



Bern University
of Applied Sciences



Economic analysis of the Zimbabwe Handwashing Campaign Webinar of May 31st 2018

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Introduction

Objective of the study

Theory of change

Objective

Economic assessment methods

- ▶ What are commonly used methods of economic assessments in WASH and Health?

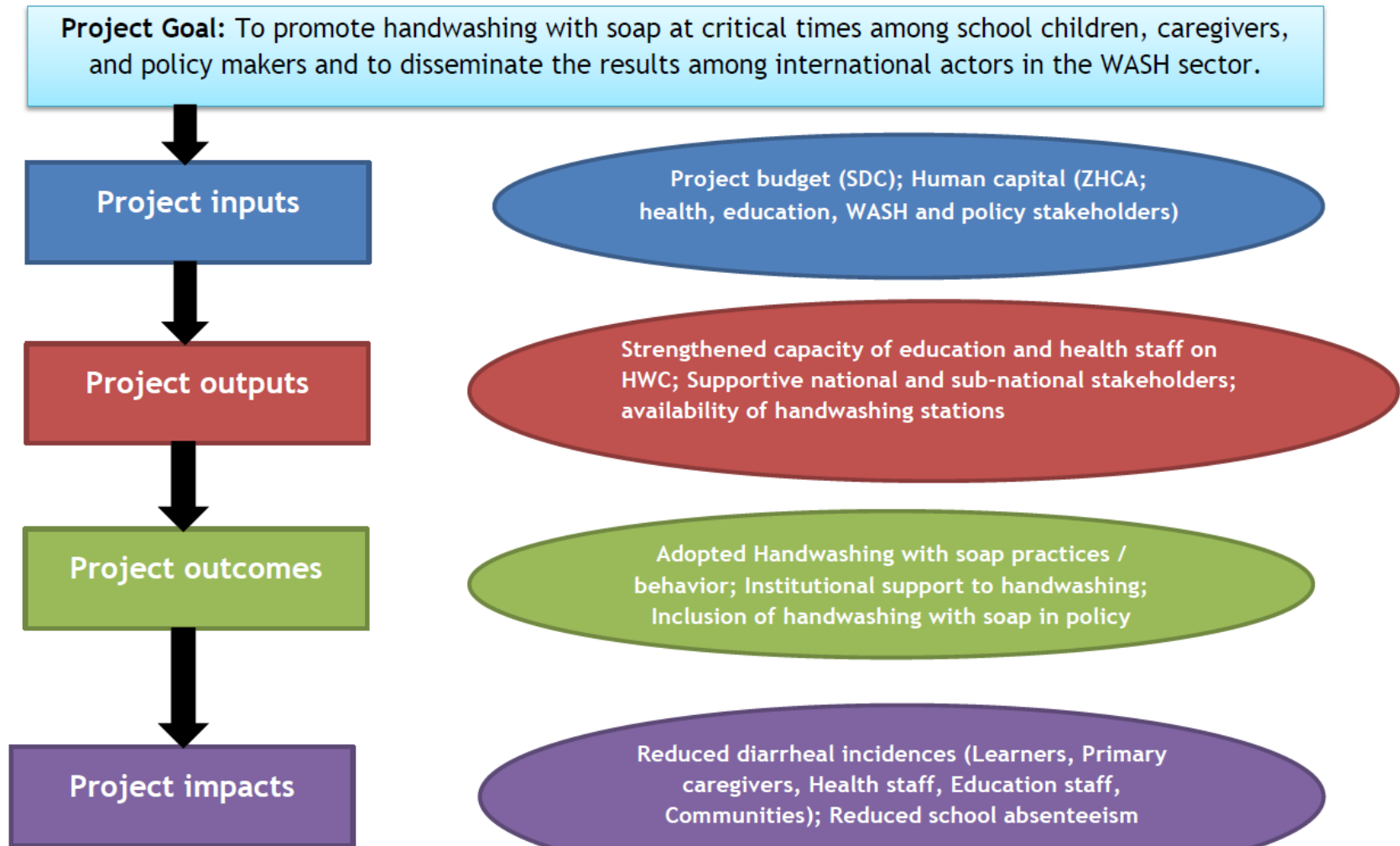
Economic assessment of the ZHWC

- ▶ Develop an analytical framework for the economic assessment of the ZHWC and provide lessons learned;


Further application of the analytical framework

- ▶ Document the experience and formulate recommendations for further application to other projects of the GPW of SDC.

Theory of change for the ZHWC



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 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development
and Cooperation SDC

Methodology

Conceptual framework – the steps

Conceptual framework – the ZHWC boundaries

Data collection

Data analysis

Conceptual framework – the steps

Step 1:

Defining the boundaries of the project that is to be analysed?

Step 2:

What are the impact hypotheses of the handwashing campaign?

Step 3:

Whose costs and whose benefits count?

Step 4:

What data needs to be collected?

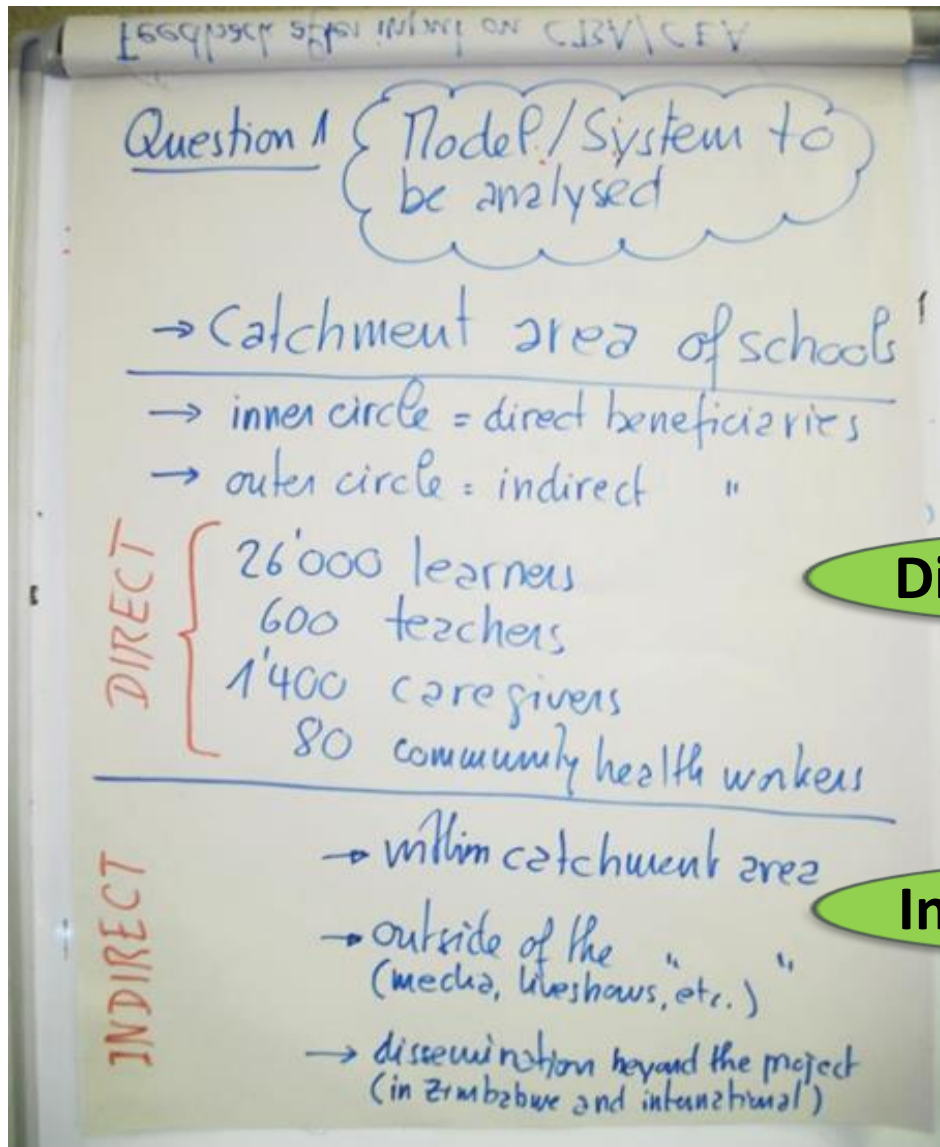
Step 5:

Calculating the costs per unit (for CEA) or the CBA results (IRR, NPV)

Step 6:

Interpreting the results

Conceptual framework – the ZHWC boundaries



Urban

Rural

Direct beneficiaries

Indirect beneficiaries

Figure 1 Discussion of the system to be analysed

Data sources – literature and data collection



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Questionnaires Datawinners Excel database

Data collection – data on costs

Data on costs **from reports**

- Research component
- Campaign design, baseline
- Implementation costs (staff, overhead, promotion, policy support)

Data on costs **from survey**

- Local costs for handwashing (material + training) at the level of
 - Schools
 - Households
 - Health centres

Data collection – data on benefits

In the CEA, benefits are **measurable outcomes and impacts**. Increased knowledge and enhanced capacities are not considered as benefits as long as they do not lead to measurable outcomes and impacts

Data on benefits **from reports**

- Evaluation of adoption / behaviour change, self reported and observed

Data on benefits **from survey**

- Handwashing adoption
- Diarrhea incidence
- School absenteeism
 - Schoolchildren assessed by teachers
 - Households assessed by caregivers and health care workers
- Policy outcome assessed by key stakeholders

Data analysis – cost effectiveness indicators

Project costs and benefits over time

Before campaign	During campaign	After campaign
<p>Development costs, research</p> <p>Implementation costs</p> <ul style="list-style-type: none"> - Project costs (SDC) - Local costs (local stakeholders) 	<p>Direct beneficiaries</p> <p>Indirect beneficiaries</p> <ul style="list-style-type: none"> - Reached - Behavior changed 	<p>Direct beneficiaries</p> <p>Indirect beneficiaries</p> <ul style="list-style-type: none"> - Sustained behaviour
<p>Cost effectiveness indicators</p>	<ul style="list-style-type: none"> → Costs / person reached (DB and IB) → Costs / behaviour changed (DB and IB) → Costs / case of diarrhea averted (DB) → Costs / day of school absenteeism averted (DB) 	<ul style="list-style-type: none"> → Local costs / person reached → Local costs / case of diarrhea averted (DB)

Data analysis – the quality–frequency ladder

Handwashing Quality-Frequency Index: the effectiveness ladder

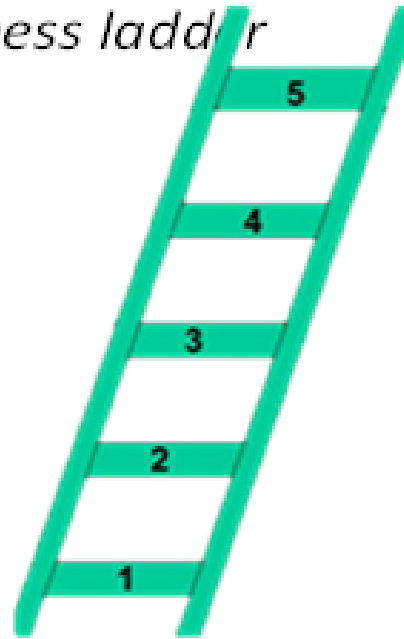
5 = always / very well

4 = often / well

3 = quite often / so so

2 = sometimes / poorly

1 = never / not at all



The ladder summarizes the adoption of the handwashing, combining frequency and quality. This value (quality-frequency index QF-I) was assessed by the teachers for their learners, and by the caregivers for the households.

example

Q (Stool): 5

F (Stool): 5

Q (Food): 4

F (Food): 3



$$\text{Q-F Index} = (5 + 4 + 5 + 3)/4 = 4.25$$

Results

Key figures of the project

Costs: Share by cost category

Costs: Before, during and after the project

Benefits: Adoption of handwashing

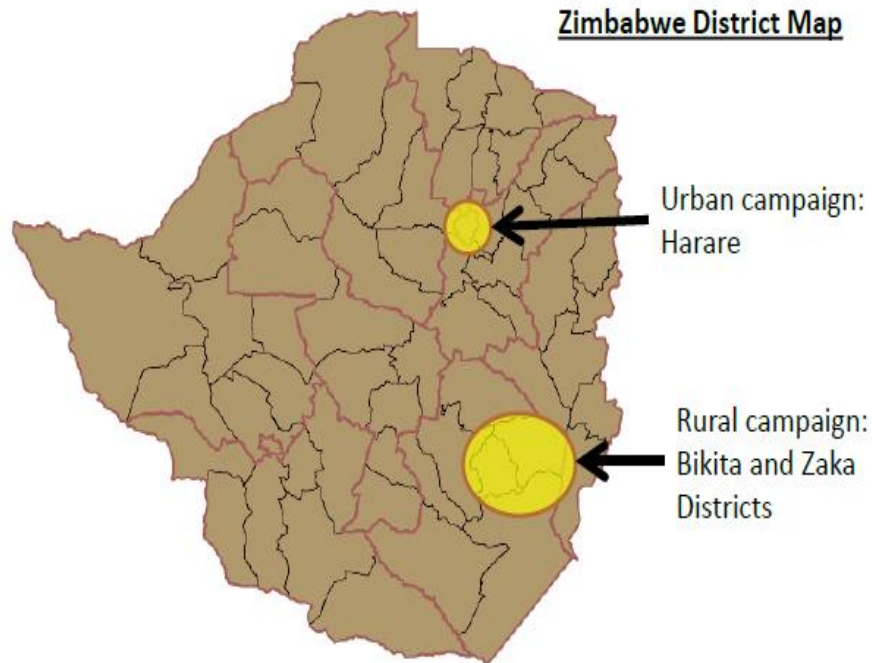
Benefits: Reduced incidence of diarrhea

Benefits: Reduced school absenteeism

Comparisons urban-rural and schools-households (QFI)

Results – project key figures

Figure 1 Geographical area of implementations



Figures in table (next slide)

- Geographic coverage
- Number of schools
- Number of teachers
- Number of learners
- Teachers' neighbours
- Teachers' households
- Number of health centres
- Health centre staff
- Number of primary caregivers
- ... and their household members

Results – project key figures

		Beneficiaries	Key project numbers		
			Urban	Rural	Total
Schools		Districts (rural)		2	2
		Wards / suburbs	20	18	38
		Primary schools / Directors	20	30	50
	DB	Teachers: Handwashing Coordinators	40	16	56
		Teachers (cascaded)	841	564	1'405
		Learners	30'072	17'480	47'552
		Subtotal direct beneficiaries	30'913	18'044	48'957
	IB	Teachers' neighbours	25'252	5'820	31'071
		Teachers household members	4'535	3'497	8'032
		Subtotal indirect beneficiaries	29'786	9'317	39'103
	Total direct + indirect beneficiaries (Schools)	60'699	27'361	88'060	
Households		Health centres / Environmental Health Technicians	17	8	25
	DB	Health centre staff promoting handwashing	76	87	163
		Primary caregivers (direct)	1'407	1'831	3'238
		Household members (direct)	7'587	11'352	18'939
		Subtotal direct beneficiaries	9'087	13'368	22'455
	IB	Household neighbours (indirect)	5'909	13'183	19'093
	Subtotal indirect beneficiaries				
	Total direct + indirect beneficiaries (Communities)	9'087	13'368	22'455	
Combi ned		Total direct beneficiaries (Communities + Schools)	38'576	29'483	68'059
		Total direct + indirect beneficiaries (Communities + Schools)	75'679	53'814	129'493

Results – costs

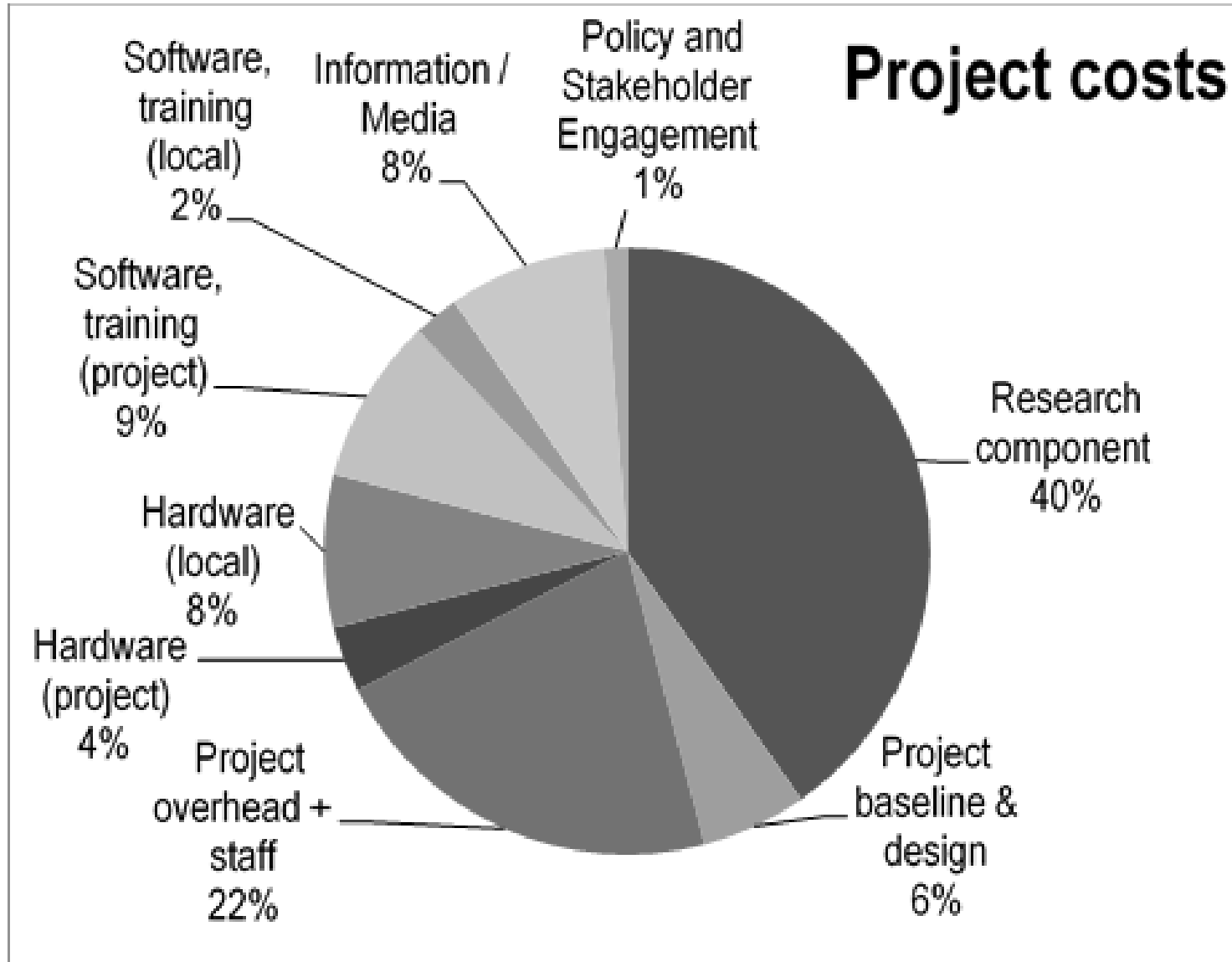
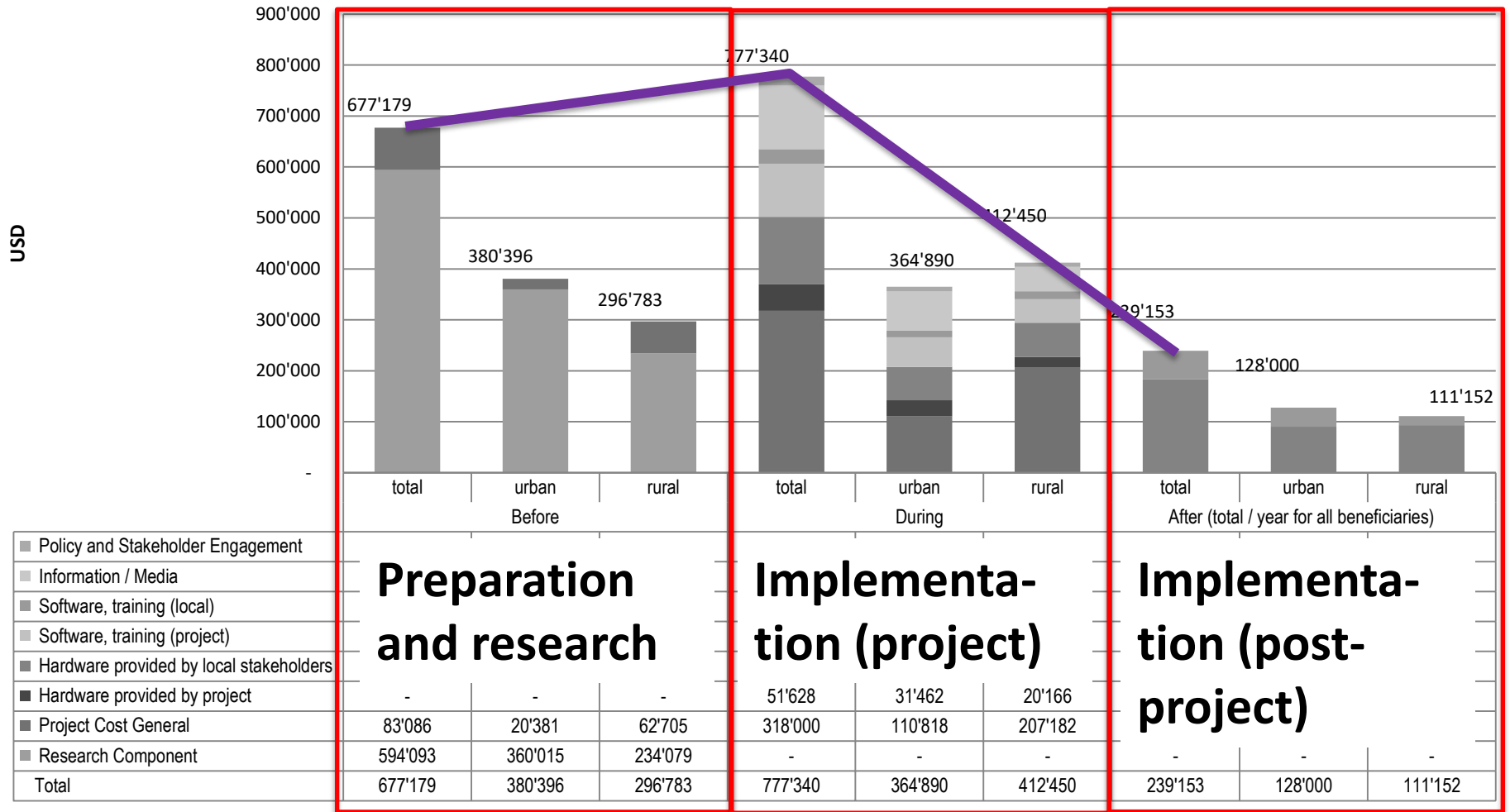


Figure 1 Project costs divided in cost categories (%)

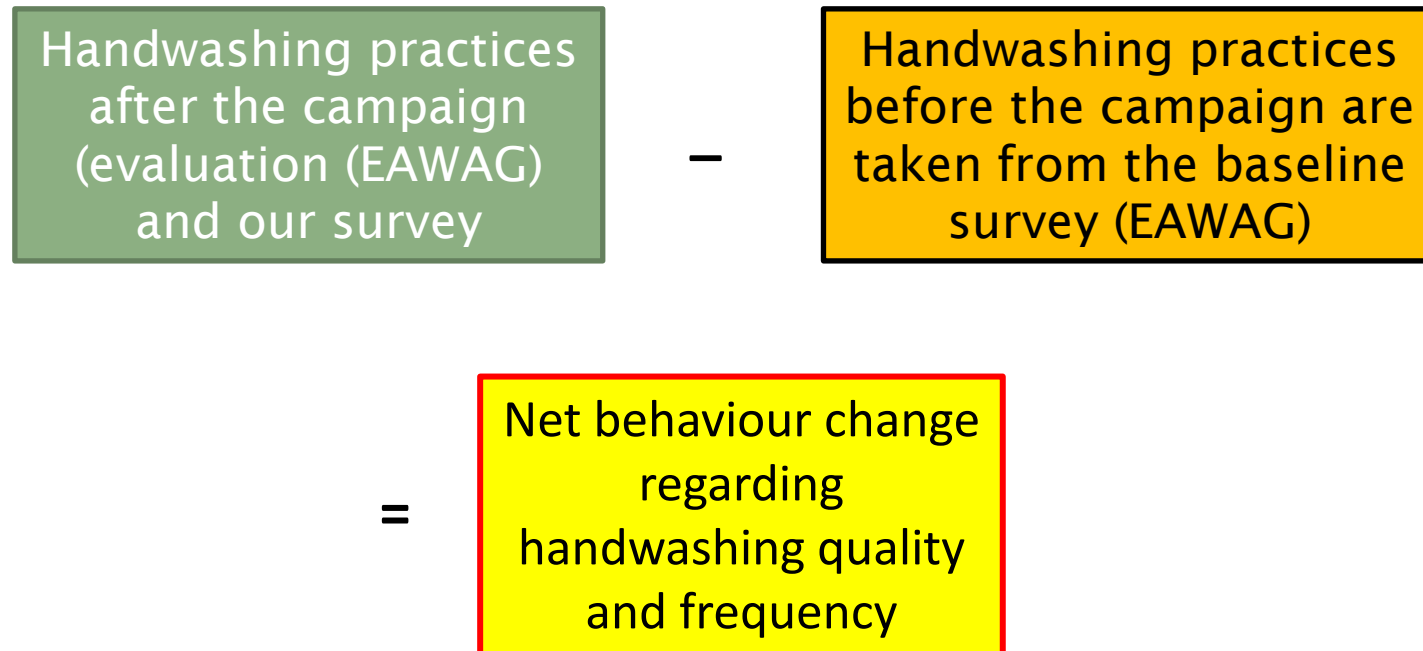
Results – costs

Figure 5 Total project costs: Schools and households



Results – benefits

It would be wrong to assume that before the handwashing campaign, the people were not washing their hands at all!



Results – benefits:

Net behaviour change

1) Change in behavior attributed to the campaign (EAWAG Evaluation):

- Evaluated Quality and Frequency, food and stool related.
- Results: Change of behavior in percent points of population that improved their quality and frequency level by a minimum level

2) Quality Frequency Index Survey:

- Caregivers, teachers etc. assess their household members;
- Average scale of 1 – 5

Data	Households and Schools			Households			Schools		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Change in behaviour (EAWAG Evaluation), in percent points	0.41	0.35	0.43	0.35	0.23	0.40	0.47	0.47	0.47
QF-Index Survey	4.39	4.27	4.53	4.28	4.07	4.54	4.50	4.46	4.53

Results – benefits: Health benefits (impact on diarrhea)

Based on survey respondents estimation of

- Days of sickness (diarrhea) averted before and after campaign
- Attribution to the campaign (percentage)

	Households and Schools		
	Total	Urban	Rural
Reduction cases of diarrhea, (Total: 60% reduction)	50'658	21'384	26'346
Reduction cases of diarrhea, (case /beneficiary/year)	0.88	0.84	0.95

Average result → 60,7% reduction of cases (higher than literature)

Results – Cost-effectiveness indicators

		COSTS		
		Including research (= “before/during”)	Only implementation (= “during”)	Only local (= “after”)
BENEFITS	Per beneficiary reached (= output)	\$ /beneficiary		
	Net behavior change (=outcome)	\$ /behaviour changed		
	Impact on health (=impact)	\$ /case of diarrhea averted		
	Impact on non-health (=add impact)	\$ /day of school absenteeism averted		

Results – Cost-effectiveness indicators

	Total	Urban	Rural
Per beneficiary reached			
Research + implementation costs / beneficiary reached	21.68	19.63	24.37
Implementation costs / beneficiary reached	11.73	9.77	14.31
Local costs / beneficiary reached	2.30	2.58	1.18
Per behaviour changed (via Quality-Frequency Index)			
Research + implementation costs / behaviour changed	60.85	66.19	62.47
Implementation costs / behaviour changed	32.93	32.92	36.67
Local costs / behaviour changed	9.22	10.50	9.01
Per health impact			
Research + implementation costs / reduced case of diarrhea	29.13	23.41	25.68
Implementation costs / reduced case of diarrhea	15.76	11.65	15.08
Local costs / reduces case of diarrhea	4.42	3.71	3.70
Per non-health impact			
Research + implementation costs for schools / reduced day of school absenteeism	7.30	6.54	10.68
Implementation costs for schools / reduced day of school absenteeism	3.95	3.26	6.27
Local costs for schools / reduced day of school absenteeism	1.11	1.04	1.54

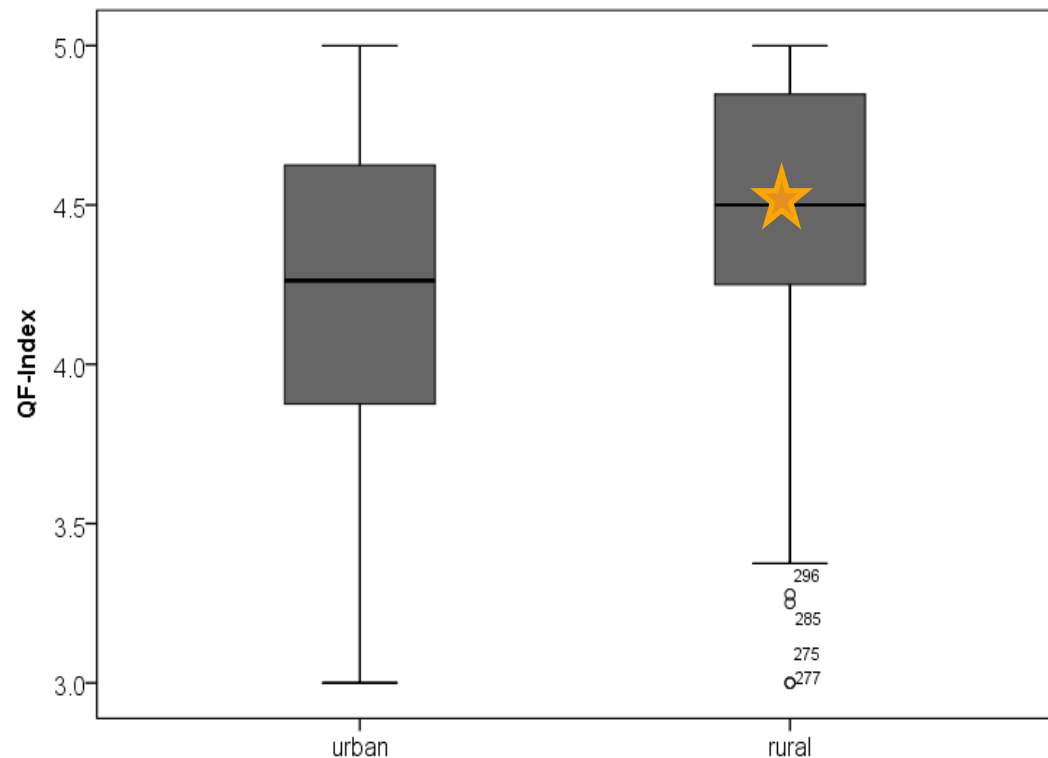
Not calculated

- Indicator of sustainability of benefits (i.e. could be interesting for local costs / benefits)
- Cost per policy change (no data available for that)

Quality-Frequency Indexes: Grouped by region (caregivers + teachers)

Significance of QF-Indexes:

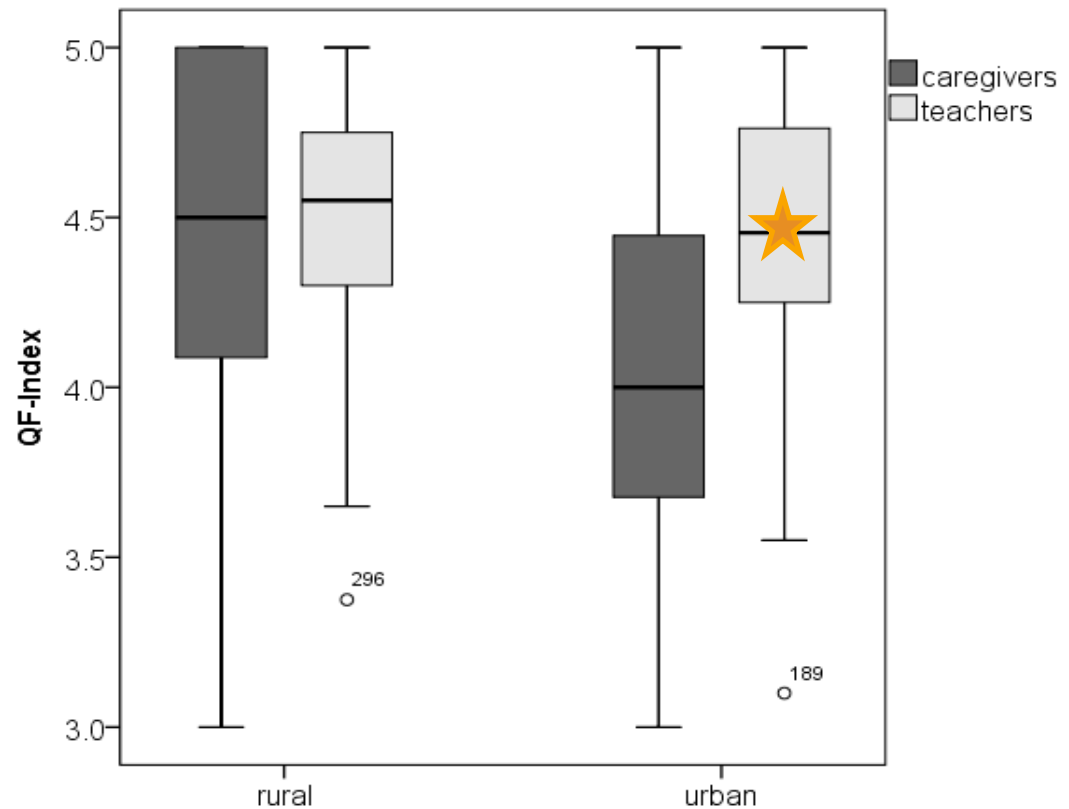
- Caregivers + teachers:
in rural areas
★ significantly higher



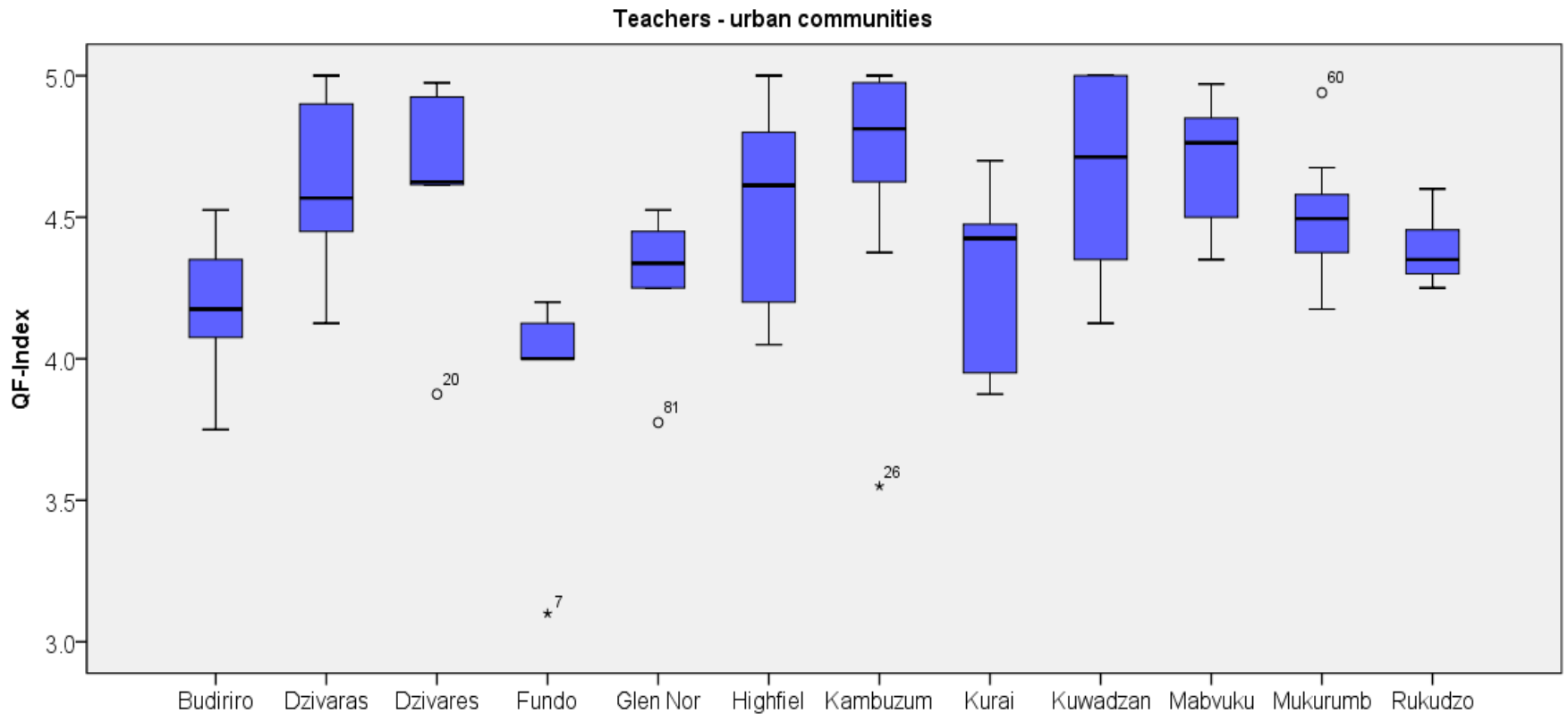
Quality-Frequency Indexes: grouped by region

Significance of QF-Indexes

- Rural area:
no significance
- Urban area:
★ teachers significantly
higher than caregivers



QF-Indexes: Teachers per urban community



Results – Interpretation

So what?

Was the campaign successful? Was it efficient? Was it effective? Are the results sustainable?

- Comparison with other studies
- Comparison of specific elements (rural vs urban, households vs schools)

Discussion

Efficiency and effectiveness

Sustainability

Cost Benefit Analysis

Results: Comparison with other studies

	ZHWC	Burkina Faso (Borghini et al. 2002)
Project information		
Campaign purpose	Handwashing with soap	Handwashing with soap
Method	Training; household visits and schools, policy engagement	Training and information at schools, household visits, through media
Beneficiaries	School children and primary caregivers households (DB)	Mothers, after handling child stool
Costs measured	Provider, household + schools, research, schools	Provider, household, society;
Total cost implementation	“during”: 798'522	442'780
Total number of beneficiaries	68'059	37'319

- ZHWC: Additional research and policy component
- BF: includes costs to society

Discussion – Cost Benefit Analysis

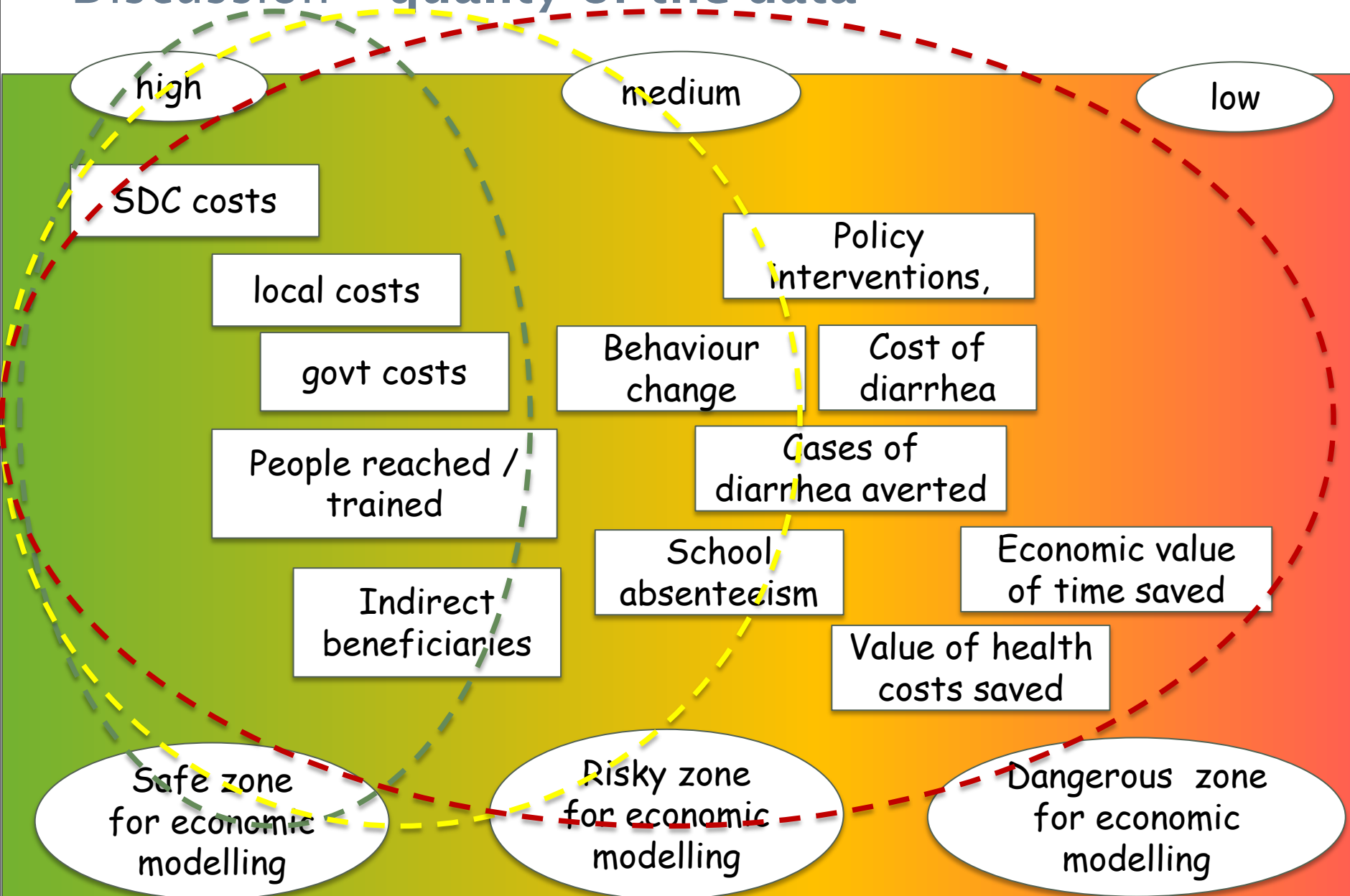
In principle it is possible to do a CBA, but:

- Difficult to monetize the results
- Many uncertainties in the reliability of the data (e.g. big gap between self reported and observed behaviour)
- Not reasonable to attribute a cash value to handwashing (outcome) only reduced health costs have a tangible value (impact)

Table 5 Sketch of a CBA for the ZHWC

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Additional costs (USD)						
- Initial investment						
- Recurrent donor costs						
- Recurrent local costs						
Additional benefits (USD)						
- Reduced cases of diarrhea						
- Value of reduced absenteeism						
- Other benefits						
Additional Cash Flow						

Discussion - quality of the data



Recommendations and conclusion

Limitations of the study

Lessons learned and recommendations

Limitations of the study

▶ Attribution of benefits

- ▶ ZHWC is not the first software campaign, goes back to 1988
- ▶ Hardware is a precondition for outcomes, but was not part of the project. Hardware was provided by other stakeholders (Government, donors), therefore benefits are not attributable to ZHWC only. Attribution is potentially overestimated
- ▶ BUT: 58% of rural caregivers said “first time” they learned about HW...
- ▶ Research costs and benefits can't be attributed solely to the ZHWC as they will be used beyond it

▶ Data availability and quality

- ▶ **Health benefit:** Reported reduction of diarrhea based on very loose estimates, not consistent with literature (30% higher!)
- ▶ **Self-reporting:** Overestimation of results → tried to adjust against observed outcome by EAWAG evaluation.
- ▶ **Economic costs and benefits:** Insufficient data to capture costs/benefits to government, to productivity, etc.

Lessons learned and recommendations

- ▶ Involving the **local stakeholders** in the study is important (inception workshop); the framework elaborated during the workshop proved to be extremely important
- ▶ Developing a **new methodology**, and especially when it is expected to be applied in various contexts, is very challenging (time and resources)
- ▶ **Designing and testing the tools** for data collection should not be done in a hurry! We did not have enough time...
- ▶ Combining **data from different sources** is difficult, and not always reliable
- ▶ **Scientific research implies constraints** (accuracy, methodology, approach) that are at times difficult to conciliate with requirements of a mandate
- ▶ **Attribution of benefits** requires a careful analysis
- ▶ The **data quality remains an issue**: doing precise calculations with approximate data may lead to wrong conclusions
- ▶ The **results of the study** are a useful reference for SDC and for the handwashing stakeholders in Zimbabwe
- ▶ The **process** of analysing the cost effectiveness of such a campaign is equally important as the results

Group works from workshops with stakeholders

Was the ZHWC successful?

Approaches and tools

- Children as agents of change (schools <-> households)
- Appealing tools and vectors: dramas, songs, but also media
- Visibility of the campaign
- Rural health centres key role for promotion of handwashing

Outcomes

- Improved handwashing practices in schools and households
- Households constructed handwashing facilities
- Communities constructed toilets
- Functional health clubs
- Spread to other schools and communities not initially covered

Impacts

- Reduction of cases of diarrhea, therefore reduction of costs
- Reduction of school absenteeism
- Sustained handwashing practices after the campaign

ORANGE BAN

Campaign

Success
1. YES.
- Because
Schools
- Children
Change
- Most
Handwa
Handwa
- Diarrhoe
as pres
Survey
Toilet
the C
Absent
More pupils attended school.
- Creating style reinforced.
- Dramas, poems on H/W.

g handwashing
seg funerals
to other schools
Dwssc monitoring
lic event was covered
atq at Silveira BC
during handwashing

Group works from workshops with stakeholders

Was the ZHWC efficient?

EFFICIENCY Efficiency

Rationale

- Outbreak of cholera, widespread diarrhea, the project targeted the most needy areas

Project implementation

- Efficient implementation, cascading training and information, training of trainers
- Adequate equipment → available and affordable
- Slogans, prizes, songs
- ActionAid fostering motivation

Some weaknesses:

- Poor quality of buckets
- Timing of training in schools not optimal
- Billboards of poor quality

Quality of buckets inferior type

of being able to successfully saving time or energy. achieved good results. given time, diarrhoeal diseases and the led in handwashing life span. The up were provided ne leading to of the project ect was both ory thus of results. l motivation od results, e food.

Group works from workshops with stakeholders

Was the ZHWC effective?

Strategies and approaches

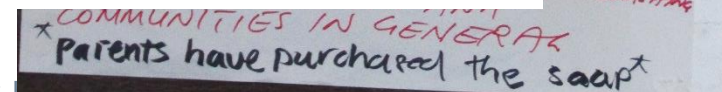
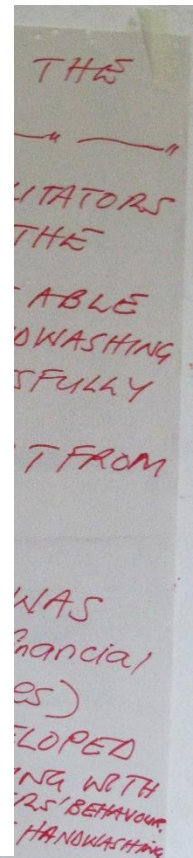
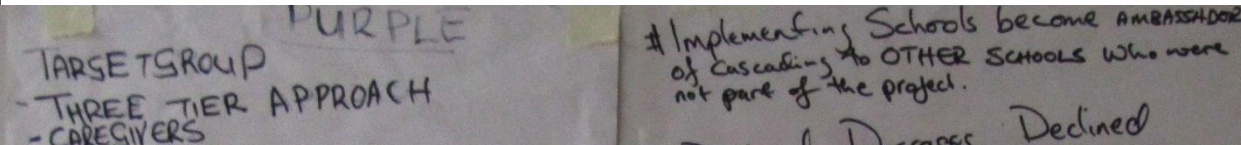
- Three pronged approach: caregivers, children, duty bearers
- Stakeholder involvement
- Good follow-up by implementer
- Bridge school – home
- M&E
- Municipal water provision

Variety of methods

- Tot, training well cascaded
- Incentives
- Roadshows
- Home visits of health promoters

Outcomes

- High motivation
- Ownership developed by local stakeholders
- Sustainability of results



Group works from workshops with stakeholders

Is the ZHWC sustainable?

Factors supporting sustainability

- Budget for handwashing in some schools
- Schoolchildren as vectors or handwashing awareness
- Supervision and monitoring by teachers, health workers and caregivers
- Affordable material and resources
- Behaviour change will sustain
- Ownership
- Handwashing in curricula of some schools

Challenges

- New staff / staff turnover (untrained, unaware)
- Financial constraints
- Sources of water
- Poor quality of some materials

Solutions

- Fundraising for handwashing
- Contributions from households and communities
- Get support from local authorities / donors

Sustainability