DEVELOPING A METHODOLOGY FOR COSTED WASH ACTION PLANS IN CHOLERA HOSTSPOTS

Session 4: tools, strategies and approaches to support

WASH implementation in countries

Dar-Es-Salaam | March 2020

UNICEF - ESA Consultance



GOAL

OUTCOME:

• Have a replicable and standard method for producing WASH costed plans in cholera hotspots

GIVEN CONSTRAINTS:

- Simple enough
- Easy ethical clearance (no targeting of individual cholera cases)
- Targeted on key actions
- Tools developed with open source software

CONDITIONS:

- Access to anonymized line-listing for mapping analysis
- Access to (or development of) a WASH baseline of the hotspot
- Access or availability of agreed unit cost database

- Uses WASH baseline and risks factors results as inputs to size and prioritize
- Cells in blue must be filled by the user
- Allows technical and financial analysis for 3 outcomes (water, sanitation, hygiene)
- Results in a costed plan for each outcome, with indication of potential funding sources
- Allowing actions prioritization after inclusion of risk factors OR
- Take into account of ongoing/planned projects

	areas)	
Location classification	Urban	
Population (inhab.)	1 400 000	
High risk Population (inhab.)	231 619	6 health areas studied
Population annual growth	3%	Ministère de la santé
Median household size (Suggested default - 5)	7	households survey - for the 6 health areas studied
Population distribution across age-groups and genders		
0-5 years (%)	5,2%	
5+ years (%)	94,8%	
WASH services baseline		ha
Water _ Proportion of households using:		snc
Safely managed water sources	0,7%	sehol
basic water sources	58,7%	ds.
limited water sources	18,6%	sui
unimproved water sources	18,2%	.ve
surface water	3,8%	K -
Sanitation - Proportion of households using:		for
safely managed sanitation facility	0,2%	the 6
basic sanitation facility	11,0%	he
limited sanitation facility	8,1%	ealt
unimproved sanitation facility	75,5%	h are
practicing open defecation	5,2%	ā.
Hygiene - Proportion of households:		stu
using basic hygiene facility	14,3%	Idie
using limited limited facility	73,8%	ğ
having no hygiene facility	11,9%	
Other		
Proportion of households owning house/flat	59,4%	
Financial data		
6 (() () ()	Franc	

Data

2020

Goma (6

health

Congolais

CDF

1700

10.0%

Source of data

Population data

Year of analysis

Name of hotspot

Currency name (for data entry)

Average exchange rate with USD for the

Currency abbreviation

selected data year

Inflation rate

Exemple of outcome 1 - Improved safe management of excreta

Output	Increase access of HH to Basic sanitation	Improve Emptying service	Create a safe excreta disposal sit			
STARTING YEAR INVESTMENT	2021	2023	2021			
PROJECT DURATION (year)	5	5	5			
TARGET - Number of households served at the end of the intervention (including growth rate)	27 182	253 354	253 354			
TOTAL COST PER OUTPUT	13 863 028	857 000	1 818 400			
Life of Capital (years)	10	10	10			
1. Capital costs	7 339 250	500 000	1 560 000			
Initial Capital Cost	6 116 042	500 000	1 560 000			
Capital improvement costs	1 223 208					
2. Operation costs	815 472	292 000	248 400			
Operation (variable) annual costs	815 472	242 000	170 400			
Recurrent maintenance (fixed) annual costs	0	50 000	78 000			
3. Software costs (sub-categories TBD)	5 708 306	65 000	10 000			
Initial software costs		40 000	10 000			
Recurrent software costs	5 708 306	25 000				

Exemple of outcome 1 - *Improved safe management of excreta* – Financial analysis

	OUTPUT 1				OUTPUT 2				OUTPUT 3						
Name of the output	Increas	se access	of HH to	Basic sa	nitation		Improve	Emptying	service		Create a safe excreta disposal				
Year	2021	2022	2023	2024	2025	2023	2024	2025	2026	2027	2021	2022	2023	2024	2025
INVESTMENT YEAR	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
TOTAL COST PER OUTPUT (%)	20%	30%	30%	15%	5%	20%	20%	20%	20%	20%	20%	50%	10%	10%	10%
2.1. Capital costs financing plan	1 614 635	2 664 148	2 930 563	1 611 809	590 997	133 100	146 410	161 051	177 156	194 872	343 200	943 800	207 636	228 400	251 240
Households/community	60%	60%	70%	80%	90%										
Government	0%	0%	0%	0%	0%										
Donors/NGO	40%	40%	30%	20%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.2. Operational costs financing plan	179 404	296 016	325 618	179 090	65 666	77 730	85 503	94 054	103 459	113 805	54 648	150 282	33 062	36 368	40 005
Households/community	0%	0%	10%	20%	40%										
Government	20%	20%	30%	40%	50%			20%	40%	60%			20%	40%	60%
Donors/NGO	80%	80%	60%	40%	10%	100%	100%	80%	60%	40%	100%	100%	80%	60%	40%
2.3. Software costs financing plan	1 255 827	2 072 115	2 279 326	1 253 630	459 664	17 303	19 033	20 937	23 030	25 333	2 200	6 050	1 331	1 464	1 611
Households/community	0%	0%	0%	0%	0%										
Government	0%	0%	0%	20%	20%			20%	40%	60%			20%	40%	60%
Donors/NGO	100%	100%	100%	80%	80%	100%	100%	80%	60%	40%	100%	100%	80%	60%	40%

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Final result: prioritization

Name of Intervention	Improved safe management of excreta
Intervention start date	2021
Intervention end date	2026
Population (inhab.) end of intervention	1 671 673
High risk Population (inhab.) end of intervention	276 565
Initial Baseline JMP (basic and safely manage)	11%
Targeted Population (end of intervention)	190 277
Addressed risk factors n°1	Toilets superstructure type
OD ratio	3,72
Attibutable Fraction among Exposed (%)	73,00
Addressed risk factors n°2	Toilets soil type
OD ratio	2,90
Attibutable Fraction among Exposed (%)	66,00
Addressed risk factors n°3	Toilets location (in-out household plot)
OD ratio	2,55
Attibutable Fraction among Exposed (%)	61,00
Total costs	22 036 208 USD
Total costs per person	80 USD
Source of investment	
Household/Community	30% 6 560 209 USD
Government	4% 948 570 USD
Donors/NG0	66% 14 527 429 USD

REPORTS – Summary sheet

This page provide an overview of the hotspot:

- Description
- Baseline
- Map
- Risk factors
- Costed plan (per outcome)

RDC / GOMA RDC, Goma -Cas de choléra en Description Total population : 1,400,000 inhab. Map High risk population: 231,619 inhab. Average annual growth rate: 3% Solina S. Sol Median household size: 7 peoples **Baseline Risks factors** Proportion of households using basic or **Risks factors** Odd ratio Attibutable safely managed water sources: 59.4% Proportion of households using basic or safely managed sanitation facility: 11,2%

Proportion of households using basic hygiene facility:

		Exposed (%)
Sanitation		
Toilets superstructure type	3,72	18,00
Toilets soil type	2,90	12,00
Toilets location (in-out household plot)	2,55	25,00
Water		
Fetching time (>60mn)	6,49	73,00
Experienced water rationing/breakdown	4,33	59,00
Waiting time at water point	2,53	58,00
Hygiene		
Soap presence at home	1,16	21,00
Toilets cleanliness	1.45	24.00

WASH action and costed plan

14,3%

Action	Target (po	opulation)		Buc	lget	
Description	%	inhabitants 5 years 1		5 years		ears
			CAPEX	CAPEX OPEX		OPEX
			(USD)	(USD)	(USD)	(USD)
Improved safe management of	41%	155 000	3 000 000	300 000	3 000 000	300 000
excreta						
Improved access to clean water	20%	75 000	183 000	10 000	1 800 000	3 000
Improved hygiene	50%	187 000	200 000	NA	50 000	NA
		Su	mmary			

	£		
5 ye	ears	10 y	ears
CAPEX	OPEX	CAPEX	OPEX
5 200 000	310 000	4 900 000	303 000

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REPORTS – Outcome sheets

For each outcome this sheet provide further information on:

- Outputs (description of the actions)
- Map and JMP baseline
- Detailed budget
- Financial plan: Gov./HH/other (UN, NGO, etc.)

RDC / Goma		Improved safe management of excreta
Outputs Increase access of HH to Basic sanita	tion. Xxxxxxxxx	
Improve Emptying service. Xxxxxxx	ĸ	
Create a safe excreta disposal. xxxxx	xxxx	
SDG - Sanitation (jmp classificat	on)	
100% 0,2%	sara- Sake	AMP ASSANISSENERT parate do sando
80% 8,1%	ortion of households ge- safely managed ge- stion facility ge-	
70% IProp	ortion of households basic sanitation	
60% facili	y	Kizza
50% using	limited sanitation	Bujoru Bujoru
40% 75,5% Prop	y generation of households generation of households	Umoja Ketherg Ketherg
30% sanit	unimproved 같う ation facility 월-	Open defecation
20% Prop	ortion of households	
10%	XIN SOON	Giteny Giteny Giteny State Sta
	e	Earl HORE, Garrier, (g OpenEtweet/ap

Budget

Output	Increase access of HH to Basic sanitation	Improve Emptying service	Create a safe excreta disposal
STARTING YEAR INVESTMENT	2021	2023	2021
PROJECT DURATION (year)	5	5	5
TARGET - Number of households served at the end of the intervention (including growth rate)	27 182	28 838	27 182
TOTAL COST PER OUTPUT	13 292 198	872 000	1 865 200
Life of Capital (years)	10	10	10
1.1. Capital costs	7 339 250	500 000	1 560 000
Initial Capital Cost	6 116 042	500 000	1 560 000
Capital improvement costs	1 223 208		
2.1. Operation costs	815 472	307 000	295 200
Operation (variable) annual costs	815 472	257 000	217 200
Recurrent maintenance (fixed) annual costs	0	50 000	78 000
3.1. Software costs (sub-categories TBD)	5 137 475	65 000	10 000
Initial software costs		40 000	10 000
Recurrent software costs	5 137 475	25 000	

Financial plan

	OUTPUT 1					OUTPUT 1 OUTPUT				OUTPUT 2					OUTPUT 3
Name of the output		h	ncrease acces	s of HH to Bas	sic sanitation				Improve Emp	tying service			Crea	ie a safe excr	eta disposal
Year	2021	2022	2023	2024	2025	2023	2024	2025	2026	2027	2021	2022	2023	2024	2025
INVESTMENT YEAR	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
TOTAL COST PER OUTPUT (%)	20%	30%	30%	15%	5%	20%	20%	20%	20%	20%	20%	50%	10%	10%	10%
2.1. Capital costs financing plan	1 614 635	2 664 148	2 930 563	1 611 809	590 997	133 100	146 410	161 051	177 156	194 872	343 200	943 800	207 636	228 400	251 240
Households/community	60%	60%	70%	80%	90%										
Government	0%	0%	0%	0%	0%										
Danors/NGO	40%	40%	30%	20%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.2. Operational costs financing plan	179 404	296 016	325 618	179 090	65 666	81 723	89 896	98 885	108 774	119 651	64 944	178 596	39 291	43 220	47 542
Households/community	0%	0%	10%	20%	40%										
Government	20%	20%	30%	40%	50%			20%	40%	60%			20%	40%	60%
Donors/NGO	80%	80%	60%	40%	10%	100%	100%	80%	60%	40%	100%	100%	80%	60%	40%
2.3. Software costs financing plan	1 130 245	1 864 903	2 051 394	1 128 267	413 698	17 303	19 033	20 937	23 030	25 333	2 200	6 050	1 331	1 464	1 611
Households/community	0%	0%	0%	0%	0%										
Government	0%	0%	0%	20%	20%			20%	40%	60%			20%	40%	60%
n	4000/	40004	4000	000/	0.00	40000	4000/	000		1001	40000	4000/	0.04/		400/

REPORTS – Appendix / supporting document

TEMPLATE REPORT

1. Introduction

2. Assessment

- 1. Context of the hotspot
- 2. Stake holder analysis
- 3. Water supply description of service
- 4. Sanitation description of service
- 5. Hygiene
- 3. Risk factors analysis and prioritization
 - 1. Epidemiology situation
 - 2. Analysis
 - 3. Prioritization
- 4. Costed plans
 - 1. Description of the actions
 - 2. Costing
 - 3. General recommendation of the actions to be undertaken
- 5. Bibliography

A proposed standard assessment report to provide further explanations on the information presented.

RECOMMENDED METHODOLOGY PROCESS

A 3 STEPS PROCESS USING SIMPLE AND KNOWN TOOLS TO FEED THE COSTING TOOL AND PRODUCE THE PLAN

2 - FIELD DATA

COLLECTION

1 - PREPARATION AND LITERATURE REVIEW

- Literature review
- Preliminary data analysis
- Preparation of the field data collection
- Kick off meeting with local authorities and concerned parties
- Data collection activities:
 Key informant interview
 Observation
 Household survey
 Focus group discussions
 Water samples analysis

3 - ACTIONS PRIORITIZATION AND COSTING

- Risk factors analysis
- Preparation workshop (actions preidentification)
- Local workshop to develop and approve the costed plan
- Production of a WASH plan synthesis and individual action sheets

MAPS, LITERATURE REVIEW AND EPIDEMIOLOGICAL DATA ANALYSIS

- More than 3,000 cholera cases in 2019, 80,4% of which are distributed in 6 health zones
- Two water networks run by two different operators complemented by numerous informal other water services
- One single reliable source of water (Kivu lake)
- Little data available on sanitation (SFD of Mercy Corps suggest 97% of excreta produced are not safely managed)
- A city in rapid expansion since 2000



Source: MSP, DPS North Kivu

In 2014, cholera is still presented as a drinking water issue only



DATA COLLECTION PHASE

- In 3 weeks, by a team of 12 enumerators and facilitators, assisted by 3 int. experts.
- Methodology easily replicable with basic tools, including a household survey to estimate of a JMP baseline.
- Local expenses: budget approx. 10,000 US\$, working with 1 project assistant, 10 enumerators, 2 drivers.

... **ON THE GROUND** in 6 Health Areas, covering 19 "avenues" (neighborhoods), among which: 13 reporting cases persistently, 6 never or rarely reporting cases

581 Households Surveyed

- **18 Focus Group Discussions**
- **18 Key Informant Interviews**
- 5 commented site visits

+ GPS collection / mapping / pictures database / pricing / 80 water samples analysis

FIELD TEST IN GOMA - WASH BASELINE



HOUSEHOLD SURVEY - WASH BASELINE



HOUSEHOLD SURVEY - WASH BASELINE

WASH Baseline Summary







SDG - Sanitation (jmp classification)

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 RISK FACTORS ANALYSIS: a simple Excel spreadsheet configured for univariate analysis of prominent risk factors, requiring a non-expert operator to enter collected data only.



endations

nouseholds in more 'control' areas

SOME STRONG TRENDS OBSERVED AND MEASURED.

			95%Cont	idence
Exposure	Odd Ratio* Rank	ζ	inter	val
Time to fetch water (> 60mn)	6.49	1	2.76	15.26
Water system rationing (yes)	4.33	2	2.16	8.70
Toilets superstructure "other than bricks"	3.72	5	2.01	6.86
Toilets ground type "wood" or "mud floor"	2.90	7	1.87	4.50
Toilets location "outside HH plot"	2.55	9	1.30	5.01
Waiting time at water point (yes)	2.53	10	1.51	4.22
Toilets walls in plastic sheeting	2.21	12	1.34	3.62
Toilets without roof	1.79	17	1.25	2.56
Quantity of water (< 15 l/d/c)	1.60	18	1.08	2.38
Toilets cleanliness (no)	1.45	19	1.02	2.06

(*) An odds ratio (OR) is a measure of association between an exposure and an outcome.

Limits	Recomme
Limited statistical power for certain risk factors	Sample more l
Unadjusted risk factors (univariate analysis)	
Group – not individual – risk factors	

FIELD FACT FINDINGS THAT THE PLAN SHOULS ADDRESS

Limited hygiene and sanitation practices due to:

- High coverage of toilets but most are shared and unhygienic latrines, partly due to low economic capacity of families
- Shallow toilets pits, requiring recurrent emptying, but observed absence of safe emptying services
- No evidence of handwashing after defecation
- Insufficient water quantity limiting hygiene practices (10-14 L/d/p)



Significant risks of contamination of both water resources and at home:

- Insufficient safe water access = multiple water transport systems hindering quality control
- Lack of protection perimeters = contamination of the resource (25% of samples • contaminated with fecal coliforms)
- Still extensive use of surface water, often as a result of households limitations to pay for service
- Unsanitary living conditions generating water contamination at home (30% of samples) taken in stored water contaminated) UNICEF - ESA Consultance I WASH Working Group Meeting I March 2020 17

LESSONS LEARNED & NEXT STEPS

Lessons learned:

- A WASH baseline is required to do a proper costed plan
- Both quantitative and qualitative methods allows to identify risk factors that secondary data analysis only cannot detect

Next steps:

- Incorporate the WASH Working Group feedback
- Finalize Goma standard assessment report and costed plan
- Initiate a second field test using lessons learned from the Goma experience
- Complete the methodological guide and share it for feedback

Thank you !

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