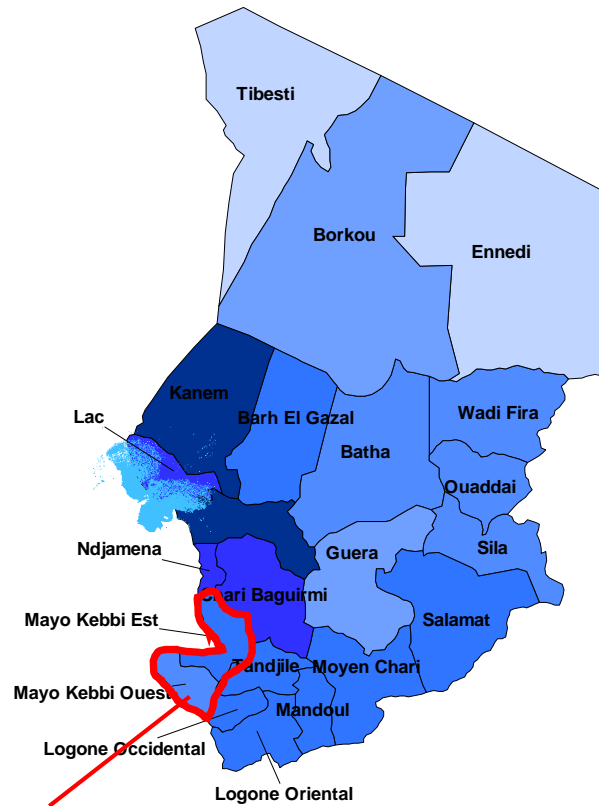
Key elements of the SHIELD (2): selection of a shield district for a 3 years development wash project



High population density

Densité par région en 2010
(Nbre hab./km²)

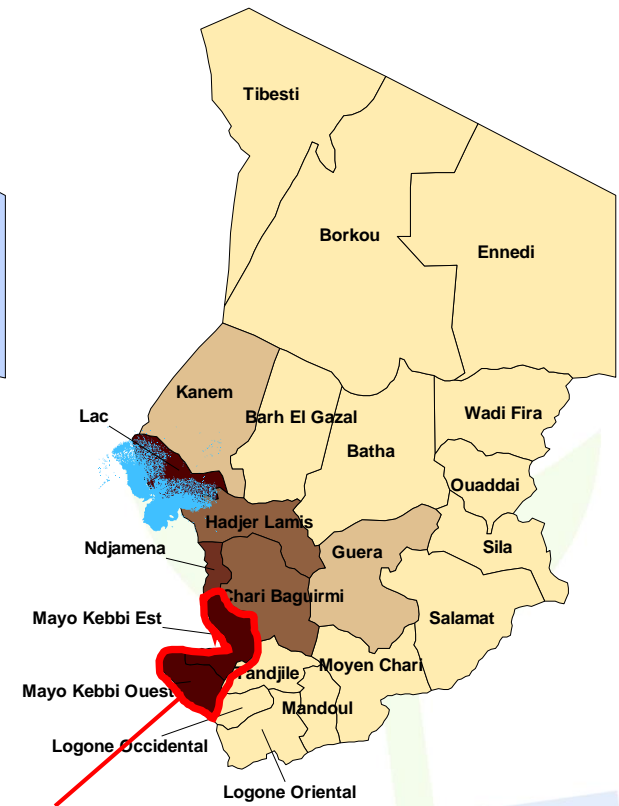
- 80 - 240 (1)
- 40 - 80 (5)
- 20 - 40 (3)
- 10 - 20 (4)
- 5 - 10 (4)
- 0 - 5 (5)



Low WASH coverage

Pourcentage d'accès à l'eau par région en 2010

- 80 - 160
- 40 - 80
- 20 - 40
- 10 - 20
- 5 - 10
- 0 - 5



High cumulative incidence rate

Taux d'inc. cumulée en 2010
(par 10 000 hab. et par région)

- 20 - 40 (3)
- 10 - 20 (1)
- 5 - 10 (2)
- 0,0001 - 1 (2)
- 0 (14)

ACF Studies available on request:

Le choléra au Tchad en 2011 et les stratégies d'intervention associées

*Epidémiologie du choléra au Tchad en 2011
Stratégie du coup de poing : définition du mécanisme de réponse d'urgence
Surveillance transfrontalière et Stratégie du bouclier*

ACF-INTERNATIONAL POLICY CHOLERA OPERATIONAL POSITIONING PAPER



Action Contre la Faim - France
UMR 6249 Laboratoire Chrono-Environnement, Université de Franche-Comté
Etude financée par le Service d'aide humanitaire à la Commission européenne (ECHO)



Avril 2012

ACTION CONTRE LA FAIM MISSION TCHAD

RAPPORT D'EVALUATION EAU ASSAINISSEMENT HYGIENE



EPIDEMIE DE CHOLERA : ENJEUX EN PRESENCE ET PISTES DE TRAVAIL POUR UN OPERATION « BOUCLIER »

REGIONS SANITAIRES du MAYO KEBBI Est,
du MAYO KEBBI Ouest et de la TANDJILE

Paul COTTAVOZ
Février 2012

Rapport de capitalisation au sujet de l'épidémie de choléra au Tchad, 2010

*Fonctionnement de la surveillance épidémiologique
Epidémiologie de la maladie
Analyse de la réponse d'Action Contre la Faim*

Action Contre la Faim - France
Service de Surveillance Epidémiologique Intégré, Ministère de la Santé Publique, Tchad
UMR 6249 Laboratoire Chrono-Environnement, Université de Franche-Comté
Service d'aide Humanitaire à la Commission Européenne



REPUBLIQUE DU TCHAD
PRÉSIDENCE DE LA RÉPUBLIQUE
PRÉMATURE
MINISTÈRE DE LA SANTÉ PUBLIQUE
SERVICE DE SURVEILLANCE ÉPIDÉMIOLOGIQUE INTÉGRÉE

Février 2011

Hygiene
promotion & new
technology in
urban disasters

*Hygiene promotion in urban context
and the role of new technology:
Experience from the Haiti Earthquake Response (2010)*

Sharon Reader and Libertad Gonzalez.

**EEH Forum
London
17-18 December 2012**

Hygiene promotion in an urban context

How different is hygiene promotion in urban context?

- Social cohesion
- Scale
- Local authorities
- Volunteering work
- Identifying beneficiaries
- Communication



Role of technology in hygiene promotion?

- Specialist communication skills are needed
- Cross cutting theme
- Delivering live-saving information
- More efficient programming
- Opening up 2-way communications



What are the new communications tools?

- 2-way SMS system
- Call centres
 - Automated phone lines
 - Q&A call centres
- Call in radio shows and distributions
- Sound trucks and PA systems
- Mobile Cinema



Red Cross information

- 74% received Red Cross information
- 96% said it was useful
- 83% took action
- 73% shared the information with others
- 10% contacted the Red Cross
- Most popular sources = community workers, radio and SMS
- Most remembered = cholera, weather
- “We feel that Red Cross cares for us”

Community mobilisation



- 44% of Haitian get info this way
- Face-to-face most valued
- Expensive way to communicate
- People value 'ti parle'
- Sound trucks popular

Radio shows



- Radio powerful global channel
- Radio often most trusted source in developing countries – 35% Haiti & 88% in Sierra Leone
- Call-in popular: 20 calls per show
- Radyo Kwa Wouj has loyal, regular listeners
- Useful, practical info
- Reaches broad cross-section of society

Hygiene
promotion & new
technology in
urban disasters

SMS:

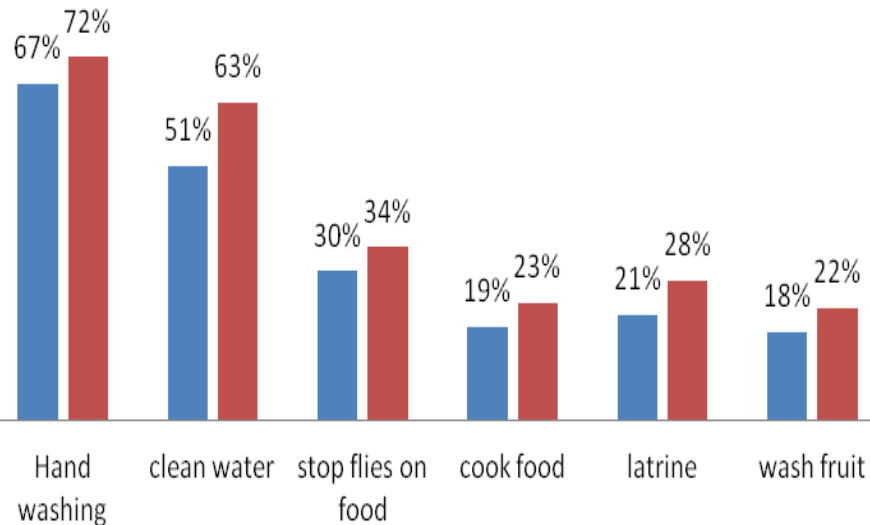
The message about cholera was great. It explained how to prevent cholera by washing hands. It was very useful for me because I didn't know what precautions to take. I shared the message with my sister, who has a baby.

- 25% of people have received a Red Cross SMS
- Includes Voila and Digicel
- SMS about weather and health most popular – people can recite cholera SMS
- 95% said SMS was useful
- 90% acted on the SMS
- Need to be well-branded

Mobile Cinema (Sierra Leone)

How do you prevent cholera?

■ Before cinema ■ After cinema



- 60 Schools and communities & 25,000 people attended
- Participatory event, with Q&A
- Builds understanding
- 20% increase in knowledge
- 95% reduction in those who think open defecation is safe
- 32% in correct SSS recipe
- Capacity-building local Red Cross

Lessons learned

- Case study for integrated HP & ben comms
- Multiple benefits to the Watsan and HP sector:
 - Strategic communication
 - Scale up
 - Rapid response
 - Reaching large numbers in short time
 - Mix combination of channels
 - Cost effectiveness



Hygiene
promotion & new
technology in
urban disasters

Questions?



**FOR FURTHER INFORMATION ON BENEFICIARY
COMMUNICATIONS, PLEASE CONTACT:**

**SHARON READER, BENEFICIARY COMMUNICATIONS
DELEGATE**

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**THIS PRESENTATION IS PUBLISHED BY
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SWITZERLAND**

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FAX.: +41 22 733 03 95

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Saving lives, changing minds.



**International Federation
of Red Cross and Red Crescent Societies**

Does village water supply affect children's length of stay in therapeutic feeding centres in Tahoua region, Niger ?



Presented by Peter Maes on EEHF/LSHTM
2012

INTRODUCTION 2/4

Strategy shift in management of malnutrition



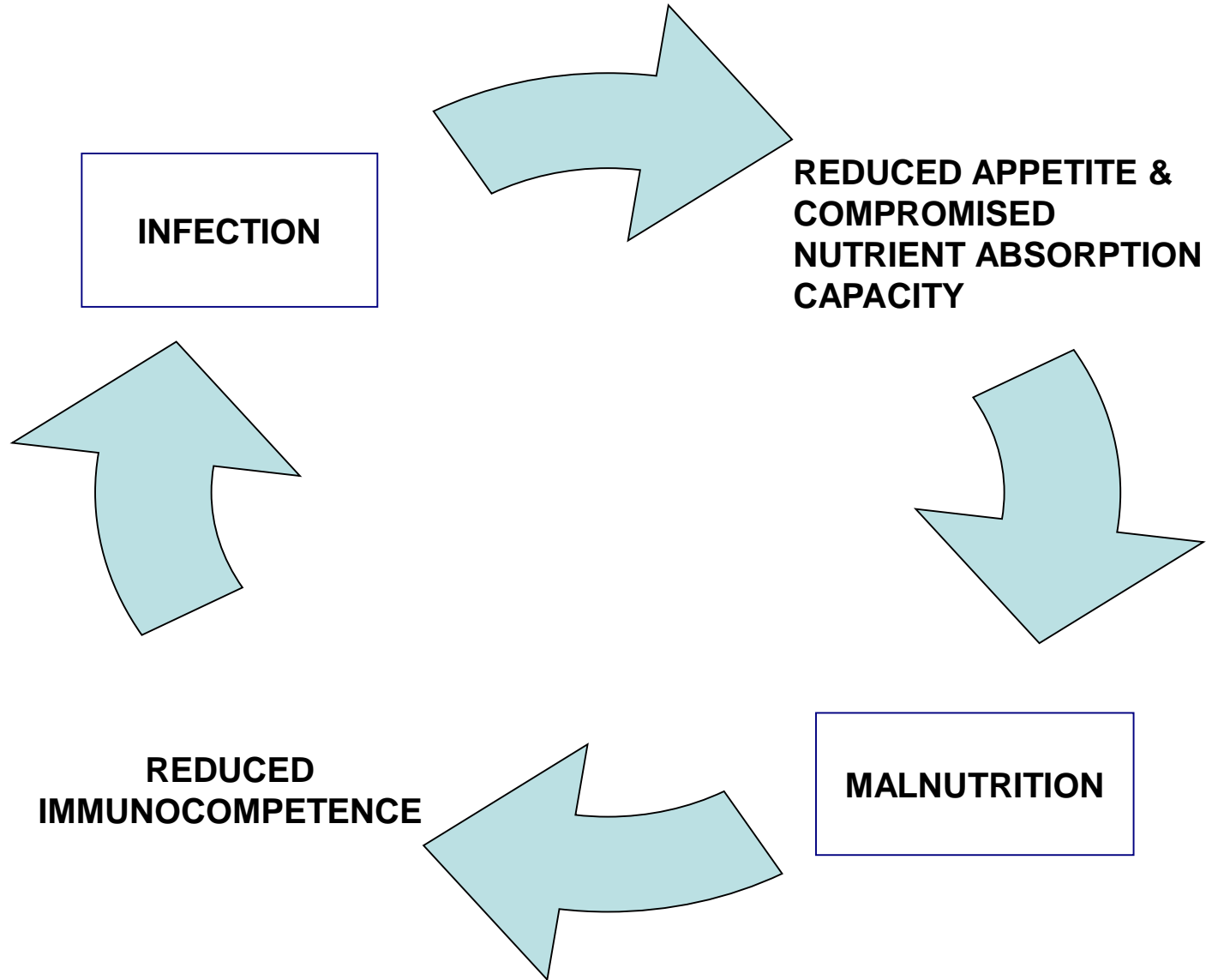
Inpatients in Therapeutic Feeding Centres receiving milk based feedings



Outpatients receiving Ready to Use Therapeutic foods

INTRODUCTION 3/4

Infection - Malnutrition: a vicious cycle



INTRODUCTION 4/4

MSF - Tahoua region – Southern Niger

- Between 2005-2007:
 - Five OCBA nutritional centers served over 70 villages
 - Approx. 7000 children were treated from an under five population of 21.000
- Assessment in 2007 indicated that children remained in outpatient care much longer than expected
- Access to safe water in the domestic environment was suggested as partly responsible
 - Water table dropped 3m in the last 10 years
 - Average time for water collection is 5,4h / day



RESEARCH OBJECTIVES

To examine the association between length of stay in outpatient therapeutic feeding centres and:

- Adequate quantity of water supply (20 litres / person / day)
- Adequate quality of water supply (groundwater from a protected source)



GOOD QUALITY



NOT GOOD QUALITY

METHODS 1/2

- **Study design**

Retrospective analysis of observational data and of routinely collected data from therapeutic feeding program registers

- **Study period**

Data collection during 6 months
(3 dry and 3 wet season months) in 2007

- **Study population**

1518 children in 20 villages or about 22 % of all children in the feeding program.

- **Ethics**

Approved by the MSF ethics review board

METHODS 2/2

Primary outcome: length of stay in the therapeutic feeding programme
(time from registration till formal discharge)

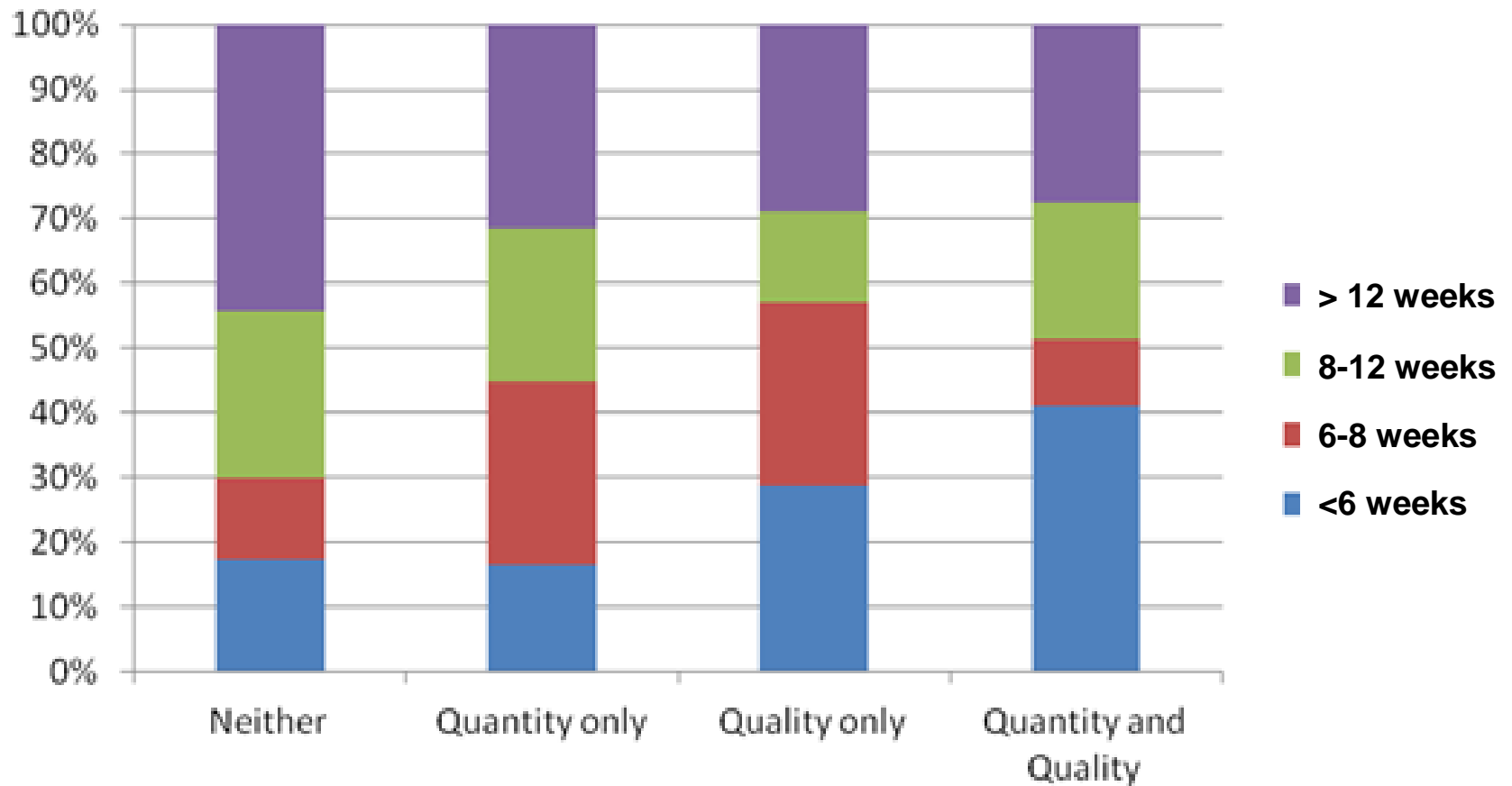
Secondary outcome: water-related infections at admission in the nutritional program

- Diarrhoea
- Parasitosis
- Gastroenteritis
- Skin infection
- Conjunctivitis



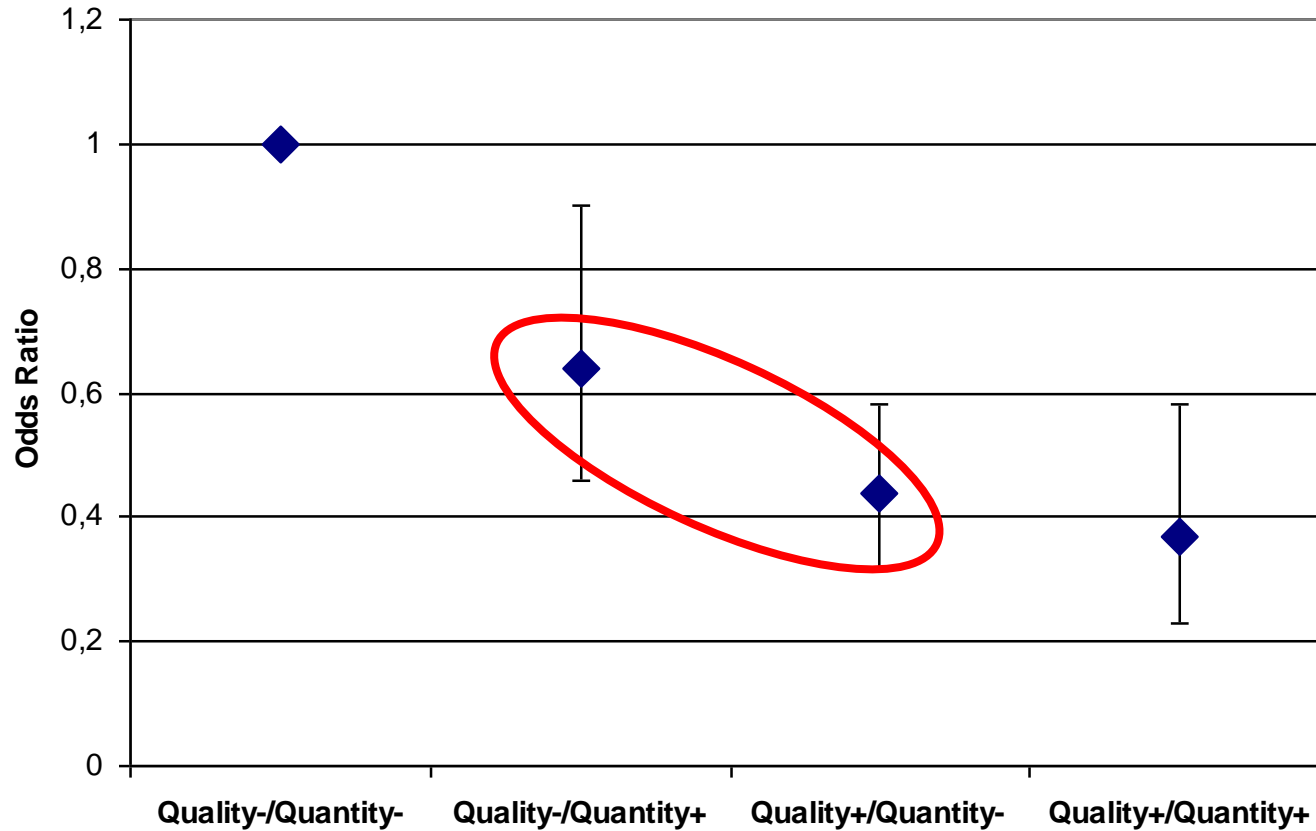
RESULTS 1/3

n=1518; children sampled from 20 villages



Comparison of the length of stay in a feeding program and the adequacy of the water supply

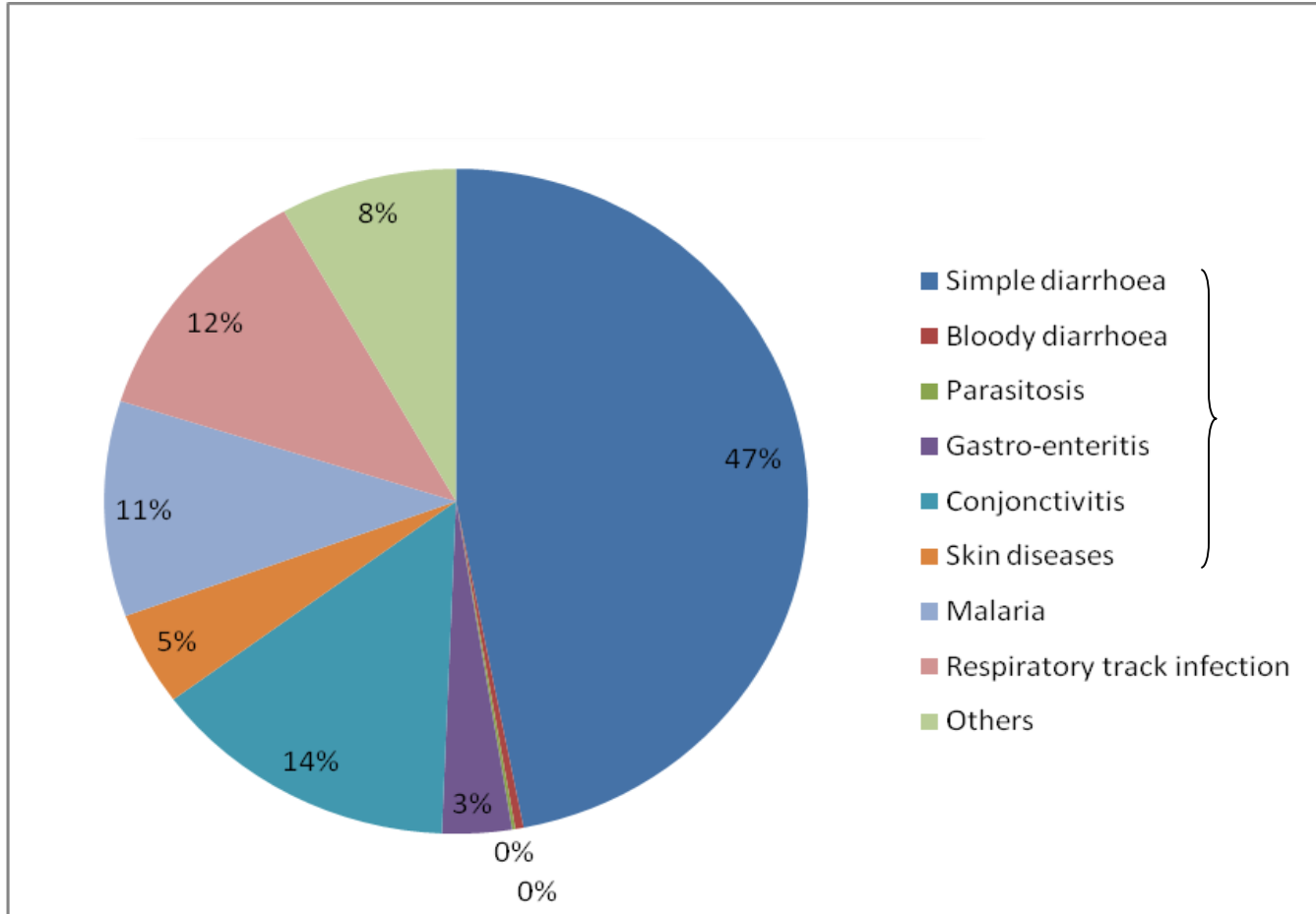
RESULTS 2/3



Association between risk of lengthy stay in the therapeutic feeding program and water quality and quantity

RESULTS 3/3

Proportion of secondary infections



Water related infections represented 69 % of all secondary infections

CONCLUSION

Limitations of this study included a lack of water quality testing, lack of sanitation assessment and only limited exclusion of possible confounders

The study showed a significant correlation between adequacy of water supply and the length of stay in the feeding program: the greater the inadequacy, the longer the stay

Water quality and quantity are independently associated with shorter lengths of stay, though quality seems to be more relevant



RECOMMENDATIONS

This study strongly suggests that outpatient therapeutic feeding programs need to assess the adequacy of water supply in the villages where their patients live if they are to be effective in reducing malnutrition.

This study underlines the importance to look holistically at the approach taken to nutritional support



ACKNOWLEDGEMENTS

(alphabetic order)

Carme Roure (1)

Claire Dorion (1)

Paul Hunter (3)

Pascale Delchevalerie (2)

Peter Maes (2) - presenter

Rafael Van den Bergh (2)

Tony Reid (2)



MSF – Operational Centre Barcelona (1)

MSF – Operational Centre Brussels (2)

University of East Anglia – Norwich School of Medicine (3)

Some advantages of outpatient therapeutic feeding

- Increased access to treatment
 - coverage
 - acceptability
- Reduction of no-socomial infection

Some limitations of outpatient therapeutic feeding

The recovery phase takes place in communities where it depends on:

- Access to appropriate health care through OPD
- Mother time availability (sharing time with other tasks)
- Adequate intake of therapeutic food: should only be used for the sick child and not shared
- Food hygiene, reheating food before consumption,...
- **Access to safe water (Quantity – Quality)**





SuperAmma

Promoting Handwashing with Soap in Rural India.

Adam Biran, Val Curtis, Bob Aunger

LSHTM

- Val Curtis
- Wolf Schmidt
- Bob Aunger
- Katie Greenland
- Adam Biran

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



- Kiruba Varadharajan
- Divya Rajaraman
- Raja Kumar

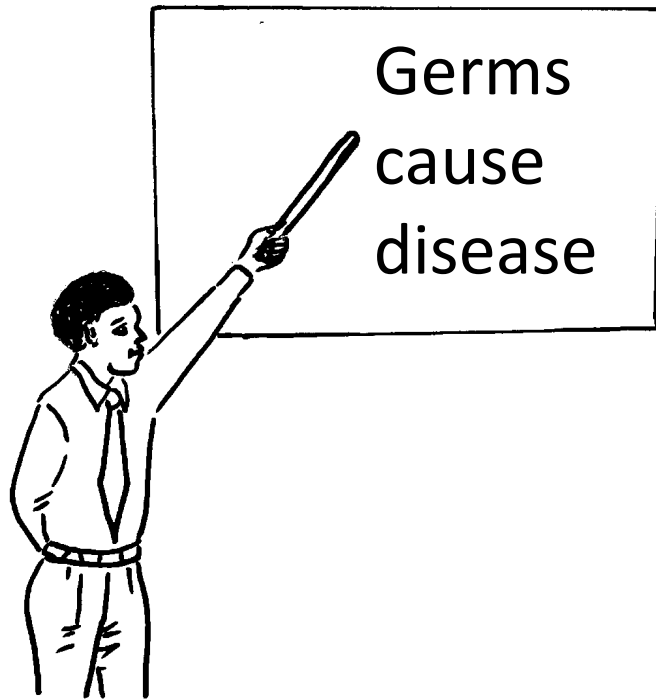
- Balaji Gopalan



Funded by Wellcome Trust
and SHARE



Background



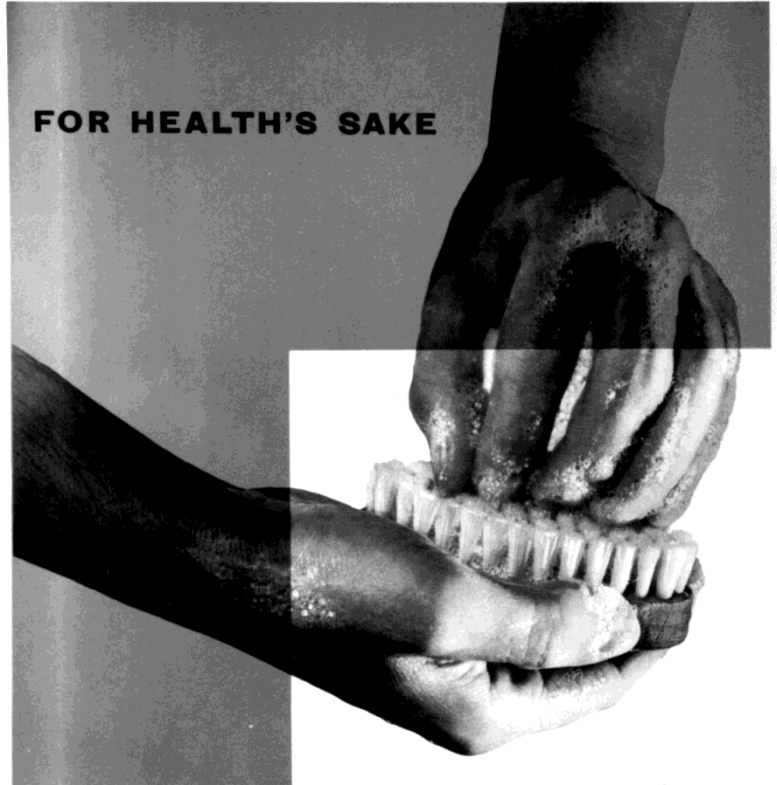
Lack of evidence for effectiveness

Increasing recognition of 'non-rational' influences



*Its fragrant perfume
appeals to everybody*

FOR HEALTH'S SAKE



WASH YOUR HANDS

**before preparing or handling food
and always after using the W.C.**

FOOD POISONING GERMS ARE SPREAD BY THE HANDS

- Formative research in 12+ countries
- Experimental work – UK

- When do people wash hands?
- Why do they wash hands?
- What could motivate handwashing?



The Challenge

- Promote handwashing with soap at key times



- No health messages

- No mass media

- Potential for scaling up
 - Small intervention team
 - Limited contact time



The Story of Supermom

When you choose handwashing with soap, you choose progress.



THE INTERVENTION

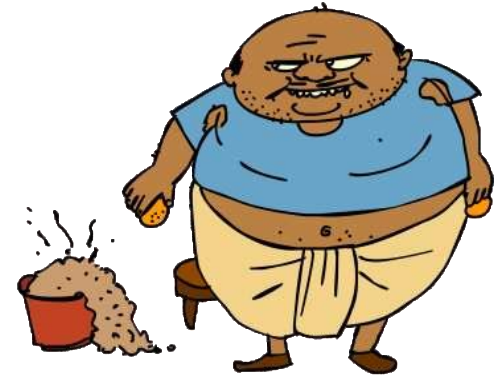
Active Ingredients

- Behaviour drivers

- Nurture

- Disgust

- Norms



- Local role models

- Cues and reminders

- SuperAmma

- Central character





Disgust : what you don't wash off you eat!



A Day in the Life of a Hand



Animation of daily hand contamination

Social Norms

Everyone is doing it...

- Pledging ceremony
- Stickers on pledged houses



Reminders – for Habit Formation

- Stickers in bathrooms
- Children's report card (2 weeks)



Local Relevance

- Posters local people
 - Important people are doing it
- Video testimonials of local people
 - People like me are doing it

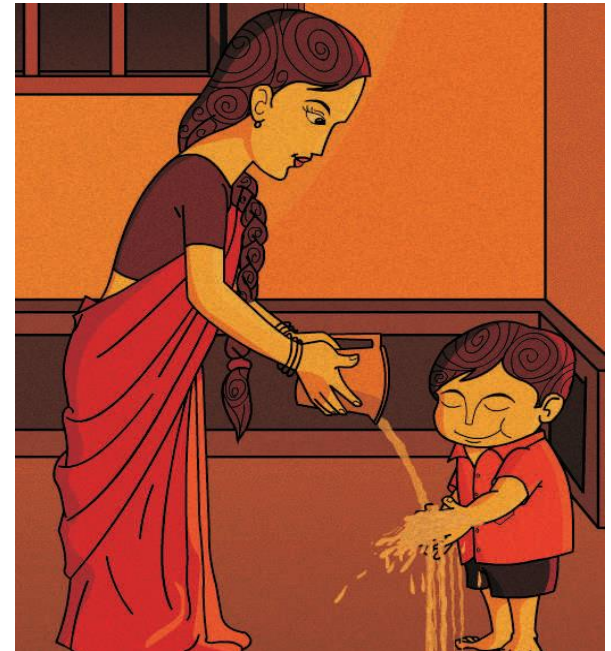


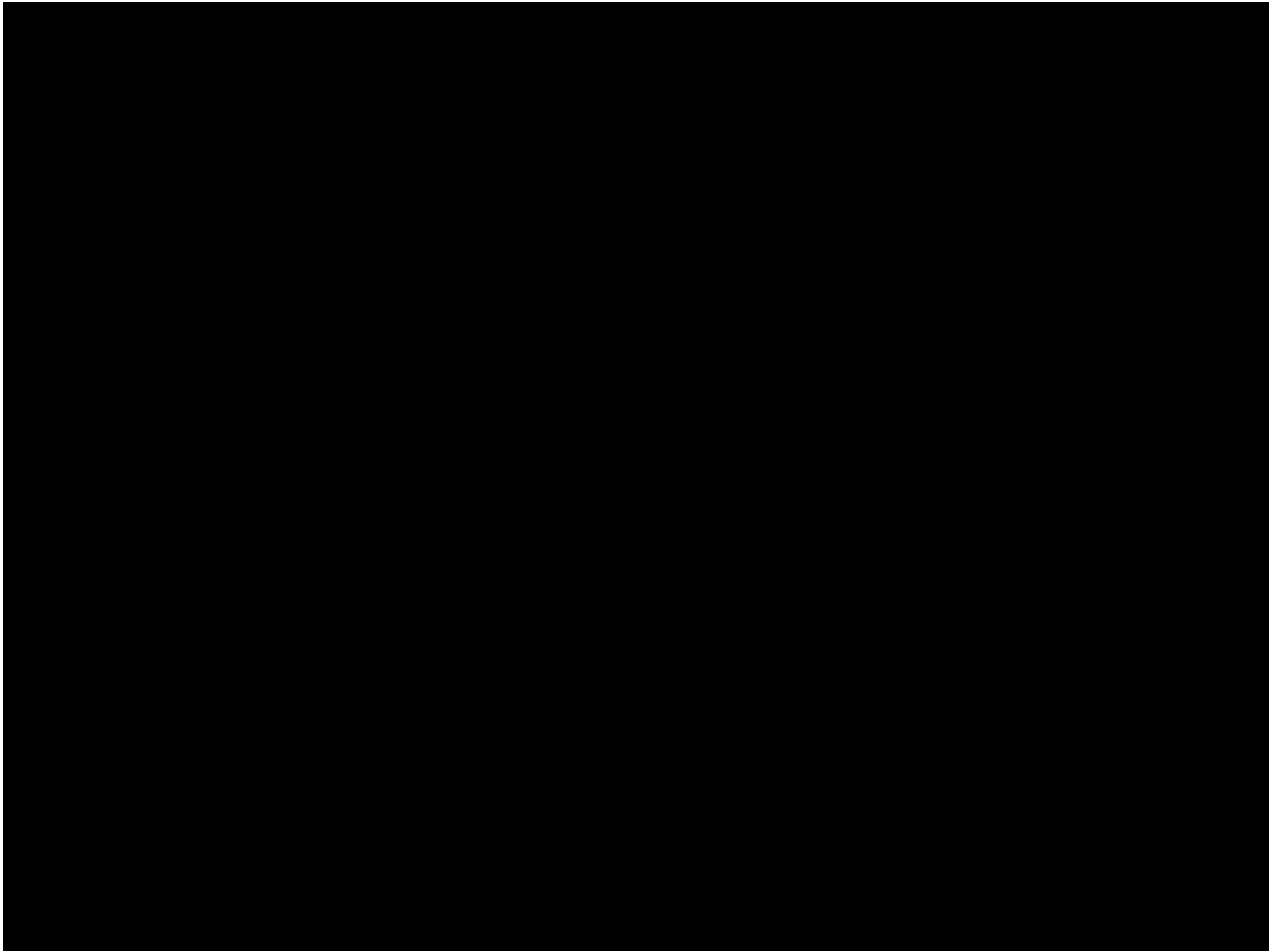
Nurture

- SuperAmma film
 - *A heart-warming tale of maternal love...*



and handwashing





School Activities



Moral Stories



Mid-Day Meal



Poo tag game



Children's rally

Rewards: Gifts, Certificates, Ceremonies





Jingle



She wakes up before the sun,
She cleans up everyone,
She brushes my teeth,
Washes my face,
She can cook up a meal
before I can say
My mom is a supermom!
My mom is a supermom!

She washes her hands with soap,
Before idli or before soup,
She combs my hair,
She cuts my nails,
She can get me ready
Before I can say
My mom is a supermom!
My mom is a supermom!

She tells me many good stuff,
Some easy and some tough,
wash my hands with soap after toilet,
Wash my hands with soap before I eat,
but she can do all this and more
Before I can say
My mom is a supermom!
My mom is a supermom!

Delivery

- Two mobilisers, 1 technician, 1 driver
- 4 days – 2 consecutive and 2 a week apart
- School and community events days 1 and 4



THE STUDY

Study Site

- Southern Andhra Pradesh
- Village size 300-1500
- Water from pumps and standpipes
- Soap present in all households
- Open defecation



Study Design

- Cluster randomised, controlled trial
- 7 village pairs matched on size
- 1 village from each pair randomised to receive intervention
- Controls receive nothing
- 25 households per village
 - Random selection from school register

Outcome Measures

Behaviour change

- Primary outcome
 - % of key events when hands are washed with soap
- Secondary outcome
 - % of all handwashes using soap

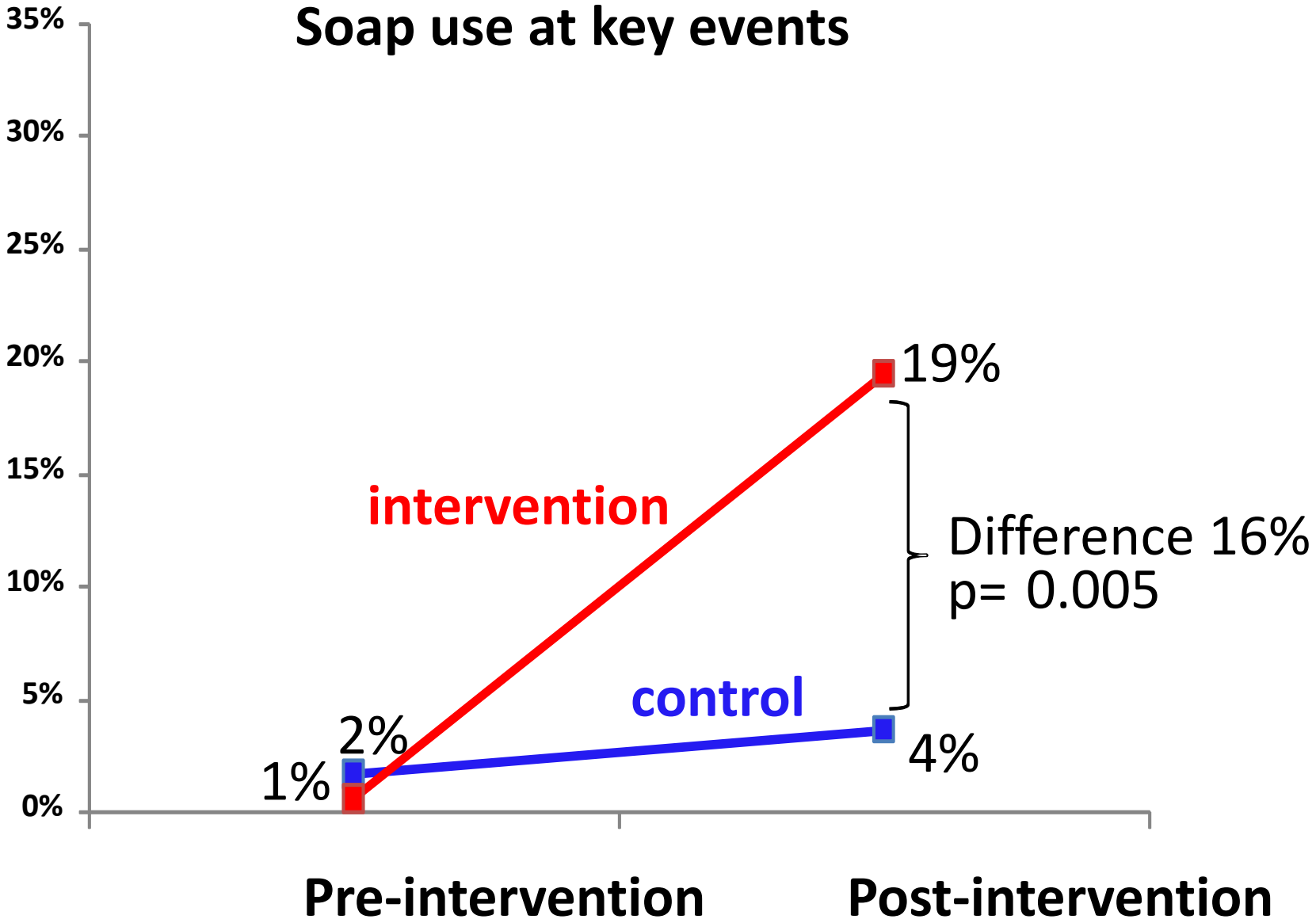
Data collected by structured observation

05:30 – 08:30

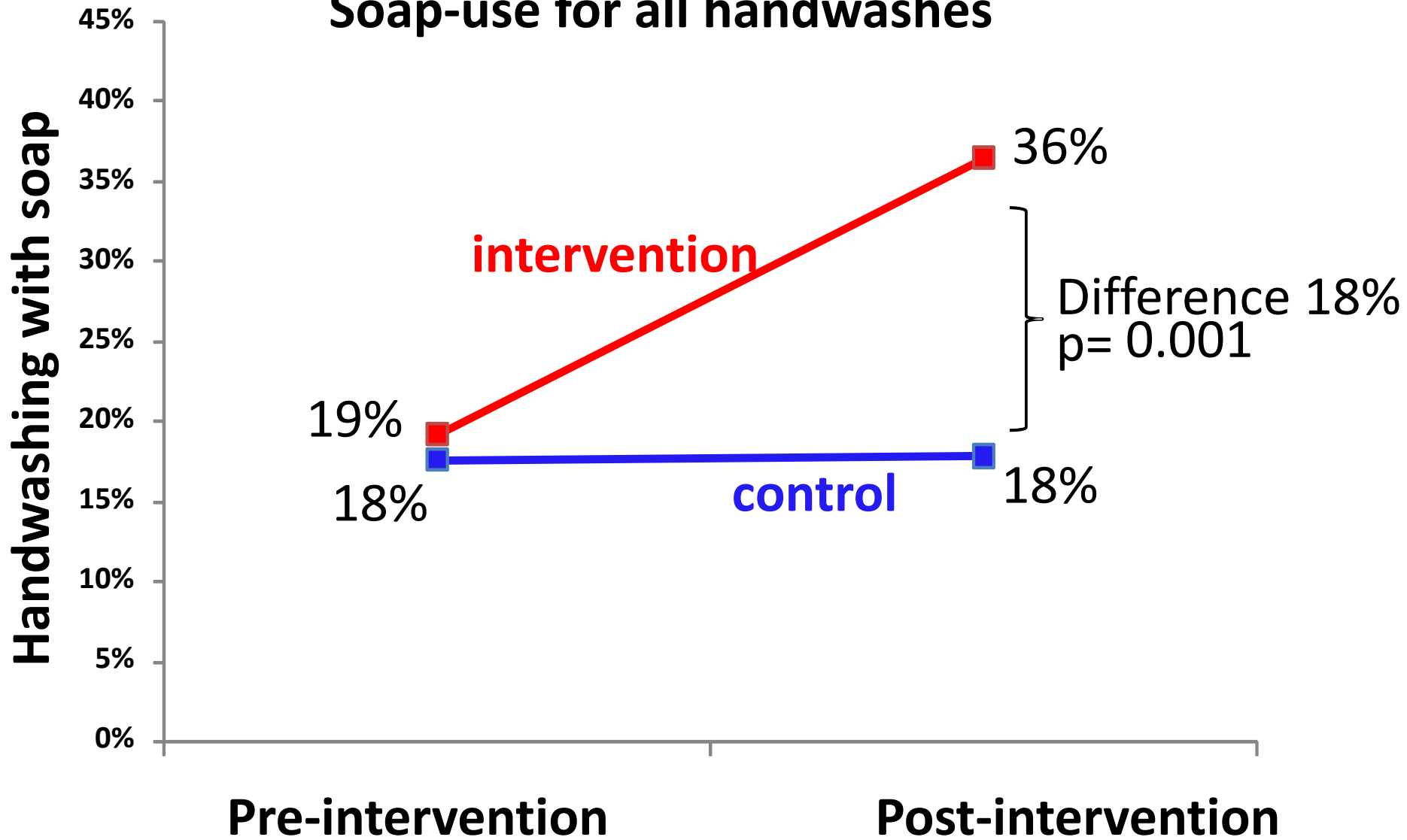
At baseline and 3 weeks post-intervention

Soap use at key events

handwashing with soap



Soap-use for all handwashes



Normative Beliefs about HWWS

In this village...	Intervention	Control
almost everyone HWWS before eating	35%	8%
almost everyone HWWS after defecation	36%	10%
People HWWS more than in other villages	98%	42%

Conclusions

- Suggests behaviour change can be achieved
- Not about health
- Creative inputs are important
- Still a lot of unwashed hands



For more information visit
www.choosesoap.org

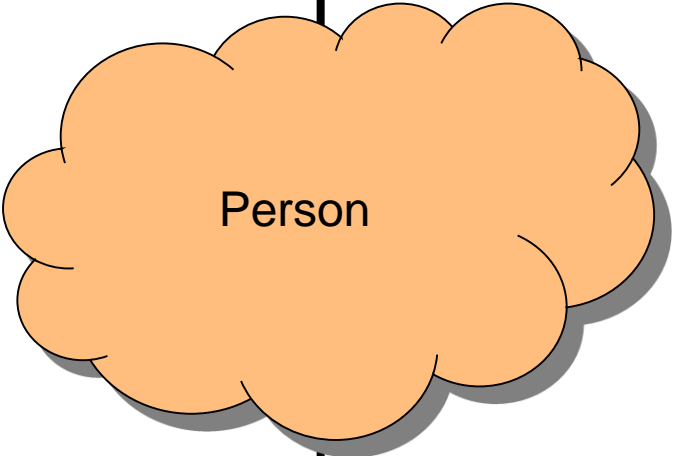


How to configure a comprehensive behavior change methodology

Prof. Dr. phil. et dipl. zool. Hans-Joachim Mosler
Environmental Social Sciences
Environmental and Health Psychology
mosler@eawag.ch

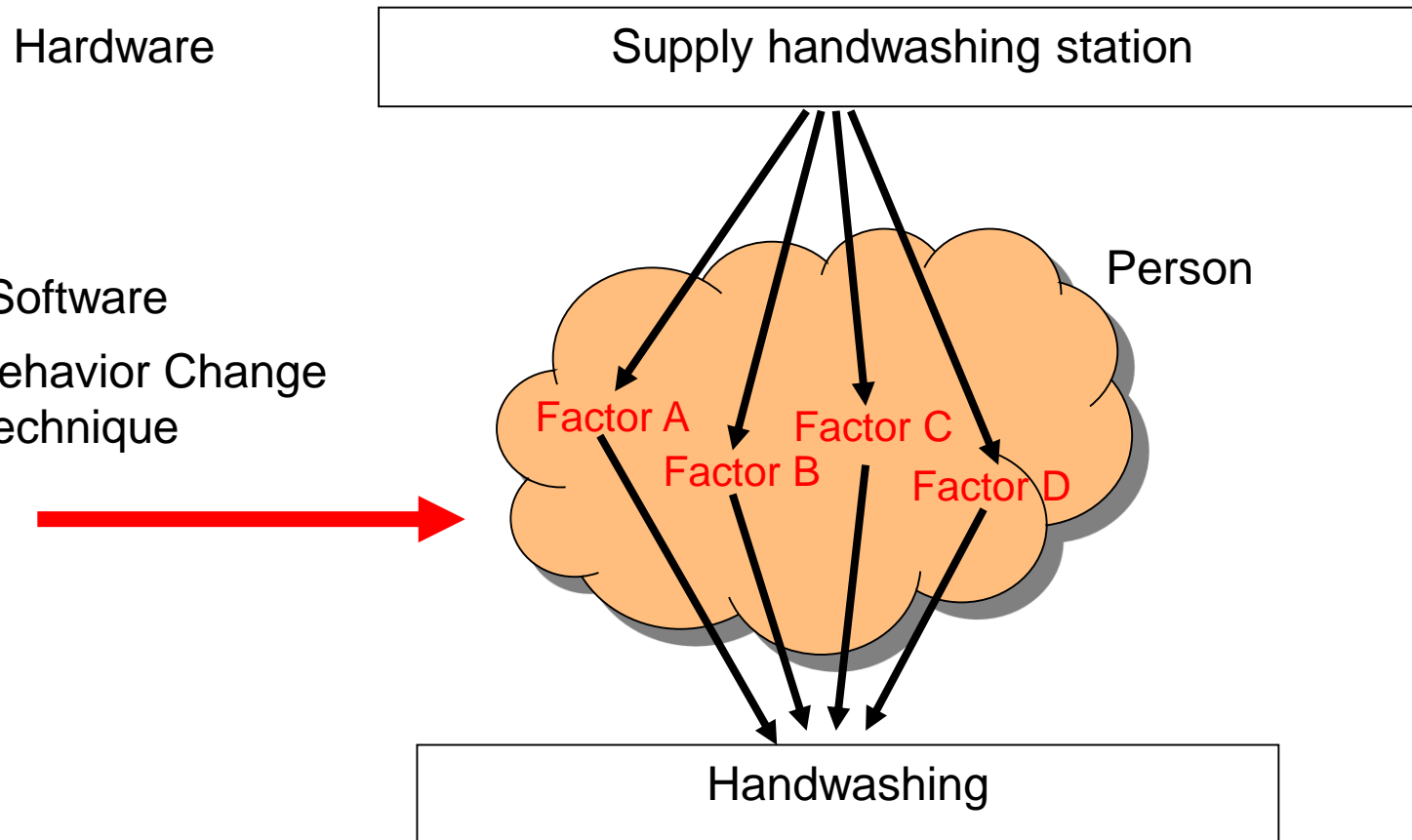
Eawag: Swiss Federal Institute of Aquatic Science and Technology

Supply with "Hardware"



Use /
Compliance

Psychological Factors determine the Use of Hardware



Comprehensive behaviour change methodology

1. Definition of behavioural determinants
2. Measurement of behavioural determinants
3. Identification of target determinants
4. Catalogue of behaviour change techniques (BCTs)
5. Design and implementation of BCTs
6. Monitoring & Evaluation of “Mechanics of behaviour change”

Behaviour change approaches:

Community Led Total Sanitation (CLTS): Kar & Chambers (2008)

Community Health Clubs (CHC): Waterkeyn & Cairncross (2005)

FOAM: Focus, Opportunity, Ability, Motivation: Coombes & Devine (2010)

Risk, Attitude, Norms, Ability, Self-Regulation (RANAS): Mosler (2012)

Comprehensive behaviour change methodology

1. Definition of behavioural determinants

2. Measurement of behavioural determinants

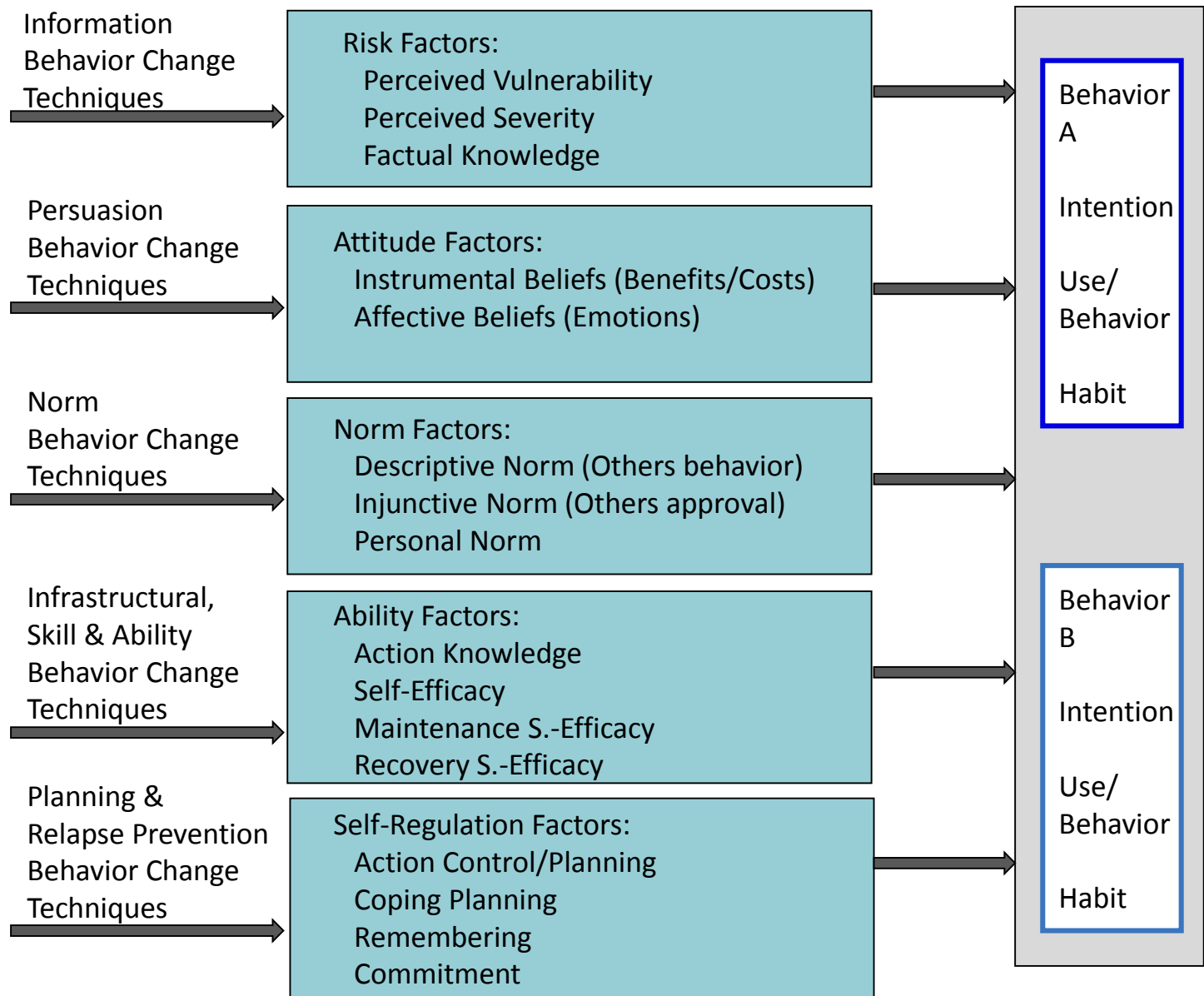
3. Identification of target determinants

4. Catalogue of behaviour change techniques (BCTs)

5. Design and implementation of BCTs

6. Monitoring & Evaluation of “Mechanics of behaviour change”

The RANAS-Model: Risk, Attitudes, Norms, Ability and Self-regulation



Comprehensive behaviour change methodology

1. Definition of behavioural determinants

2. Measurement of behavioural determinants

3. Identification of target determinants

4. Catalogue of behaviour change techniques (BCTs)

5. Design and implementation of BCTs

6. Monitoring & Evaluation of “Mechanics of behaviour change”

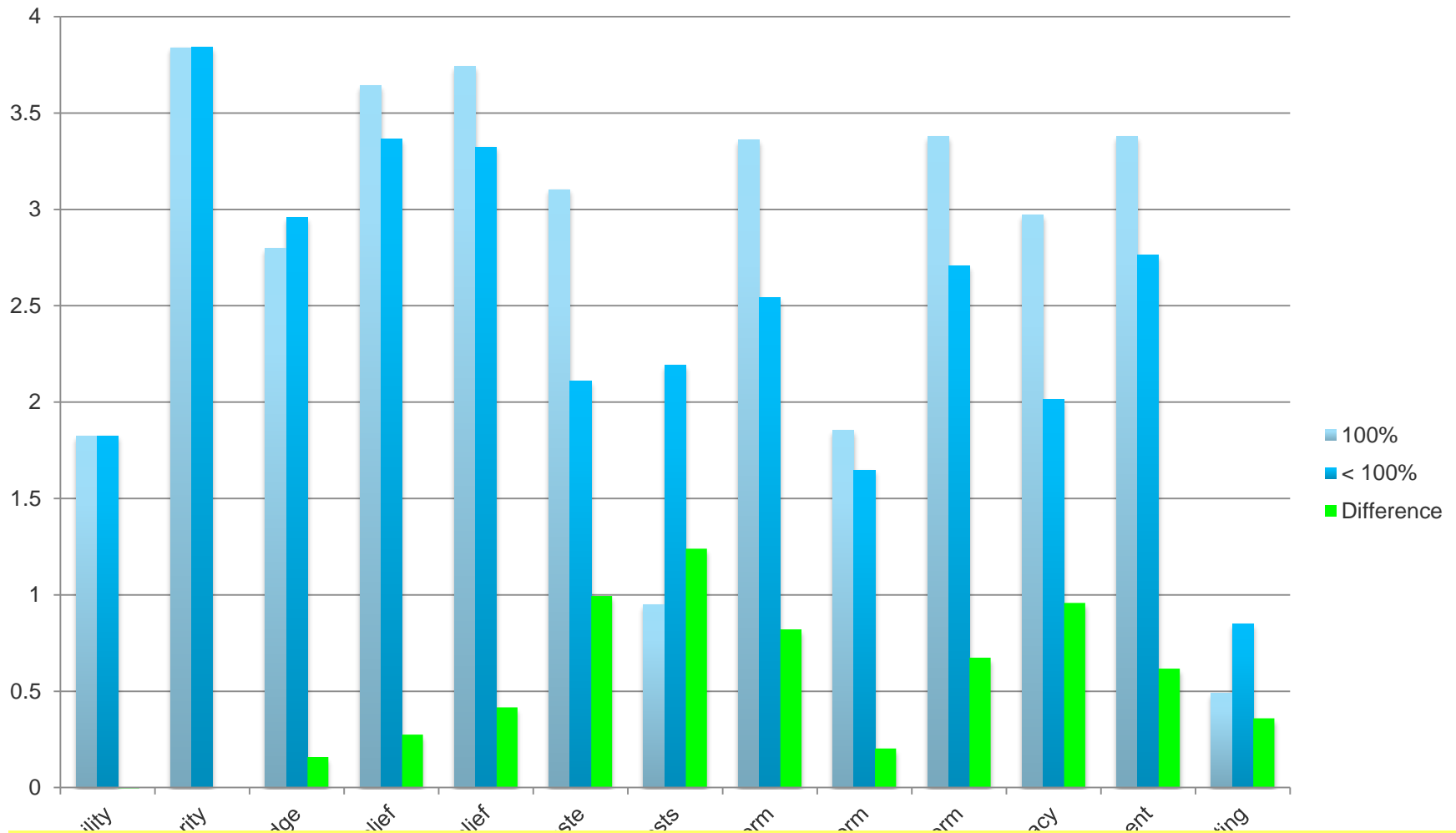
Measuring behavioral determinants of handwashing

Construct	Item example
Risk beliefs: Severity	Imagine that you contracted cholera, how severe would be the impact on... ...your life in general? ...your economic life? ...your social life? (from 0 “not severe at all” to 4 “very severe”)
Attitudes: Disgust	Do you feel dirty if you don't wash your hands with soap and water after defecation? (from 0 “don't feel dirty” to 4 “feel very dirty”)
Attitudes: Nurture – teaching	Do you wash your hands with soap and water because you wish to set a good example to the children? (from 0 “not at all” to 4 “very much”)
Norms: Injunctive and descriptive	How many people of your family wash hands with soap and water after contact with stool? (from 0 “almost nobody/0 out of 10 persons” to 10 “almost all of them/10 out of 10 persons”)
Ability: Hindrance	When you think about the last week: how often did it happen that there was not water for handwashing? (...times)
Self-regulation: Commitment	Do you feel committed to wash hands with soap and water after contact with stool? (from 0 “not committed” to 4 “very committed”)

Comprehensive behaviour change methodology

1. Definition of behavioural determinants
2. Measurement of behavioural determinants
3. Identification of target determinants
4. Catalogue of behaviour change techniques (BCTs)
5. Design and implementation of BCTs
6. Monitoring & Evaluation of “Mechanics of behaviour change”

Differences in mean of 100% users and less than 100% users



A Guideline for behavior change:

http://www.eawag.ch/forschung/ess/schwerpunkte/ehpsy/index_EN

Comprehensive behaviour change methodology

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RANAS Intervention Matrix: Which intervention techniques change which factors?

Risk Factors	Informational BCTs
Factual knowledge Vulnerability Severity	Presentation of facts/knowledge transfer Personal risk information Showing scenarios Fear arousal
Attitudinal Factors	Persuasion BCTs
Instrumental beliefs	Persuasive arguments Persuasive means Talking to others
Affective beliefs	Affective persuasion
Normative Factors	Normative BCTs
Descriptive norm Injunctive norm Personal Norm	Highlighting norms Informing about others' approval/disapproval Public commitment Anticipated regret
Ability Factors	Infrastructural, Skill & Ability BCTs
Action knowledge (skills)	Provide instruction
Self-efficacy	Guided practice Facilitating resources (financing) Social help Modelling Reattribution of past successes and failures
Maintenance (Coping) self-efficacy	Coping with barriers
Recovery self-efficacy	Coping with relapse
Self-Regulation Factors	Planning & Relapse Prevention BCTs
Action control Coping planning Remembering Commitment	Daily routine planning Outcome feedback Stimulus control Forming implementation intentions Prompts

Comprehensive behaviour change methodology

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•Planning and relapse prevention techniques

Self-regulation factors:

Behavioral factor	Behavior change techniques	Tools
Remembering/ Forgetting (qualitative result)	Target remembering by means of cues or reminders: <ul style="list-style-type: none"> •Put soap and water together in a visible place •Install handwashing facility prominently in the household or compound. •Make hands more salient: coloring a finger, nail polishing, wearing a finger cap or ring etc. •Let children observe and alert their parents each time when they should wash their hands but don't do it. 	Coloring a finger Nail polishing Finger stall/ring Good visible HW-facility
Commitment	Make a contract with the beneficiaries where they oblige themselves to HWWS (self-commitment). Invite beneficiaries to imagine the concerns and regret after not HWWS and thus not conforming to their commitment. Let important others invite and prompt the beneficiaries to WHWS.	Contract Visualizing with HEW/CHV's help Activate important others

How to implement the public commitment

•**Phase 2: Community commitment – Certificate**

•The following commitment sheet should be printed decoratively in form of a certificate which

is given to the beneficiaries and which they are

Commitment

invited to hang up in their home.

I as the primary caregiver of this household commit myself to always wash hands with soap after defecation, after wiping a child's bottom, before preparing food or feeding a child and before eating and I will wear the [white finger stall] to show the community that I always wash my hands with soap after defecation, after wiping a child's bottom, before preparing food or feeding a child and before eating to protect my family's health.

Signature or fingerprint: _____

How to implement the public commitment

- **Phase 2: Community commitment – Commitment sign**

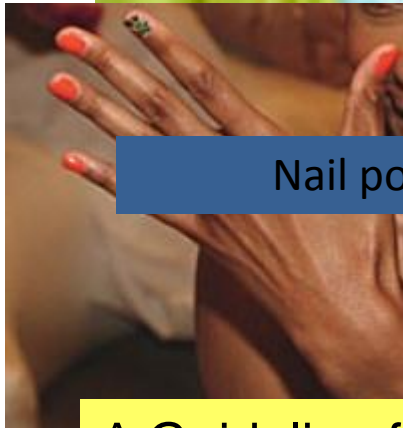
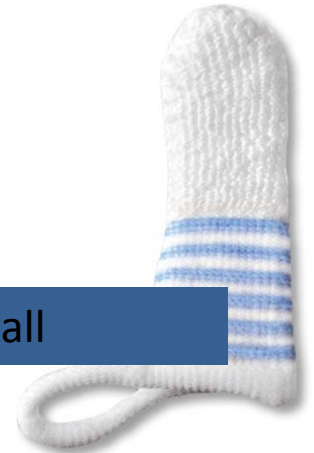
- Different symbols of commitment are possible.



Finger ring



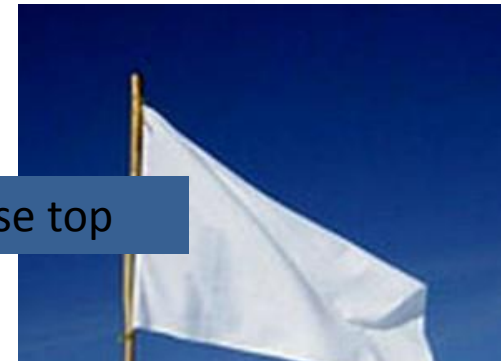
Finger stall



Nail polishing



Flag on the house top



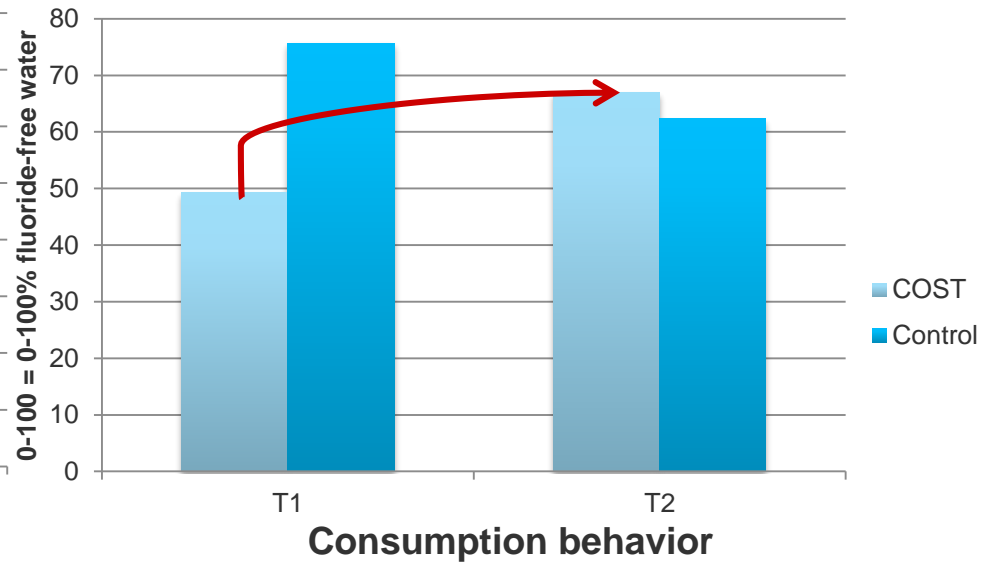
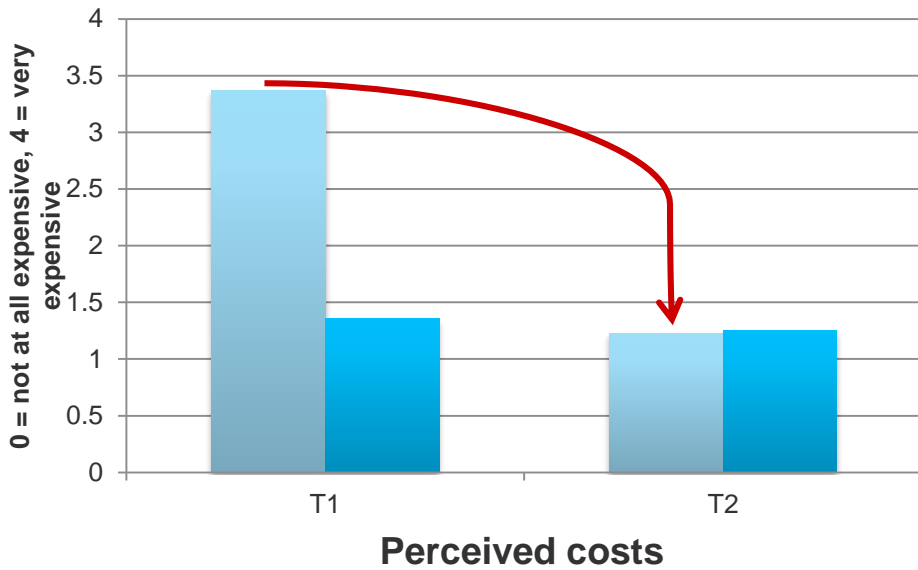
A Guideline for behavior change:

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Comprehensive behaviour change methodology

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Change over time



Comprehensive behaviour change methodology

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Behaviour change approaches:

Community Led Total Sanitation (CLTS): Kar & Chambers (2008)

Community Health Clubs (CHC): Waterkeyn & Cairncross (2005)

FOAM: Focus, Opportunity, Ability, Motivation: Coombes & Devine (2010)

[Evolutionary-Ecological Approach (Evo-Eco): Curtis, Danquah & Aunger (2009)]

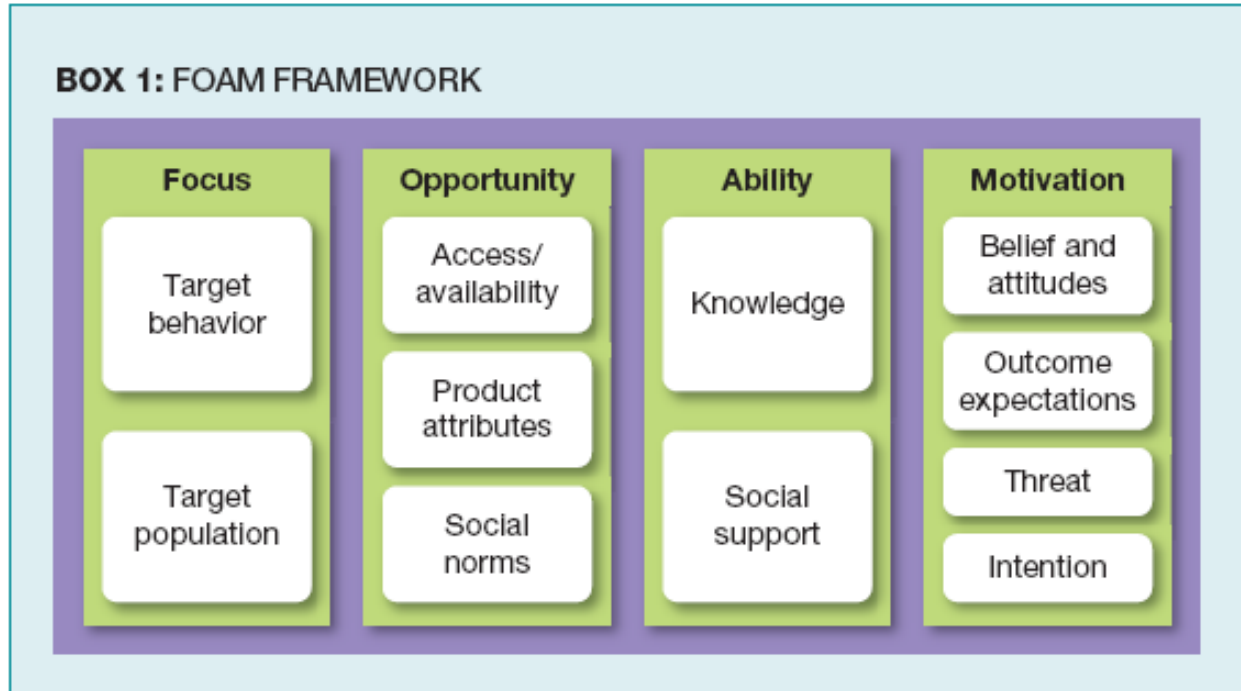
Risk, Attitude, Norms, Ability, Self-Regulation (RANAS): Mosler (2012)

Definition of behavioural determinants

CLTS: shame, disgust → definition somehow

CHC: peer pressure → definition somehow

FOAM: definition of a framework



	CLTS	CHC	FOAM	RANAS
Definition determinants	(Yes)	(Yes)	Yes	Yes
Measurement determinants				
Identification targets				
Catalogue BCTs				
Design & implementation				
Monitoring mechanics				

Measurement of behavioural determinants

CLTS: No

CHC: No

FOAM: Yes, but not standardized

RANAS: Yes, structured questionnaire

	CLTS	CHC	FOAM	RANAS
Definition determinants	(Yes)	(Yes)	Yes	Yes
Measurement determinants	No	No	Yes	Yes
Identification targets				
Catalogue BCTs				
Design & implementation				
Monitoring mechanics				

Identification of target determinants

CLTS: no

CHC: no

FOAM: not targeted but Doer/Non-Doer analysis (p. 14)

RANAS: Doer/Non-Doer analysis of behavioral
determinants

	CLTS	CHC	FOAM	RANAS
Definition determinants	(Yes)	(Yes)	Yes	Yes
Measurement determinants	No	No	Yes	Yes
Identification targets	No	No	(Yes)	Yes
Catalogue BCTs				
Design & implementation				
Monitoring mechanics				

Catalogue of behaviour change techniques (BCTs)

CLTS: somehow

CHC: somehow

FOAM: Marketing mix (p.15)

RANAS: Intervention matrix

	CLTS	CHC	FOAM	RANAS
Definition determinants	(Yes)	(Yes)	Yes	Yes
Measurement determinants	No	No	Yes	Yes
Identification targets	No	No	(Yes)	Yes
Catalogue BCTs	(Yes)	(Yes)	Yes	Yes
Design & implementation				
Monitoring mechanics				

Design and implementation of BCTs

CLTS: Yes, program

CHC: Yes, program

FOAM: Yes, examples

RANAS: Yes, examples

	CLTS	CHC	FOAM	RANAS
Definition determinants	(Yes)	(Yes)	Yes	Yes
Measurement determinants	No	No	Yes	Yes
Identification targets	No	No	(Yes)	Yes
Catalogue BCTs	Yes	Yes	Yes	Yes
Design & implementation	Yes	Yes	(Yes)	(Yes)
Monitoring mechanics				

Monitoring & Evaluation of “Mechanics of behaviour change”

CLTS: No

CHC: No

FOAM: No

RANAS: Yes, measuring change in determinants

	CLTS	CHC	FOAM	RANAS
Definition determinants	(Yes)	(Yes)	Yes	Yes
Measurement determinants	No	No	Yes	Yes
Identification targets	No	No	(Yes)	Yes
Catalogue BCTs	Yes	Yes	Yes	Yes
Design & implementation	Yes	Yes	(Yes)	(Yes)
Monitoring mechanics	No	No	No	Yes

Strengths and Weaknesses

CLTS / CHC

Strength:

- ready-to-go programs with a lot of behavior change techniques

Weakness:

- Not exactly known how it works
- All components needed?
- Negative effects? CLTS: social unrest? CHC: feelings of being forced?

RANAS / FOAM

Strength:

- deeper understanding of behavior change
- Knowledge about how behavior change works
- → possibility for improving promotion activities

Weakness:

- Not ready-to-go programs

Evaluation Of Handwashing Promotion Programs – application to humanitarian emergency context

Pavani K. Ram, MD
Associate Professor
University at Buffalo, USA
pkram@buffalo.edu

Overview

- Talk
 - Why evaluate handwashing promotion?
 - How to evaluate?
 - Which indicators are relevant and feasible?
- Group exercise
 - Develop a plan to evaluate handwashing promotion in a refugee settlement
 - Identify challenges to implementing evaluation
 - Refine indicators as needed



Photo credit: Ben Nygren

Why Evaluate?

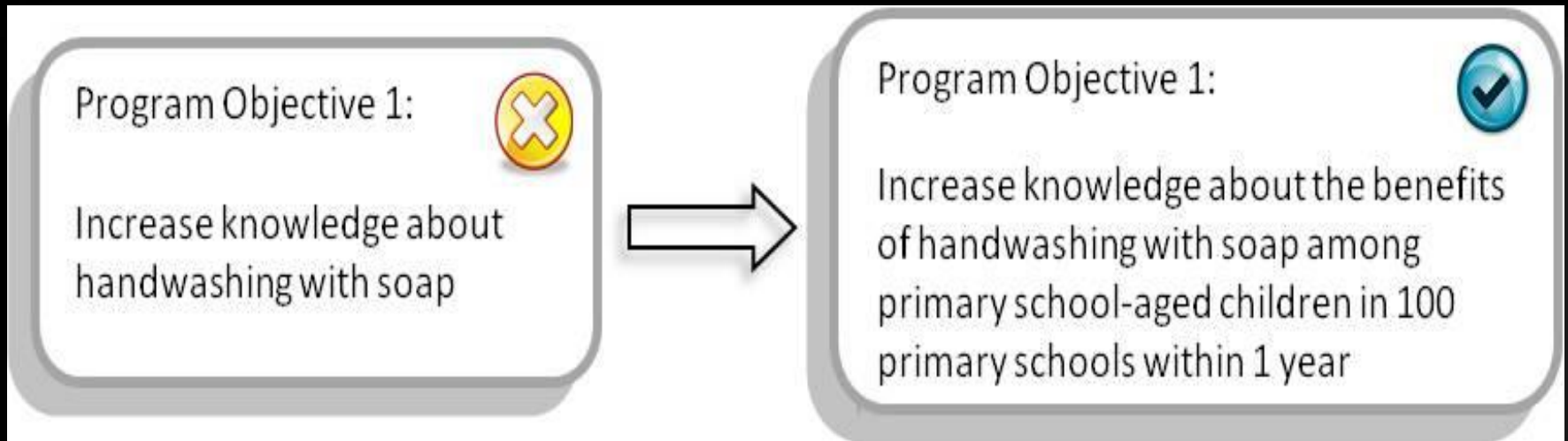
- Improve programs
 - Ongoing and future
 - Provide evidence
 - Achievement of program objectives
 - Strengths
 - Limitations
 - Effectiveness
 - Provide feedback to stakeholders
 - Target communities
 - International organizations
 - Funders
 - Other collaborators
 - Strengthen support for handwashing promotion programs
-

HOW TO EVALUATE



Photo credit: Ben Nygren

CREATE A LOGICAL FRAMEWORK

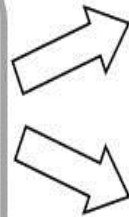


- Clear statement of program objectives
 - Facilitates development of program activities

- Clear statement of program objectives
 - Facilitates development of program activities
 - Supports choice of appropriate indicators for M&E

Objective 1:

Increase knowledge about the benefits of handwashing with soap among primary school-aged children in 100 primary schools within 1 year.

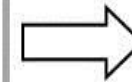
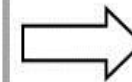


Activity 1:

School theater assembly conveying message of benefits of using soap

Activity 2:

School competition about knowledge regarding soap benefits and critical times



Message 1:

Using soap will make you clean and healthy

Message 2:

Knowing about the benefits of soap and critical times to HWWS makes you smarter

PLANNING AN EVALUATION

- Agree on objectives of evaluation
 - Develop evaluation methods
 - Identify indicators of interest
 - Develop data collection instruments
 - Develop analytic plan
 - Collect and analyze data
 - Present findings, good and not-so-good
-

OBJECTIVES OF EVALUATION

- Evaluating effects of program on
 - Outputs
 - Outcomes
 - Impact
 - Decision-making re: objectives of evaluation
 - Stakeholder interests
 - Funds and staff availability
 - Research capacity of available staff
 - Planning
-

MEASURING OUTPUTS

- Outputs: direct results of program efforts
 - Typically the easiest to measure
 - Example indicators
 - Number of hygiene promotion kits distributed
 - Number of hygiene promoter visits to target population
-

MEASURING OUTCOMES

- Outcomes: reflect objectives of program
 - Program's effect on handwashing behavior of study population
 - Example indicators – numerous, will be discussed shortly
-

MEASURING IMPACT

- Impacts: reflect ultimate goal(s) of program
 - Program's effect on infectious disease among refugees
 - Example indicators
 - Longitudinal prevalence of diarrhea
 - Incidence of acute respiratory infection
-

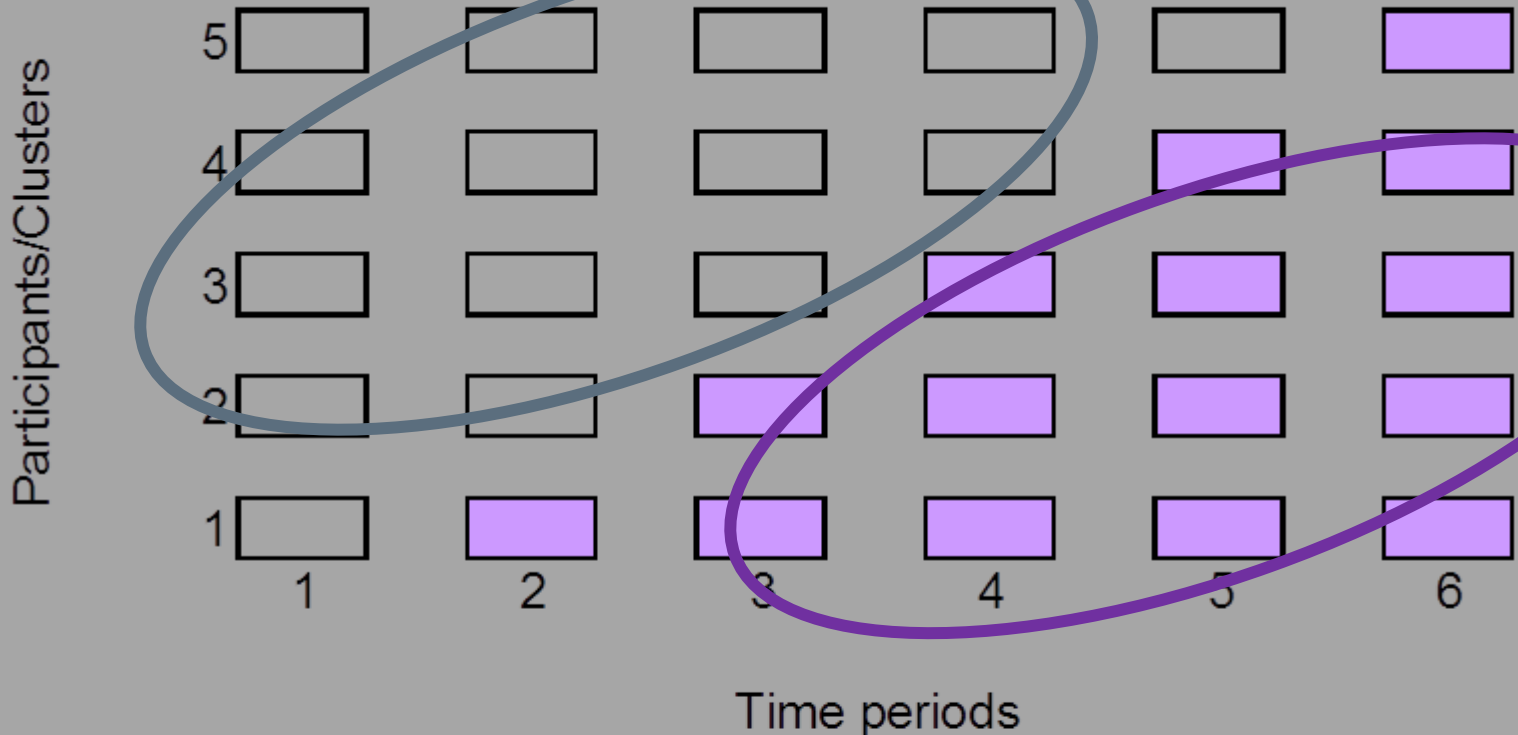
HOW TO MEASURE HEALTH IMPACT

- Define syndromes of interest
 - Diarrhea
 - Acute respiratory infection or pneumonia
 - Reporting by individual either directly or by proxy (e.g. primary caregiver)
 - Often thought of as absolute but not without concerns
 - Potential for biased reporting based on expectations of benefits to be received if ill
-

EVERYONE WOULD LOVE TO REPORT HEALTH IMPACT! BUT....

- Demonstrating health impact typically implies showing difference in disease experience between comparison groups
 - E.g. randomized controlled trial, in which one arm does not get the intervention of interest
- Relatively large study populations required
 - Often, to achieve sufficient sample size, repeated visits to participants may be required
- 'Need' for a comparison group may not be acceptable to yourselves or other stakeholders at various levels

ALTERNATIVE APPROACH TO MEASURING HEALTH IMPACT



Shaded cells represent intervention periods
Blank cells represent control periods
Each cell represents a data collection point

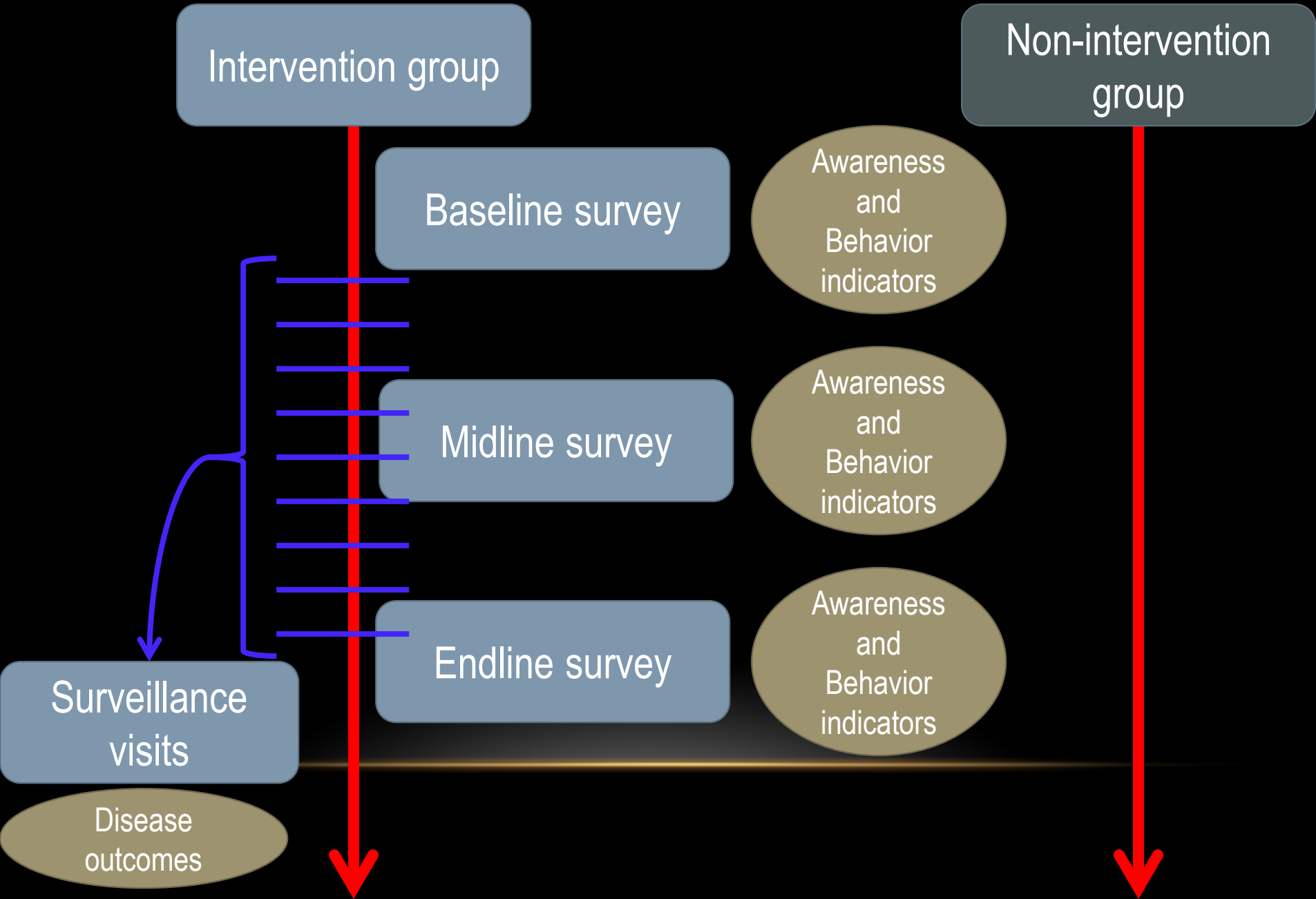
MEASURING OUTCOMES: EFFECTS ON HANDWASHING BEHAVIOR

- Outputs relatively straightforward, program-dependent
 - Health impact more complicated, as discussed
 - To achieve health impact, must change handwashing behavior!
 - So, measure effect of program on handwashing behavior
-

DON'T WE NEED A COMPARISON GROUP TO MEASURE EFFECT ON HANDWASHING?

- Ideally, yes – same as for health outcomes
 - With the inclusion of an appropriate chosen comparison group
- Less rigorous approach would be to measure change in behavior within a group
 - Before vs.
After intervention
- While less rigorous, the comparison of a group to itself may be the most feasible in some circumstances

Evaluation methods



Monitoring and Evaluation Module for UNICEF Programs that Promote Handwashing

Prepared by Jelena Vujcic, MPH and Pavani K. Ram, MD
University at Buffalo

December, 2012

APPROACHES TO MEASURING HANDWASHING BEHAVIOR

2012 update “in press”

WATER AND SANITATION PROGRAM: **WORKING PAPER**

Global Scaling Up Handwashing Project

Practical Guidance for Measuring Handwashing Behavior

Pavani Ram, MD

March 2010



The Water and Sanitation Program is a multi-donor partnership administered by the World Bank to support poor people in obtaining affordable, safe, and sustainable access to water and sanitation services.

UP NEXT

- Approaches to measuring handwashing behavior
 - Self-report
 - Proxy measures
 - Direct measures
 - How to apply the approach
 - Relevant indicators
 - Strengths and limitations of the approach
-

Ask them what they do: Self-report



SELF-REPORT: INDICATORS

- Report of always or sometimes (as opposed to rarely or never) washing hands
 - After defecation
 - After cleaning a child who has defecated
 - Before food preparation
 - Before eating
 - Before feeding a child
 - Other possibilities
 - # times washed hands on the day preceding interview
 - # times washed hands with soap on the day preceding interview
-

SELF-REPORT

○ Perceived advantages

- Rapidly collected in questionnaire
- Not resource-intensive
- Some studies show association between self-reported handwashing among adults and health outcomes in their children

○ Substantial disadvantage

- Self-report shown repeatedly to overestimate true HW behavior, reflecting awareness of social desirability of HW

Bottom line: Advised not to use self-report, definitely not to use in isolation

CLUES TO WHAT THEY DO: PROXY MEASURES

- Microbiological assessment of hand contamination
- Observation of handwashing materials
- Consumption of hand cleansing products
- Demonstration of usual handwashing behavior



Microbiological assessment of hand contamination



MICROBIOLOGICAL CONTAMINATION: INDICATORS

- # fecal coliforms / 100 ml of hand rinse water
 - # fecal coliforms / two hands

 - Indicator organisms
 - *E. coli*
 - *Bacteroides spp.*
 - *Fecal streptococci*
-

MICROBIOLOGICAL CONTAMINATION

- Advantages
 - Objective data source
 - Reduced hand contamination correlated with reduced diarrhea risk in some studies
 - Disadvantages
 - Need laboratory or somewhat specialized equipment
 - High variability in measurement
 - Rapid recontamination after washing hands
 - Evidence for link between HW behavior and hand contamination inconsistent
-

Observation of handwashing materials



OBSERVATION OF HANDWASHING MATERIALS: INDICATORS

- Presence of soap anywhere in the home
 - Presence of soap and water at a designated handwashing location
 - Presence of handwashing location within XX meters / paces of latrine *or*
 - Food preparation area
-

OBSERVATION OF HANDWASHING MATERIALS

○ Advantages

- Objective
- Efficient
 - Now included in common modules of Demographic and Health Surveys and Multiple Indicator Cluster Surveys
- Behavioral plausibility: cannot wash hands with soap if there is no soap in the home

○ Disadvantages

- Proxy, not direct measure of behavior
 - Inconsistent evidence on association with health outcomes
 - Households are often inconsistent: soap present sometimes but not others
-

Consumption of hand cleansing products



CONSUMPTION OF HAND CLEANSING PRODUCTS: INDICATORS

- Change in weight of soap
 - Change in volume
 - Liquid soap
 - Soapy water
 - Waterless hand cleanser
 - Frequency of soap purchase
 - How much is spent on soap during given time period (e.g. previous month)
-

CONSUMPTION OF HAND CLEANSING PRODUCTS

○ Advantages

- Objective

○ Disadvantages

- Relatively little evidence for / against
 - Can be inefficient – two or more visits to measure change in weight or volume
 - Proxy measure
 - Soap purchase information may be invalid or biased
-

DEMONSTRATION OF
USUAL HANDWASHING
BEHAVIOR



DEMONSTRATION OF USUAL HANDWASHING BEHAVIOR: INDICATORS

- Use of soap to wash hands
 - Use of other hand cleansing material (e.g. ash, waterless hand sanitiser)
 - Duration of lathering / scrubbing
 - Drying of hands
-

DEMONSTRATION OF USUAL HANDWASHING BEHAVIOR

○ Advantages

- Efficient
- Use of soap by caregiver associated with less diarrhea in child

○ Disadvantages

- Awareness of social desirability of handwashing may prompt improved behavior during demonstration
 - Timing of measure in context of other measures may influence other measures
 - Relatively little data
-

WATCH WHAT THEY DO: DIRECT MEASURES

- Structured observations
 - Video observation
 - Sensor technologies
-

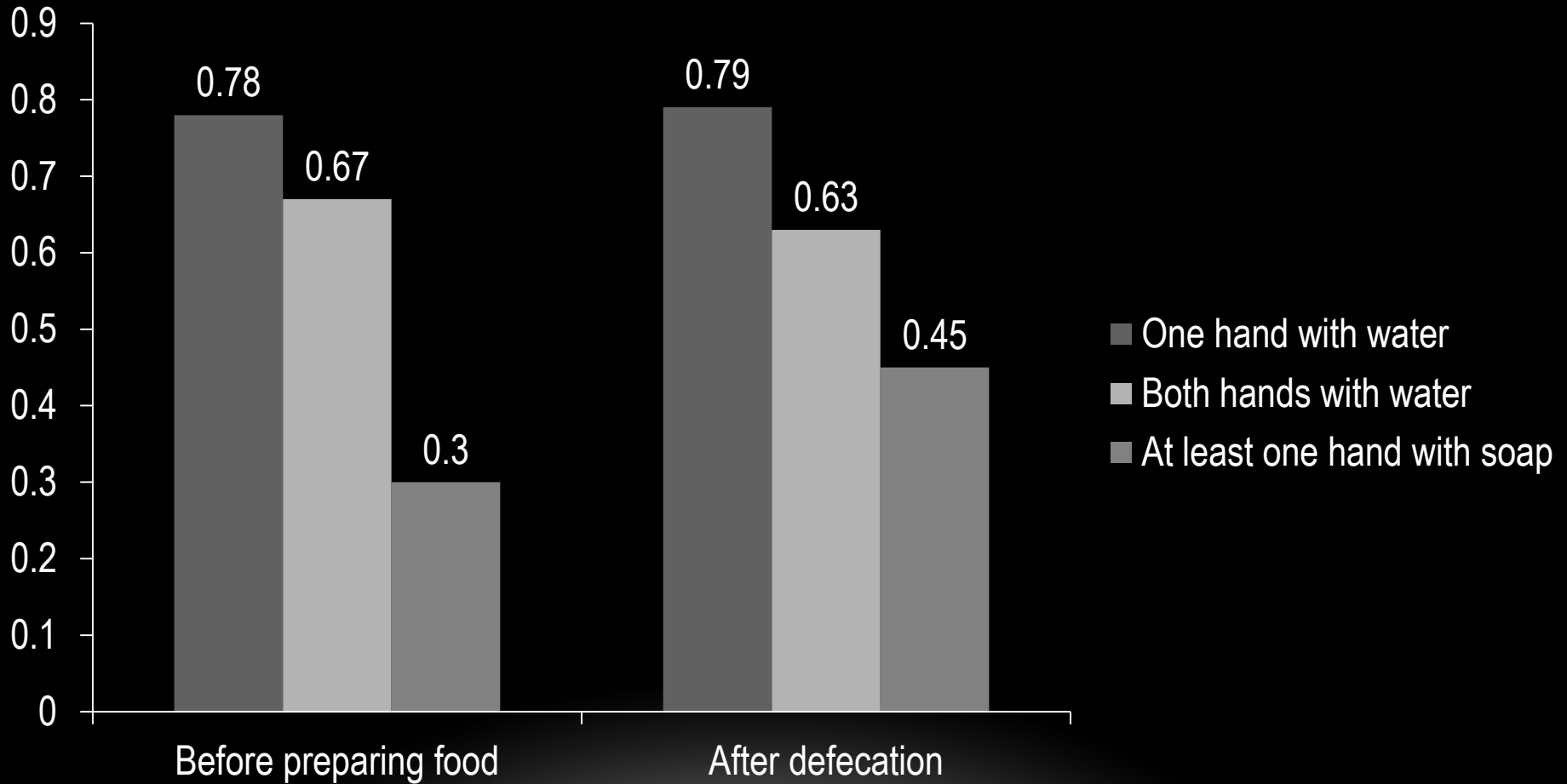


Structured observation

STRUCTURED OBSERVATION: INDICATORS

- Observed handwashing at critical times
 - With soap, water alone, or other hand cleansing material
 - Critical times of interest
 - After defecation*
 - Before food preparation*
 - Before feeding a child
 - Before eating
 - After cleaning a child who has defecated
-

EVIDENCE-BASED CRITICAL TIMES



STRUCTURED OBSERVATION

○ Advantages

- Direct observation of behavior of interest
- Detailed information regarding context
 - Who, what, where, when, why

○ Disadvantages

- Can be time-consuming → expensive, inefficient
 - Analysis can be tricky: clustering
 - Clustering: individual more likely to behave like herself or others in her household, compared to behavior of others in village
 - BUT, if not publishing and only want benchmarks, consider ignoring clustering
-

People behave differently when they are observed.



	N	After toilet (%)	After cleaning child (%)	After cleaning up child stools (%)	Before feeding index child (%)	Before handling food (%)	Handwashing with water only after toilet (%)
Ghana ^{58,59}	500	3	2	..	1	..	39
India, Kerala	350	42	..	25	..	..	..
Madagascar	40	4	..	..	12	..	10
Kyrgyzstan ⁶⁰	65	18	0	..	..	..	49
Senegal	450	23	18	..	..	18	..
Peru	500	14	..	..	6	..	..
Bangladesh ⁵⁷	1000	19	26	..	1	1	60
China, Sichuan	78	13	..	16	6	..	87
China, Shaanxi	64	12	..	..	16	..	14
Tanzania	30	13	13	13	4	..	33
Uganda	500	14	19	11	6	8	44
Vietnam	720	..	14	23	5	..	51
Kenya	802	29	35	38	13	15	57
Average	..	17	11	25	3	5	51

Data from reference 56, unless otherwise stated.

Table 2: Handwashing with soap and water by mother or carer on key occasions⁵⁶

VIDEO OBSERVATION



04/11/2010 12:41:41





04/11/2010 12:46:21

VIDEO OBSERVATION: INDICATORS

- Observed handwashing at critical times
 - With soap, water alone, or other hand cleansing material
 - Critical times of interest
 - Those that can be observed directly or indirectly by video
 - Camera placement is critical
-

VIDEO OBSERVATION

○ Advantages

- Objective
- Direct measurement of desired behavior
- May have reduced reactivity, compared to structured observation
 - Reactivity not erased, however

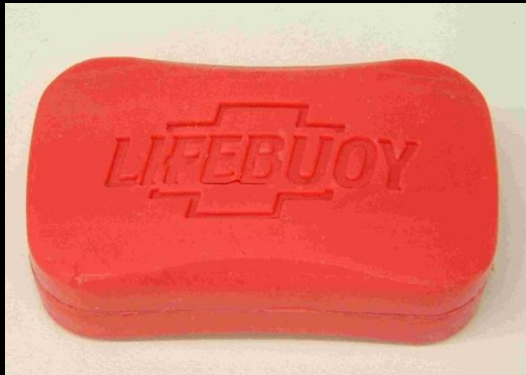
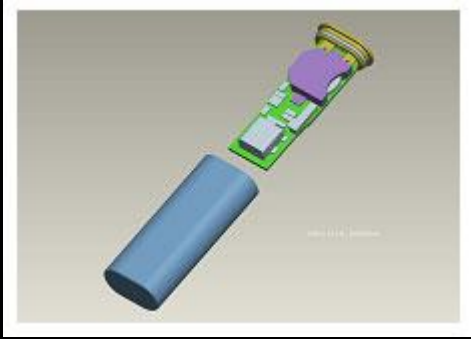
○ Disadvantages

- Potentially unacceptable to population being studied
 - May record illegal activity – ethical dilemmas
-

SENSOR TECHNOLOGIES



<http://www.dataq.com/products/hardware/el-usb-data-loggers/el-usb-5-data-logger.html>



SmartSoap

Photo credit: Unilever GHHP

- Indicators dependent on
 - Hand cleansing material:
 - bar or liquid soap
 - soapy water
 - waterless cleanser
 - Sensor type
 - Acceleration / movement
 - Dispensing of product
 - Time stamp availability

SENSOR TECHNOLOGIES: INDICATORS

- Dependent on
 - Hand cleansing material:
 - bar or liquid soap
 - soapy water
 - waterless cleanser
 - Sensor type
 - Acceleration / movement
 - Dispensing of product
 - Time stamp availability
-

BOTTOM LINE RECOMMENDATIONS FOR MEASUREMENT OF HANDWASHING

- Use objective measures
 - Observation of handwashing materials
 - Structured observation of handwashing behavior
 - Include self-report if objective measures also included
 - Questionnaires possible useful to explore *why*, rather than *whether*, people wash hands
-

BOTTOM LINE RECOMMENDATIONS FOR EVALUATION OF HANDWASHING

- Don't be afraid to evaluate
 - Let not perfection be the enemy of the good!
 - Evaluate more than outputs
 - Outcomes, impacts!
 - Collect data from a comparison group when possible
 - Do recruit research expertise if needed and feasible
-

GROUP EXERCISE

Design the evaluation of a typical handwashing promotion program implemented in a humanitarian emergency

- Evaluation methods
 - Comparison group or not?
- Indicator choices
 - Outputs
 - Outcomes: handwashing
 - Impact: health
- Scenarios
 - Displaced or in situ
 - Water scarce or plentiful
 - Acute emergency vs. protracted
 - Rural vs urban

OUR UPCOMING WORK WITH CDC

- Rationale: substantial gaps in published literature in the evaluation of handwashing promotion in emergencies
 - Institutional knowledge and memory abundant
 - Interviews with experts at global, regional, local levels
 - Formative research and behavioral trials in an emergency setting
 - We hope to learn from you!
-



Global Handwashing Day
October 15

globalhandwashing.org



Global Public-Private Partnership for Handwashing (PPPHW)



globalhandwashingday.org/ghw

One-Stop Shop for Handwashing Resources

- Global Handwashing Day Planning Tools
- Latest handwashing research
- Tools for handwashing programs
- Map of Global Handwashing Day events
- Handwashing photos and videos
- Latest handwashing news

ACKNOWLEDGEMENTS

- University at Buffalo
 - Jelena Vujcic
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 - CDC
-