Sanitation & Hygiene Research Symposium
Protea Courtyard Hotel, Dar es Salaam
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THE WASH CONTEXT IN TANZANIA (From MDGs to SDGs)

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Sanitation and Hygiene Applied Research for Equity

MITU
Mwanza Intervention Trials Unit

Presentation Outline

- Introduction
- The Global context on WASH
- The WASH concepts in Tanzania
- WASH in the MDGs Arena
- The National Sanitation Campaign
- WASH activities implementation challenges
- Attaining WASH improvements in SDGs
- The way forward

Introduction

- WASH importance: Global and National context
- Targets to reach the poor, underserved communities to reduce extreme poverty
- In Tanzania:
  - Focuses on the elimination of communicable diseases
  - Funded by many partners
  - Funds channeled through schools and LGAs
  - Intends to improve water supply and sanitation services
  - Improves health of the community at minimal cost

The Global Context on WASH

- The Alma Ata Declaration: Primary Health Care, 1978
- The WASH Decade:
- The International Year for Sanitation: 1980
- The eThekwini Declaration- 2008: African initiative on WASH - Focus to achieve MDGs
- The Ngor Declaration - 2015: African initiative on WASH - Focus to achieve SDGs

Millennium Development Goals (MDGs)

	**Goal 1: Eradicate Extreme Hunger and Poverty**
	Goal 2: Achieve Universal Primary Education
	Goal 3: Promote Gender Equality and Empower Women
	Goal 4: Reduce Child Mortality
	Goal 5: Improve Maternal Health
	Goal 6: Combat HIV/AIDS, Malaria and other diseases
	Goal 7: Ensure Environmental Sustainability
	Goal 8: Develop a Global Partnership for Development

WASH Concepts in Tanzania

- WASH under WSDP: Water supply, and sanitation and hygiene as separate components – addressed as NSC
- Tanzania has adopted the MDG's sanitation target of halving the number of people without improved sanitation by 2015.
- Under the Vision 2025, Tanzania has pledged to provide improved sanitation to 95% of the population by 2025. This is a continuation of Tanzania's short-term sanitation target outlined in the draft MKUKUTA II (Tanzania's national poverty reduction strategy)
- WASH addresses salient issues under The National Health Policy 2002
- Improved WASH, promotes human dignity

Key Priority areas on WASH

- NSC I – Households and primary schools to address MDGs
- Target:
  - to promote household sanitation and hygiene with the target of reaching 1.52 million households
  - to promote sanitation and hygiene in primary schools targeting 812 schools. The phase I of the NSC was designed to last for four years i.e 2012-2015. The progress of implementation is encouraging with 80% of the target based on the committed resources being achieved.

Key Successes

- By 31st March, 2015, the NSC Phase I facilitated the construction of 701,739 (80%) improved household toilets
- 445,600 hand washing points out of 878,265
- With regard to school WASH, the NSC has facilitated the rehabilitation of toilets in 411 schools and that 1,021 sanitation clubs have been established and are functional. Moreover, construction of school latrine through other sources has facilitated 408 schools to access improved toilets.

The National Sanitation Campaign

Progress on HH Sanitation

School WASH facilities

Challenges under WASH

- Focus only on rural (and peri urban settings)
- Delays in disbursement of fund to LGAs slowed the implementation of the NSC across the country
- inadequate means of transport
- persistent shortage of staff to cater for NSC in all wards and villages which implement the campaign.
- The drop out of village data collectors is reportedly caused by lack of incentives to the Community Health Workers (CHWs) who take a leading role on updating the household registers.

WASH in NSC II

- The focus to attain SDGs
- Aim is to Ensure availability and sustainable management of water and sanitation for all–G6
- Broadened scope and coverage: Both in rural and urban areas; and also target the marginalized groups
  - Increased number of with improved households S&H
  - Secondary schools sanitation inclusive
  - Health facilities
  - Public places and transport hubs
  - Households water treatment and safe storage
  - Solid Waste Management

Post-2015 Development Agend

- As of March 2015, there were 17 proposed goals:[7]

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote well-being for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Recommendations and the way forward

- Ministry of Health and Social Welfare in collaboration with the Ministry of Water (MoW), Ministry of Education and Vocational Training (MoEVT), Prime Minister's Office, Regional Administration and Local Government Authorities (PMO-RALG), DFID, UNICEF and WSP plan to conduct thorough review of the phase I lessons to shape the scope, focus and approach for phase II

Process Evaluation of the National Sanitation Campaign Design

Dr Elisa Roma (LSHTM) and Dr Rick Rheingans (UniFl)

In collaboration with MOHSW

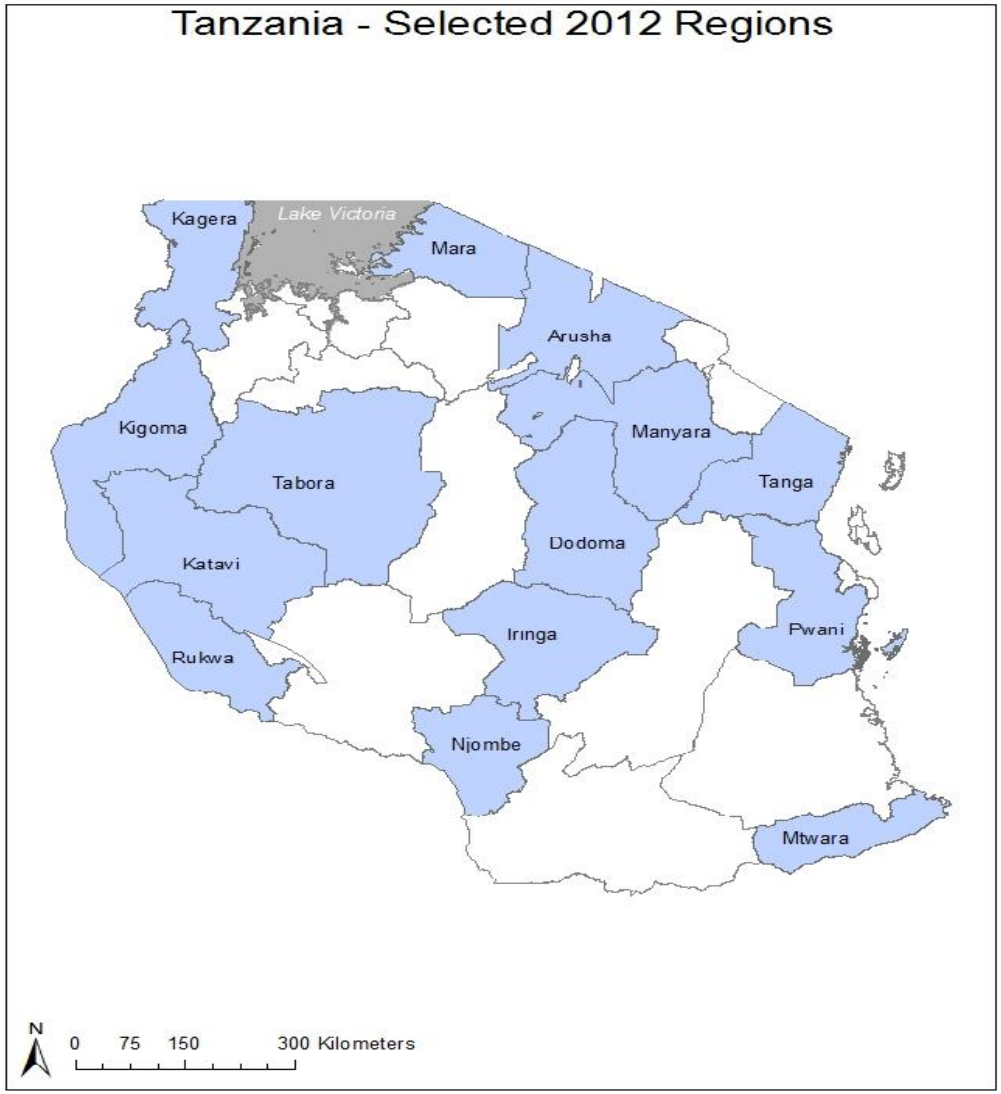
Dar Es Salaam, 04th August 2015

Contents

- Background: NSC Phase I
- Process Evaluation Conceptual Model
- Data Sources
- Data Collection
- Data Analysis
- Lessons learnt and way forward

The National Sanitation Campaign I

- Launched in June 2012, implementation began in 2013
- By March 2015: Implemented in 25 Regions, 162 LGAs, 4,775 villages.
- Coordinated by the MoHSW, MoEVT, MoW.
- Focus on rural areas (ONLY)



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NSC Phase I (June 2012-June 2016)

Targets (PHASE I)	Approach
1.3 million households with improved sanitation facilities	• Use of clear and consistent messages to generate behaviour change. • Engagement of Households and Communities - CLTS triggering and follow-up. • Experiential Events – recognition and reinforcement • National Radio Programme
600 villages with signed ODF declarations and deadlines to improve household sanitation and hygiene.	
600 villages served by local service providers	Engagement of Masons and Suppliers through Sanitation Marketing
812 schools with access to improved sanitation and hygiene facilities	Improvement of Sanitation Infrastructure, installment of Hand washing facilities, and Hygiene Promotion in schools.

» Theory of change

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Assumptions:

1) **Funds** are made **available** and **used** for the purpose intended
2) **Funds** are **used where there is need** – i.e. communities without access rather than communities that already have access.
3) Local Government Authorities have **the capacity to manage** the inputs and deliver outputs on water supply and sanitation and hygiene.
4) The **private sector** has the capacity to construct sanitation products.
5) Households **change their behaviour** as a result of sanitation and hygiene campaigns.
6) Households **can afford** to construct / upgrade their sanitation facilities.

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Evaluation: Objectives and Components

Participatory evaluation with MOHSW, MOEVT, NIMR, SHARE, NBS (+ DFID and WORLD BANK)

1. Assess **progress** on and **barriers** to the implementation of the NSC.
2. Assess the **likelihood** that the campaign will result in the anticipated results in improving household sanitation.
3. Assess the **progress** towards improving **school WASH**.
4. Assess the **enabling environment** and the level of unit costs spent in the NSC to identify potential strategies or steps that have been done or could be done to increase the efficiency of the campaign.

Three components:

a) Household and Community survey
b) School WASH survey
c) Evaluation of the enabling environment and of the costs necessary to achieve expected results.

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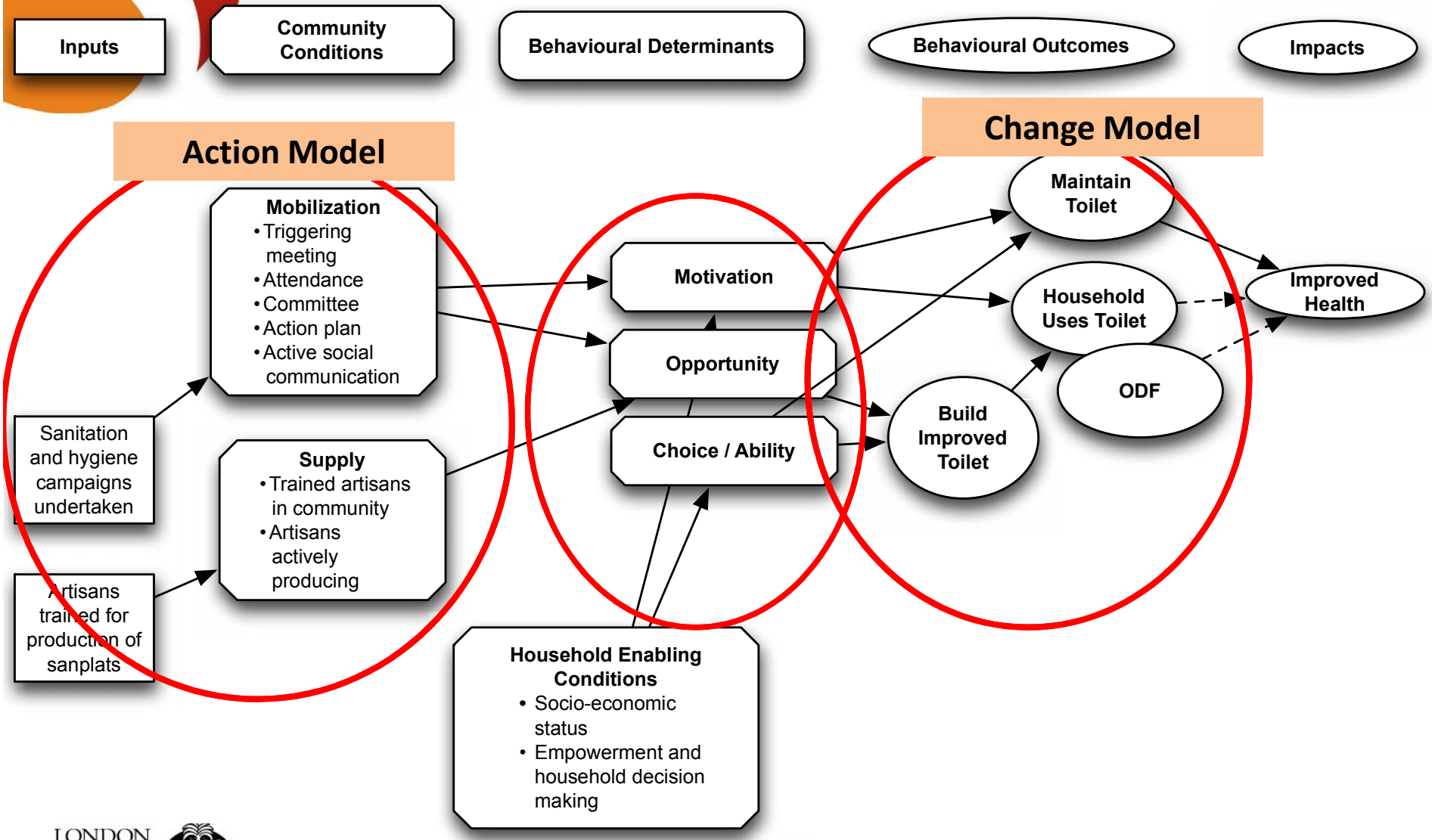
Evaluation Conceptual Framework



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Behavioural determinants

Motivation

- Personal opinions about sanitation
- Subjective norms
- Severity/Threat

Opportunity

- Availability
- Message exposure
- Social network communication

Ability

- Skills
- Affordability
- Decision Control

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SCHOOL WASH Component

- Recent research suggests improvements in health and education from toilets requires:
  - Cleaning and maintenance
  - Regular handwashing
  - Materials for cleaning after defecation
- These conditions require
  - Planning
  - Recurrent costs
  - Adequate water supply
  - Monitoring and accountability

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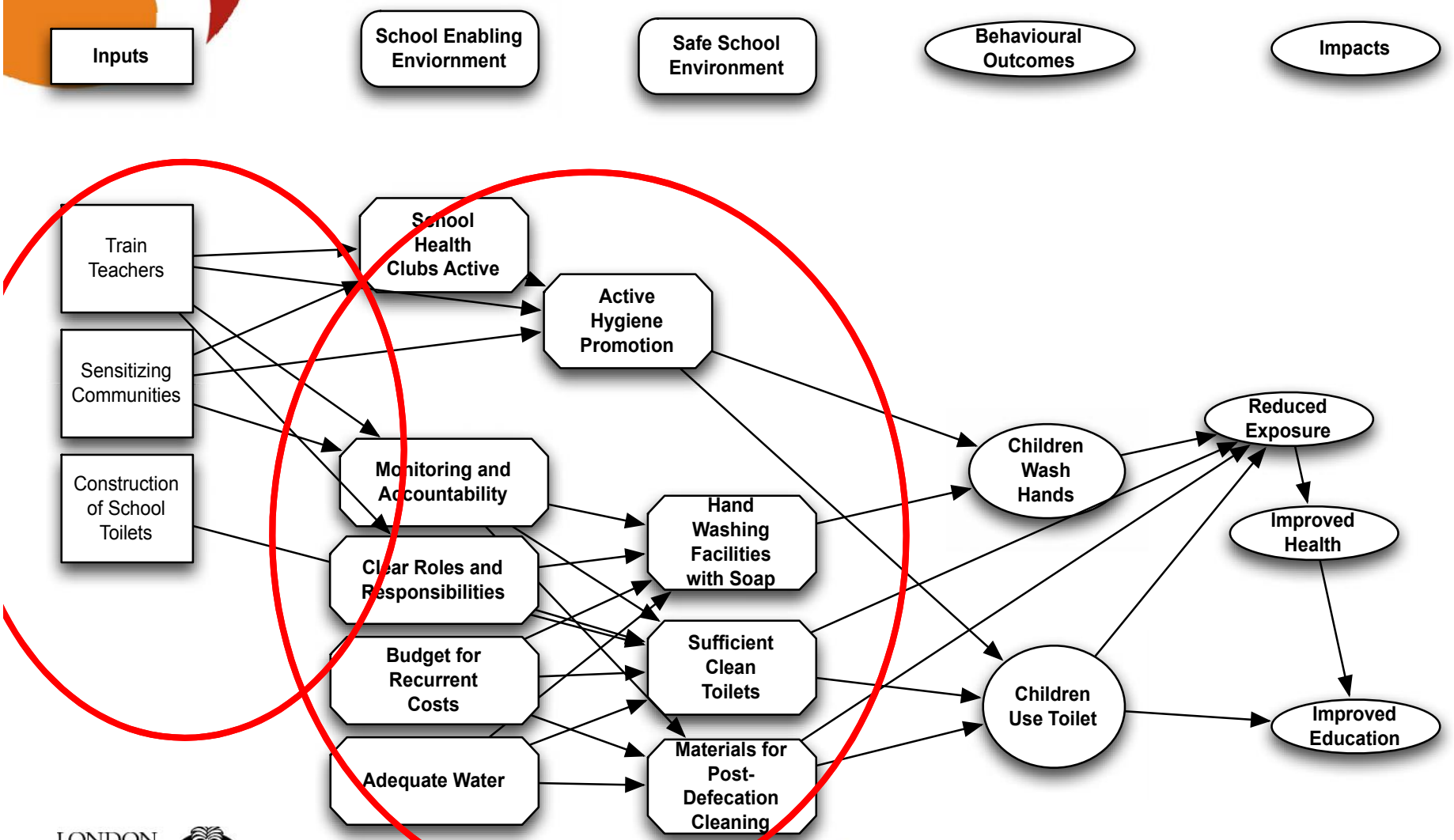
SCHOOL WASH: Evaluation Framework



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SCHOOL WASH: Evaluation Framework

Is programme being implemented in a way to ensure that the conditions for sustained improvement in school WASH are in place?

Three levels of investigation:

- Campaign related activities(teacher training latrine constructions)
- Environmental conditions (latrine conditions, HHWS)
- School enabling conditions (budget, school health, roles)

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Assessing the enabling environment

Evaluation Questions	Data
1) In each of the district has the campaign reached the targets?	• LGA level monitoring data • HHS survey (to compare data reported at the region, community and household levels)
2) **How are the funds allocated by the NSC spent in each District?**	Data collected at the regional and district level on the distribution of costs by activity and input categories.
3**) What are the barriers and challenges in the processes related to the NSC?**	• Surveys on key respondents Regional, District level. • The instruments focus on key activities in the different stages of the project cycle (planning and budgeting, coordination, implementation and monitoring).

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Data Sources: Primary Data

Household Survey- Structured questionnaire	**1. Respondent Characteristics** **2. Household Composition** **3. Household characteristics** **4. Decision Making** **5. Behavioural Determinants:** • **Motivation** • **Opportunity** • **Ability** • **Social Network Communication** **6. Direct observations of sanitation and hygiene facilities**
Community Survey- Structured questionnaire administered to village leader	A. Community identification B. Investment Projects in the community C. Governance D. Service Providers and Social Marketing
School WASH survey- Structured questionnaire administered face to face with Head teachers of selected schools	A. School Information B. School Management C. School Funds D. School resources and needs E. School Health Clubs
Key informants interviews Regional Health Officers, Regional Education Officer, District Health Officer, District Education Officer	Four areas: Planning and budgets, Coordination, Implementation, Monitoring

Data Source: Secondary Data

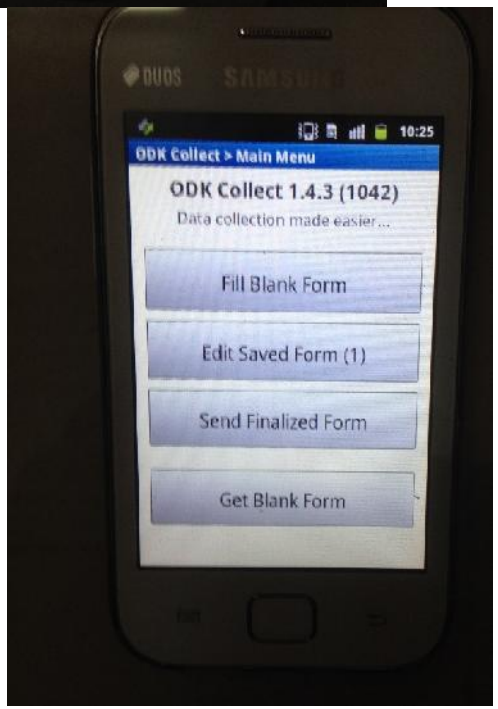
Quarterly progress matrix from MOHSW	The following reports were provided: Q3 Jan_March 2013 Q4 April- June 2013 Q1 July- September 2013 Q2 October_December 2013 Q3 January_ March 2013 Q4 April_June 2014 Q1 July-September 2014 Q2 October to December 2014 Q3 January - March 2015

Sampling

- Survey covered **14 Regions** and **49 LGAs** which implemented the NSC
- In each LGAs, Enumeration Areas (EAs) were selected with probability proportional to size (pps) using number of households as a measure of size (as per 2012 National Census). Therefore, EAs with higher population had higher chance of being selected.
- In each LGa, **12 EAs** were selected with pps and taking into account available resources (cost and time).
- A sample of **8 households** was selected from each selected EA using systematic random sampling.

Data Collection

- Conducted by MOHSW in collaboration with NIMR.
- The data collection involved 10 Supervisors and 40 Enumerators: in each region teams of 2 supervisors and 4 Research Assistants.
- Translated tools were programmed into ODK using Smartphone with Android operation system(OS).
- A total 50 smart phones were programmed (40 for RAs and 10 for supervisors)



Collected data

Survey	Target HH	Total valid cases
Household	4,512	**4,071**
Schools	82	**70**
Key Informants		
Region Health Officer	14	**14**
Region Education Officer	14	**14**
District Health Officer	47	**43**
District Education Officer	47	**40**

Targets and coverage: School Survey

	Key Performance Indicator	Monitored for process evaluation?	Process evaluation information source
1	Number of households with improved latrines.	Yes	Household survey
2	Number of households with functional hand washing facilities.	Yes	Household survey
3	Number of villages in the service area of a local sanitation service provider.	Yes	Community survey/ Monitoring Reports
4	Number of sub-villages/villages with signed declarations and deadline to improve household sanitation and hygiene.	Yes	Community survey/ Monitoring Reports
5	Number of schools meeting a ratio of 40 girls, 50 boys per drop hole.	Yes	School WASH survey
6	Number of schools with functional hand washing facilities for boys and girls.	Yes	School WASH survey
7	Number of cholera outbreaks per quarter.	No	N/A
8	Number of diarrhoea cases in the campaign areas per quarter.	No	N/A

Preliminary Data analysis

Descriptive statistics of community and household survey (not disaggregated by region/districts) showing:

- **Action Model**
  - Did implementation occur?
  - Is there evidence of community conditions for change?
- **Behavioural Determinants**
  - Are the behavioural determinants of change in place?
- **Change Model**
  - Prevalence of sanitation and hygiene outcomes since the beginning of NSC.

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Progress of NSC Evaluation

- **December 2014:** Data collection completed
- **January- March 2015:** Data cleaning (Collaborative activity- LSHTM/SHARE,MOHSW, NIMR,)
- **August 2015:** Data Analysis finalised and Use preliminary results to inform Phase II of NSC
- **September 2015:** Final report

NSC I – Emerging Conclusions

- Tanzania is global best practice in developing large scale program channeled through national institutions
- Campaign Institutionalized and understood at local levels
- LGA performance varies and is tied to regional, district and village executive leadership being involved
- Coverage estimates at 25% (LSTHTM) to 39% (MOHSW) improved sanitation
- Local level CLTS implemented in 1300 communities, with infrastructure to deliver nation wide.

NSC I – Emerging Conclusions

- Delays in fund transfers to regions and districts
- Quality of interventions vary
- National level messaging, promotion such as radio, and sanitation marketing did not take place due to procurement delays
- School WASH progressing, but no systematic WASH compliance
- Inefficient dialogue structure

Lessons Learnt Process Evaluation

- Participatory: MOHSW, MoEVT involved in questionnaire design, data collection.
- Capacity building in study design, data collection and interpretation of data.
- Results will be feedback to allow learning and change for Phase II of the NSC.

Challenges:

- Data collection using mobile phones: Need IT manger to supervise the activity during collection and trouble shoot problems instantly.
- Professional and expert data collectors compensated.

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Thank you!

Questions?

SANITATION & HYGIENE RESEARCH SYMPOSIUM
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4TH AUGUST 2015

FINDINGS AND RECOMMENDATIONS FROM HWTS PROJECT

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Why HWTS in Tanzania?

1. Background to the HWTS project

- Tanzania experiences about 60 – 80% OPD cases due diseases caused by consumption of unsafe water and poor sanitation
- Only 73% of urban and 42% of rural population has access to safe water and adequate sanitation
- About 2.5 million episodes of diarrhea are reported in Tanzania annually (MOHSW, 2008)
- The goal to reach rural communities with centralized safe water supply is far from being achieved in the near future in Tanzania.

Unsafe source of water

Unimproved latrine

National level commitment

- Boiling is the only method promoted formally
- Alternative HWTS promoted ≈ 10 years ago
  - Chlorination
  - Solar disinfection
  - Filtration
- Recognition by governments after the WHO intervention
- GOT commitment at high level in Bagamoyo conference 2009

BAGAMOYO CONFERENCE 2009

- National and international policy markers
- Declared HWTS as acceptable group of interventions
  - *Recognized alternatives to boiling*
- Commitment to take up the technical recommendations
- Set stage for national actions

Quotes from Bagamoyo conference 2009

"HWTS is the **right step** to improve health of those without access to safe water"

"We policy makers are keenly waiting for the outcomes of this conference; to recommend the next steps to improve water treatment and diarrhea prevention"

"Clean water is good health"

Prof. Mwakyusa (M)
MoHSW

We **understand the gaps** in water supply services and their implications to the **health of people**

We are working closely with Ministry of Health and Social Welfare and Partners to address the gap and **support complementary measures**

Dr. Mjengera
(For: PS)
MoW

Quotes from Bagamoyo conference 2009

While **people are dying**, technologies exists that can reduce deaths from diarrhoea. The conference importance to influence government commitments and creation of awareness.

The challenge remaining is to **implement the recommendations** from the conference"

Dr. Tinorgah (For: CR)
UNICEF

"**HWTS is a complement** to safe water supply services and public education"

"We need to make sure that what has been recommended is implemented"

"I urgue all to **enhance collaboration** in the promotion of HWTS"

Mr. Mukama (PS). **MoW**

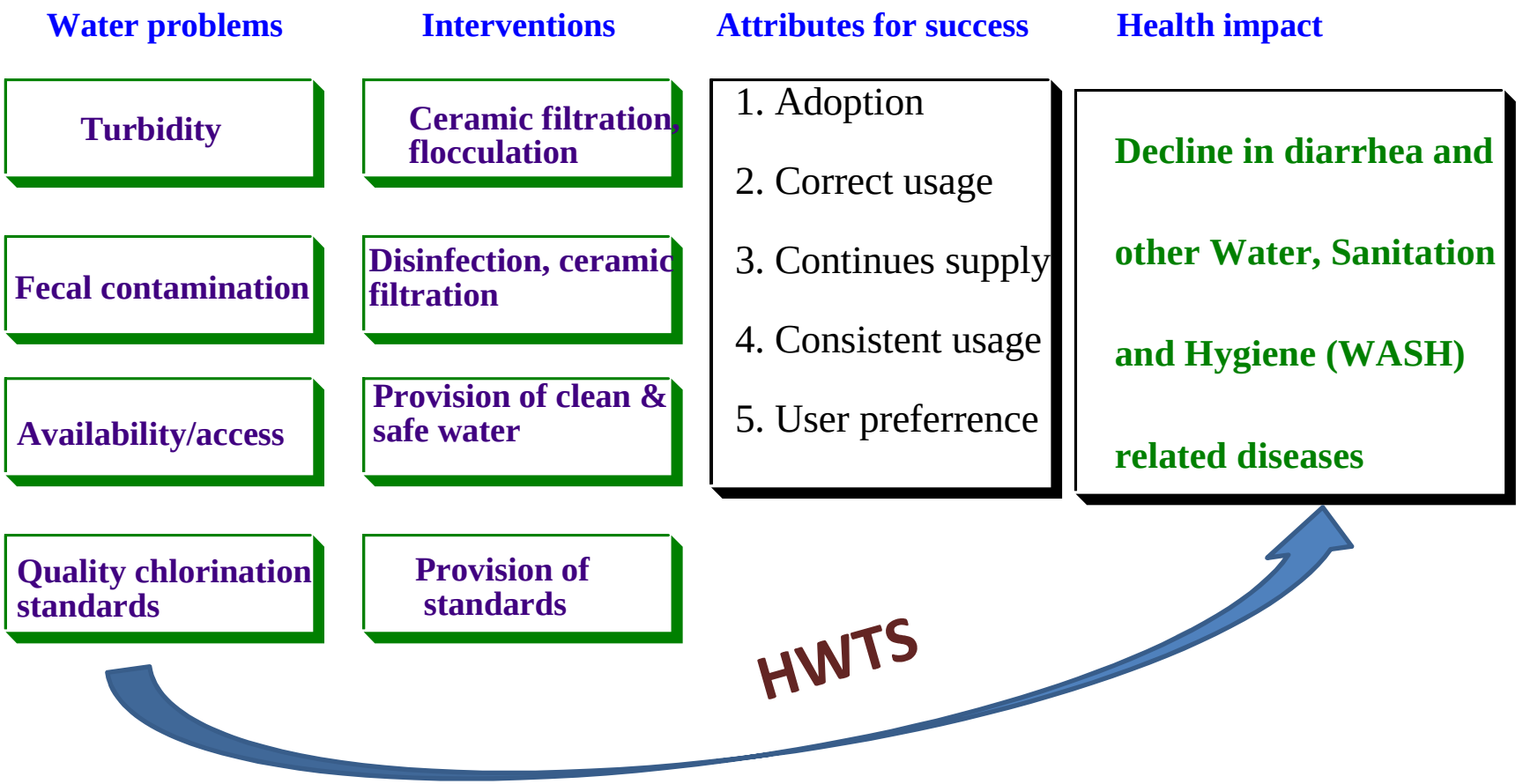
Recommendations and follow up

5. The Government of Tanzania and other stakeholders should work together to develop a comprehensive country plan for scaling up HWTS services which would allow effective service provision and address the need to provide for most vulnerable groups and the poor.

- **Drafting of the CCP began, but**
- **Evidence based required before endorsing explicit plan**
- **To ensure public health and safety**

12. *Research capacity should be strengthened with refocusing of researc direction more from evidence of effectiveness to ways in which HWT can be scaled up and achieve more impact on diarrhoea.*

HWTS CONCEPTUAL FRAMEWORK



Results: A total of 266 households in Geita were included in the study. Acceptable levels of turbidity were found in Nungwe and Katoma.

Fig. 1: Mean Turbidity of water sources in two villages in Geita by season

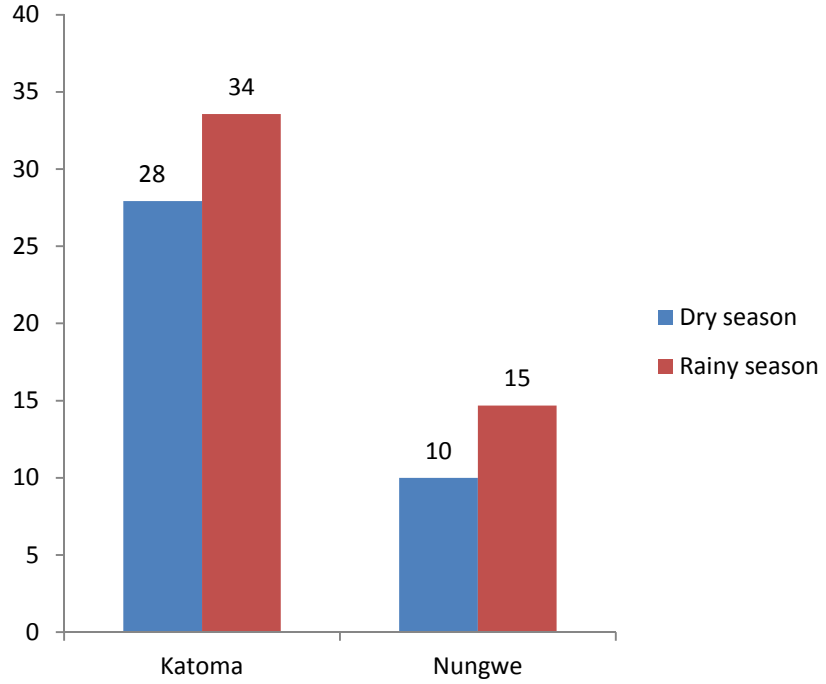
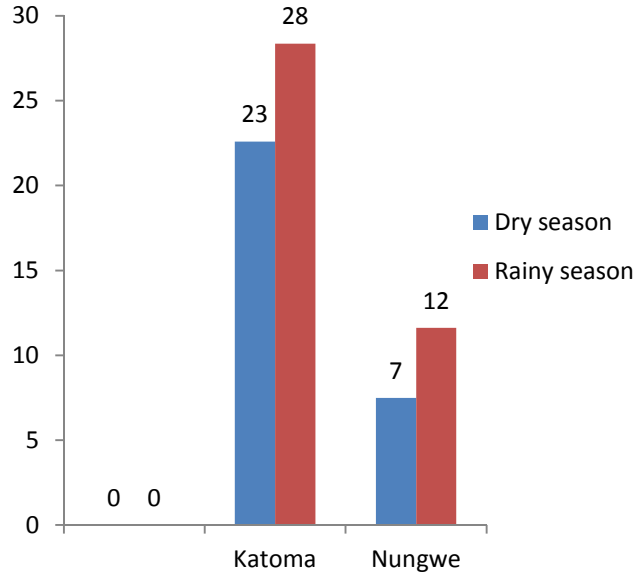
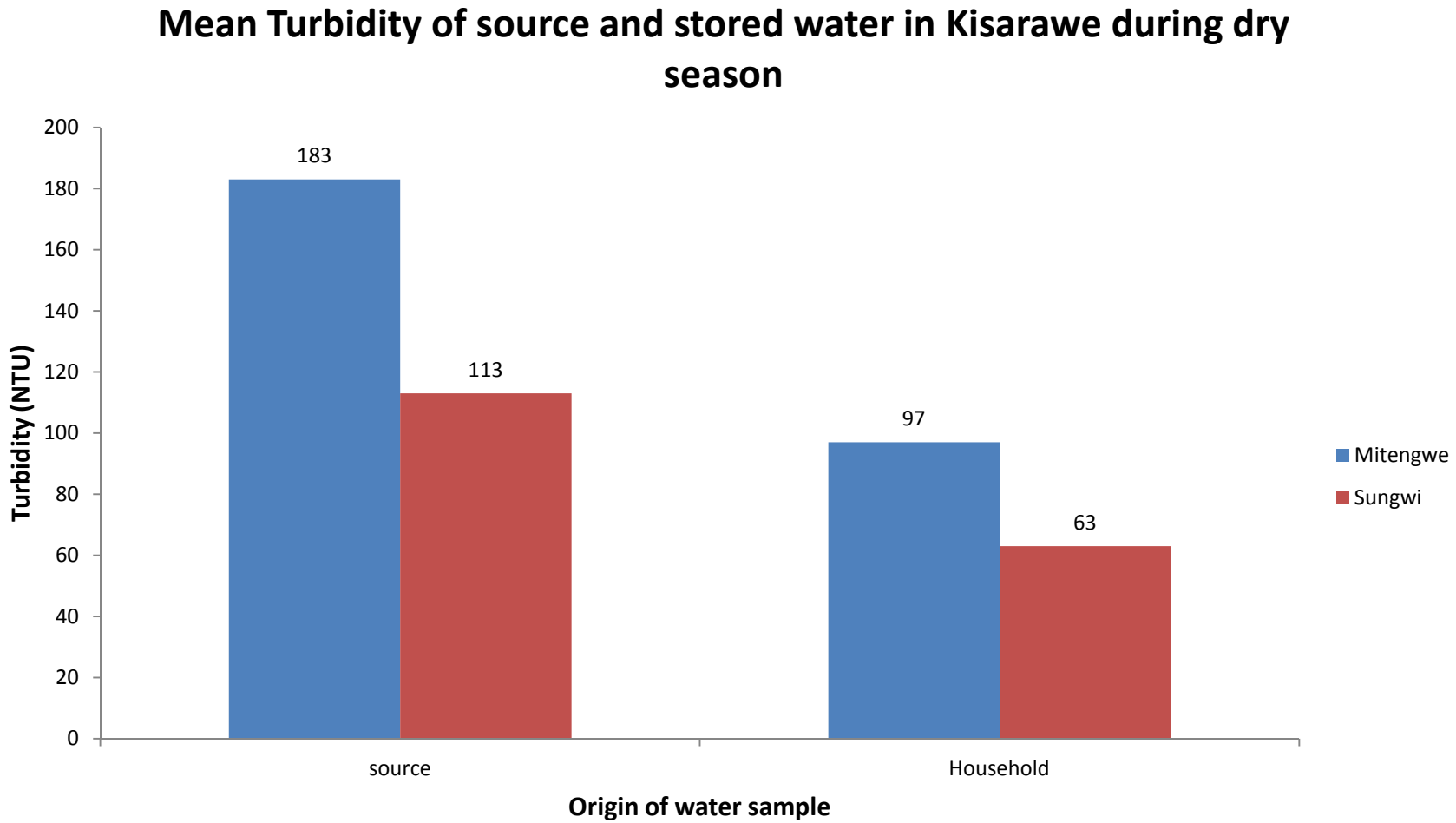


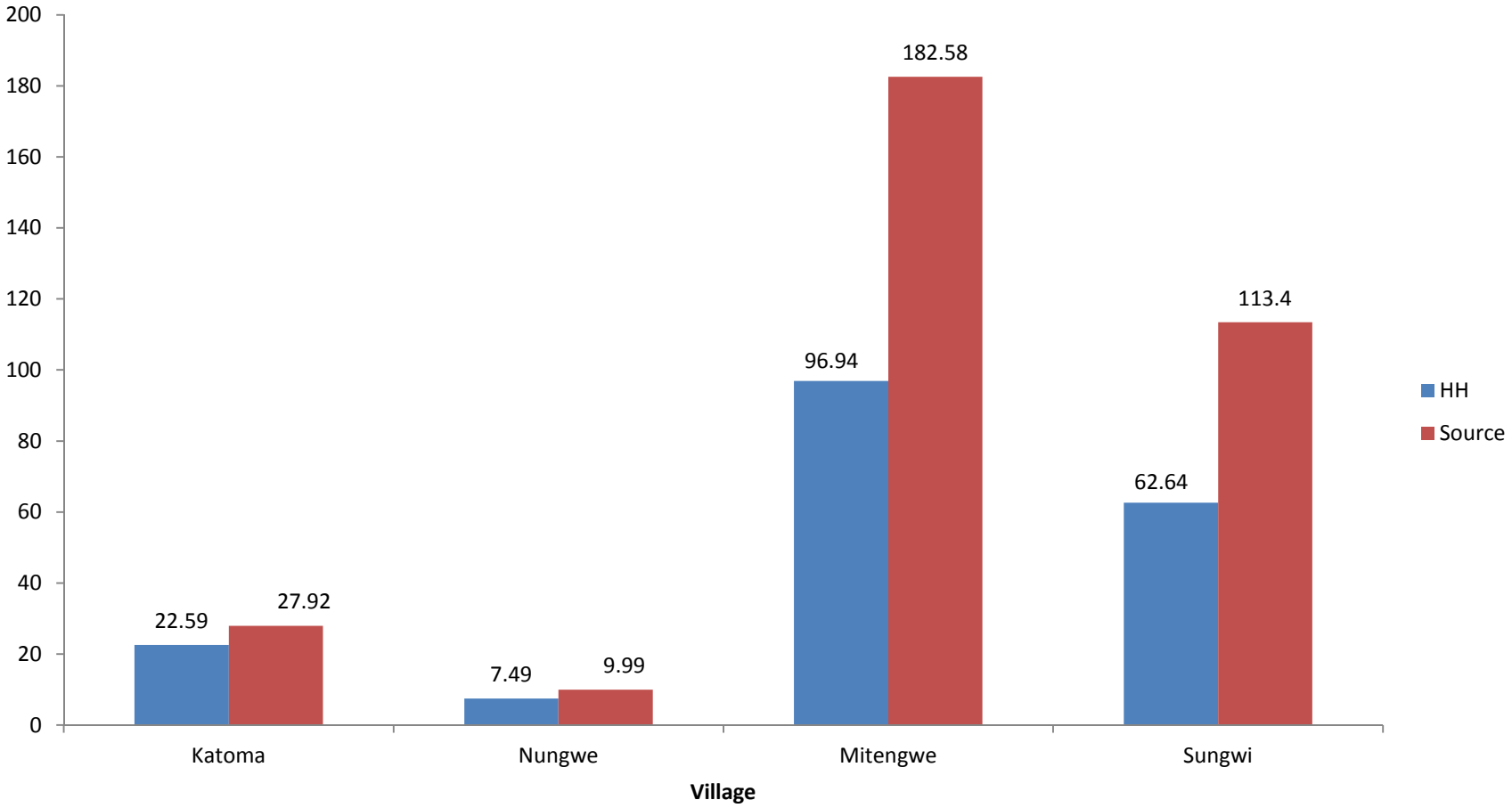
Fig. 2: Household water mean turbidity in Geita by season



A total of 824 households in Kisarawe were included in the study. High and unacceptable levels of turbidity were found in Mitengwe and Sungwi villages



Mean Turbidity of source and stored water by Village: Dry Season



3.0 The effect of turbidity on chlorination

- In Tanzania, there is no guideline on level of turbidity for effective chlorination
- Tanzania water quality standard gives a range of turbidity for visual purposes which ranges from 5-25 NTU
- Some studies recommend chlorination of water as high turbidity level as 100 NTU,
- WHO recommends free chlorine residual of less than 2.0 mg/l at 30 min after treatment and thereafter a greater than 0.2 mg/l at 24 h time

Standards	Mean pH	Mean TDS (mg/L)	Mean Turbidity (NTU)
TBS	6.5 – 9.2	-	5 - 25
WHO	6.5 – 8.0	500	5

- The study was designed to assess limits of turbidity for effective chlorination.
- A total of 43 different water sources were include in the study.

Results:

- Turbidity values affect disinfection efficiency differently.
- Chlorine efficiency decreased 18 folds for a unit increase in turbidity in a category between 6-10 NTU.
- The maximum limit for effective chlorination using a single dose of chlorine was in between 13 to 20 NTU.
- The maximum turbidity for chlorination is 100 NTU.
- High free chlorine was obtained when chlorine was provided as a double dose as compared to single dose ($P<0.01$).

Conclusion and Recommendation

- Chlorination of water at the household level can effectively be practiced over a wide range of turbidity not exceeding 20 NTU.
- Use of single dose of chlorine is not recommended in water with turbidity above 20 NTU.
- Double dose of chlorine can effectively be used to a maximum of 100 NTU.

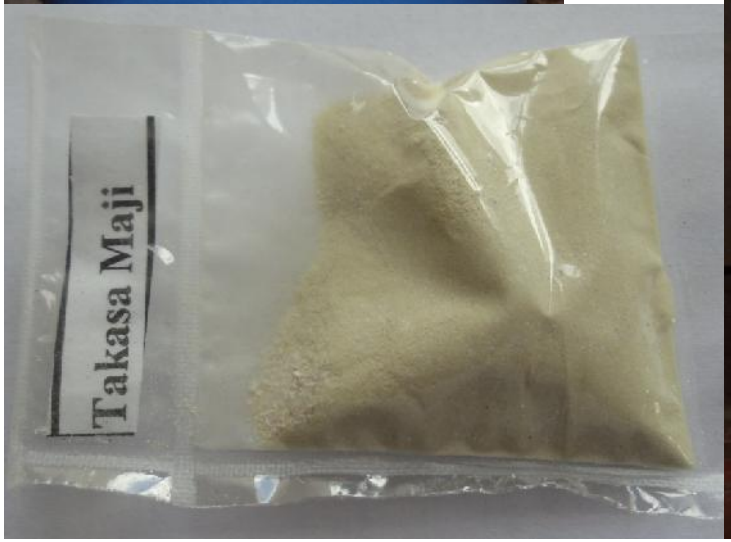
4.0 Microbial Effectiveness of Water Treatment Technologies under Field use Condition

- The objective of this study was to assess the microbiologic effectiveness of HWTS technologies under field use condition
- HWTS technologies involved:-
  - Water-Guard (liquid and tablet)
  - Ceramic Pot filters
  - Siphon filters,
  - PuR and
  - Boiling


JINSI YA KUTUMIA
safe


PUR
Purifier of Water
3


1
2
WaterGuard


Takasa Maji

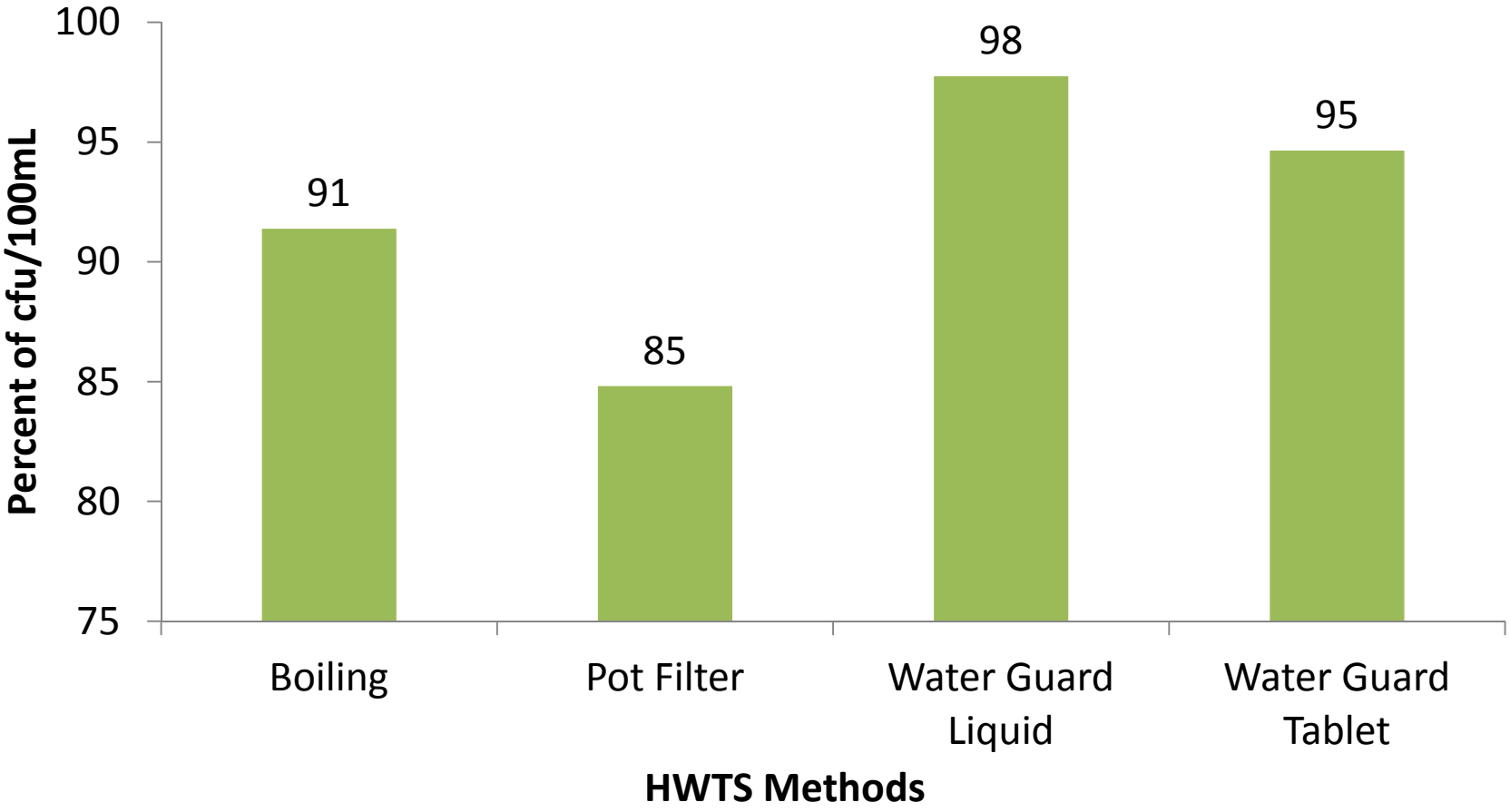

Tulip
Tulip water filter

Educational and promotion

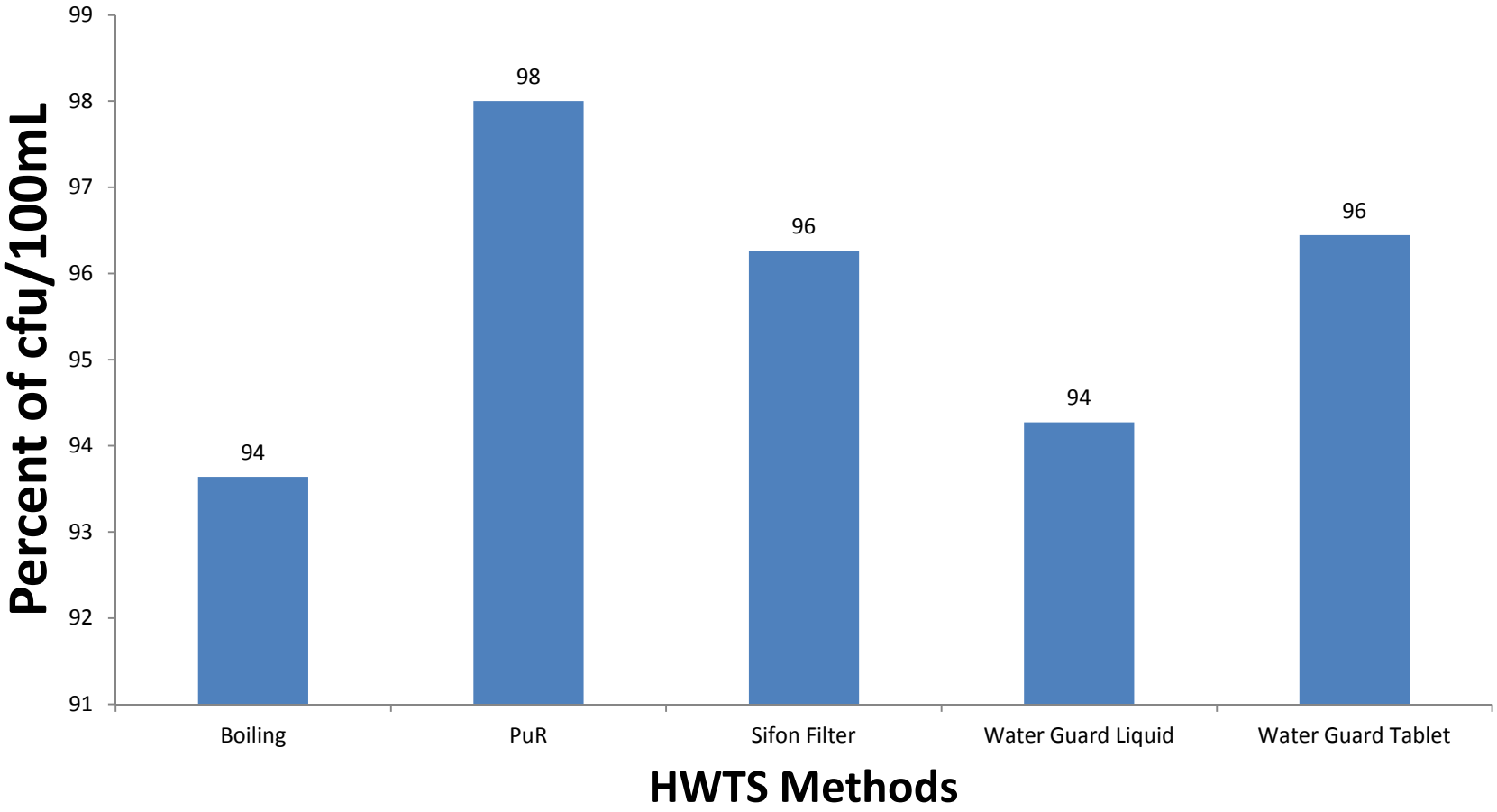
- Behavior change promotion and equipment distribution structure designed
- Quantitative and qualitative evaluations conducted

Photo: Petri Dishes with grown Thermotolerant coliforms

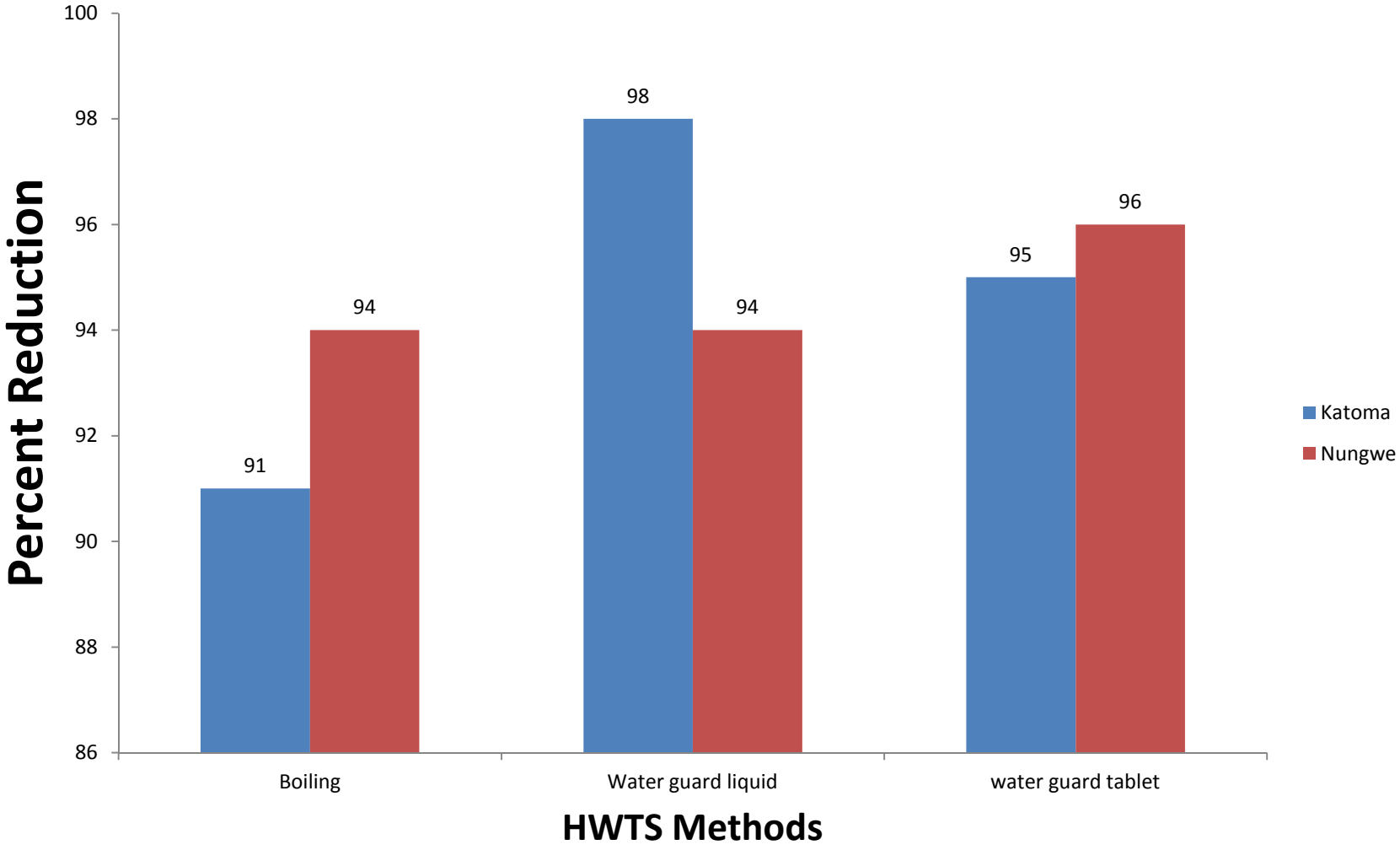
Effectiveness of HWT in Katoma Village-Geita



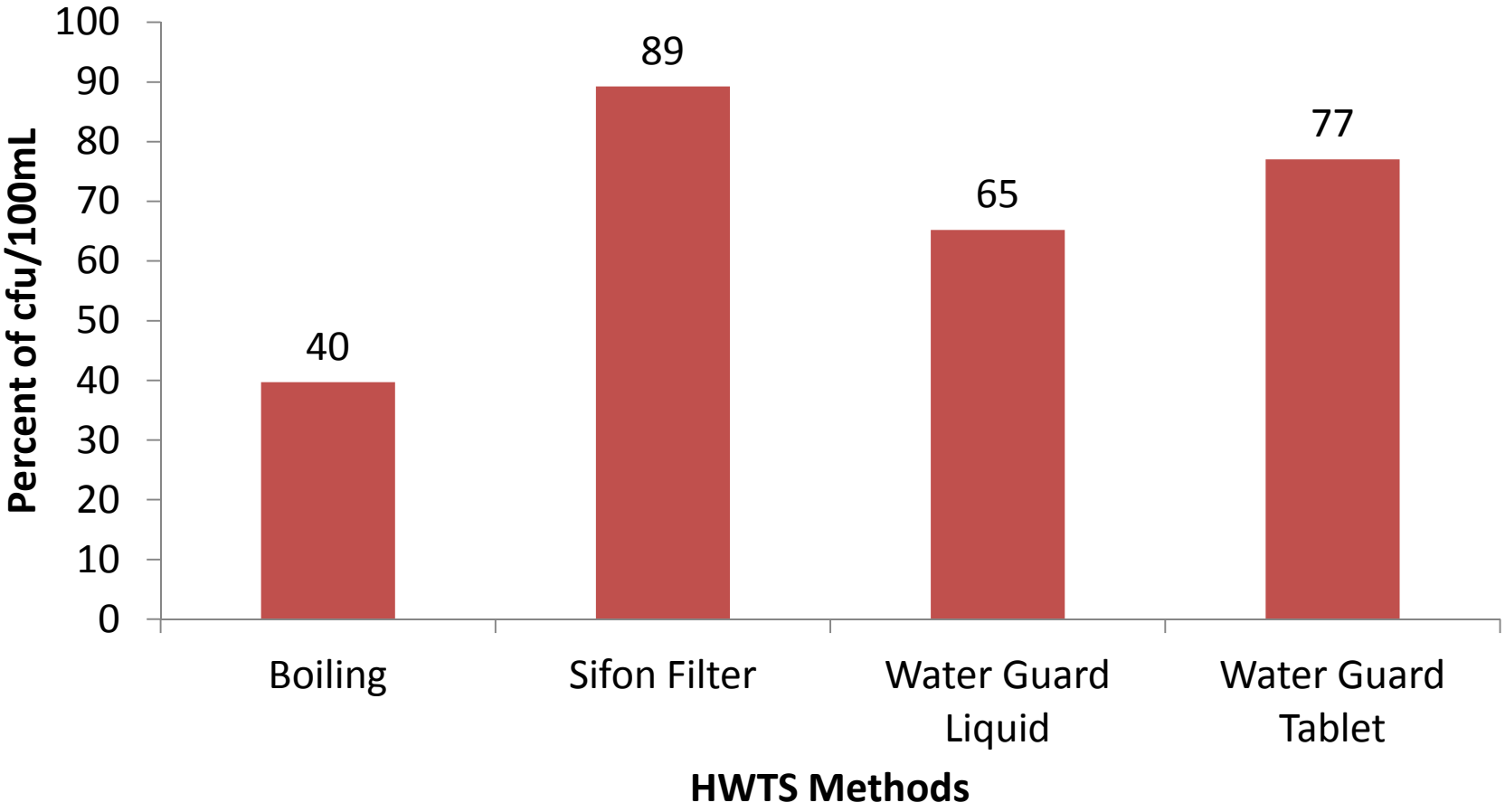
Effectiveness of HWT in Nungwe Village-Geita



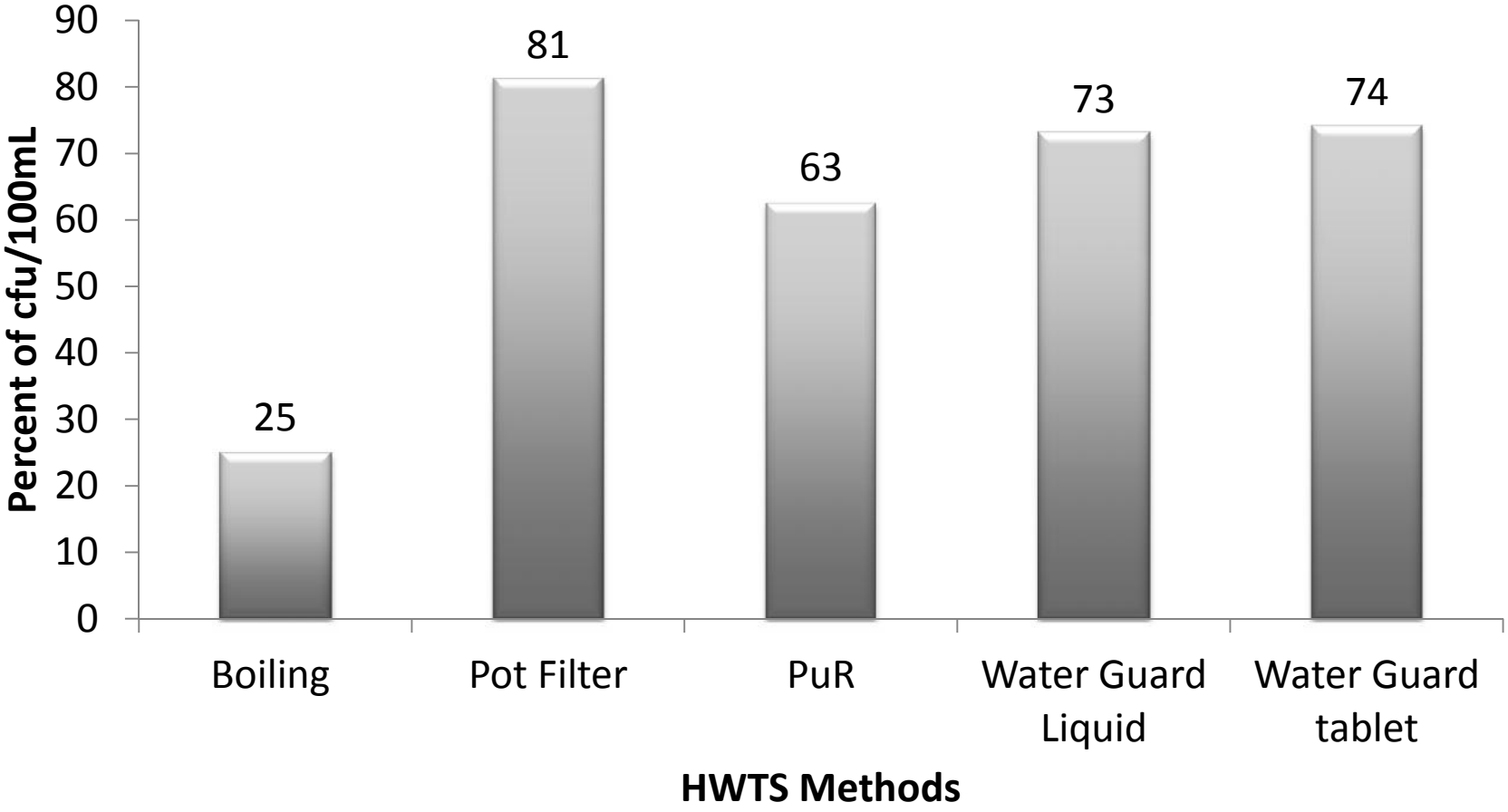
Comparison of HWTS Effectiveness in Katoma and Nungwe Village



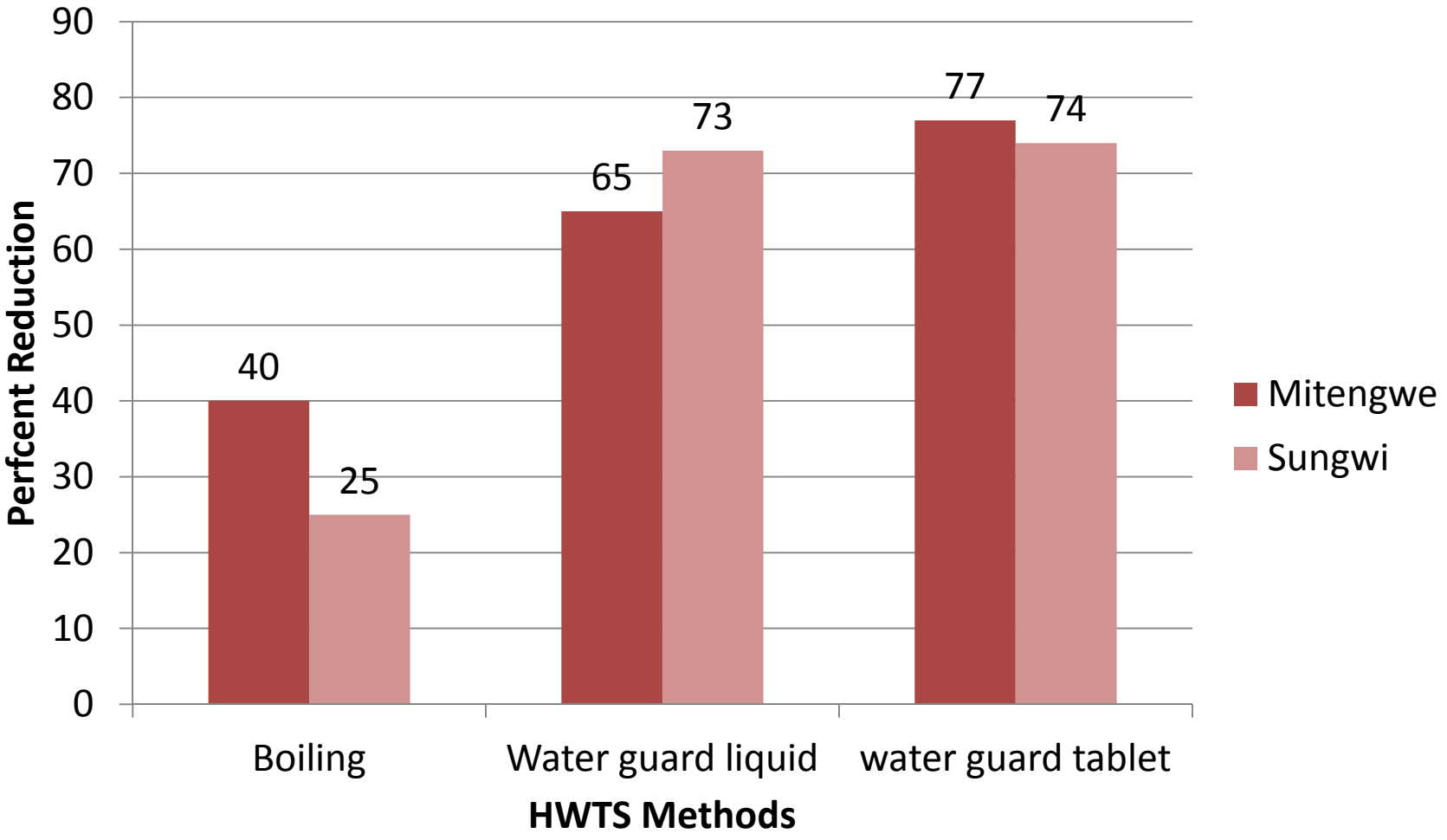
Effectiveness of HWT in Mitengwe Village-Kisarawe



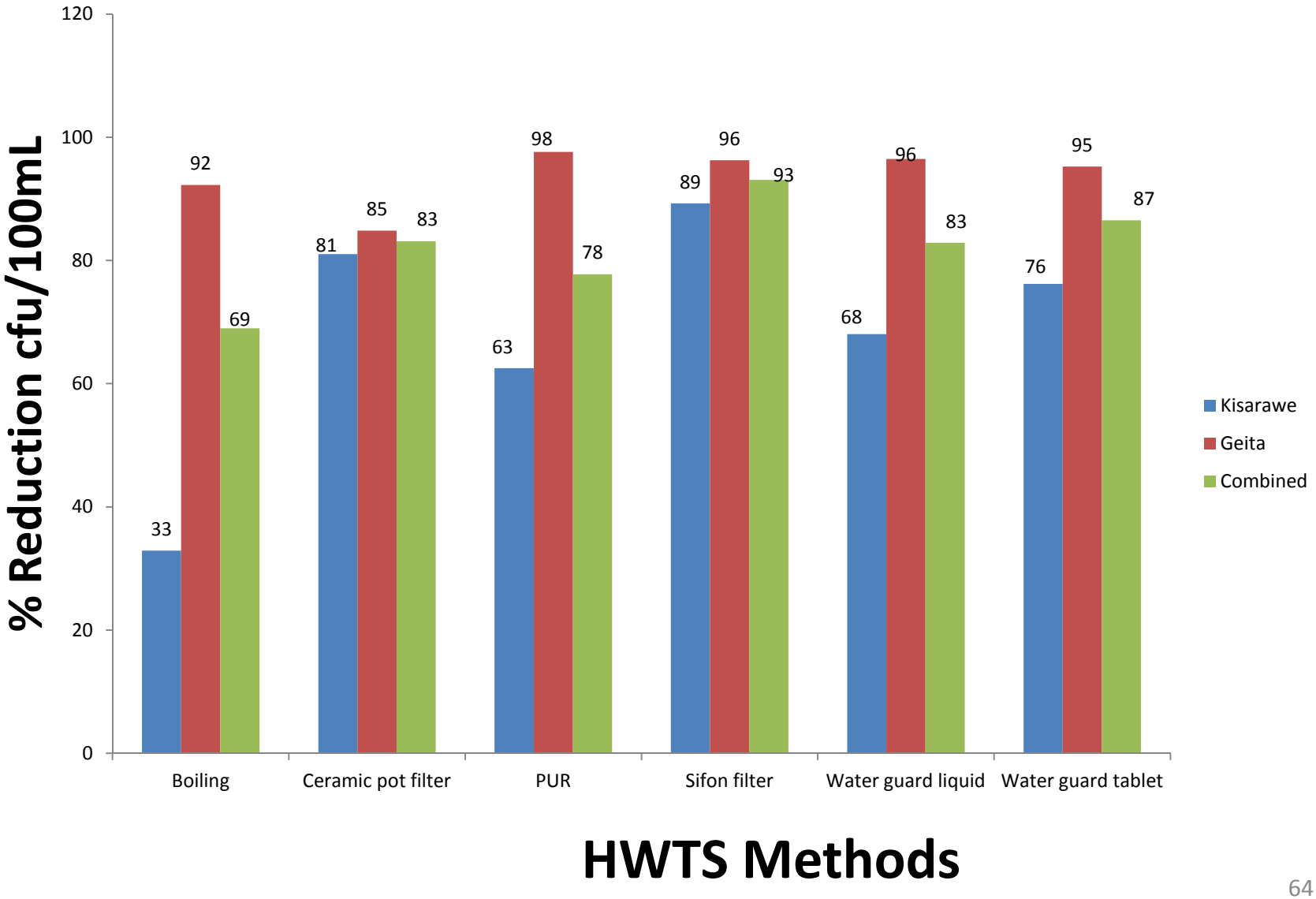
Effectiveness of HWT in Sungwi Village-Kisarawe



Comparison of percent reduction between Mitengwe and Sungwi Village

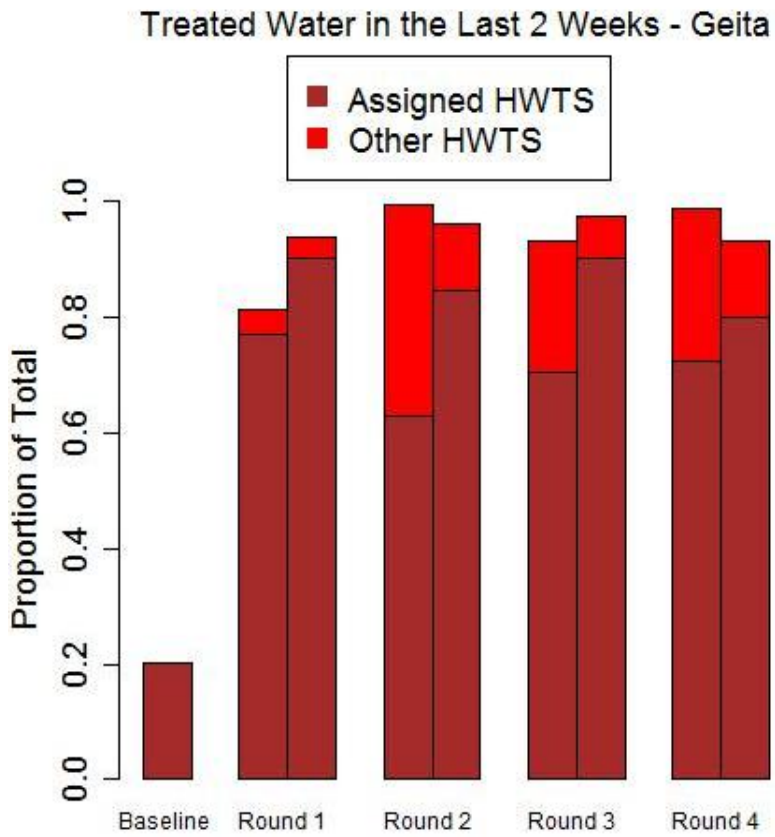


The overall per-cent Reduction (cfu/100mL)



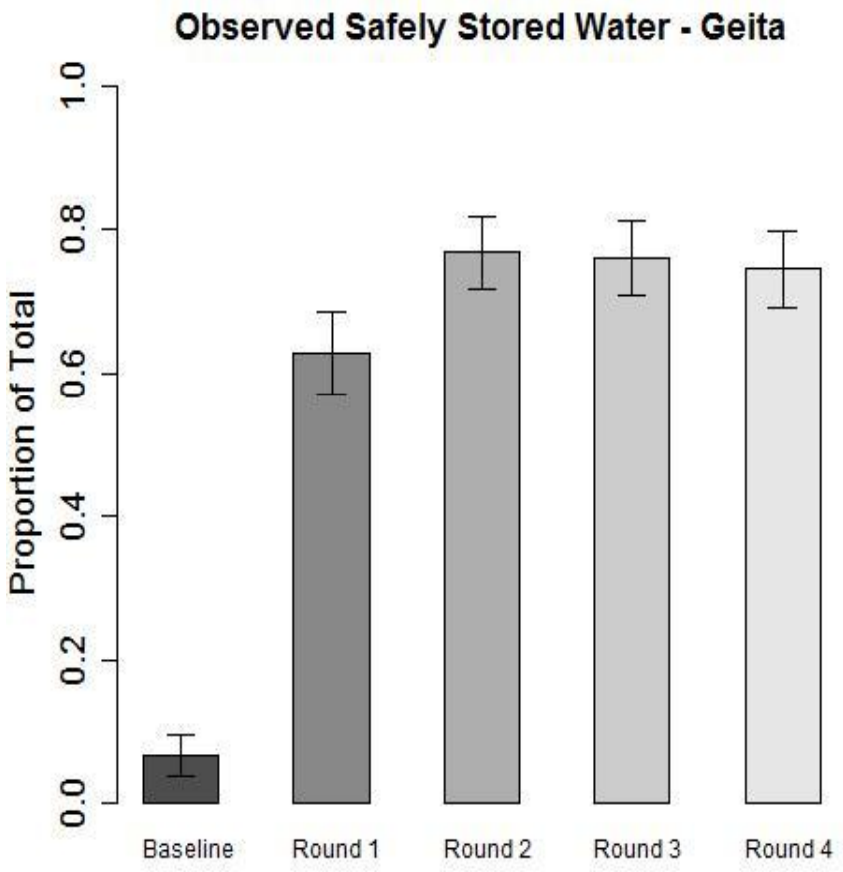
5.0 Behaviour change: Water treatment in study areas

- Our findings revealed a large improvement water treatment after the introduction of the study
- This practice was maintained throughout all four rounds
- More people shown to change behavior and start drinking treated water.



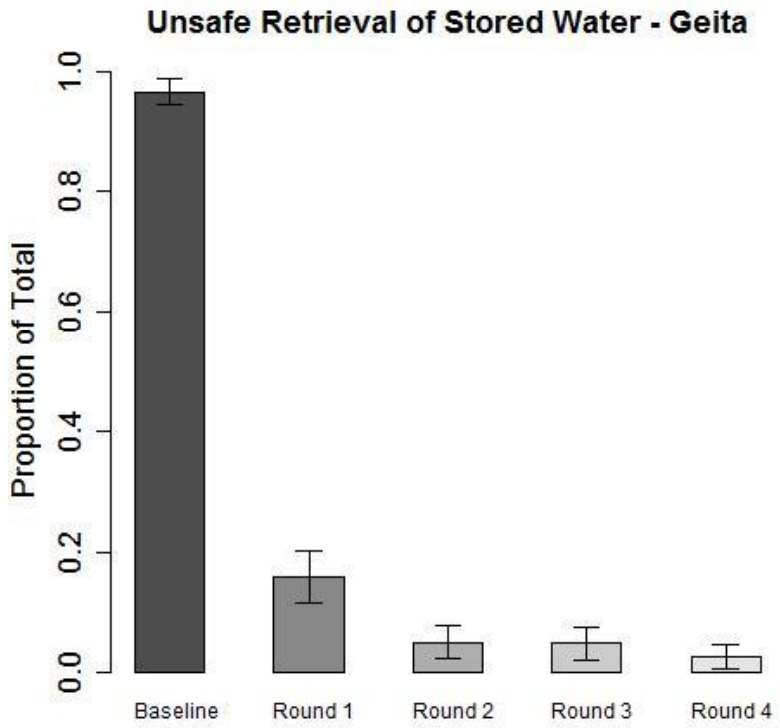
6.0 Behaviour change: Water treatment and safe storage in study areas

- Accordingly, the intervention showed a large improvement in safe storage.
- More people are using safe storage containers.



7.0 Behaviour change: water drawing practices in study areas

- Dipping a cup without a long handle was the most typical way to retrieve stored water for use at baseline.
- Dipping vessel is the most likely method to introduce contamination in the home, through the introduction of hands into the stored water supply.
- The intervention was highly successful in ending this practice in the vast majority of houses during all four rounds of the project.



8.0 User preferences for HWTS

Geita		Liked			Disliked		
	Most			Least	Least			Most
Boiling	52%	27%	7%	1%	0%	2%	4%	7%
PUR	5%	8%	4%	3%	0%	4%	19%	58%
WaterGuard Liquid	16%	7%	6%	0%	0%	1%	25%	46%
WaterGuard Tablets	3%	15%	7%	4%	0%	3%	29%	38%
Siphon Filter	14%	28%	7%	0%	0%	25%	18%	8%
Pot Filter	34%	25%	17%	2%	0%	3%	12%	8%

9.0 Willingness to pay for HWTS

		PUR	Water-Guard Liquid	Water-Guard Tablets	Siphon Filter	Pot Filter
(Cash/Mobile Money)	Average Bid	572.6	738.2	426.5	1637.4	7361.2
	Median Bid	500	500	300	1000	5000
	Number of Households Who Bid	175	347	347	142	175
	Maximum Bid	5000	10000	5000	15000	70000
	Minimum Bid	0	0	0	0	0
(Chicken)	Average Bid	-	-	-	1.3	1.2
	Median Bid	-	-	-	1	1
	Number of Households Who Bid	-	-	-	4	26
	Maximum Bid	-	-	-	2	2
	Minimum Bid	-	-	-	1	0
	Estimated Retail Price	1000	1500	1000	15000	45000

10. Summary of key outputs

- Implemented 2 out of 3 components of the planned research project (Baseline survey, introduction of HWTS, preference study, willingness to pay study, turbidity-chlorination study).
- Based on research evidences, cut-off level for effective chlorination of turbid water is 13 NTU (this contradicts TBS cut-off of 25 NTU).
- Developed Takasa-maji, a floculant-disinfectant water treatment product, simple and cheaper than PUR (Grand Challenges funded field trial in final stages).
- Produced evidence that is adequate to plan and implement national level scaling up of HWTS programs
- Based on research evidences, we drafted working tools including guidelines, promotional approaches, and IEC materials
- Equipped technical team members with skills essential for planning and deliver intervention
- Facilitated the finalization of National Plan for scaling up HWTS and national standards

11. **Required next steps**

- Signing and implementation the prepared HWTS National Action Plan
- Launch scaling up mission of HWTS at national scale
- Establish coordination mechanism (MoW, MoHSW, MoEVT and other stakeholders)
- Institute regulatory mechanism for HWTS products and services delivery
- Provide guidance and technical support on the implementation process
- Monitor and evaluation of health impact through disease and other health determinants and indicators.
- Introduce sanitation and hygiene interventions as critical synergies to HWTS

12. **Major requirements for scaling up**

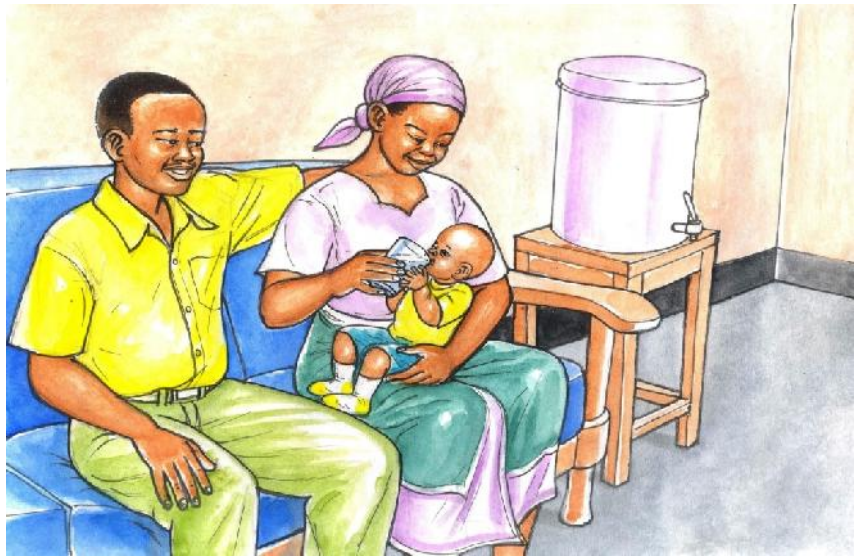
- Strengthen collaboration with harmonization of responsibilities (agree on roles)
- Integrate with existing programs and frameworks (Health, education, and water sector programs)
- Mobilize and secure adequate funding
- Build capacity to provide services (from production, transportation, to promotion)

13. Conclusion and recommendations

- HWTS tested in this study are all effective in reducing infection in drinking water, hence they are useful in the provision of safe water to households
- HWTS study has shown promising adoption, usage and preference by households in Geita and Kisarawe districts warranting expansion to cover whole villages and the district at large
- Missing supply chain of HWTS in rural areas is a threat to progress – need to be addressed

What's next

- HWTS is a fundamental human right.
- Implementation and scale up HWTS is not one man’s business but it is a responsibility of each and every Water, Hygiene and Sanitation (WASH) stakeholder.



Acknowledgement

- UNICEF for financially supporting these studies
- Ministry of Health and Social Welfare
- MUHAS
- NIMR
- MOWI
- Geita and Kisarawe District Councils
- PSI, Segerea Pharmacy, East Africa Ceramics, Simba Plastics Ltd

Thanks for Listening

SHARE II Symposium
Protea hotel, Dar es Salaam
4th August 2015

Weaning food hygiene (SHARE's work to date)

Name: Jeroen Ensink
Affiliation: London School of Hygiene & Tropical Medicine

Sanitation and Hygiene Applied Research for Equity

Mwanza Intervention Trials Unit

PRESENTATION OULTINE

I. CONTEXT/JUSTIFICATION
II. DEVELOPMENT USING HACCP
III. TESTING THE INTERVENTION
IV. REPLICATION; BANGLADESH & NEPAL
V. RECENT DEVELOPMENTS/PERSPECTIVES

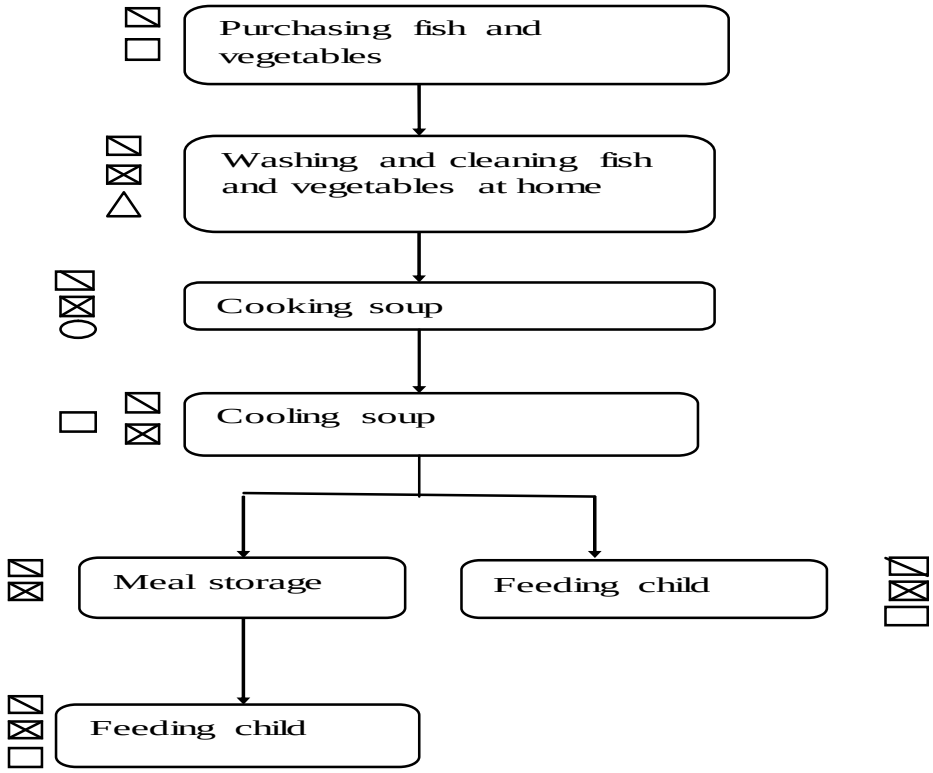
CONTEXT/JUSTIFICATION

- Diarrhoeal diseases mainly kill children under five years in developing countries;
- Diarrhoea control thus needs to stop young a children ingesting pathogens;
- Weaning foods are usually more heavily contaminated than drinking water;
- Weaning food hygiene deserves high priority.

EXPERIMENTAL STUDY, TO DEVELOP INTERVENTION

- 15 mothers of children aged 6 to 36 months;
- Selection of 2 commonest weaning foods - moni & fish soup;
- intensive observation of food preparation and handling hygiene;
- Implementation of HACCP Method.

Fish Soup flow diagram



Legend

- Initial contamination
- Hand contamination
- Utensils contamination
- Ingredient contamination
- Water contamination

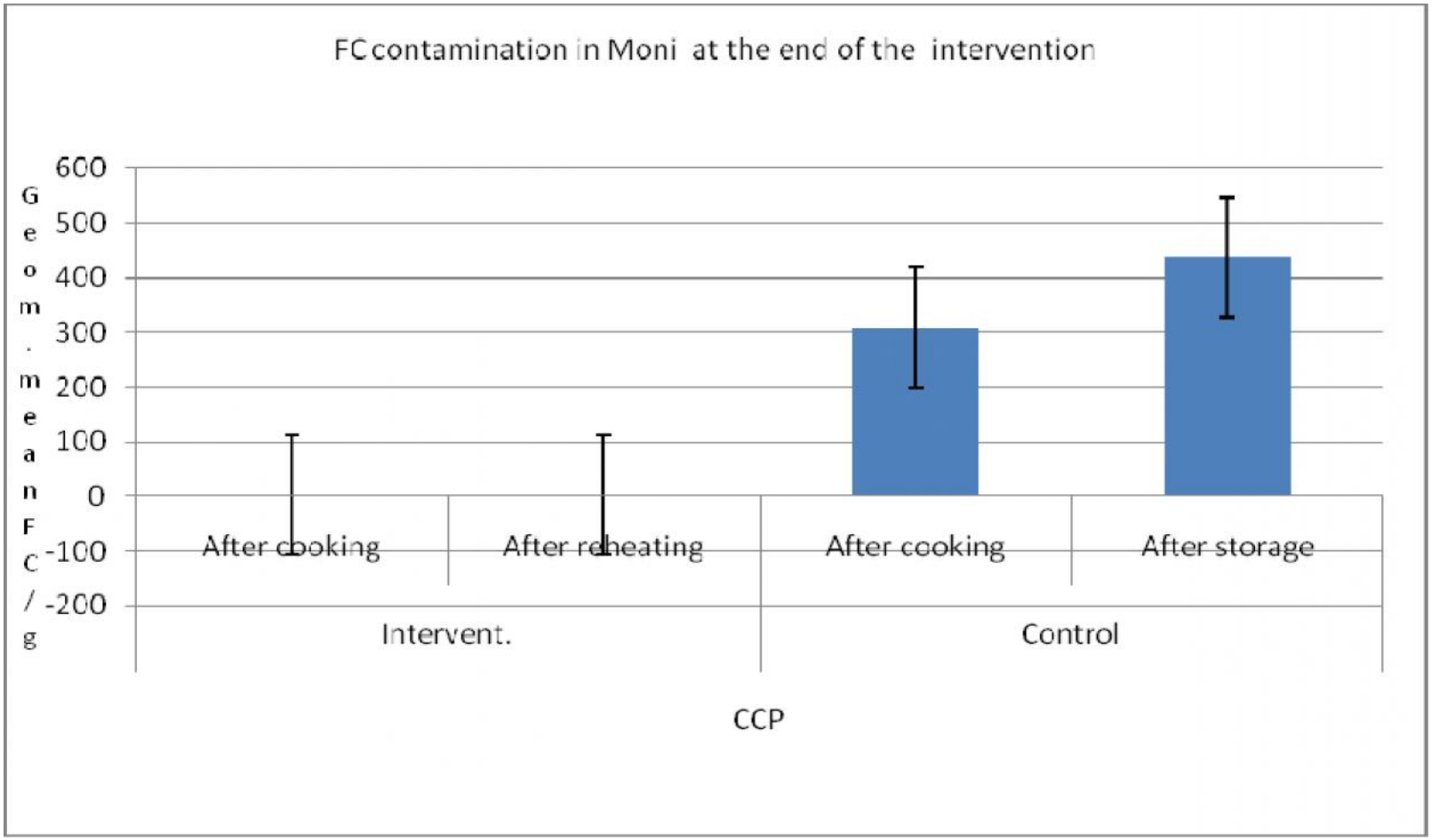
PILOT STUDY, TO TEST THE INTERVENTION

60 mothers; 30 Intervention, 30 control;
3 weeks'training for intervention group;
samples examined for faecal coliforms.

Intervention key messages:

- Reheating meals to boiling point, even if for only a few seconds;
- Handwashing with soap after faecal contact and before handling food;
- Running water and soap to wash dishes

FC CONTAMINATION OF INTERVENTION GROUP'S FOODS AT THE END OF THE INTERVENTION



LESSONS LEARNT FROM THE INTERVENTION

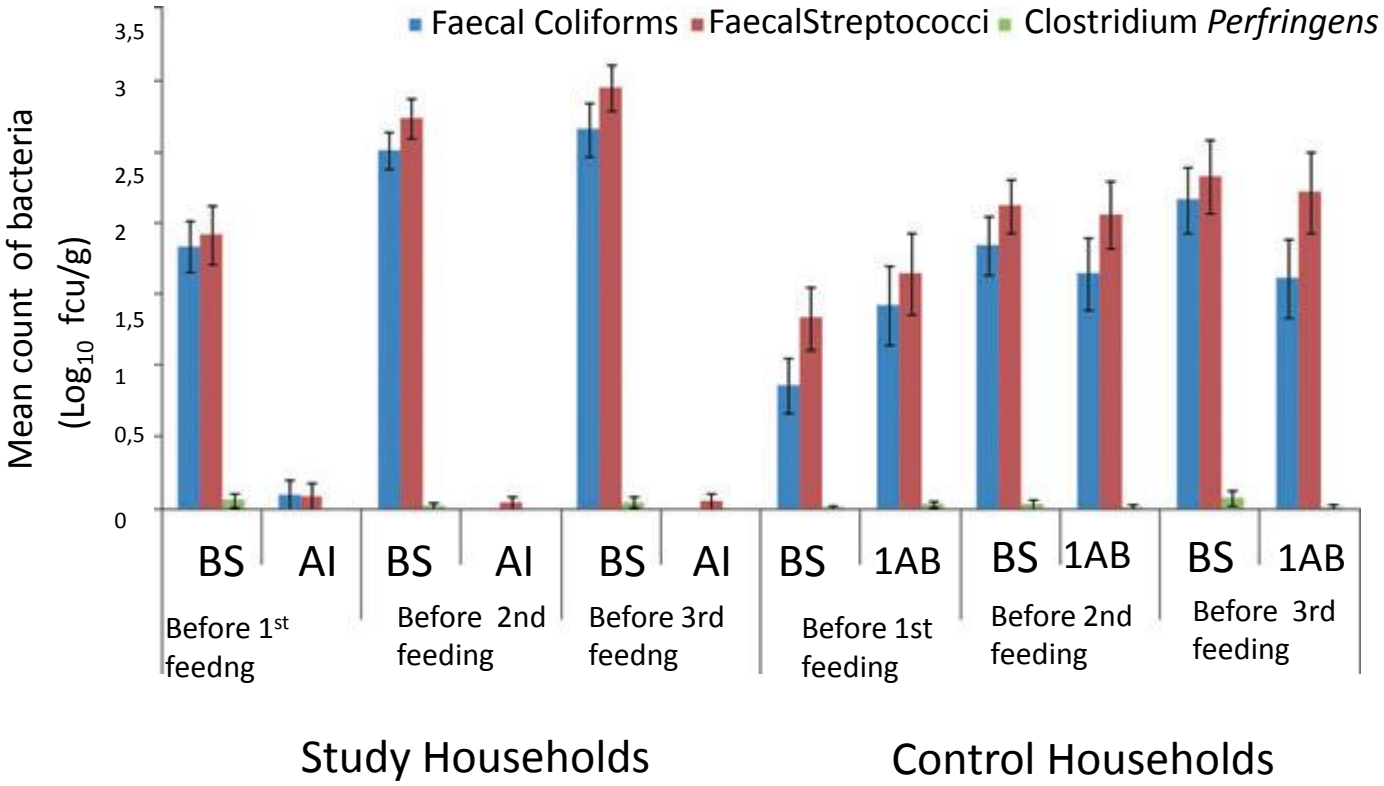
- The intervention was very effective in FC contamination reduction; it resulted in a very high performance in meeting the quality standard of less than 10 fcu/g;

- Behaviours acquired lasted for at least three months after the intervention.

REPLICATION STUDY

- Bangladesh, rural setting;
- Copied Bamako protocol with 2 local weaning foods (Suzi & Khishuri)
- Same result!
- ***The method has already been integrated into the National Diarrhoea Prevention Strategy of Bangladesh (Dr S. Islam, ICDDR,B)***

INTERVENTION IMPACT ON BACTERIOLOGICAL WEANING FOODS SAFETY



Recent developments, future perspectives

- **Replication in Nepal**:
- at District scale, reduced cost to US$ 17 per mother (Om Gautam);
- Impact on diarrhoea incidence discernible, though study under-powered.
- **In the Gambia:**
- Similar study due soon (Buba Manjang, Ministry of Health) & University of Birmimgham;
- Unicef Gambia considering implementation at national level.

“Disgust exercise” using glo-germs in mother’s hands during “Safe Food, Healthy Child” campaign in Nepal, 2013.

Photo credit: Om Pd Gautam, DCD/ITD, LSHTM

CONCLUSION/RECOMMANDATION

- The HACCP Approach is effective in FC contamination reduction through hygiene intervention;
- Behaviours acquired last for at least three months after the intervention.
- These very encouraging findings need to be translated into Health Education Programs' guidelines;
- The Approach reserves to be scaled up to assess its impact in diarrhoea prevention/reduction.

THANK YOU

SANITATION & HYGIENE RESEARCH SYMPOSIUM
PROTEA COURTYARD HOTEL, DAR ES SALAAM
4TH AUGUST 2015

IMPLEMENTATION OF MTUMBA SANITATION AND HYGINE PARTICIPATORY APPROACH IN TANZANIA:

ITS OUTCOME AND IMPACT IN PILOTED AREAS

Name: Hamisi M. Malebo, *Dip. Ed (Sc), B.Sc(Hons), M.Sc, PhD, FASI*

Affiliation: National Institute for Medical Research, P.O. Box 9653, Dar es Salaam, Tanzania.

E-mail: Malebo@hotmail.com

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Sanitation and Hygiene Applied Research for Equity

MITU
Mwanza Intervention Trials Unit

Presentation outline

1. Sanitation situation in Tanzania before Mtumba implementation
2. MTUMBA sanitation and hygiene approach
3. Evaluation methodology
4. Findings
5. Conclusion and Recommendations

1.0 Sanitation situation in Tanzania

- In Tanzania, only 42% of rural populations and 73% of urban population had access to improved sanitation
- Low coverage of quality latrines noted in rural areas in Tanzania
- *The 2010 DHS report showed a very low improvement on the coverage of improved latrines from 10% in 2004 to 12% in 2010*

Tanzania's current latrine coverage

Type of latrine/toilet	DHS 2004-2005	HBS 2007	DHS 2010
1. Pour flush	5%	3%	5%
2. VIP	5%	5%	5%
3. Improved pit latrine	-	-	1%
4. Unimproved pit latrine	-	-	66%
5. Unclassified pit latrine	85%	85%	-
6. Shared latrine/toilet	-	-	8%
7. No latrine	5%	7%	14%

Sources: Demographic and Health Survey (DHS) 2004-2005, 2010; Household Budget Survey (HBS) (2007)

2.0 MTUMBA Sanitation and Hygiene Participatory Approach

- Following PHAST limitations as identified by NIMR, WaterAid Tanzania and her partners convened at Mtumba village in Dodoma in September, 2007

➢ Reviewed different participatory approaches used in Tanzania.

➢ They identified strengths and weaknesses of various participatory approaches implemented in the country

➢ Used the strengths to form an approach that would be effective to Tanzanian context.

➢ The meeting finally came up with MTUMBA Sanitation and Hygiene Participatory Approach, named after MTUMBA village.

What is MTUMBA approach?

- In principle; MTUMBA Sanitation and Hygiene Participatory Approach is amalgamated strengths from:

✓ PHAST tools

✓ CLTS tools and,

✓ PRA tools.

MTUMBA concept

- **Mtumba concept anchors on quality, quantity, equity and sustainability**

✓ **Quality**: increasing the latrine standards (from poor to improved latrines)

✓ **Quantity**: higher coverage (all households)

✓ **Equity**: appropriate types of latrine for all including the vulnerable people such as elderly, disabled and small children

✓ **Sustainability**: community to continue accessing improved latrines even after the project tenure

Quality of majority of traditional pit latrines before Mtumba implementation






MTUMBA pilot implementation

- Piloted in three districts of Iramba, Nzega and Mbulu districts from March 2008 to March 2011
- ✓ Trained and empowered artisans and animators
- ✓ Constructed demonstration centres
- ✓ Capacity building in terms of skills development of the district sanitation team/department
- ✓ Lobbying for the District Health Department to adequately budget for Sanitation in the Council Comprehensive Health Plans (CCHP)
- ✓ Effective utilization of the opportunity found in the community

3.0 Evaluation methodology

- A cross-sectional qualitative and quantitative design was adopted in the study.
- Participatory method involving different stakeholders at ward level whereby triangulation of techniques including interviews, observations and focus group discussions (FGDs) as well as desk review of existing data in the districts were used.
- The study was carried out in the Mtumba Approach piloted wards of Masieda in Mbulu, Mtoa in Iramba and Mambali in Nzega districts in Tanzania.
- Sample size : 1,200 households.

4.0 Findings

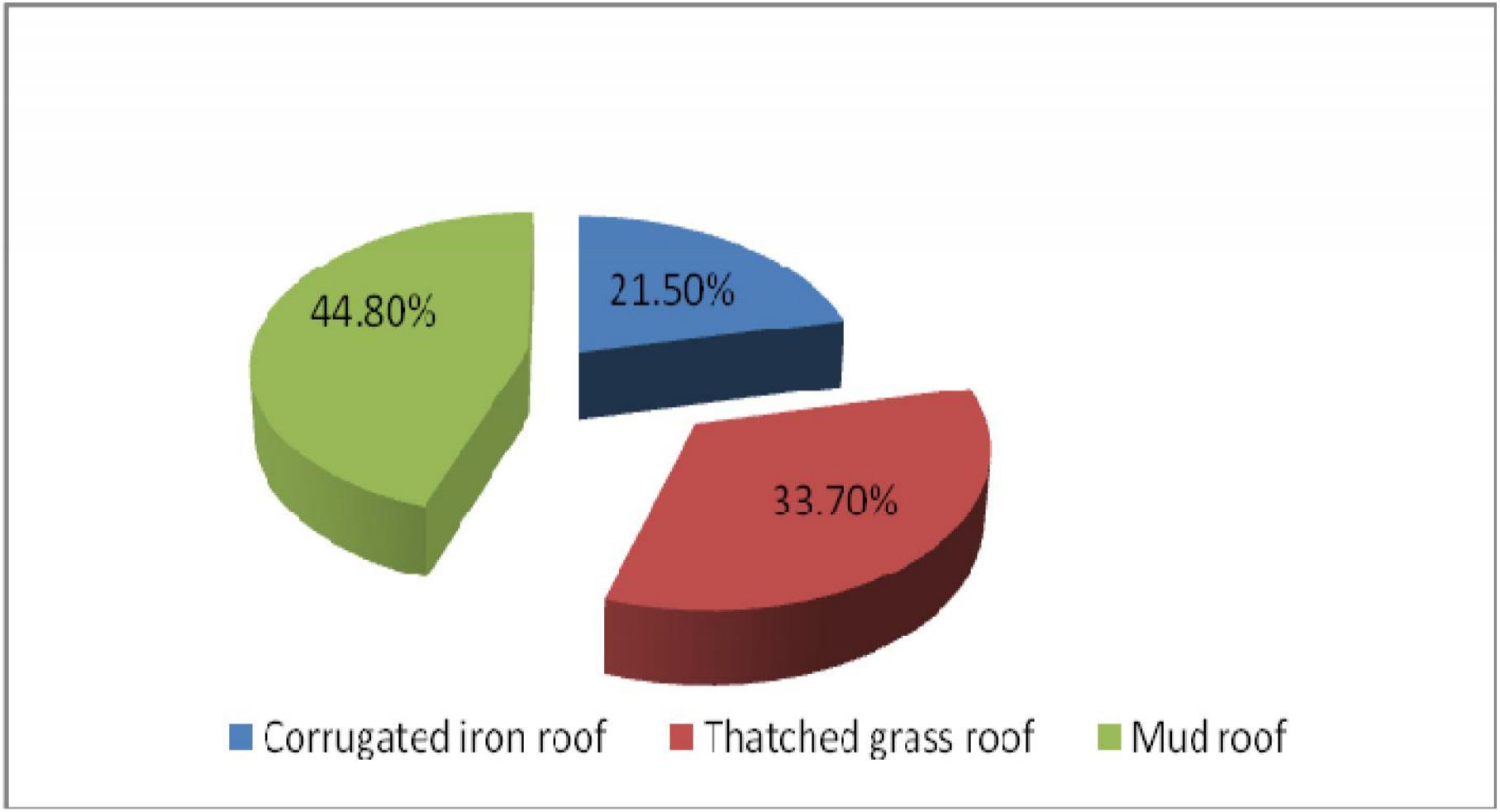
4.1 Demographic and economic characteristics of surveyed households

Region	Tabora	Manyara	Singida	Total
District	Nzega	Mbulu	Iramba	
Ward	Mambali	Masieda	Mtoa	
Sex	398	403	402	1,203
Male	219 (55.03%)	255 (63.28%)	164 (40.80%)	638 (53.03%)
Female	179 (44.97%)	148 (36.72%)	238 (59.20%)	565 (46.97%)
Age groups in years				
19-34	180 (45.23%)	146 (36.23%)	166 (41.29%)	492 (40.90%)
35-44	126 (31.66%)	138 (34.24%)	108 (26.87%)	372 (30.92%)
45-54	61 (15.33%)	68 (16.87%)	59 (14.68%)	188 (15.63%)
55+	31 (7.79%)	51 (12.66%)	69 (17.16%)	151 (12.55%)
Mean age + SD	37.8±11.9	38.9±12.8	40.1±14.4	39.0±13.1

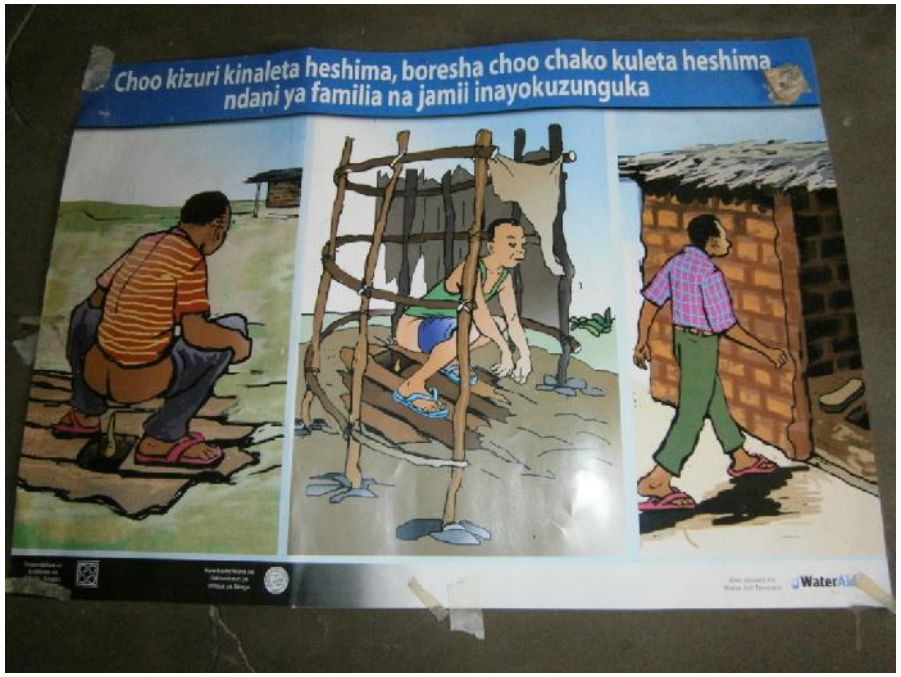
4.2 Education level of respondents

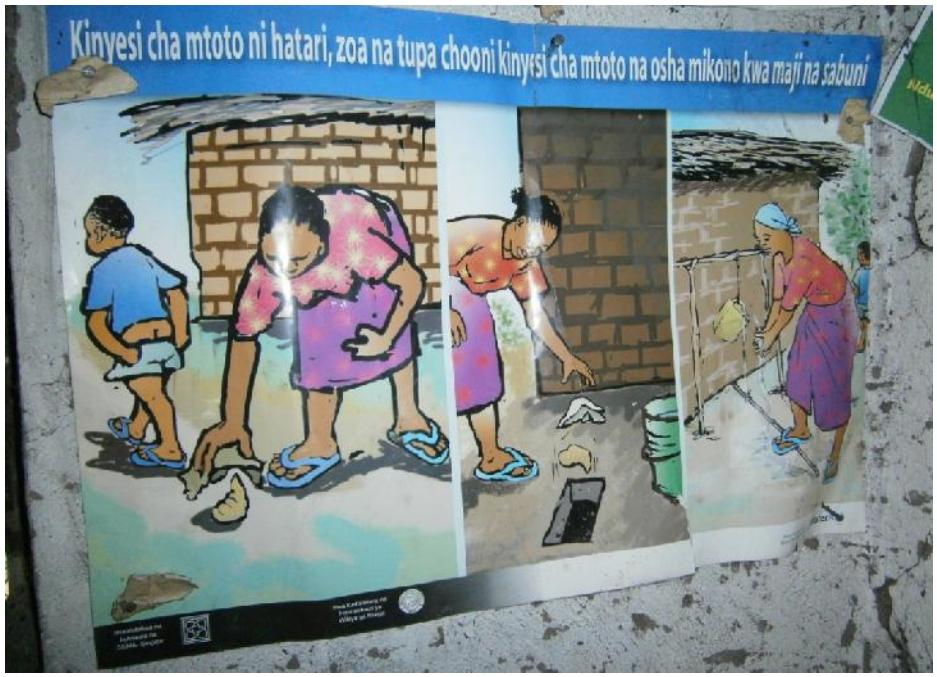
Literacy level	Tabora	Manyara	Singida	Total
Literate	204 (51.26%)	271 (67.25%)	273 (67.91%)	748 (62.18%)
Illiterate	194 (48.74%)	132 (32.75%)	129 (32.09%)	455 (37.82%)
Level of education				
No formal education	200 (50.25%)	138 (34.24%)	138 (34.24%)	476 (39.57%)
Primary education	189 (47.49)	237 (58.81%)	248 (61.69%)	674 (56.03%)
Secondary education	7 (1.76%)	26 (6.45%)	14 (3.48%)	47 (3.91%)
Above secondary education	1 (0.25%)	1 (0.25%)	0 (0.00%)	2 (0.17%)
Adult education	1 (0.25%)	1 (0.25%)	2 (0.50%)	4 (0.33%)

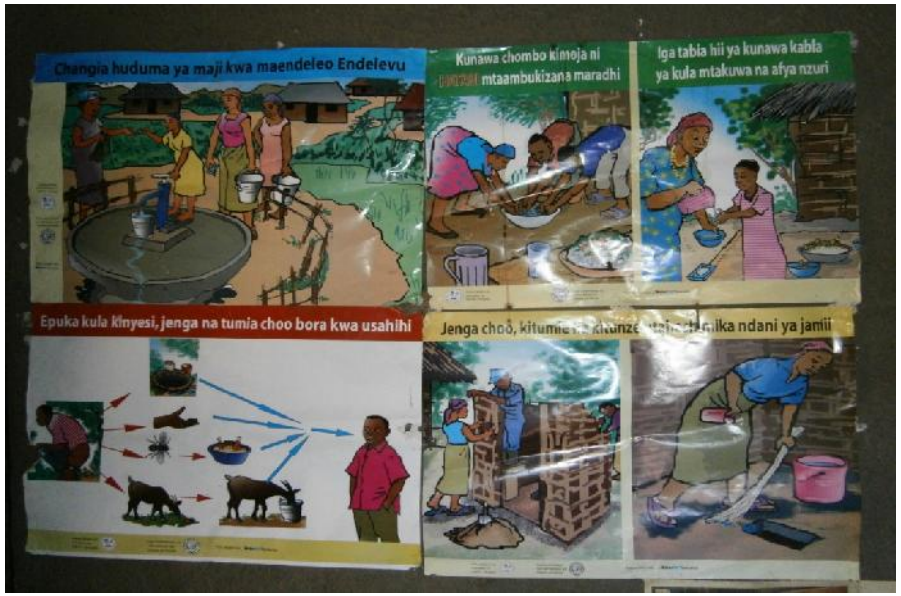
4.3 Common house roofing materials in the surveyed wards



IEC materials used in MTUMBA advocacy







4.4 Sanitation facilities in the surveyed households

- The commonest sanitation facilities observed in the surveyed households are the pit latrines which were present in an overall of 1,083 (90%) of the surveyed households
- A total of 120 (10%) of households were found to have no any form of latrine.
- Traditional pit latrines constituted 64.3% of all latrines constructed in the surveyed households.

Observed increased latrine construction and use

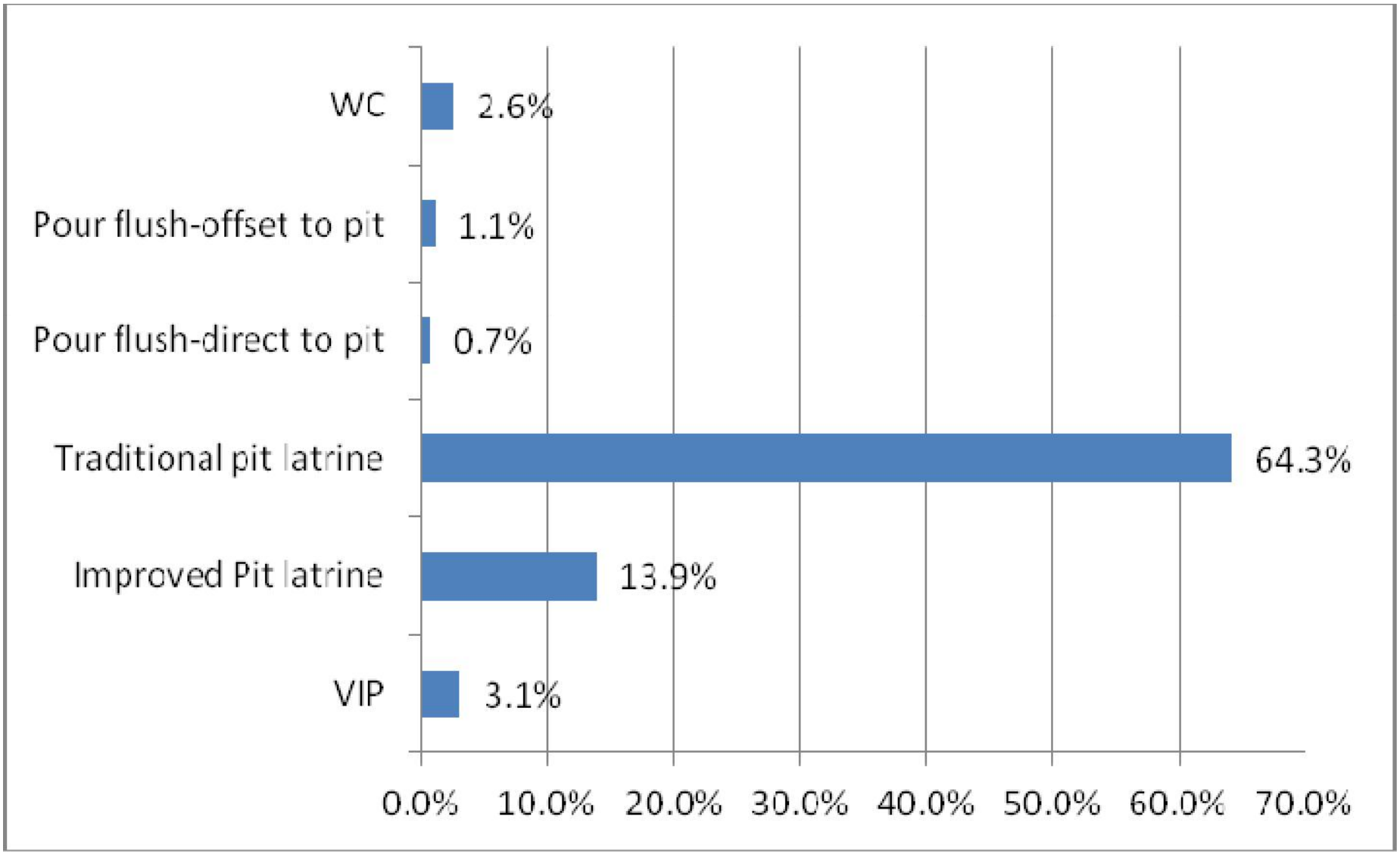
- Direct observations revealed that, majority of the sampled household in each ward have constructed latrines which are being used.

Type of Latrine	Mambali	Masieda	Mtoa	Total
1. VIP	5 (1.6%)	26 (6.5%)	2 (0.5%)	33 (3.1%)
2. Improved Pit latrine	69 (22.2%)	64 (16.1%)	17 (4.5%)	150 (13.9%)
3. Traditional pit latrine	60 (19.3%)	303 (76.1%)	333 (89.0%)	696 (64.3%)
4. Pour flush-direct to pit	5 (1.6%)	2(0.5%)	0(0.0%)	7(0.7%)
5. Pour flush-offset to pit	10(3.2%)	0 (0.0%)	2(0.5%)	12(1.1%)
6. Water closet with septic tank system	9(2.9%)	0(0.0%)	19(5.1%)	28(2.6%)
Total	311 (78%)	398 (98.8%)	374 (93.0%)	1,083 (90.0%)

Odds ratios on latrine construction

	Own latrine	OR	95%CI	p-value	Total
Literacy level					
Illiterate	375(82.4)	1			455
Literate	708(94.7)	3.8	[2.5 – 5.6]	0.0	748
Education level					
Not formal/Adult education/Do not Read and Write	397(83.1)	1			478
At least Primary education	686(94.6)	3.6	[2.4 – 5.4]	0.0	725
Roofing materials					
Thatched grass	325(80.1)	1			406
Earth/mud	512(95.0)	4.7	[3.0 – 7.5]	0.0	539
Corrugated iron sheets	246(95.3)	5.1	[2.7 – 9.6]	0.0	258
Total	1,083(90.0)				1,203

Overall percentage of latrine options constructed by households in the surveyed districts



Traditional pit latrine

Improvement in latrine quality

Household latrines before and after the intervention – Mambali Ward

Quality latrines constructed

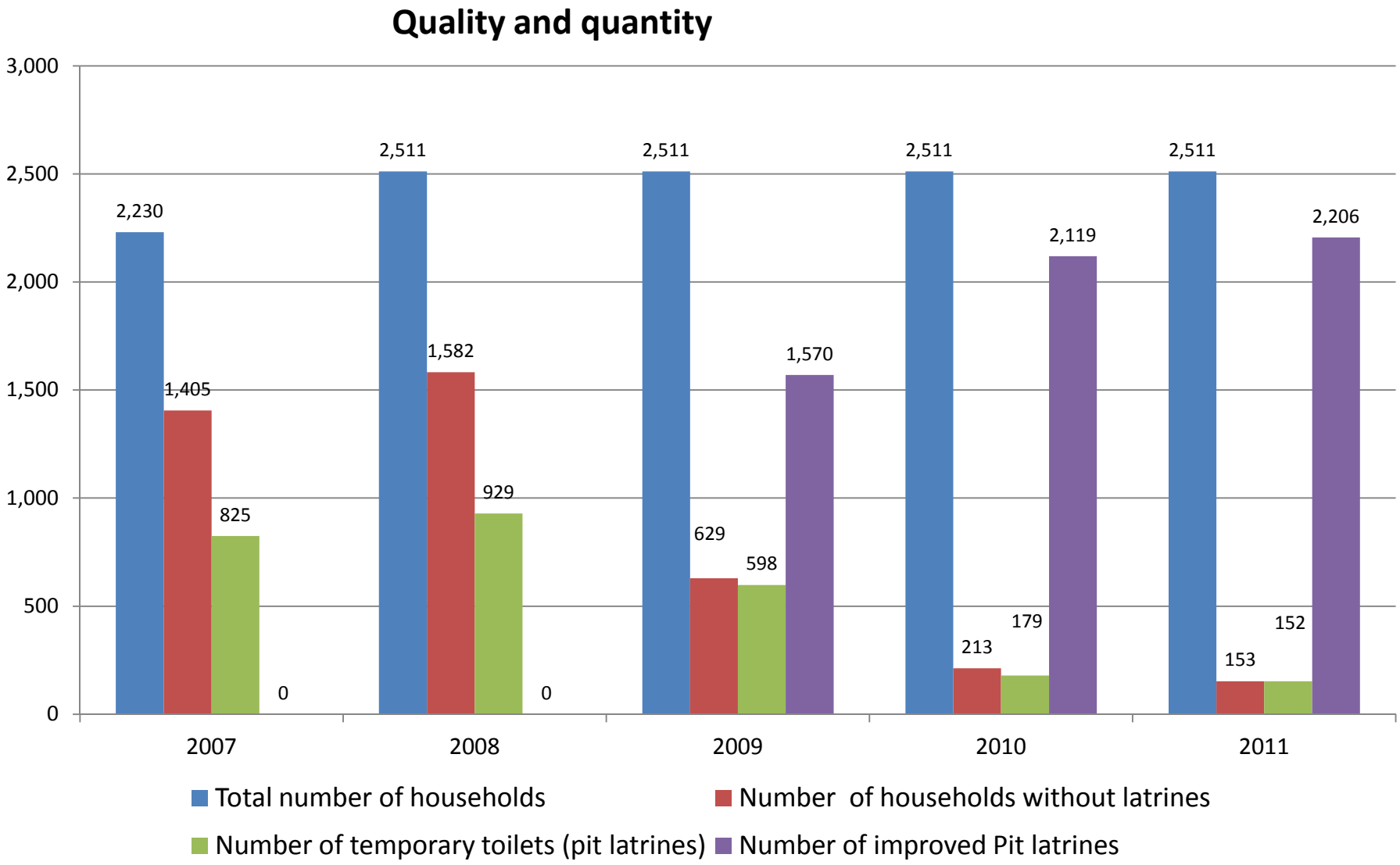
An Improved Traditional Latrine and a bathroom constructed by grass owned by a household at Mbutu village, Mambali Ward.

Construction of improved latrines with hand washing tippy tap

Study respondent inf ront of his improved latrine in-Mambali Ward, Nzega.

Locally available materials used for construction of improved latrine by a Barbaig family at Endahagichan village - Masieda ward

A child demonstrating on hand washing using a tippy tap at Umburu sub-village in Masieda ward



Improved traditional pit latrine was shown to be mostly preferred by majority of the households

5.0 Impact of MTUMBA

- **Hygiene and sanitation behavior change after MTUMBA**

✓ 80.05% of the respondents in the household survey have noted sanitation and hygiene behavior changes in a span of three years of MTUMBA implementation.

✓ Key changes:

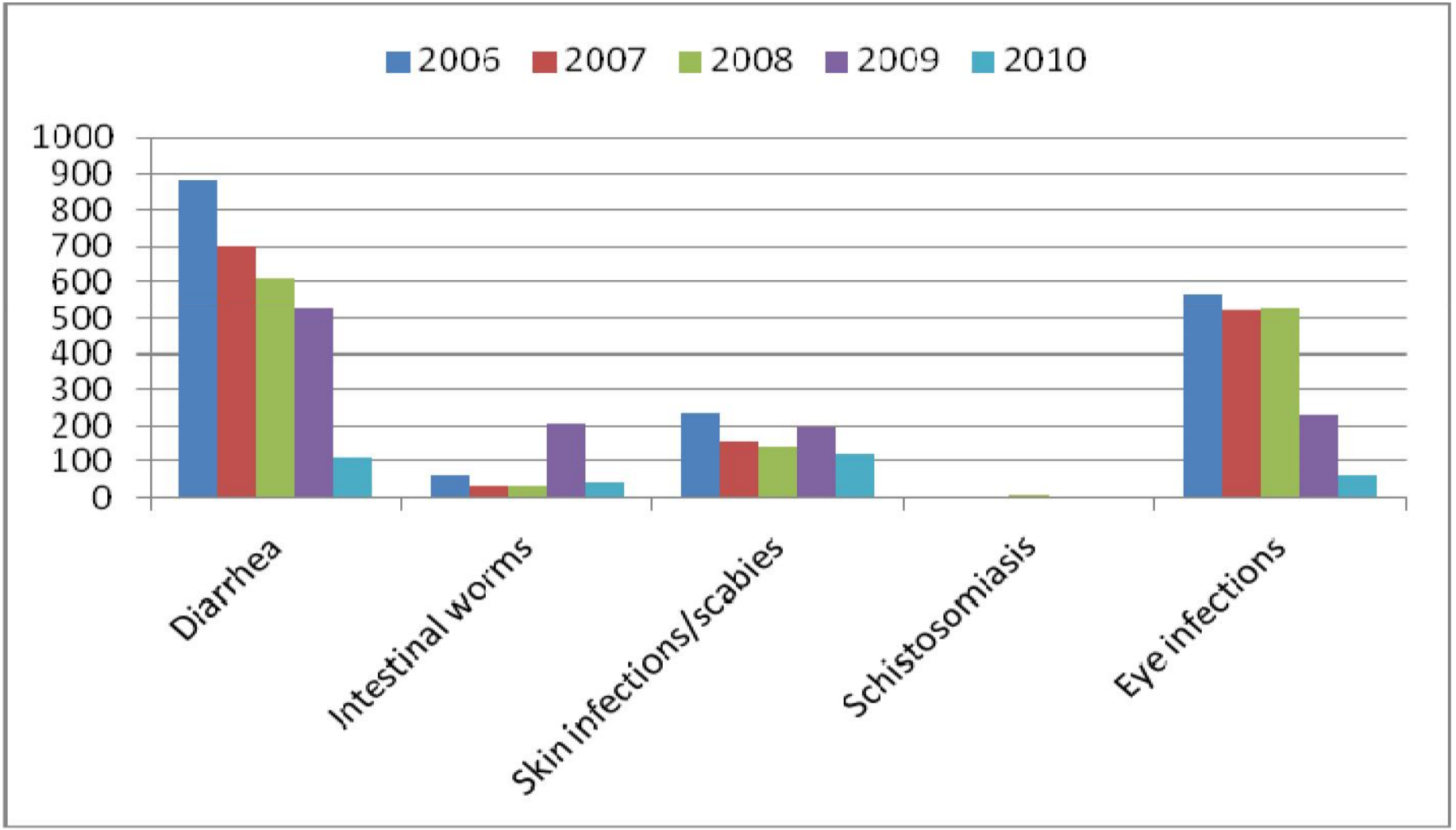
i. Decline of open defecation

ii. Majority of people are now using latrines

iii. Disposal of child feces in latrines

iv. Hand washing after visiting latrine

Observed decline in waterborne diseases in underfives



6.0 **Preference of sanitation technologies in the study sites**

Domain	Masieda- Mbulu	Mambali- Nzega	Mtoa- Iramba
Attributes of preferred technology	i. Slab- Sungura type ii. Walls- poles with mud iii. Roof- poles with mud	i. Slab- Sungura type ii. Walls- mud bricks iii. Roof- thatched grasses (Maluli)	i. Slab- Sungura type ii. Walls- mud bricks iii. Roof- poles with mud
Local name	Tembe	Kihenge	Tembe
Reasons for the preferred technology	• Affordable for majority of people • Local materials- soil, poles easily available • Aunts destroy building materials- grasses if used • Grasses are scarce as the area is dry • Artisans are available in the area and costs of labour manageable • Slabs (Sungura type) are available at Sanitation Centre and prices are affordable	• Costs are affordable to the majority of people • Local materials- soil, grasses easily available • Artisans are available in the area and costs of labour manageable • Slabs (Sungura type) are available at Sanitation Centre and prices are affordable	• Costs are affordable • Local materials- soil, grasses easily available • Artisans are available in the area and costs of labour manageable • Slabs (Sungura type) are available at Sanitation Centre and prices are affordable

7.0 Costs of implementing MTUMBA

	Mtoa	Mbulu	Nzega
Buildings: Financial	20,533,333	24,166,666.70	26,100,000
Economic	23,698,889	27,892,361.11	30,123, 750
Motocycles/tillers/bycles: Financial	4,480,000	3,600,000	3,600,000
Economic	5,170,666	4,155,000	4,155,000
Demo Latrines: Financial	642,600	632,000	736,000
Economic	774,643	729433.34	765,235.60
	55,300,131	61,175,461	35,356,236

Average costs per ward is Tshs 50,610,609/=

Costs of latrine options in Mambali ward

Type of latrine	Description	Total (Tshs)
1. VIP	Roof of corrugated iron sheet, dry bond lined pit, floor with dome slab	262,000
2. Improved Pit Latrine 1	Thatched roof, pit made of cement-earth bricks, floor with dome slab	110,700
3. Improved Pit Latrine 2	Thatched roof, pit made of burnt bricks, floor with dome slab	110,700
4. Improved Pit Latrine 2	Roof of corrugated iron sheet, pit made of cement bricks, floor with dome slab	124,300
5. Improved Pit Latrine 4	Roof of corrugated iron sheet, pit made of dry bonds, floor with dome slab	134,300
6. Improved Pit Latrine 1	Thatched roof, pit made of wattle (kihenge), floor with SanPlat	45,700
7. Institutional latrine	Roof of corrugated iron sheet, pit made of dry bonds, floor with dome slab	338,000
8. Urinal	Roof of corrugated iron sheet, floor with a urinal farrow for men	240,500
9. Abaloo	Thatched roof, pit made of mud/wattle (kihenge), floor with small dome slab	20,000
10. Pour flush offset latrine	Ferro-cement roof, pit made of dry bonds, floor with SanPlat	169,000
11. Disabled and elderly latrine	Roof of corrugated iron sheet, pit made of dry bonds, cement floor, with a chair form of latrine, metal rails for support	383,000
12. Kilimo kwanza latrine	Roof of corrugated iron sheet, pit made of dry bonds with doors for removal of composite, floor with dome slab with urine diversion	846,500

Costs of latrine in Masieda ward

Type of latrine	Description	Total (Tshs)
1. VIP latrine	Roof of corrugated iron sheet, burnt brick wall, floor with SanPlat	290,000
2. Institutional improved pit latrine	Roof of corrugated iron sheet, burnt brick wall, floor with SanPlat	499,000
3. Traditional improved pit latrine		
i. Tembe	Mud/earth roof, wattle/mud wall, floor with SanPlat	129,500
ii. Songe	Thatched roof, wattle/cow dung wall, floor with SanPlat	135,000
iii. Kambi	Thatched roof, cement finish wattle/mud wall, floor with SanPlat	210,500
4. Special groups	Roof of corrugated iron sheet, burnt brick wall, with a chair form of latrine, metal rails for support	199,000

8.0 Factors contributed to observed changes

- Community made aware of the linkage between human fecal matter and waterborne diseases
- Expected health benefits of latrine use
- Constant messaging by SEMA, HAPA, DMDD, leaders, animators and artisans
- Presence of a sanitation centre which demonstrated that improved latrine is cheap and doable
- Follow up by district, ward and village leaders

Factors contributed to the observed changes

Triggering activities and constant messaging in the wards

Sustainability issues

- Trained artisans and provided them with working tools and revolving fund
- District sanitation team composed but inactive
- Council Executive Directors from the three districts are supporting the incorporation of MTUMBA activities in the Comprehensive Council Plan (CCHP) – a step towards district ownership
- Districts budgeted for initial scale up of MTUMBA to new wards in the new financial year 2011/2012

Shortfalls noted

- Animators lacks reliable incentives/ compensations for their efforts
- Only health departments among the district sanitation team members are active
- District health supervisory roster does not include supervision of MTUMBA activities
- Neighboring villages were not informed about Mtumba
- Promotion and demonstration is skewed to latrine construction and hand washing technologies and none on household water treatment and safe storage

9.0 Conclusion and Recommendations

- MTUMBA raises hygiene and sanitation expectations and needs which must be met with an appropriate range of products and services provided by the private sector.

- In all districts visited systems to facilitate supervision, monitoring and regular assessment of SANITATION activities were not in place.

- The integration of MTUMBA into the government structures is an important step towards improving the effectiveness and efficiency of the approach in bringing about the desired community sanitation and hygiene behavioural changes---- **donor funding to support MTUMBA activities need to be channelled through LGA**.
- MTUMBA needs multi-sectoral collaboration; key district departments need to be effectively involved.
- Evidence based guideline is needed on latrine options relating to the Tanzanian context, considering community preference, construction materials, ease of use, willingness and ability to pay

EXPANDING THE MTUMBA MODEL: CREATING A PRODUCT FOR SCALE UP

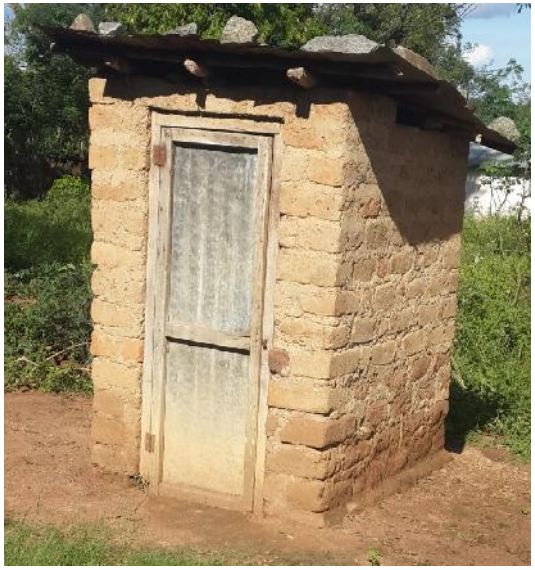
Training or artisans and animators prior to community triggering

Hands on practice training

Some of new latrines after Mtumba implementation in Geita







Acknowledgement

- Funded by Sanitation and Hygiene Applied Research for Equity (SHARE) consortium through WaterAid in Tanzania
- Partners: SEMA (Singida and Nzega), HAPA (Singida and Nzega) and DMDD (Mbulu).
- Local government authorities in Singida, Nzega and
- NIMR and WaterAid officials are thanked for their technical support

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This material has been funded by UK aid from the Department for International Development (DFID). However, the views expressed do not necessarily reflect the Department's official policies.

Thanks for Listening

Sanitation & Hygiene Research Symposium
Protea Courtyard Hotel, Dar es Salaam
4th August 2015

MicroSave
Market-led solutions for financial services

Sanitation Microfinance

Name: George Muruka
Affiliation: *MicroSave*

share
Sanitation and Hygiene Applied Research for Equity

MITU
Mwanza Intervention Trials Unit

Microfinance and Applicability on Sanitation

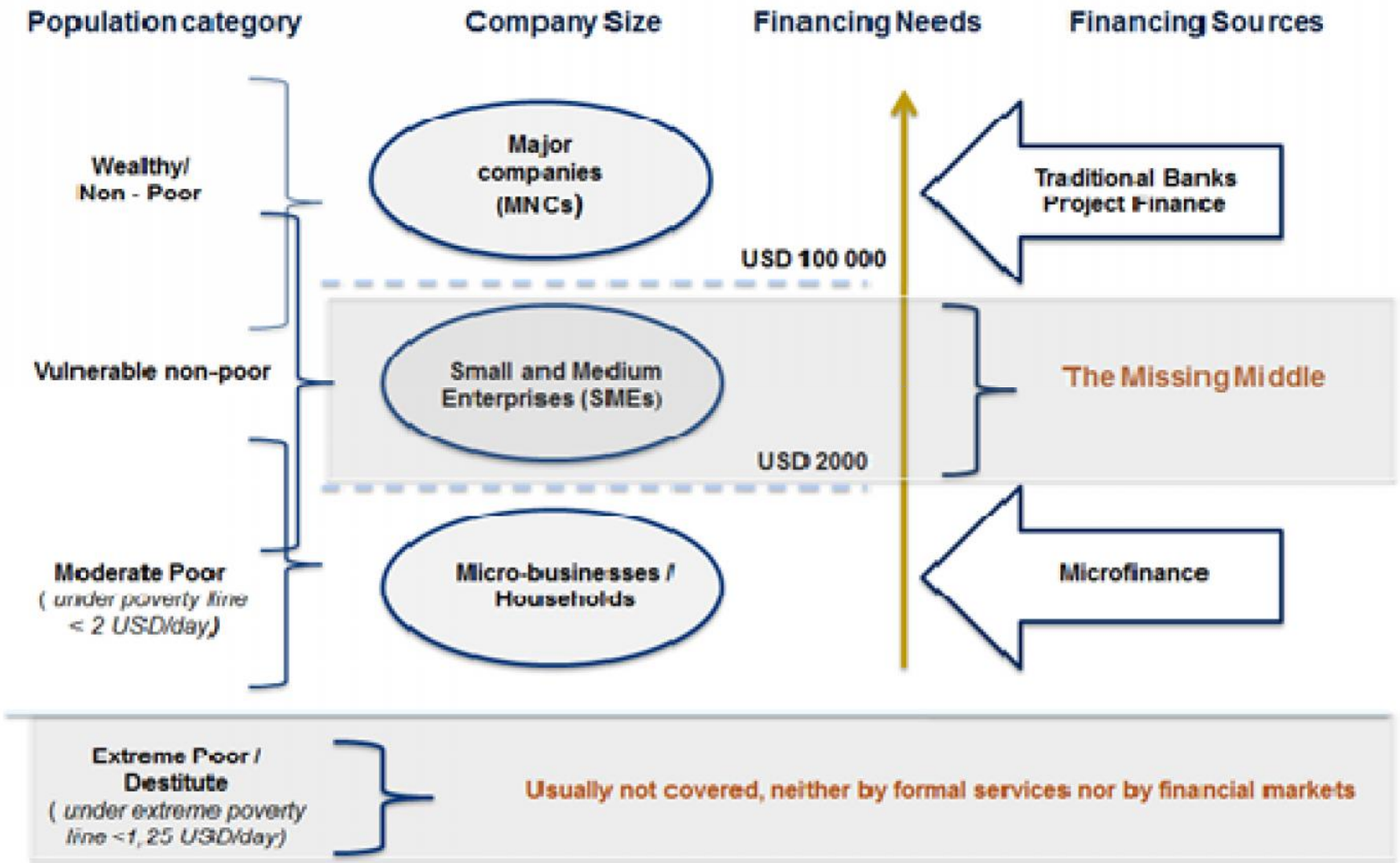
- **Phase I: Global trends (2010)**
  - Desk literature reviews
  - Most activities in India
- **Phase II: Field Studies (2011)**
  - Studies in India
  - Similar study in Tanzania
  - Need to explore applicability of lessons from India to Tanzania
- **Phase III: Action Research (Dec 2013 – Jan 2015)**
  - Learning by doing
  - Product development
  - Program design and advice
- **Phase IV: Dissemination (2015)**
  - Sharing of lessons
  - Raising profile of Sanfinance

Sanitation and Microfinance Nexus

- Financing constraints:
  - Small informal operators suffer limited capital
  - Low institutional capacity (e.g. business operation skills)
  - Enterprises are heavy on social mission

- Water + sanitation challenges by the poor:
  - Both focus on the poor segments
  - Poor households spend much of HH income on sanitation
  - Sanitation loans can be income enhancing and reduce household burden
- Limitations of public funding/programs:
  - Limited public funding for both sectors.
  - Limitations of public driven programs
  - Limited grants focussed on market development facilitation.
- Progressive regulation:
  - Progressive regulation and good press for microfinance in EA region
  - Commercialisation, a challenge to social mission.
  - Similarly, WASH regulations progressively opening up.

Financing Structure



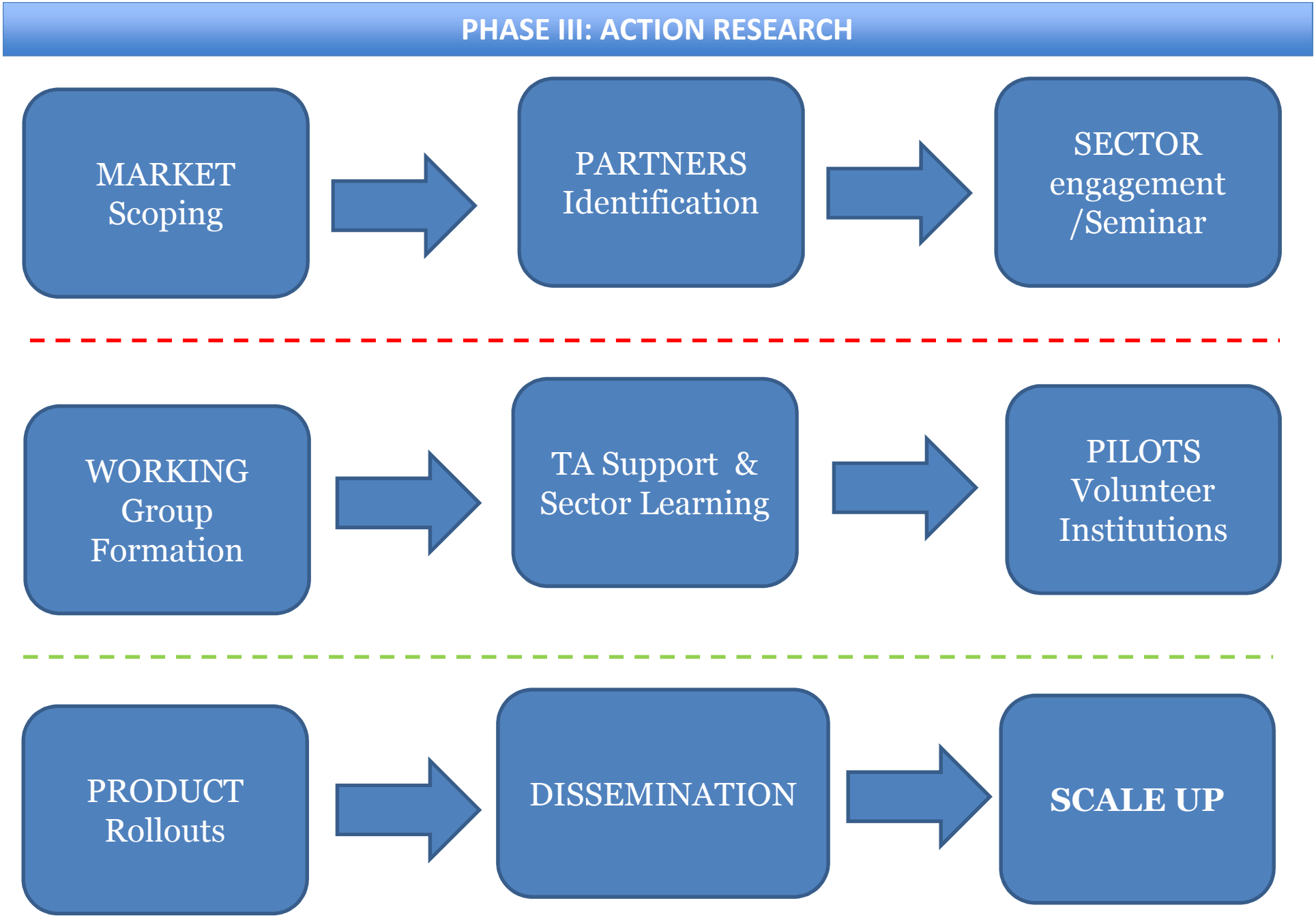
Financing gap in the sanitation market (HH & SMEs)

General Findings of Phase I and II

1. Limited understanding of the WASH sector:
   - FIs familiar with business/trading sector lending,
   - WASH NGOs not familiar with FIs demands
2. Progressive commercialization of WASH activities:
   - Progressive commercialization of services
   - WASH NGOs focus on advocacy, awareness creation
3. Regulatory environment
   - Recognition of need of private sector financing in sanitation
   - Improved financial inclusion through microfinance laws and digital financial services.
4. Market size in India+Africa: US$ 12 bn (2004 – 2015) (Mehta, 2008)

Sanitation Microfinance Action Research in Tanzania

(December 2013 – January 2014)


PHASE III: ACTION RESEARCH
MARKET Scoping
PARTNERS Identification
SECTOR engagement /Seminar
WORKING Group Formation
TA Support & Sector Learning
PILOTS Volunteer Institutions
PRODUCT Rollouts
DISSEMINATION
SCALE UP

Project Core Activities & Results

Sector Engagement

3 WG Meetings

40 participants

3 ARPs (2 MFI & 1 NGOs

Loans products
Lessons in SMf

=

Lending pilots US$ 3,000

Demand for Lending capital

LESSONS

- **Need for a host institution:**
  - WaterAid Tanzania provided a much needed anchor to host and supported the project
- **Leveraging on existing networks**
  - WG attract both FI and Sanitation NGOs
  - Donor representatives important for advocacy and change of discourse.
  - Link with small scale finance for housing finance in Tanzania.
- **Long term engagement with FI sector**
  - Need to continue engaging with the banking sector through dialogue & peer learning meetings
  - Mainstream banks/Community Banks required more assurance of the market.
- **Continued engagement wit the Sanitation sector?**
  - Promote information exchange platform for sanitation microfinance e.g. the SWG
  - Policy & advocacy: engagement with government and international agencies on how to leverage on microfinance.

Scaling up Sanitation Microfinance

- Regular **market assessment** of supply and demand for Sanitation finance (micro and meso finance) to track market development.
- Build upon **existing innovative programmes**: e.g. Informal settlers sanitation groups, rural sanitation technician networks.
- Careful **selection of FIs** and financing channels e.g. Select interested FIs and encourage MFIs and NGOs partnerships
- Develop and/or support to **Apex Institutions** e.g. TAMFI supporting SWG
- Advocacy for improvement of **sanitation business regulatory** environment

Role of Consultants e.g. *MicroSave* and Tremolet

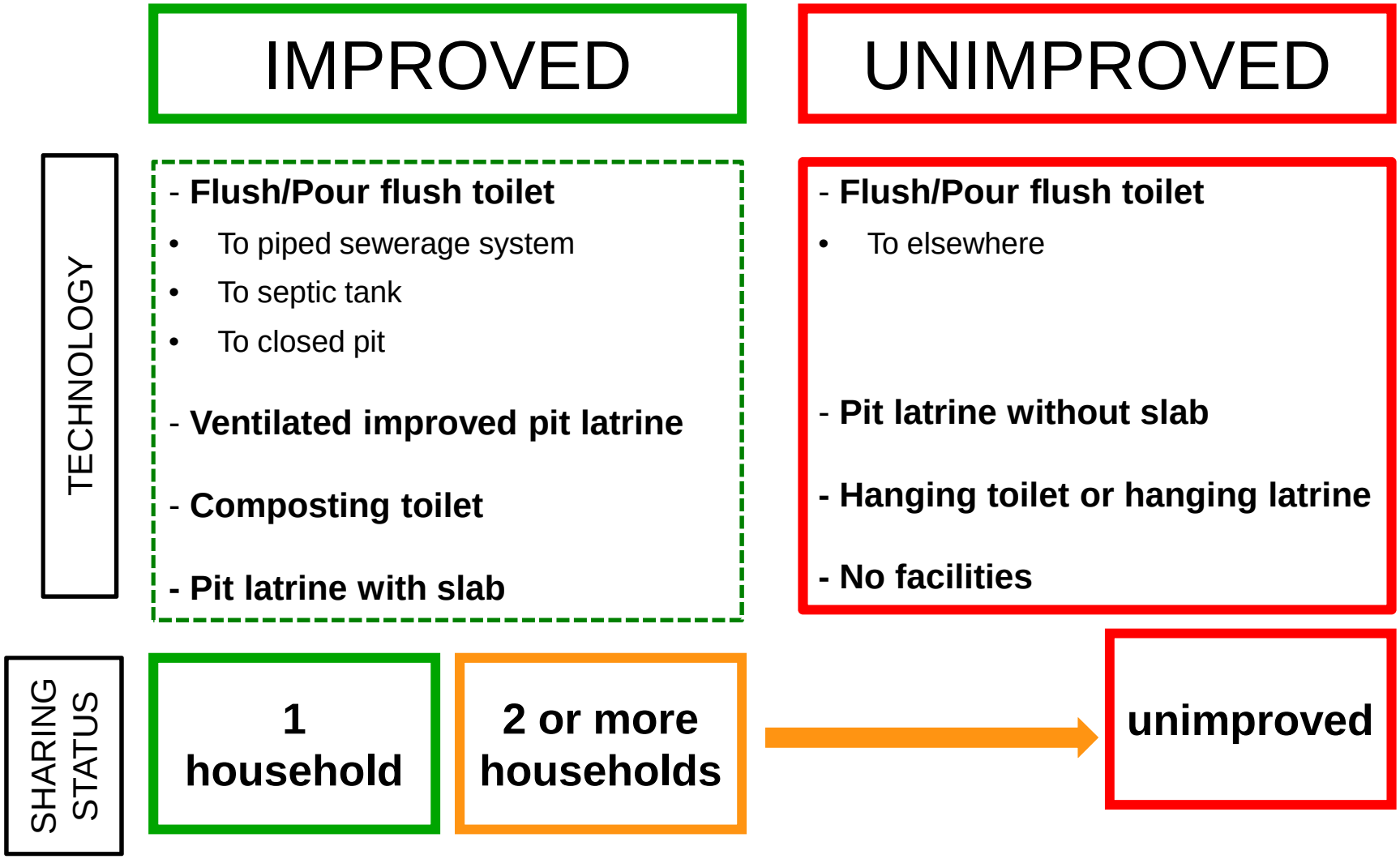
- Market Assessment:
  - Market research
  - Business Needs Assessments
- Market development:
  - Facilitating sectors actors
  - Advocating for synergies between the two sectors
  - Supply and demand assessments
- Technical support
  - Training
  - Product development
  - Program design and advice
- Lessons dissemination
  - Advocacy
  - Profile raising

SHARE II Symposium
Protea hotel, Dar es Salaam
4th August 2015

Shared sanitation, what constitutes an improved form of sanitation?

Name: Jeroen Ensink
Affiliation: London School of Hygiene & Tropical Medicine

WHO/ UNICEF JMP classification of sanitation



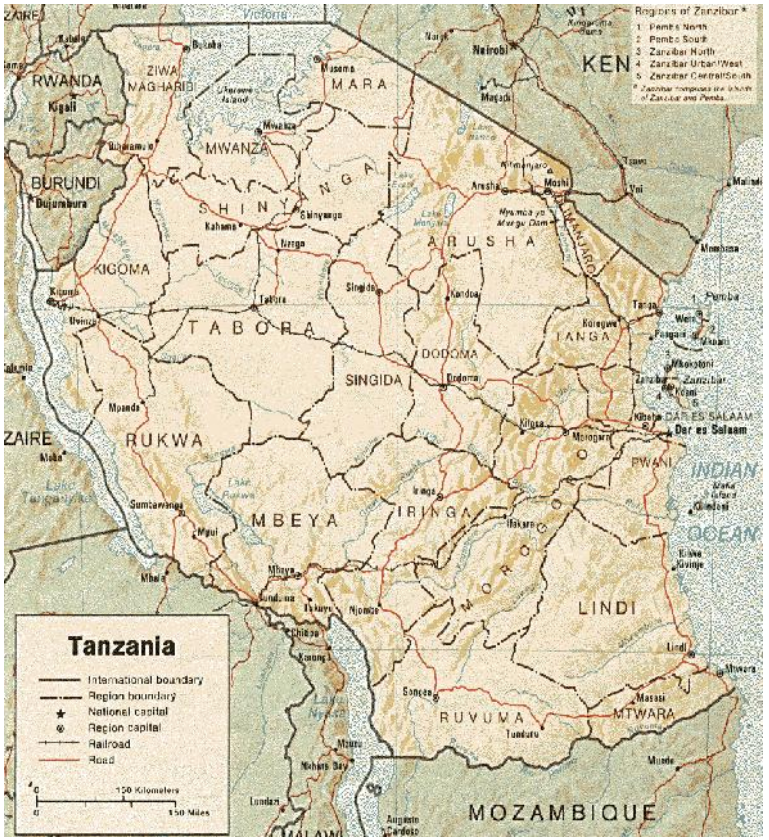
Sharing facilities

- Estimate 760 million people rely on public and other shared sanitation (JMP 2013)
- Globally, the number of users has increased by 425 million since 1990 – increasing from 6 per cent of the global population to 11 per cent in 20 years
- Nearly a fifth of the population of sub-Saharan Africa and Eastern Asia reports using shared sanitation

Hygiene along the sanitation ladder

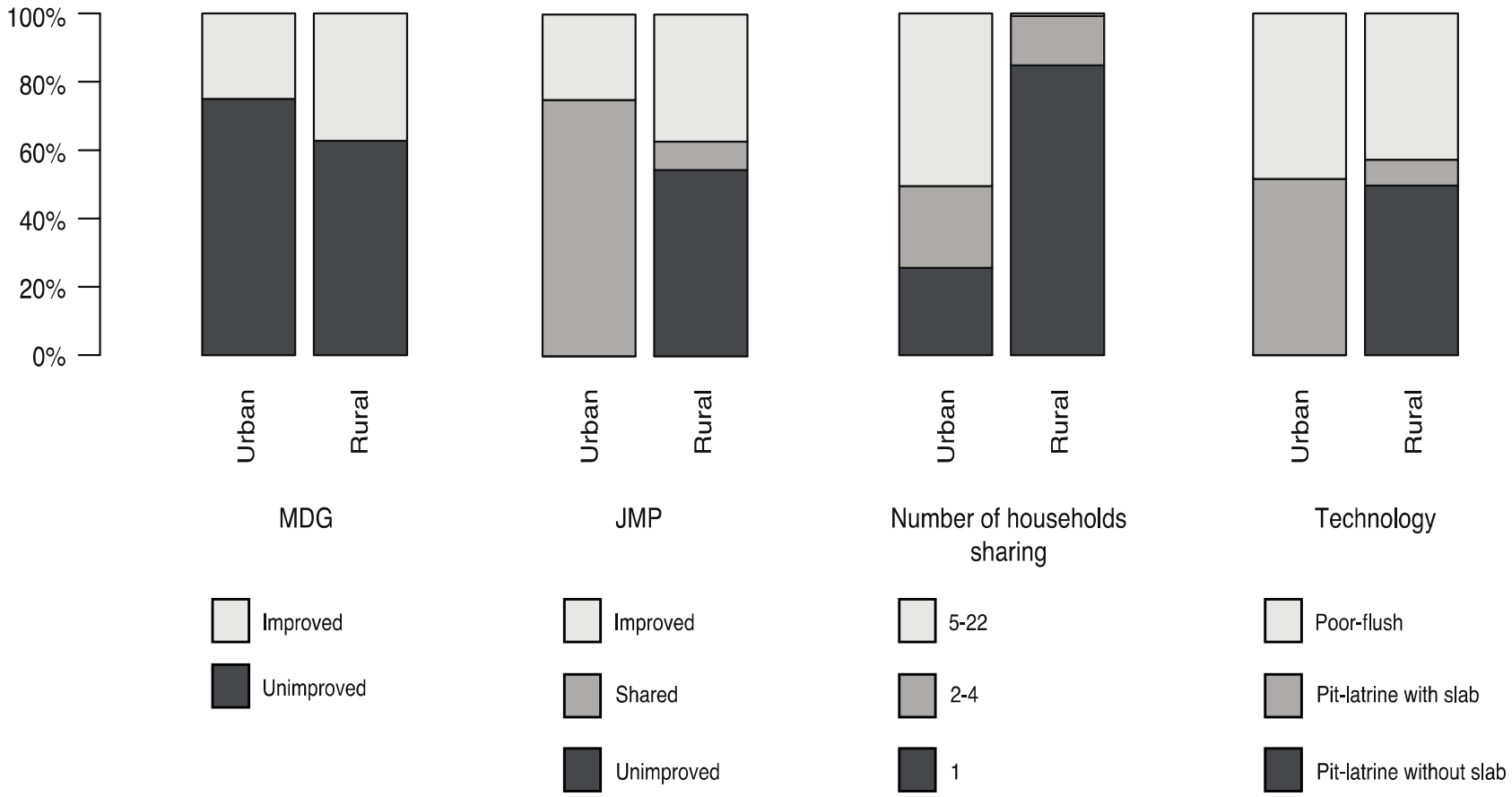
- Selection of >350 latrines
- Divided over different groups
  - Rural vs Urban
  - Improved vs Unimproved
  - Shared vs Family latrine
  - Different technology
- Impact of seasonality
- Comparative sample within the household

- Different transmission routes
  - Hand contact point sampled for presence and concentration of *E. coli*
  - Soil samples analysed for helminths
  - Fly catches within latrines

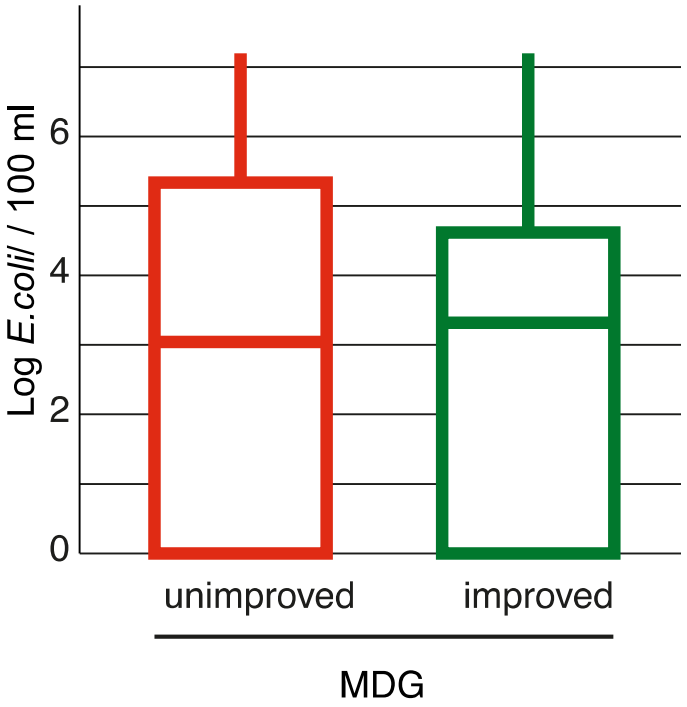


Hand contact (*E. coli*)

Latrine characteristics



E. coli at point of hand contact



Risk factors

E. coli

- Higher levels of contamination in dry season (10 vs 37 *E. coli*/100 ml)
- The higher the number of users the cleaner the facility
- Mutivariate: presence of a slab, and season significant

Helminths

- No correlation between type of latrine and concentrations in courtyard
- 60% of latrines without a slab positive, 100% of latrines with a cracked slab

Flies

- Concentrations low
- Urban latrines produce more flies and higher levels of sharing result in more fly
- Absence of a roof a key risk factor

Conclusions

- Pit latrines without a slab can pose a risk for hookworm infection
- Need to come-up with solutions to improve the simple pit latrine (without a slab)
- Use and management seem more important in hygiene of a latrine than technology alone
- Shared latrines should be included as an improved form of sanitation in new SDGs

Acknowledgement

BILL & MELINDA GATES foundation

shareSanitation and Hygiene Applied Research for Equity

UKaid from the Department for International Development

This material has been funded by UK aid from the Department for International Development (DFID). However, the views expressed do not necessarily reflect the Department's official policies.

Spatial planning for urban water & sanitation infrastructure & services in 4 African cities

Based on Research conducted by

Timeyin Uwejamomere, Technical Support Manager – Urban

&

John Garrett, Senior Policy Analyst

WaterAid

Presented at SHARE National Workshop, Dar es Salaam

4th August, 2015

Water and sanitation: the global context

- Most people have safe water and sanitation, but it's far from universal

- 748 million people without improved water (but c. 2 billion drink contaminated water)

- 2.5 billion without basic sanitation (2x population of Commonwealth)

- Inequality: rural / urban, urban / slum, rich / poor, mainstream / marginalised, men / women and children

- **Diarrhoea is still among the biggest killer diseases of children**

Source: WHO/UNICEF Joint Monitoring Programme

The Urban Challenge: City vs Country populations

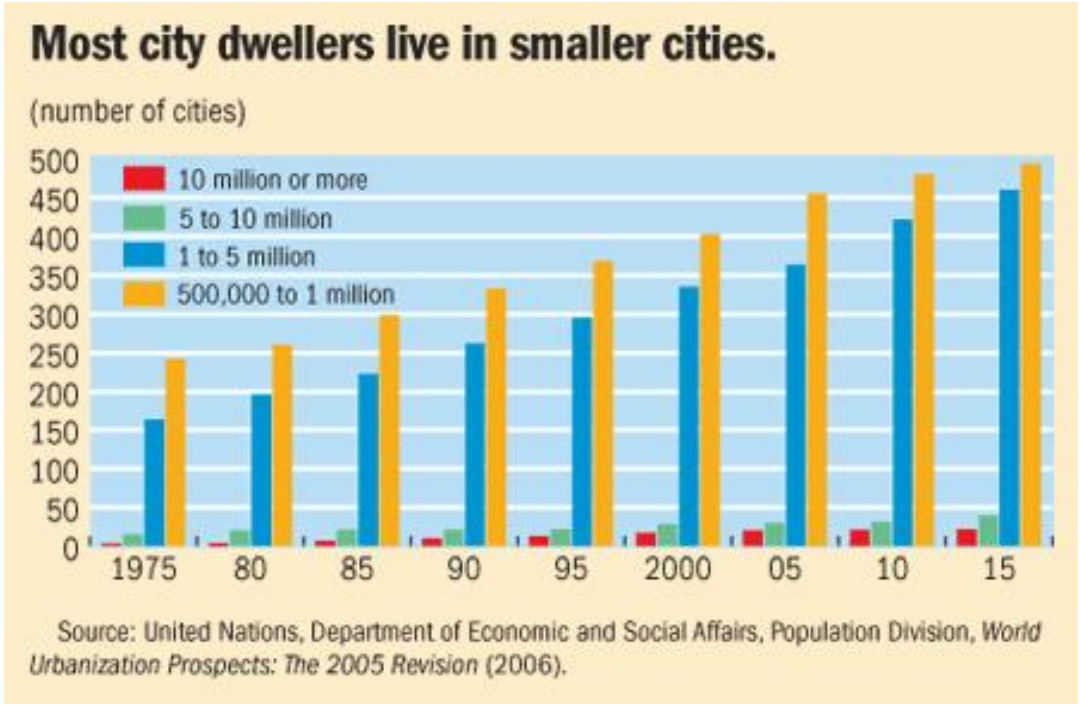
City	Population	Country	Population
Delhi	25.0 million	Australia	23.1 million
Karachi	22.1 million	Canada	35.2 million
Mumbai	17.7 million	Cyprus	0.9 million
Dhaka	15.7 million	Malta	0.4 million
Kolkata	14.7 million	New Zealand	4.5 million
Lagos	13.1 million	Singapore	5.4 million
Lahore	10.1 million	UK	64.1 million
Total	**118.4 million**	**Total**	**133.6 million**

Source : Demographia World Urban Areas, 2015, UN DESA 2012-13 mid-year estimates

“Cities are where the battle for sustainable development will be won or lost...”

Report of the High Level Panel on Post-2015 Development Agenda

The Urban Challenge: Small towns are the hotspots



“By 2050, nearly 75% of the world's population will live in cities. This growth creates new opportunities but also presents cities with huge economic, environmental and social challenges.

The Urban Challenge: Inequality vs Sustainability...

- Should we take broader view of "smart"?
  - fit-for-purpose infrastructure
  - good governance
  - excellence in leadership and vision

"And not just in the form of **technology**, but also crucially through **leadership, innovation** and **collaboration**?"

Source: CSCLeaders, Common Purpose

- **Is equity and sustainability essential characteristics too?**

Consider Kibera in Nairobi,

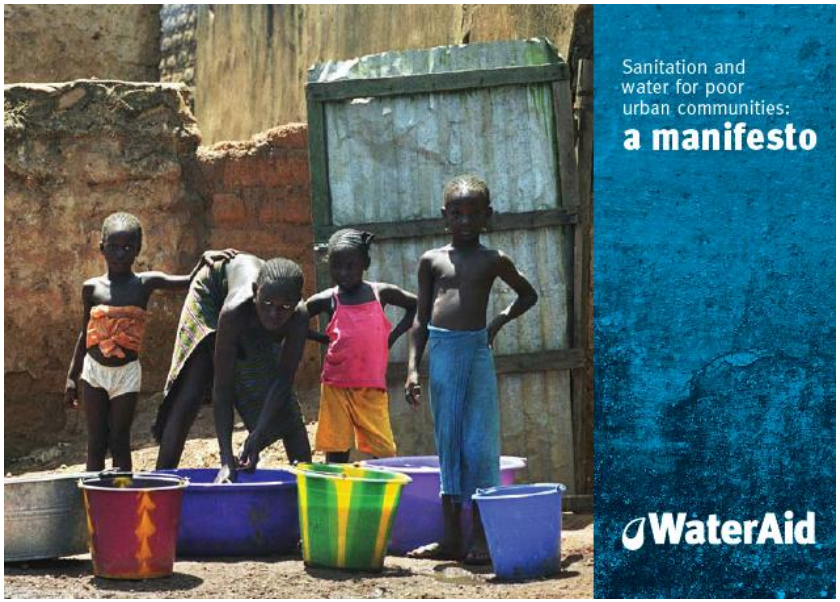
- one of the largest slums in the world,
- where finding safe water and sanitation is part of the daily struggle

But,

- Next to Royal Nairobi Golf Club,
- where green fairways suggest water is readily available
- 32% of children under five in Kenyan slums have diarrhoea, compared with 17% nationally (2008 figures)

WaterAid Response to Urbanisation – A Manifesto

WaterAid's urban manifesto…



WaterAid (2011) *Sanitation and water for poor urban communities: a manifesto* - file:///C:/Documents%20and%20Settings/Timeyin/My%20Documents/Downloads/urban_manifesto.pdf

Sets out WaterAid's action plan for universal water supply & sanitation services in urban communities

4 Key calls on local authorities, governments & donors to:

❖ Prioritise poor communities within investments in water and sanitation

❖ Improve data collection & disaggregation to support pro-poor targeting of interventions

❖ Develop integrated city-wide plans for urban basic services

❖ Better co-ordinate urban planning and organisations delivering water and sanitation services

WaterAid

WaterAid City-wide spatial planning project…

- Started in April 2012
- Project to analyse the level of citywide infrastructure planning for water supply and sanitation (WSS) in four African cities: Lusaka, Lagos, Kinshasa and Maputo
- Aim is to
  - understand what informs infrastructure planning and investments; and practice
  - produce high-level plans and proposals to inform planning & investment decisions – in 4 case cities
- Longer term: Promote the adoption & scale up of the concept of integrated spatial planning for water & sanitation within the development community
- Methodology:
  - Includes series of workshops & consultation meetings in 4 case cities
  - Close collaboration with authorities in four cities to build local ownership & adoption of proposals
  - Continue support to local authorities – technical advice & capacity building

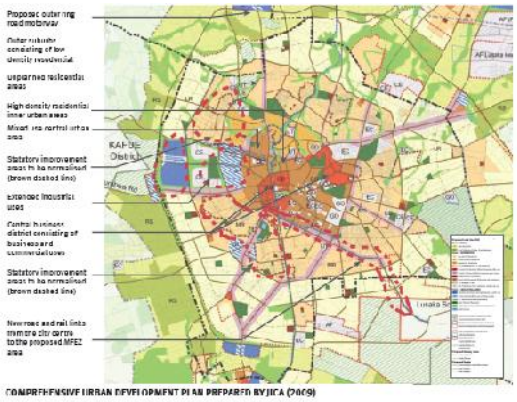
LAGOS

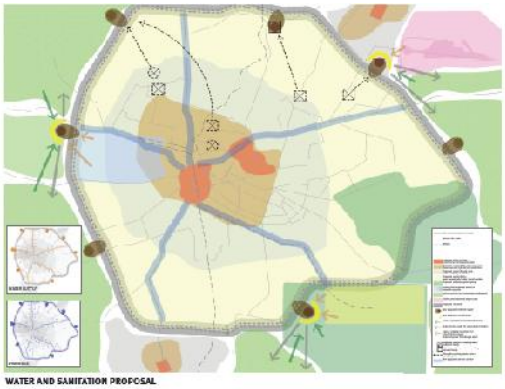
KINSHASA

MAPUTO

LUSAKA

Proposals: Water Supply...





WSS ring-mains proposal Lusaka: integrating the comprehensive 2009 urban plan supported by JICA

<u>Guiding principles:</u>

Long-term vision

Integrate projections for population growth and climate change

Secure the city's water supply, by protecting its fresh water resources

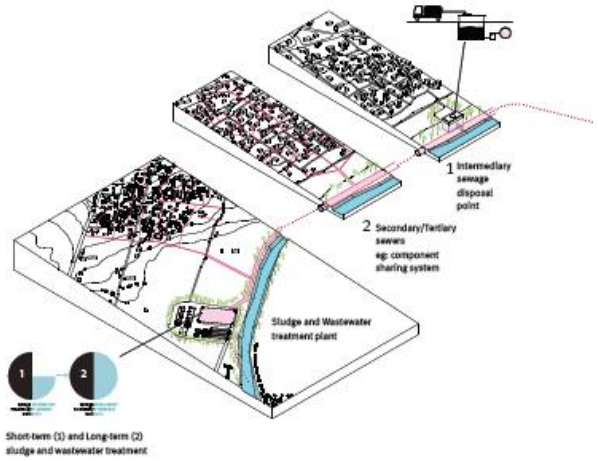
Reach future peri-urban communities

Linked to existing infrastructures

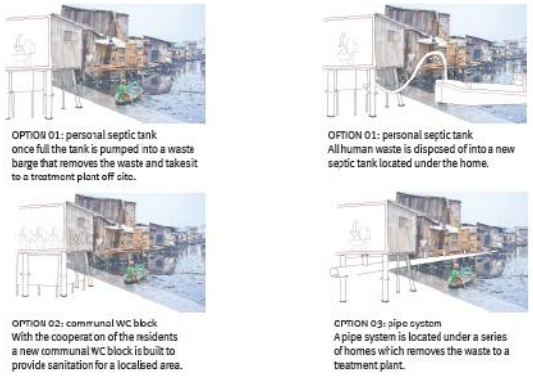
Integrate wider infrastructure plans, such as road construction or flood protection

Encourages cooperation between state and municipal departments

Proposals: Sanitation & Sewerage ...



Sewage proposal for Maputo – integrating sludge management.



Sanitation proposal for floating slums

<u>Guiding principles:</u>

Maximising the use of gravity: natural topography & hydraulic systems

Maximise economies of scale but phased implementation & preserves communities

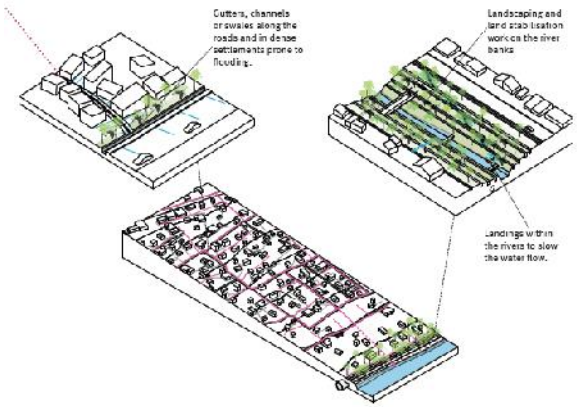
Long-term, large-scale infrastructure

Development of off-site wastewater treatment facilities

Integrate intermediary solutions for city-wide faecal sludge disposal & treatment

Sewage infrastructure adapted to context e.g. floating slums – Makoko, Lagos

Proposals: Drainages & Climate Change...



Drainage principles for Maputo & Kinshasa

Lagos – Flood protection of existing & new urban settlements

<u>Guiding principles:</u>

Separate sewage & drainage systems

Use rivers as primary drainage network whenever possible & combined with land stabilisation work

Integrate impacts of climate change risk

- **Most notably sea level rise & storm surges affecting some of the poorest settlements**

Sustainable planning & layout of WSS infrastructure is dependent on effects of climate change – particularly in Lagos and Maputo

Addressing these issues

•Dealing effectively with these issues will be essential to achieve smart cities:

•Requires joint work and collaboration between many areas: water, sanitation, drainage, flood defence, but also housing, urban planning, finance...

•Effective working between the public and private sectors, and between government at national, regional and local levels

•Mobilising funding and spending it wisely

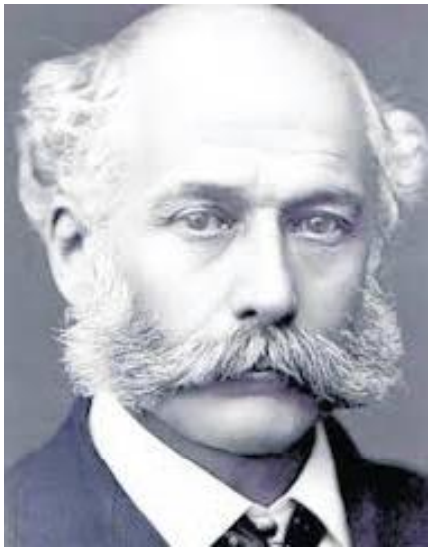
•Making best use of available data and technology

•Being prepared to adopt and implement long-term visions that take account of rapid growth and the effects of climate change

•Common purpose and cultural intelligence

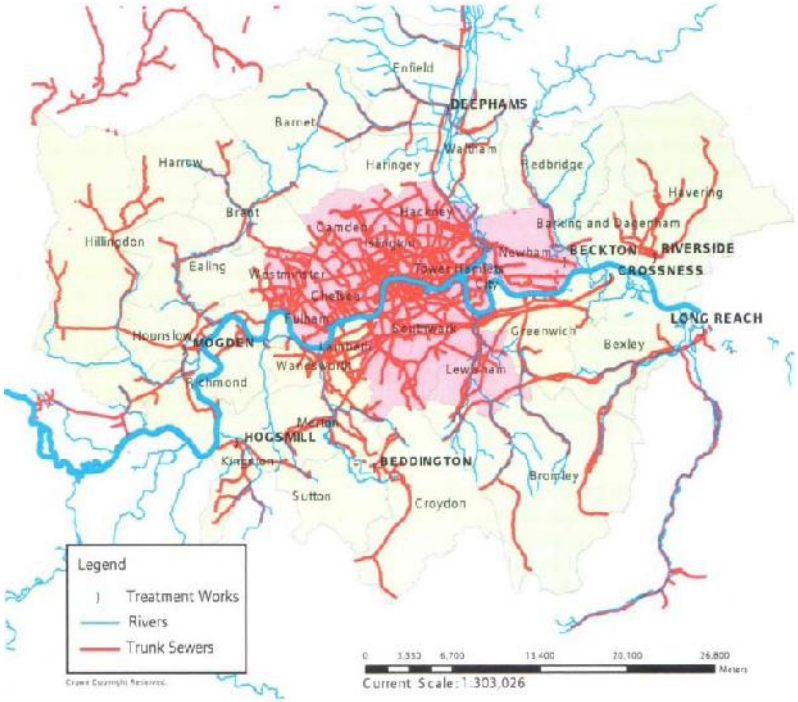
•…..and will require exceptional leadership.

Smart leadership: long-term vision



Sir Joseph Bazalgette,
Chief Engineer, London's Metropolitan Board of Works

Figure 6.1. The London sewer system. Thames Water, 2011.



•Long-term vision of the Victorians 150 years ago

•When London had 2 million people, they built a sanitation system to accommodate 4 million people

•Key question still unanswered: will developing country governments and international donors prioritise this kind of leadership & investment?

Thank you

Questions and discussion

WaterAid, 47-49 Durham Street, London SE11 5JD

Registered charity numbers 288701 (England and Wales) and SC039479 (Scotland)

Sanitation & Hygiene Research Symposium
Protea Courtyard Hotel, Dar es Salaam
4th August 2015

BUILDING CITY-WIDE SANITATION STRATEGIES FROM THE BOTTOM UP

Name: MWANAKOMBO M. MKANGA
Affiliation: CENTRE FOR COMMUNITY INITIATIVES

INTRODUCTION TO CCI AND FEDERATION

- CCI is a local based not for profit organization which supports urban poor communities with housing and shelter; community savings and credits and informal settlements upgrading. It started in 2004 and is working in 8 regions.

- **Tanzania Urban Poor federation –** A network of savings groups constituted at the community levels in informal settlements, with majority membership of women. These groups federate citywide and nationwide scale, and they are part of SDI (Shark Dwellers International) which is Transnational network of grassroots slum dwellers.

OVERVIEW OF CITY WIDE SANITATION RESEARCH IN TZ

INTRODUCTION TO CITYWIDE SANITATION RESEARCH

The citywide sanitation research had the aim to secure a model for development and realization of pro-poor city wide sanitation through scalable projects.

COMPONENTS OF THE RESEARCH

- Undertake Situational analysis to determine key challenges which limits promotion of sanitation in informal settlements areas.

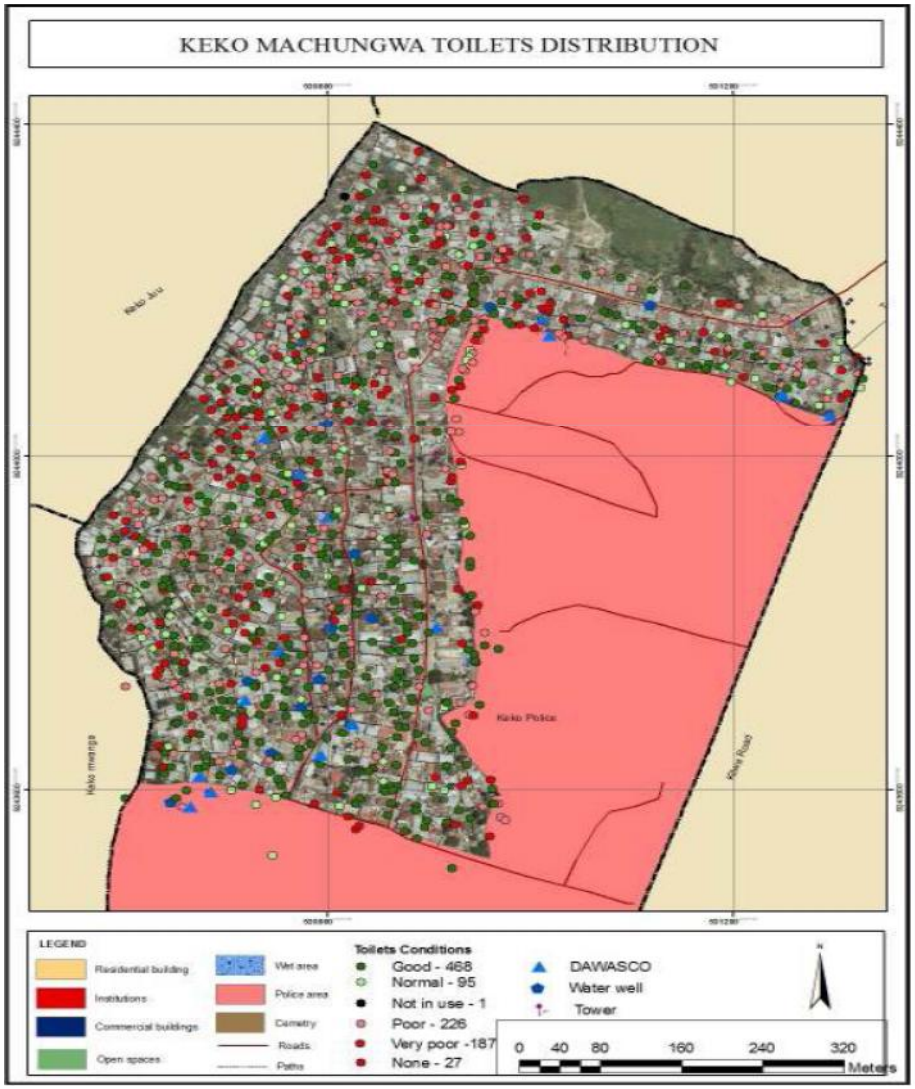
- Implement of precedent setting projects.

- Developing citywide sanitation strategies based on the above scalable precedents.

HOW THE WORK STARTED

- Introduction of the research to key stakeholders
- Identifying research team
- Training of the research team
- Data collection - Household survey, FGDs and taking GPS coordinates to collect information about latrines

FINDINGS: CRITICAL SANITATION CHALLENGES IN URBAN TANZANIA

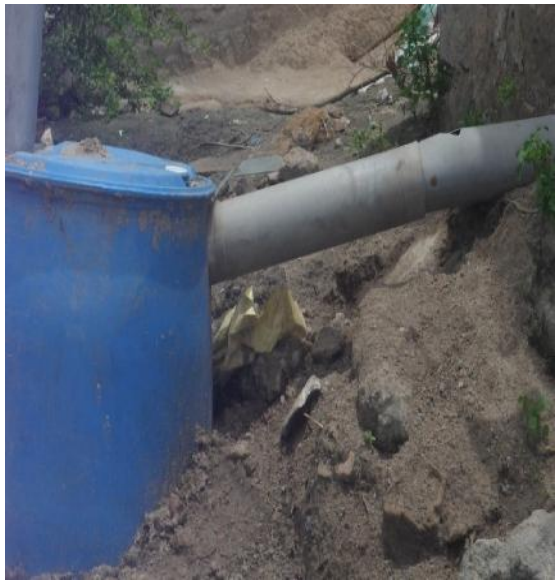


- Absence of Sanitation policy has led to absence of guidance to all relevant sectors, no clear common vision.
- The draft sanitation and hygiene policy does not specifically address the challenge of urbanization and lack of proper sanitation facilities for the urban poor.
- Individual sanitation are not in the public interest

FINDINGS: CRITICAL SANITATION CHALLENGES IN URBAN TANZANIA

- Inaccessibility within informal settlements for pit emptying
- Lack of space to construct toilet facilities
- Lack of skills to construct new sanitation options (technicians and artisans)
- Lack of appropriate technologies which are affordable to low income communities.
- Lack of affordable financial investments which include the poor communities.
- Lack of landlords and tenants relationships
- Lack of collaboration and partnerships between the urban poor and the Local Governments.

FINDINGS: CRITICAL SANITATION CHALLENGES IN URBAN TANZANIA



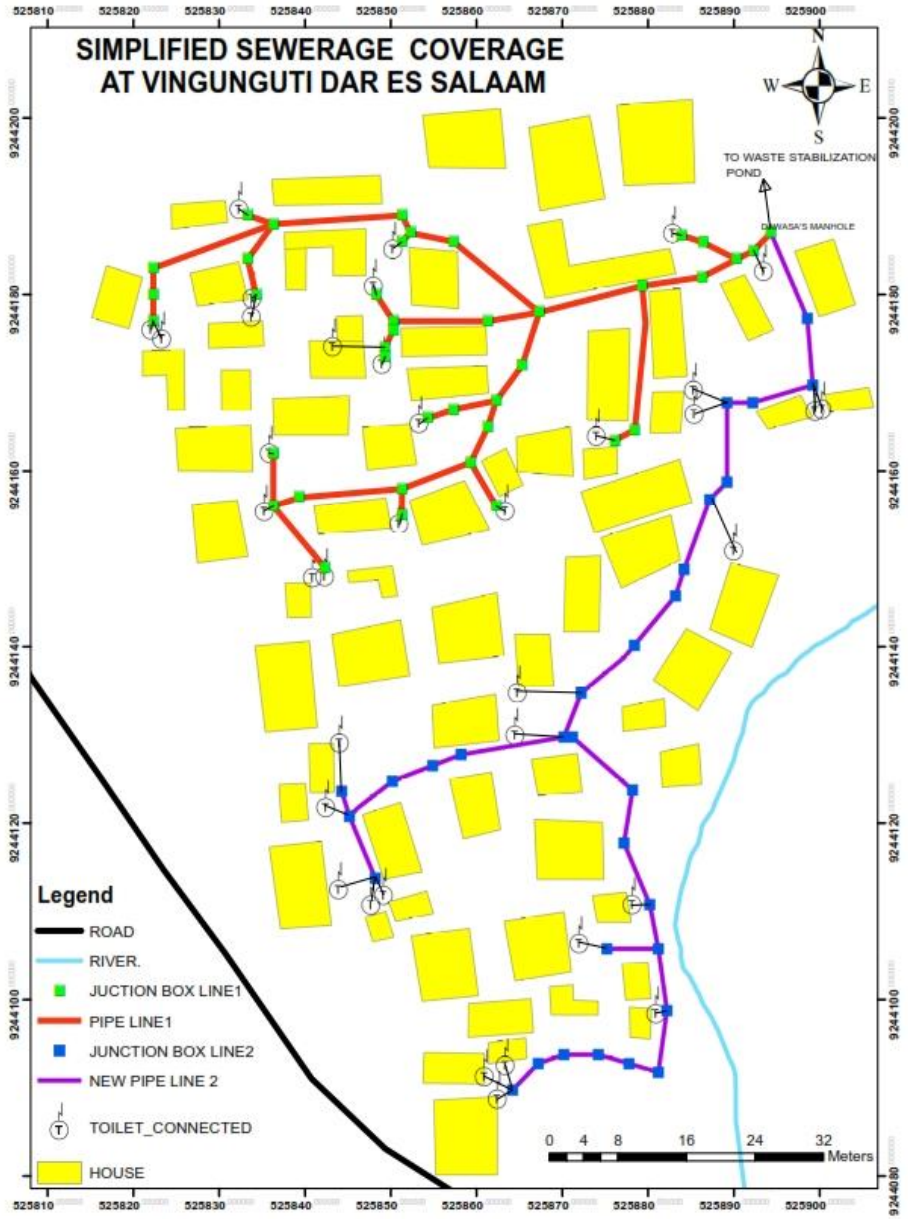
IDENTIFIED PRECEDENTS

Based on findings 4 key precedents were identified:

- Capacity building to technicians through peer learning
- Construction of shared toilets
- Pit emptying using gulper
- Simplified sewerage system

Precedent projects aim was to explore how the action research will address the aspects of :

- Collective
- Co-production
- Finance and affordability
- Trans-sectoral



CITY WIDE SANITATION STRATEGY

- The SHARE research was conducted in 3 major settlements but its finding and precedence setting aims to develop a city wide sanitation strategy.

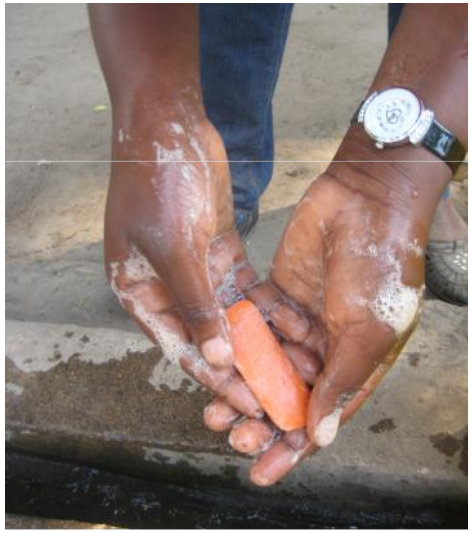
- The city wide sanitation strategy is developed in a consultative process where Community Federation in 4 wards developing ward sanitation action plans which will lead to development of Municipal Sanitation strategy. The three Municipality will eventually consolidate their strategies to develop a city wide sanitation strategy.

SUPPORTING COMMUNITIES TO EFFECTIVELY ENGAGE WITH LGA AND UTILITY

Water, sanitation and hygiene research at Ifakara Health Institute

Water

Sanitation



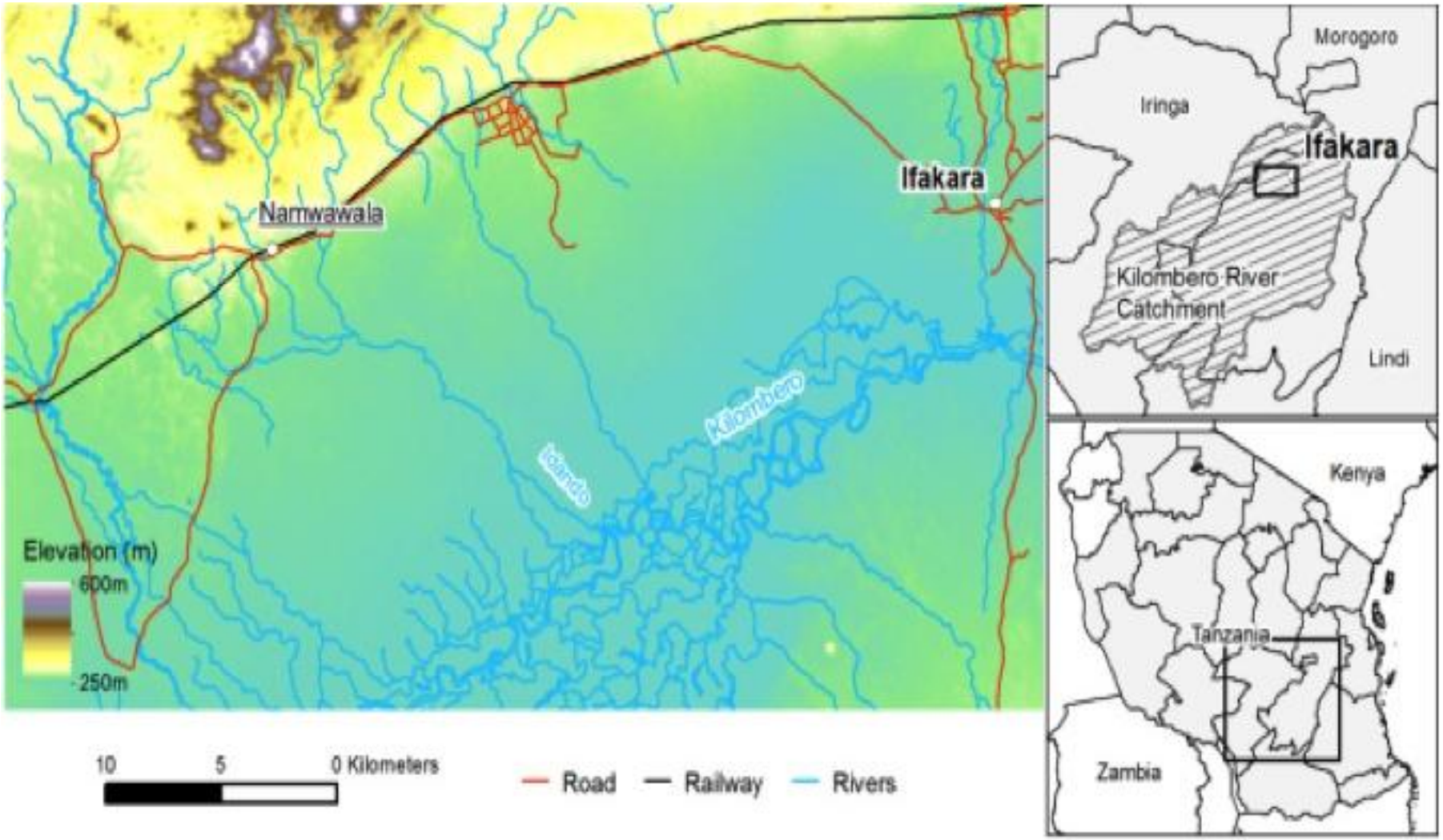
Hygiene

Dr Jacqueline Thomas (Senior Scientist)
Ms Fatuma Matwewe (Research Officer)
Mr Emmanuel Mrimi (Research Officer)
Mr Revocatus Musiba (Research Officer)

IFAKARA HEALTH INSTITUTE
research | training | services

IFAKARA HEALTH INSTITUTE
research | training | services

Largest not-for profit research institute in East Africa



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BOLD IDEAS FOR HUMANITY.™

Round 6 Grant # 0553-01-10
$CAD 100 000
April 2014 – October 2015
Mr Emmanuel Mrimi

A novel rice husk fired furnace to heat sterilize faecal sludge and create safe faecal fertilizer

GCC – FAECAL FERTILIZER PROJECT

IFAKARA HEALTH INSTITUTE
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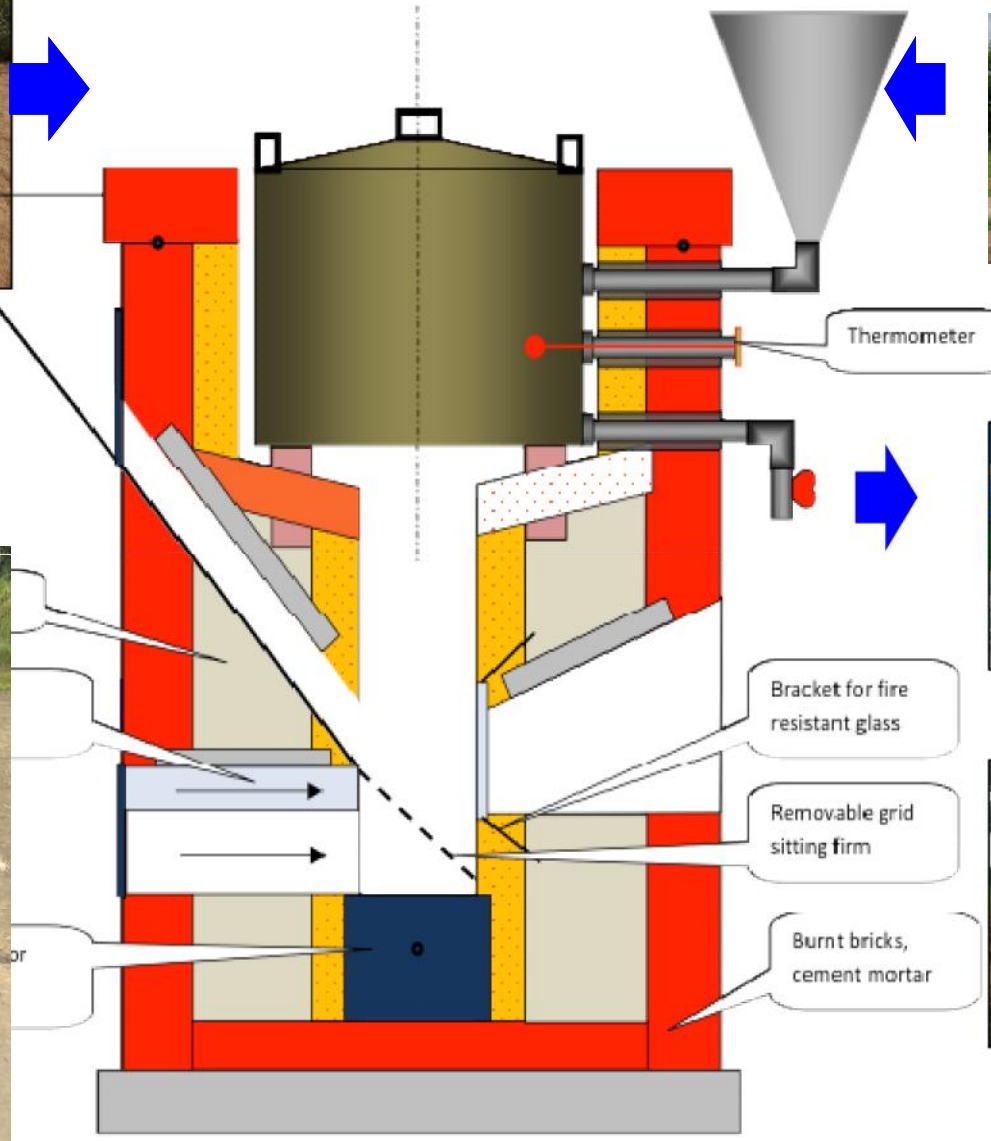
Rice husk

Sludge drying bed leachat



Lab tests

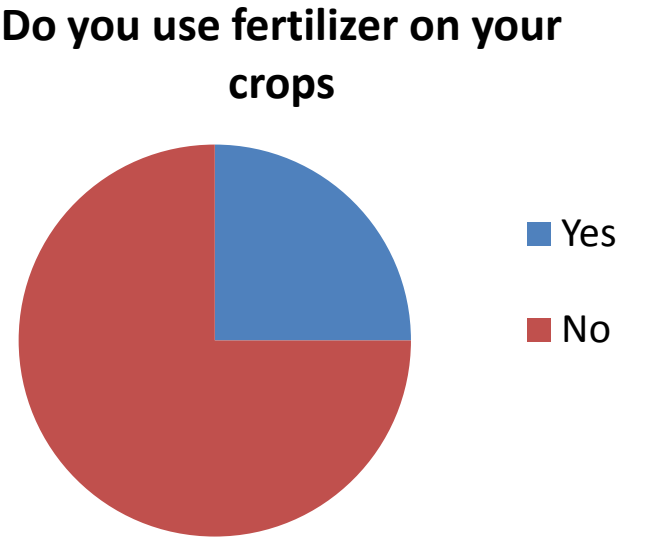
Pyrolysis

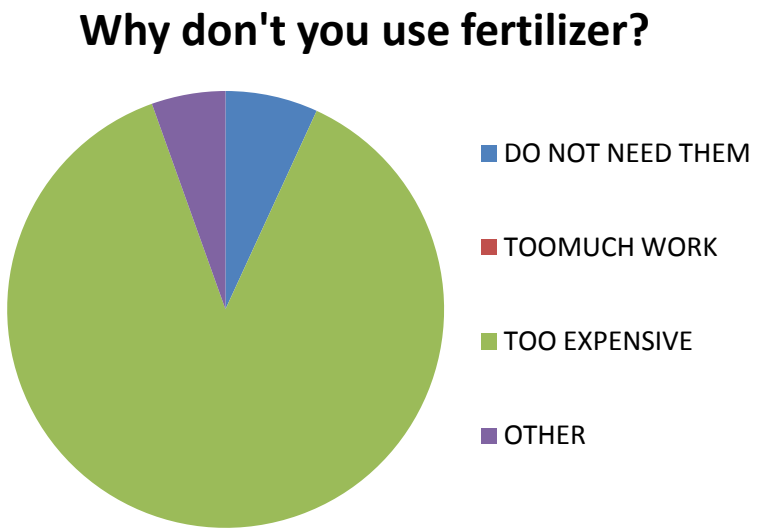
Trials with farmers

USAGE OF FERTILIZER

- 75% of the farmers do not use fertilizer

- With the high price of fertilizer being the major reason for 90%.





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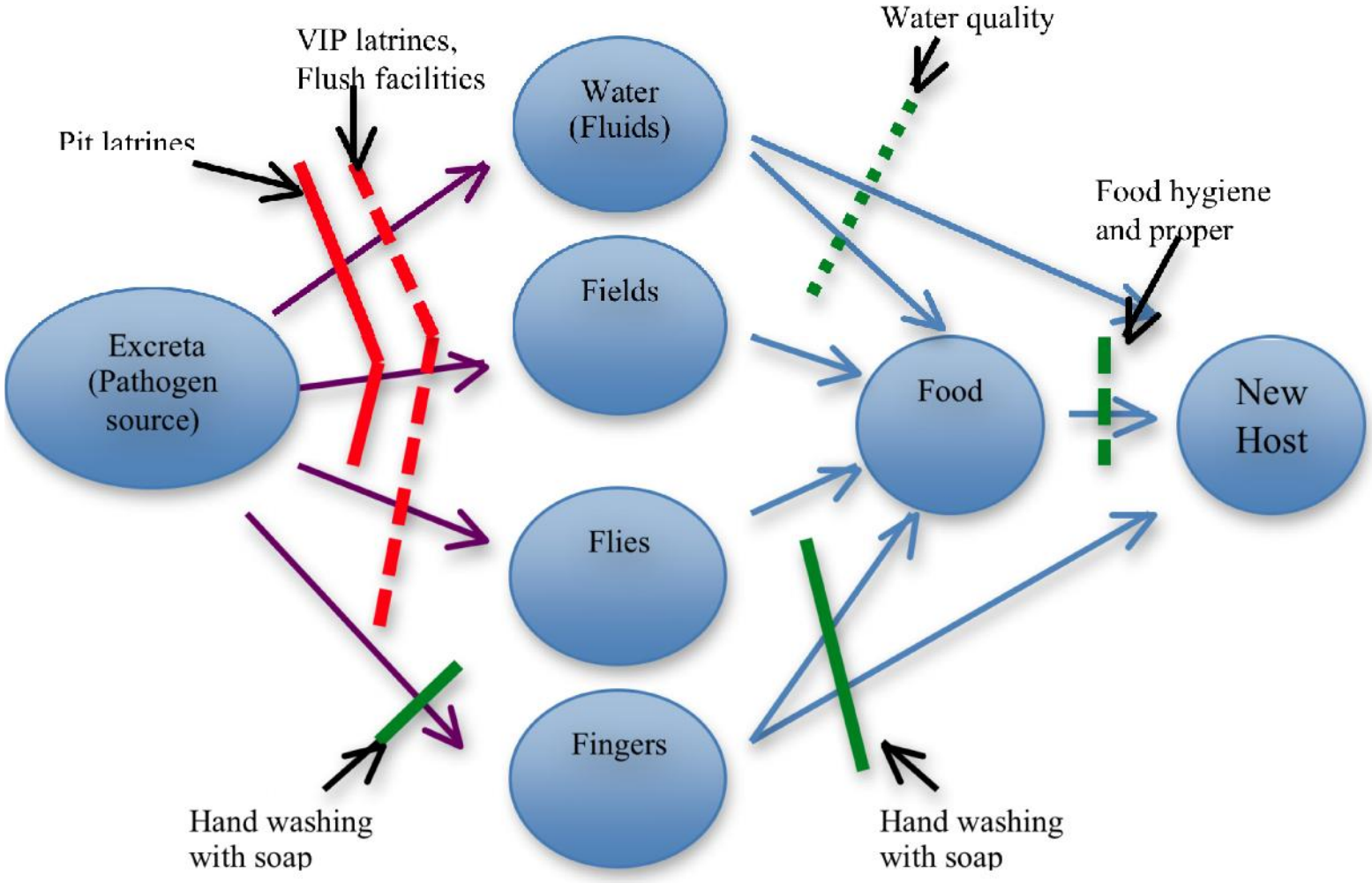
Grand Challenges Canada™
Grands Défis Canada™

BOLD IDEAS FOR HUMANITY.™

Round 7
$CAD 100 000
October 2014 – March 2016
Mr Revocatus Musiba

Reducing diarrhea incidence in urban slums and rural areas by houseflies control with a novel insecticide-baited trap and mobile phone advertising

F Diagram: transmission routes of faecal pathogens



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- **Controlling flies** can reduce diarhoeal disease prevalence by between 22 – 26 % (Emerson *et al*., 1999)
- *Musca domestica* (houseflies) can carry high densities of *Shigella* bacteria (Tamer *et al.*, 2013)
- An **attract and insecticide** will be combined into a novel trap design.
- In consultation with **local mobile phone companies** a model will be developed for paid advertising space on the traps.
- The impact of the traps will be trailed in both rural and urban communities.

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DEWATS plant in Kigamboni, Dar es Salaam, Tanzania.

- BORDA designed a novel DEWATS plant for sludge disposal from **household pit latrines.**
- In Dar households pay TSH 50 000 – 200 000 to empty latrines/septics
- This waste normally is illegally dumped.
- The business model based on collection and treatment at Kigamboni is working.

Bio-solids for fertilizer

Biogas for cooking

BORDA

Bremen Overseas Research and Development Association

‘Sanitation services’

Latrine up-grading service

$

$

Resource recovery

$

Bio-solids for fertilizer

$

Treatment plant

$

$

Latrine emptying service

$

Biogas for cooking

$

M&E

FUTURE RESEARCH PLANS

IFAKARA HEALTH INSTITUTE
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- **Resource recovery from faecal sludge**- research on novel technologies with local implementing partnerships such as BORDA
- **WaSH surveillance** – essential monitoring platform for WaSH practices and health impacts.
  - DHSS – 330 000 in 3 districts
  - SPDS – 800 000 in 23 districts
- **Research focus** –
  - Pyrolysis of dried faecal sludge to make charcoal.
  - Safe bio-solids markets

WAT Urban and Rural Sanitation Programme

Lessons Learnt

WaterAid

WAT Experience

- **Mtumba Approach (Rural)**

- Sanitation Marketing
  Sanitation options (technology)
- Improved Toilets
- Environment

- **Commercial Model (Urban)**

- Entrepreneurships
- Financing
- Technology
- Environment

Strong and focused Leadership with business mind

Lessons Learnt: The sanitation business demand?

- **Sanitation is a profitable business with untapped market**

Underlying Size of Business

Both NUMEGRO and UMAWA are only able to reach to:

- Wet Seasons (March-June) 950 Toilets*
- Dry Seasons (July- February) 750 Toilets*

Extrapolations

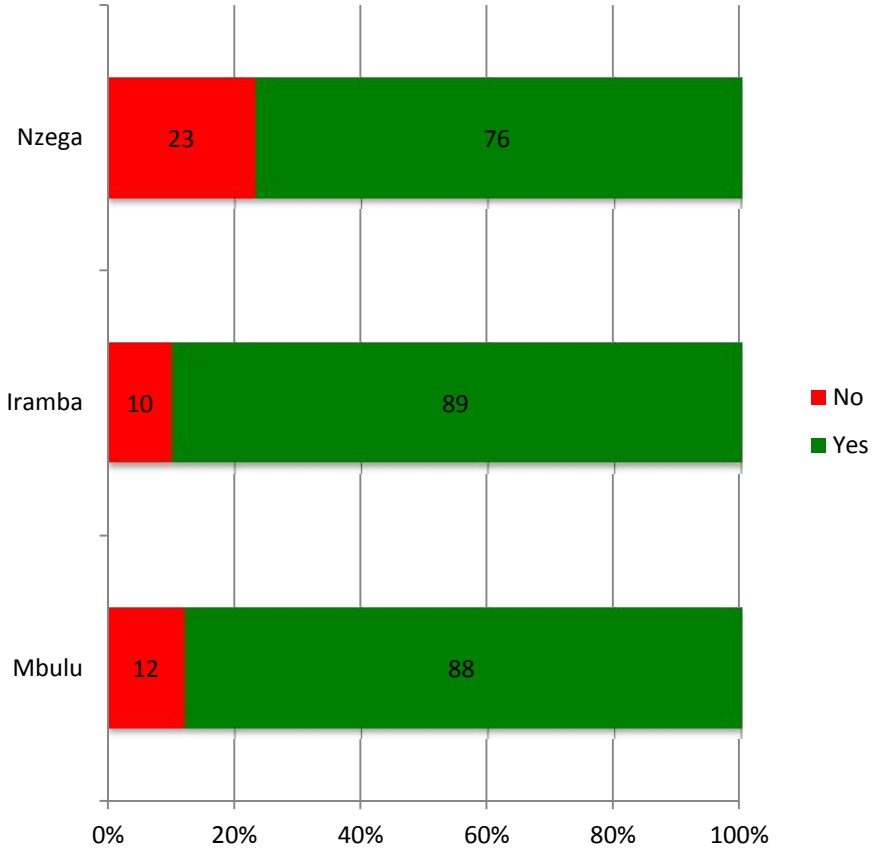
- Temeke Municipality has population is ***1,368,881*** and Total Households ***351,000***
- Assuming 1 Toilet is shared between 4 households = ***87,750*** Toilets in Temeke
- Assuming target of 80% is served by competition; 20% translate to ***17,550*** toilets
  - The 2 SE only serve approximately **5%** of total toilets
  - The market is still enamours (**95%** unserved)

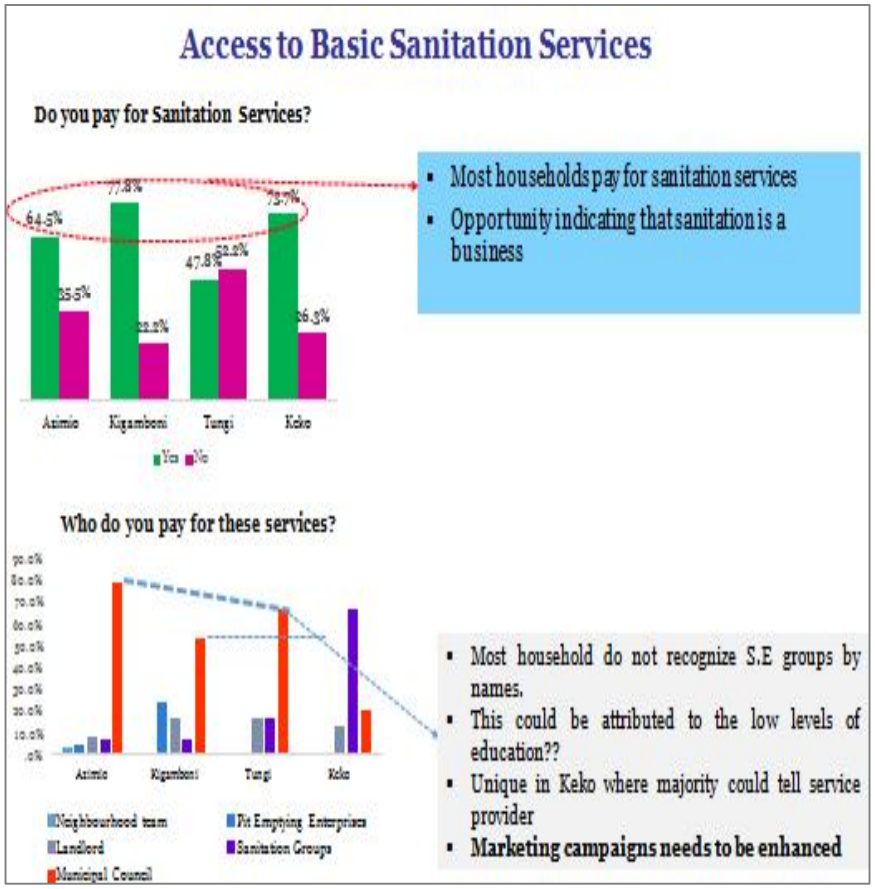
Un-exploited(Unreached) 95 Percent Market

- With annual Gross income of **Tshs 27,264,000 ($15,147)**, The two S.E are missing out on about **Tshs 518,016,000 ($287,793)**

*Number of toilet reached was obtained through in-depth discussions with the 2 S.Es

Lessons Learnt: Access &Affordability is context specific



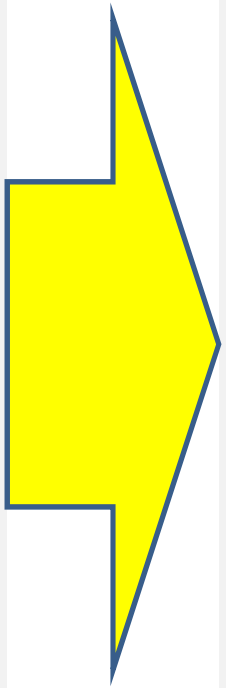


The need for regular Demand assessments and promotion of appropriate approaches and products

WaterAid

Lessons Learnt: Business focus vs.Services

- Both rural and urban sanitation requires clear business models.
- Context specific



- Coordinated stakeholders with clear responsibilities;
  - Government
  - Micro financing institutions
  - Entrepreneurs
  - Research and training institutions
  - Customers
  - Technical Support (business orientation, Indicators &M&E system)

Lessons learnt: The Private sector and Leadership

- *Target a private sector*

- *Strong leadership with business mind.*

Lessons Learnt: Integrated approach

- Maximizing the impact of Water on improving SH, and WASH on wider development;
  - ✓ **Thinking (achieving SDGs as a whole). What is takes?**
  - ✓ Planning
  - ✓ Implementation
  - ✓ Monitoring

Tanzania has not met WASH MDGs

- That means **6.2 million** Tanzanians that poo outside!

- **Sustainability????**

(Sanitation progress, JMP 2014)

Sanitation & Hygiene Research Symposium
Protea Courtyard Hotel, Dar es Salaam
4th August 2015

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

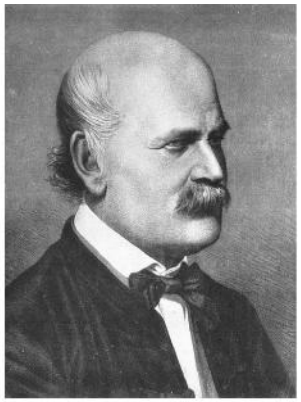
WASH as An Entry Point For Improved Maternal and Newborn Health, and Infection Prevention and Control

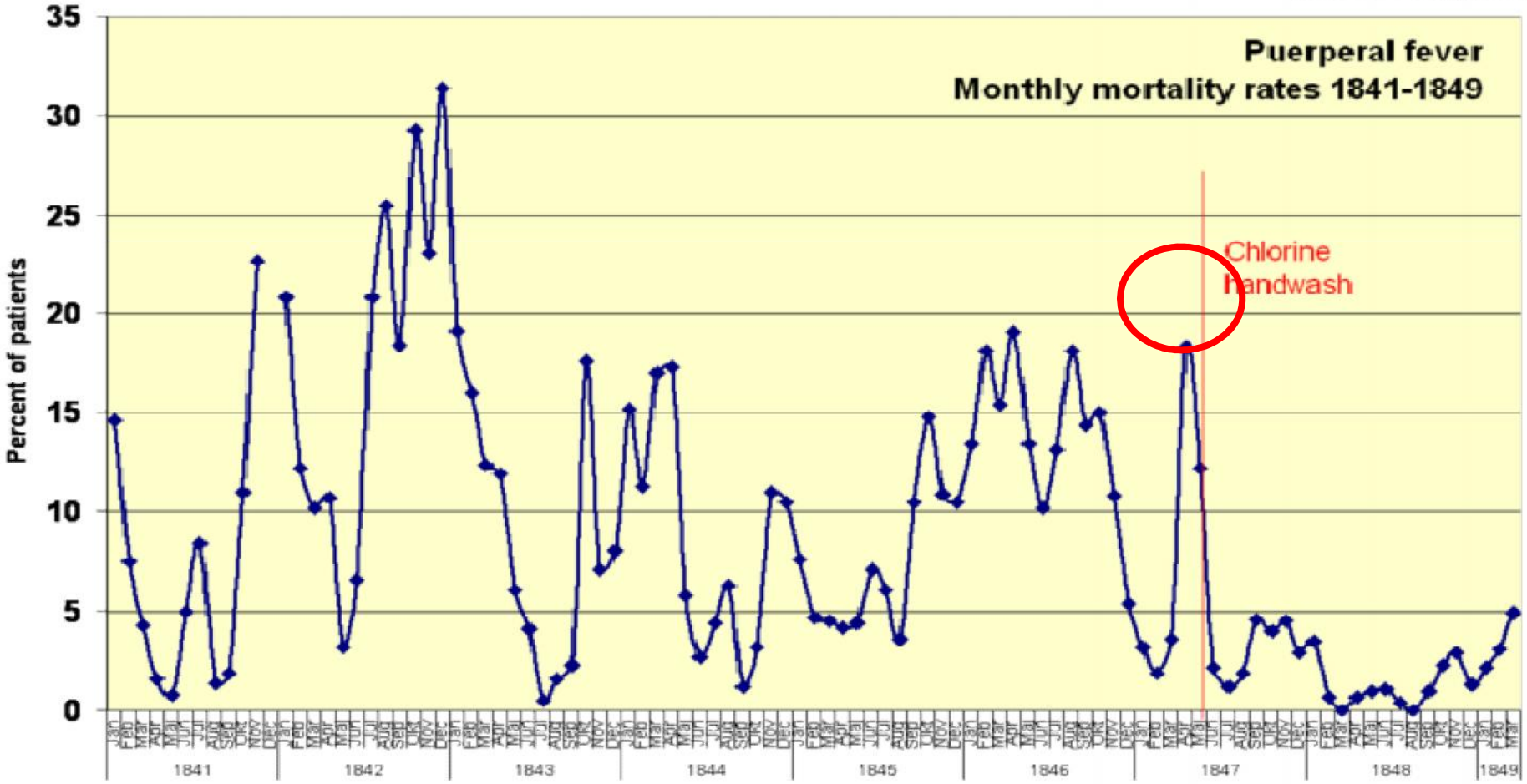
Name: Catherine Kahabuka (MD, Ph.D.)
Affiliation: Consultant at CSK Research Solutions

share
Sanitation and Hygiene Applied Research for Equity

MITU
Mwanza Intervention Trials Unit

- **A long discovered path breaking solution still largely ignored today!**





Since 2010, SHARE has funded several studies aiming at advancing the evidence base on the relationship between WASH and MNH;

1. An exploration of the links between WASH and MNH (A Conceptual framework)

Methods:

A systematic mapping and evaluation of the direct and indirect pathways between WASH and MNH via a conceptual approach and a scoping review.

Key Findings:

- 67 biological/chemical “in water” and 10 “behavioral” risk mechanisms linking WASH to MNH outcomes.

2. A systematic review of evidence on effect of water & sanitation on maternal mortality

Methods:

A systematic review and meta-analysis of published literature in Medline, Embase, Popline and Africa Wide EBSCO since 1980 (14 articles were found).

Key Findings:

- Women in households with poor sanitation had thrice the odds maternal mortality (OR = 3.07 : 95% CI 1.72–5.49).
- Poor water environment also significantly associated with higher maternal mortality (OR = 1.50, 95% CI 1.10–2.10).

3. An assessment of the water and sanitation environments of birth settings - Tanzania

Methods: Secondary data analyses;

- 2010 TDHS: to characterize the delivery location of births occurring between 2005 and 2010.
- 2006 SPA survey: to characterize the WATSAN environment of facilities that conduct deliveries.

Key Findings:

- Only 44% of facilities overall and 24% of facility delivery rooms were WATSAN safe.
- Only 1.5% of all births that occurred in homes were WATSAN-safe (42.9% of all births occur in homes).

** WATSAN-safe: fulfilling international definitions of improved water and improved sanitation access.*

4. Needs assessments of infection prevention control and WASH in maternity units: Zanzibar Case Study

Methods:

- Facility questionnaire: **Coverage** of WASH & IPC (n=37).
- In-depth assessment: **Status** of WASH & IPC (n=7)
  - visual, photographs, microbiological swabs & water samples (n=7), and IDIs.

Key findings:

- All units = improved water source.
  - Water interruptions a huge challenge.

WATER QUALITY

Hand washing water

	0	1-10	11-100	101-300	300+	TOTAL
B.Count	0	0	13	17	4	34
E	11	10	13	0	0	34
F.C	26	8	0	0	0	34
TOTAL	37	18	26	17	4	102

Drinking water for clients

	0	1-10	11-100	101-300	300+	TOTAL
B.Count	0	0	4	4	1	9
E	4	2	3	0	0	9
F.C	6	2	0	1	0	9
TOTAL	10	4	7	5	1	27

4. Needs assessments of infection prevention control and WASH in maternity units: Zanzibar Case Study

Non-supportive infrastructure for proper hand hygiene.

*In **30% of PHCUs, no functional** hand washing stations in the maternity area (n=29) .*

Insufficient no. of toilets (75%) & **broken** toilets facilities (100%)

*Only **12%** of toilets observed had a functioning **flushing system**.*

4. Needs assessments of infection prevention control and WASH in maternity units: Zanzibar Case Study

Five major challenges facing maintenance of WASH facilities in maternity units (**IDIs)**;

1. Insufficient **no. of cleaners.**
2. Lack of **WASH training** – highly contaminated surface swabs.
3. **Clinical tasks** vs. cleaning tasks.
4. Lack of **WASH maintenance** personel**.**
5. **Poor knowledge** among women clients.


Dirty


Blocked


Broken


Broken
Odex
LIQUID
BLEACH

Conclusion

- Leveraging WASH to support efforts on MNH is a significant **missed opportunity**.

- SHARE's work provides **evidence-base** both to guide **action**, and **advocacy** for high-level political recognition of WASH as a critical component of MNH strategies.

- More considerations needed for **better quality** and **sustainable** WASH .

SANITATION & HYGIENE RESEARCH SYMPOSIUM
PROTEA COURTYARD HOTEL, DAR ES SALAAM
4TH AUGUST 2015

WASH IN HEALTH FACILITIES: ON-GOING ASSESSMENT

Name: Hamisi M. Malebo, *Dip. Ed (Sc), B.Sc(Hons), M.Sc, PhD, FASI*

Affiliation: National Institute for Medical Research, P.O. Box 9653, Dar es Salaam, Tanzania.

E-mail: Malebo@hotmail.com

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Sanitation and Hygiene Applied Research for Equity

MITU
Mwanza Intervention Trials Unit

Background

- Improvements in water, sanitation and hygiene (WASH) practices and infrastructure is one of the most important and cost-effective methods for decreasing the burden of infectious diseases worldwide
- Insufficient hygiene and sanitation practices and infrastructure are associated with a multitude of diseases, including:

✓ acute respiratory tract infections

✓ skin diseases such as scabies and ringworm

✓ intestinal parasites and diarrheal illness

- **HOWEVER, THIS BURDEN OF DISEASE IS NOT JUST IN CHILDREN; "EVERY YEAR ACROSS THE GLOBE AROUND TWO MILLION PEOPLE DIE OF DIARRHEAL ILLNESS"**

Known causes of neonatal deaths

- The three major causes of neonatal deaths worldwide are:

✓ infections (36%, which includes sepsis, pneumonia, tetanus and diarrhoea)

✓ pre-term (28%),

✓ birth asphyxia (23%).

Diarrhea in children

- Each year diarrhea kills around 760,000 children under five.
- Diarrhea disease is the second leading cause of death in children under five years old.
- **DIARRHEA DISEASE IS BOTH PREVENTABLE AND TREATABLE THROUGH SAFE DRINKING-WATER AND ADEQUATE SANITATION AND HYGIENE (WASH)**.

Why WASH in health facilities?

- **Safe and sufficient drinking-water, along with adequate sanitation and hygiene have implications across all Millennium Development Goals (MDGs)**

✓ from eradicating poverty and hunger,

✓ reducing child mortality,

✓ improving maternal health,

✓ combating infectious diseases,

✓ to ensuring environmental sustainability.

WHO, 2015

Water supply in Health Facilities in Tanzania

- 38% of health facilities in developing countries lack access to even rudimentary levels of water (WHO/UNICEF, 2015)
- Water supplies in dispensaries and health centers in Tanzania are often non-existent, erratic, and unsafe (Kahabuka et al., 2012)
- Almost two thirds of all health facilities in Tanzania lack a regular water supply (Ben Taylor, 2009)
- In hospitals, the main challenge is the reliability of water sources: 96 percent of hospitals have on-site water sources, but only 42 percent have year-round supply (Ben Taylor, 2009)
- A third of health centres and almost half of all dispensaries have no safe on-site water supply at all (Ben Taylor, 2009)

Challenges

- **Using contaminated drinking water to provide medications**, including *anti-tuberculosis drugs, de-worming medications, first doses of antibiotics for common infections, zinc and Vitamin A, and oral rehydration solutions* **can increase the risk of enteric infections in all patients and the risk of opportunistic infections in HIV-infected persons.**

Handwashing in Health Facilities

- Estimated over 50% of health care facilities (HCFs) in developing countries lack access to hand washing facilities (WHO/UNICEF, 2015).
- The risk of healthcare-associated infections (HAIs) in developing countries is approximately 2–20 times greater than in higher-income countries.
- Poor hand hygiene in healthcare facilities is a long-recognized risk factor for HAIs.
- Lack of safe water for handwashing and personal hygiene **can increase the risk of enteric infections in all patients and the risk of opportunistic infections in HIV-infected persons.**

Sanitary facilities in Health Facilities

- Over one-third of all health facilities in Tanzania have no client latrine facilities (Ben Taylor, 2009).

"Sanitation is a cornerstone of public health," said WHO Director-General Dr Margaret Chan. ***"Improved sanitation contributes enormously to human health and well-being, especially for girls and women. We know that simple, achievable interventions can reduce the risk of contracting diarrhea disease by a third."***

How to address WASH in health facilities?

Three key factors have to be addressed:

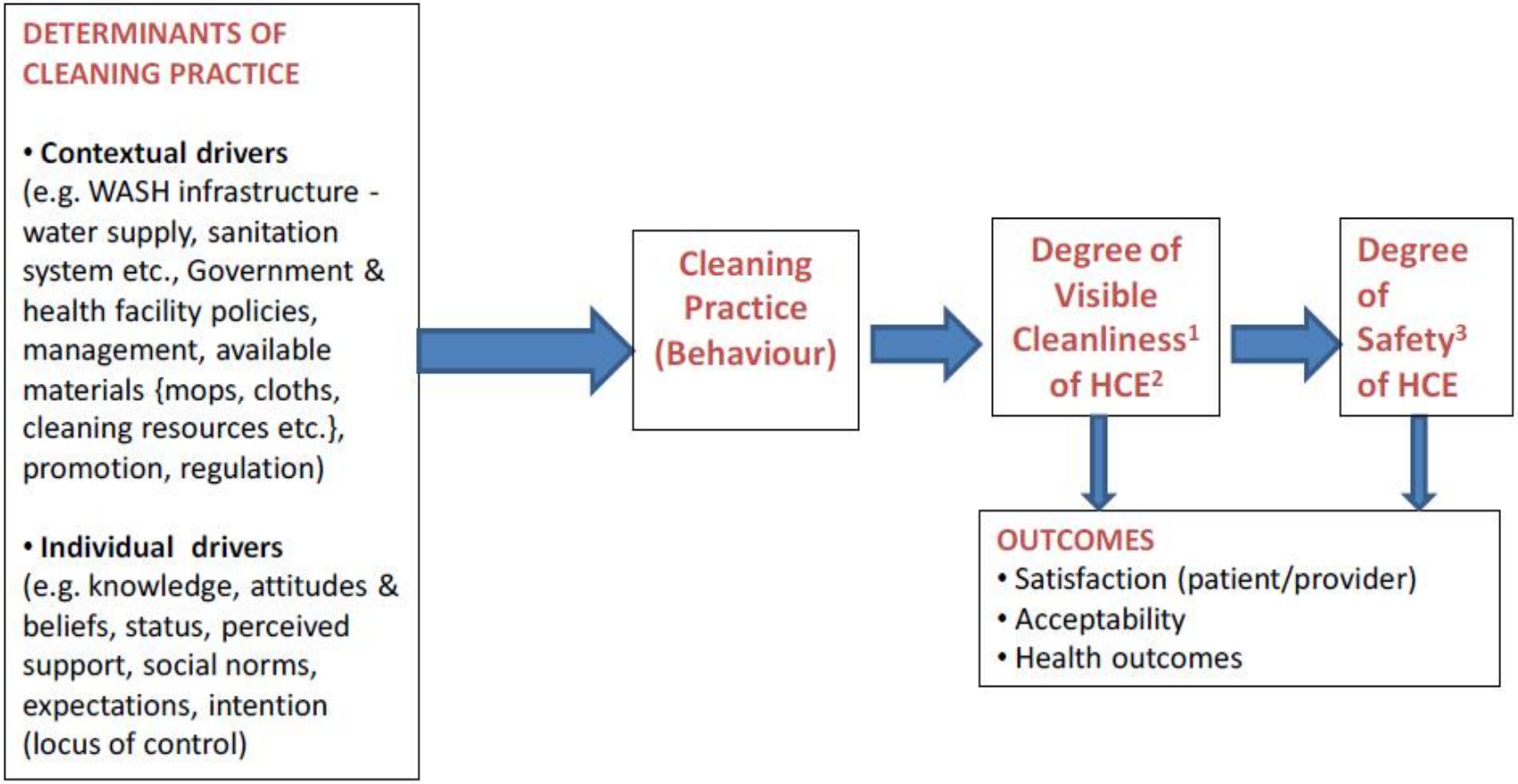
- Predisposing factors - knowledge, attitudes and belief of key actors
- Enabling factors - availability of resources
- Reinforcing factors - ability to sustain appropriate sanitation and hygiene behavior in health facilities

ONGOING SITUATIONAL ANALYSIS OF SAFE WATER SUPPLY, SANITATION INFRASTRUCTURE, HAND-WASHING FACILITIES AND HYGIENIC PRACTICES IN HEALTH FACILITIES WITHIN 7 UNICEF PROGRAM DISTRICTS FOR PROVIDING EVIDENCE BASED RECOMMENDATIONS, GUIDANCE DOCUMENTS AND TECHNICAL ADVICE ON GOVERNMENT PROGRAMMATIC ACTIONS IN TANZANIA

Main objective

- To support the Ministry of Health and Social Welfare's wider plans to improve quality of care in health facilities through an assessment of availability, quality and coverage of water supply, sanitation infrastructure, hand washing facilities and hygienic practices in HCFs with a view to generate evidence-based recommendations for policy and actions geared towards improving MCH conditions, prevention and control of WASH related infection.

CONCEPTUAL FRAMEWORK



Key
1 Perceived cleanliness from visual clues
2 Healthcare environment
3 Objectively-assessed safety from infection risk assessment

METHODOLOGY

Study Design: cross sectional study

- HCFs level in 7 UNICEF programme districts
- Assessment components:

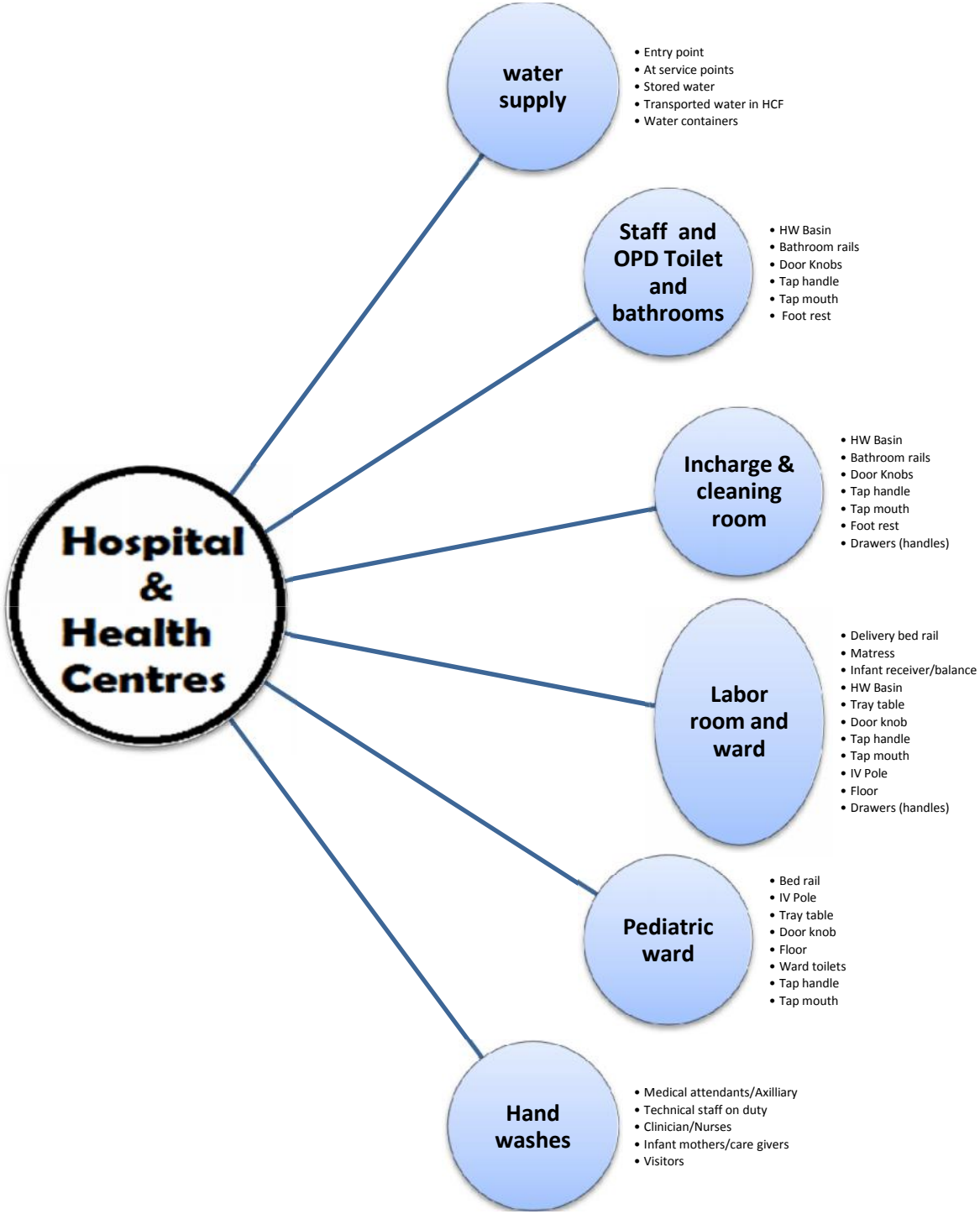
✓ direct observation of safe water supply, sanitation infrastructure, hand washing facilities and hygienic practices in HCFs

✓ Isolation and identification of microorganisms from available water for handwashing and other healthcare purposes

✓ Isolation and identification of microorganisms from touch surfaces and handwashes from healthcare workers, patients and visitors

✓ Determination of antibiotic, antiseptic and disinfectant susceptibility pattern of isolated microbes

✓ administration of an anonymous questionnaire to test HCWs knowledge on infection prevention in health care.


Hospital & Health Centres
water supply
• Entry point
• At service points
• Stored water
• Transported water in HCF
• Water containers
Staff and OPD Toilet and bathrooms
• HW Basin
• Bathroom rails
• Door Knobs
• Tap handle
• Tap mouth
• Foot rest
Incharge & cleaning room
• HW Basin
• Bathroom rails
• Door Knobs
• Tap handle
• Tap mouth
• Foot rest
• Drawers (handles)
Labor room and ward
• Delivery bed rail
• Matress
• Infant receiver/balance
• HW Basin
• Tray table
• Door knob
• Tap handle
• Tap mouth
• IV Pole
• Floor
• Drawers (handles)
Pediatric ward
• Bed rail
• IV Pole
• Tray table
• Door knob
• Floor
• Ward toilets
• Tap handle
• Tap mouth
Hand washes
• Medical attendants/Axilliary
• Technical staff on duty
• Clinician/Nurses
• Infant mothers/care givers
• Visitors

Acknowledgement

- UNICEF for financially supporting these studies
- Ministry of Health and Social Welfare
- MUHAS
- NIMR
- MOWI
- Geita and Kisarawe District Councils
- PSI, Segerea Pharmacy, East Africa Ceramics, Simba Plastics Ltd

Thanks for Listening

United Republic of Tanzania
Ministry of Health and Social Welfare

Priority areas for further research on sanitation and hygiene in Tanzania

Amour Seleman

Environmental Health Officer

Water and Sanitation Section

Regional Vision on Sanitation and hygiene

- To achieve universal access to adequate and sustainable sanitation and hygiene services and eliminate open defecation by 2030.

Regional Commitments

- Training institutions to strengthen local capacity to deliver appropriate services in line with demand;
- Research institutions to strengthen the evidence base and develop innovative locally appropriate solutions;
- The private sector to increase its engagement in the entire sanitation and hygiene value chain to improve innovation and efficiency;

Focus for NSC Phase II

Six areas of focus

1) Sanitation and hygiene (S+H) at household level
2) S+H facilities in primary Schools
3) S+H facilities in Secondary Schools
4) S+H facilities in Health facilities
5) S+H facilities in facilities in transport hubs
6) Household water treatment and safe storage

Gray areas that need further research

- Socio cultural drivers to OD practices particularly among communities near large water bodies.
- Disposal of child faeces disposal in rural and urban areas
- Comprehensive mapping of sanitation and hygiene stakeholders in the country

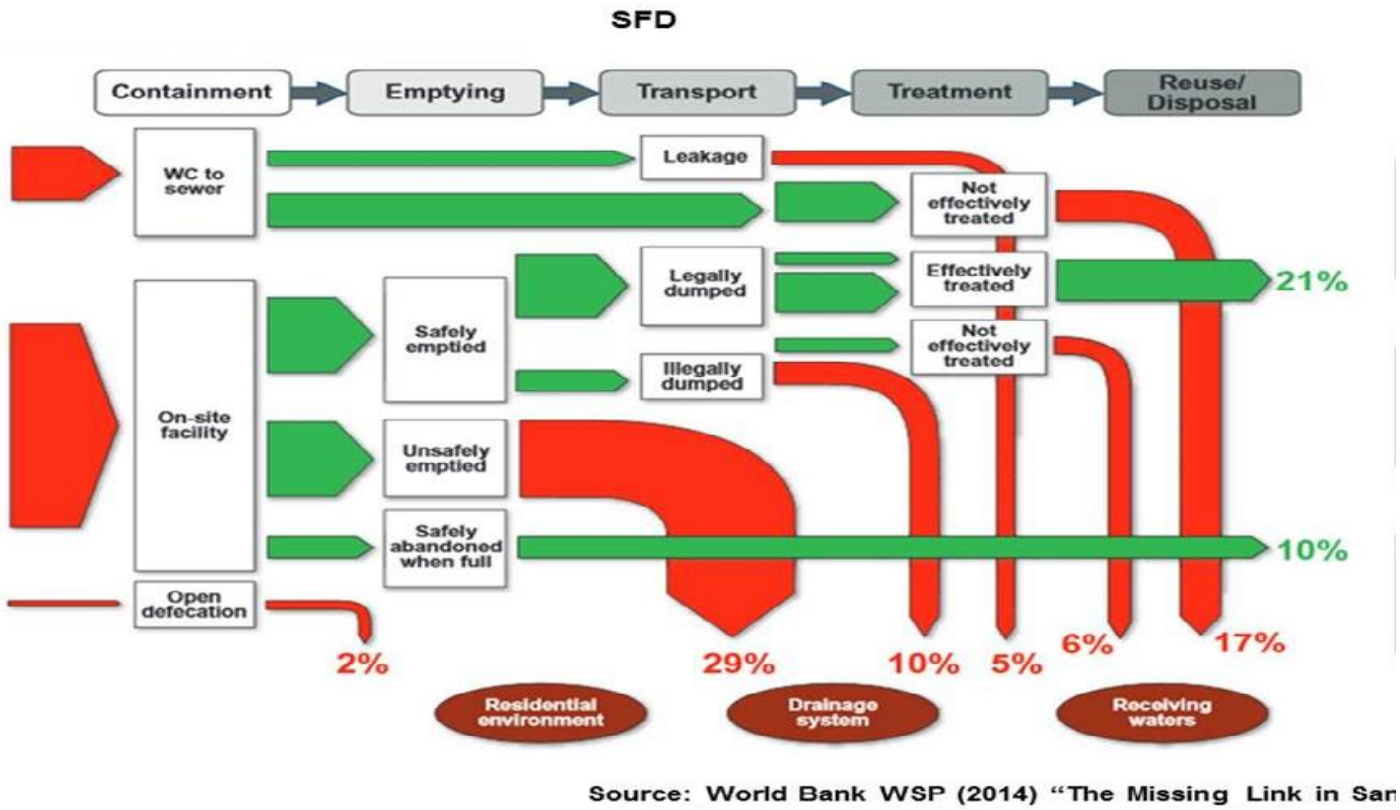
Areas for further research...

- Behavior change approaches for overcoming hard to change communities
- Socio cultural dimensions to hand washing with soap at critical times.
- Current and future sanitation systems appropriate for urban and urbanizing communities

Areas for further research...

- Shit flow diagrams for urban and Small towns

Example for a SFD and a context visualization (SDA):



Source: World Bank WSP (2014) "The Missing Link in San

Areas for further research...

- Impact of improved sanitation (ODF status) on health and social welfare
- Adequacy of WASH in public areas (markets, Health facilities and offices)
- Human and institutional capacity development strategies for sanitation and hygiene improvement

Areas for further research...

- Increasing supply of sanitation and hygiene commodities in hard to reach communities
- Alternative and progressive financing mechanisms for urban sanitation systems
- Enhancing public private partnership in sanitation and hygiene promotion
- Socio-economic barriers to water treatment and safe storage at household and in schools

Thank you for your participation

SHARE II SYMPOSIUM
PROTEA HOTEL, DAR ES SALAAM,
TANZANIA, 4TH AUGUST 2015

Deworming, Hand Hygiene and Child Development

[3]Saidi Kapiga, [2]Jeroen Ensink, [1]Safari Kinunghi, [2]Heiner Grosskurth, [2]Adam Biran

[1]National Institute for Medical Research (NIMR), Mwanza Centre, Tanzania.
[2]London School of Hygiene and Tropical Medicine, UK
[3]Mwanza Intervention Trials Unit (MITU), Mwanza, Tanzania

PRESENTATION OVERVIEW

- Background
- Project aims and objectives
- Projects methods
- Project outputs

STH BACKGROUND

- STH infections are highly prevalent globally
  - Ascaris lumbricoides: 807 million infected
  - Trichuris trichuria: 604 million infected
  - Hookworm: 576 million infected
- They cause high disease burden particularly in poor communities
  - Associated with aneamia, malnutrion, stunted growth, poor cognitive development, adverse birth effects
- Level of sanitation and hygiene is important in disease transmission, though role played by hand hygiene is unclear

BACKGROUND (CONTD...)

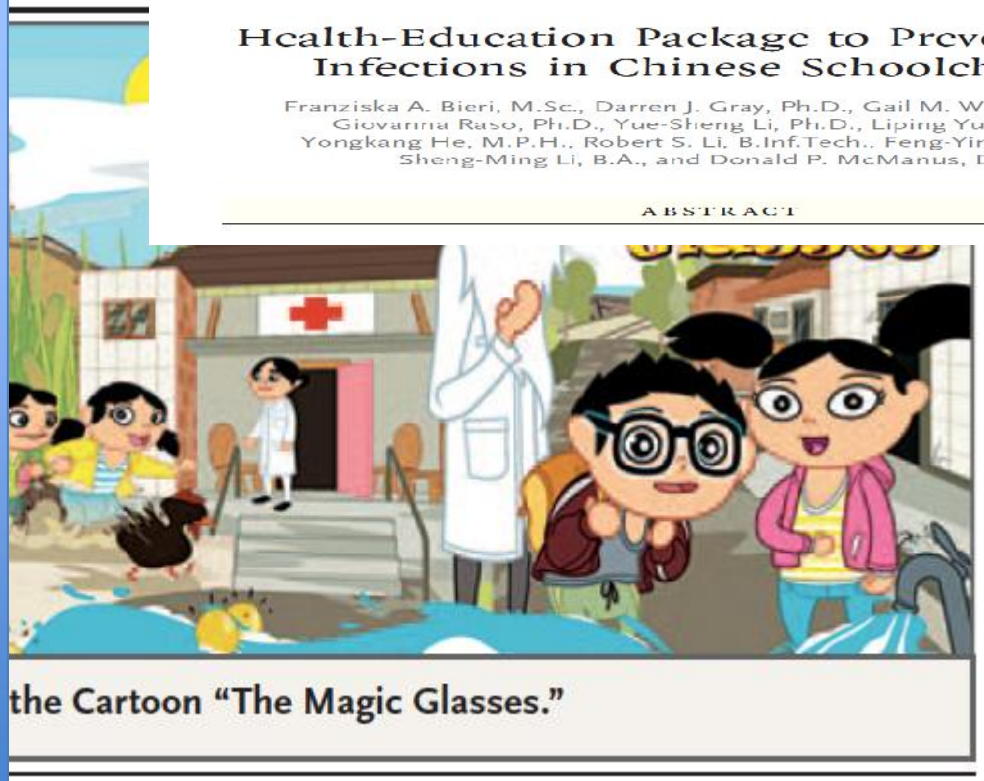
- In Tanzania, the Soil –Transmitted helminths (mainly Hookworms, Ascaris and Trichuris) occur throughout the country
- They are associated with poverty and underdevelopment, most prevalent in the poorest communities
- Transmission is associated with poor hygiene and sanitation
- STHs infect all age groups, however, the most vulnerable groups include school age children, women of child-bearing age and adolescent girls

BACKGROUND (CONTD...)

- Major control interventions currently exist, mainly deworming programmes using ALB/MBZ
- ALB/MBZ are highly effective drugs, cheap, no major side effects, no evidence of drug resistance
- However: 10 years of deworming programmes, little to no impact on child development/stunted growth
- Reinfection is rapid, for Ascaris within a year
- Interestingly, there has been promising results from deworming + Hygiene from China

Deworming + WASH

The study showed an increased knowledge of worm infections and a 50% reduction in reinfection



the Cartoon "The Magic Glasses."

The NEW ENGLAND JOURNAL of MEDICINE

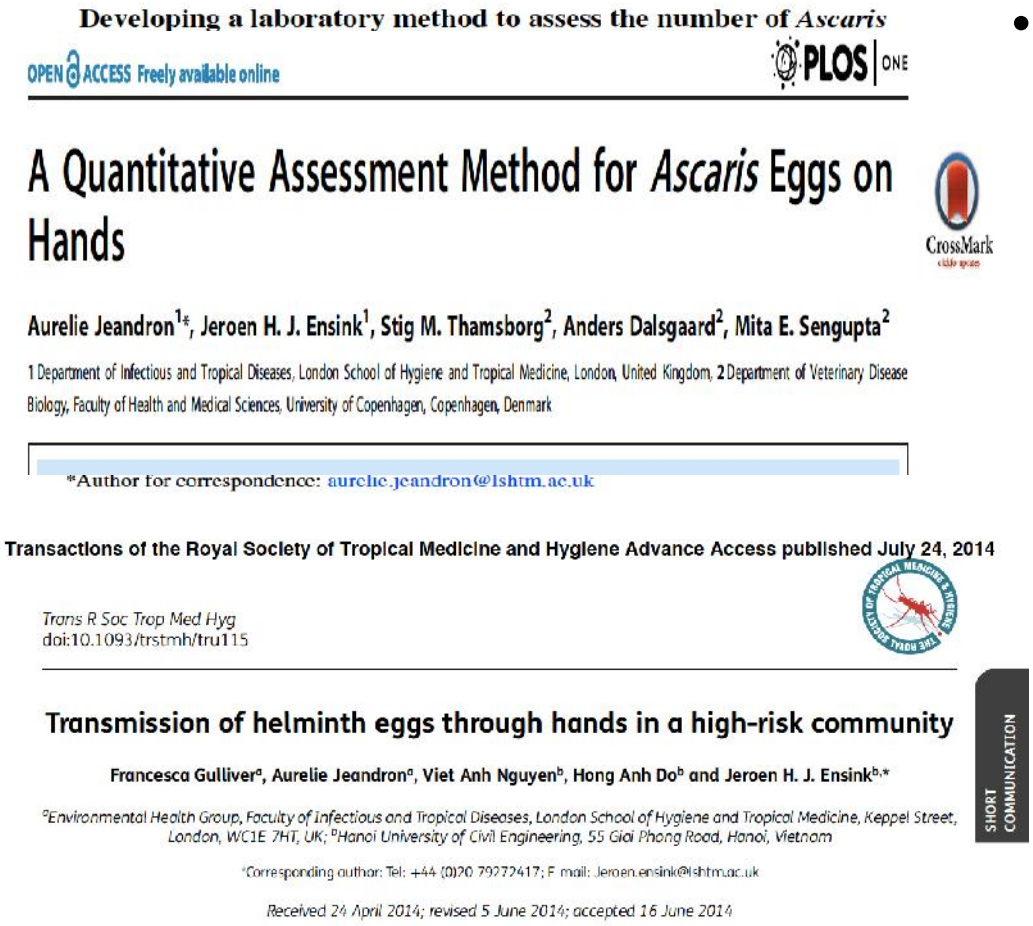
ORIGINAL ARTICLE

Health-Education Package to Prevent Worm Infections in Chinese Schoolchildren

Franziska A. Bieri, M.Sc., Darren J. Gray, Ph.D., Gail M. Williams, Ph.D., Giovanna Raso, Ph.D., Yue-Sheng Li, Ph.D., Liping Yuan, Ph.D., Yongkang He, M.P.H., Robert S. Li, B.Inf.Tech., Feng-Ying Guo, B.A., Sheng-Ming Li, B.A., and Donald P. McManus, D.Sc.

ABSTRACT

SHARE-1 WORK



Developing a laboratory method to assess the number of *Ascaris*

OPEN ACCESS Freely available online

PLOS ONE

A Quantitative Assessment Method for *Ascaris* Eggs on Hands

Aurelie Jeandron[1]*, Jeroen H. J. Ensink[1], Stig M. Thamsborg[2], Anders Dalsgaard[2], Mita E. Sengupta[2]

1 Department of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, London, United Kingdom, 2 Department of Veterinary Disease Biology, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

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Transactions of the Royal Society of Tropical Medicine and Hygiene Advance Access published July 24, 2014

Trans R Soc Trop Med Hyg
doi:10.1093/trstmh/tru115

SHORT COMMUNICATION

Transmission of helminth eggs through hands in a high-risk community

Francesca Gulliver[a], Aurelie Jeandron[a], Viet Anh Nguyen[b], Hong Anh Do[b] and Jeroen H. J. Ensink[b,*]

[a]Environmental Health Group, Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, Keppel Street, London, WC1E 7HT, UK; [b]Hanoi University of Civil Engineering, 55 Giai Phong Road, Hanoi, Vietnam

*Corresponding author: Tel: +44 (0)20 79272417; E-mail: Jeroen.ensink@lshtm.ac.uk

Received 24 April 2014; revised 5 June 2014; accepted 16 June 2014

Key Findings

- Hands and Ascaris infection:

  Method developed with high recovery (96%)

  - 35% of hands positive in high risk area (agric use of excreta)
  - 5-10% in poor sanitation area (China)
  - 20% school children in SA

PROPOSED RESEARCH WORK:
ADOPTED FROM SUPERAMMA PROJECT, INDIA

http://www.superamma.org/campaign-film.html

AIMS

- To assess the extent to which a behaviour change intervention to promote hand washing with soap among school aged children can reduce both the prevalence and intensity of *Ascaris lumbricoides* and *Trichuris trichiura* infection in these children.

- To improve the value for money (VFM) of deworming campaigns in Tanzania, by reducing reinfection rates of STH through improved hand hygiene.

OBJECTIVES

- To design a scalable, school-based behaviour change intervention to promote hand washing with soap at key times among school aged children (6-14 years).
- To assess the effectiveness of this intervention in changing hand washing behaviour.
- To assess the effectiveness of this intervention in reducing re-infection rates of STH in school aged children

METHODS

- RCT implemented in 20 schools in Mwanza city (10 schools per arm), enrolling 6,000 school age children
- Preliminary survey to confirm study site and sample size
- Intervention roll out
  - Hand rinses at baseline & endline
  - Observed behaviour at baseline & endline
  - Stool survey + deworming at baseline & endline

PHASE 2

- Scale up and incorporation/testing of intervention in national deworming programmes in order to establish impact under ‘real’ implementation conditions

PROJECT KEY OUTPUT

- Hand hygiene intervention developed and evaluated under “real” conditions
- Hand hygiene intervention scaled up and incorporated into national deworming programmes
- Value for money for deworming programmes

THANK YOU FOR YOUR ATTENTION

Sanitation & Hygiene Research Symposium
Protea Courtyard Hotel, Dar es Salaam
4th August 2015

"Achieving Universal Access to adequate, sustainable and equitable sanitation services in the Cities of Tomorrow"

Name: Francis Ntitu, Erin Flynn & Timeyin Uwejamomere
Affiliation: WaterAid

Sanitation and Hygiene Applied Research for Equity

Mwanza Intervention Trials Unit

Content

Context

Research problem

Research objective and questions

Methodology

- Outline
- Site selection criteria

Recce visit

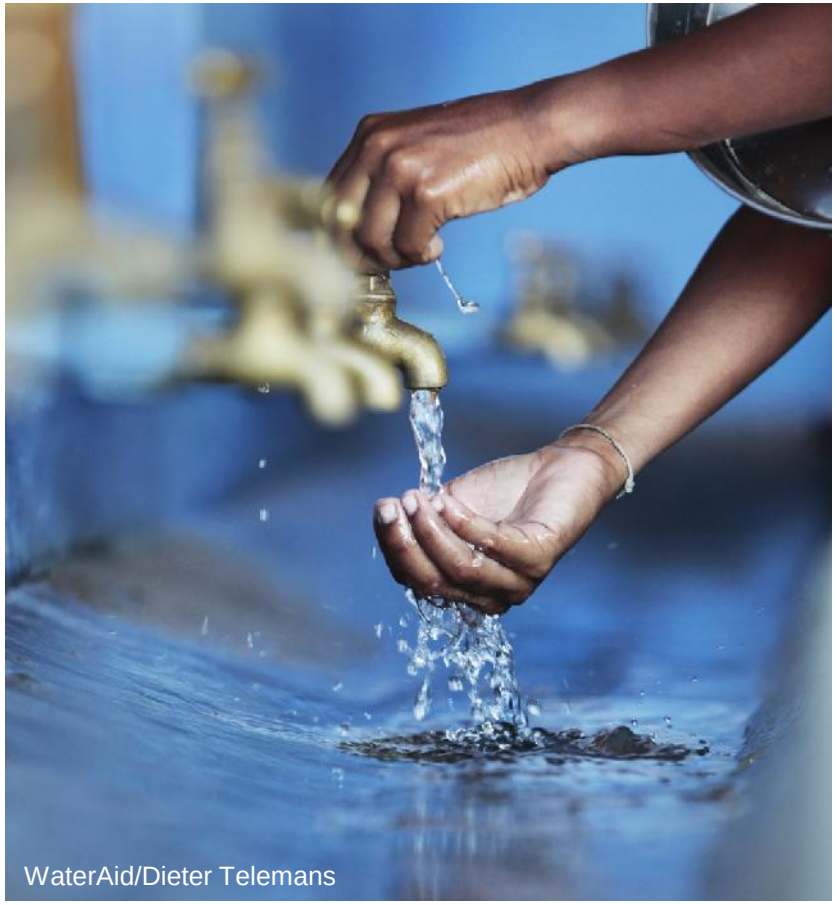
Context

Post-2015 Global Development Agenda

Ngor Declaration, AfricaSan4

To achieve universal access to adequate and sustainable sanitation and hygiene services and eliminate open defecation by 2030

But **we still don't know how** to reach the urban poor, particularly in small towns.



WaterAid/Dieter Telemans

Research problem

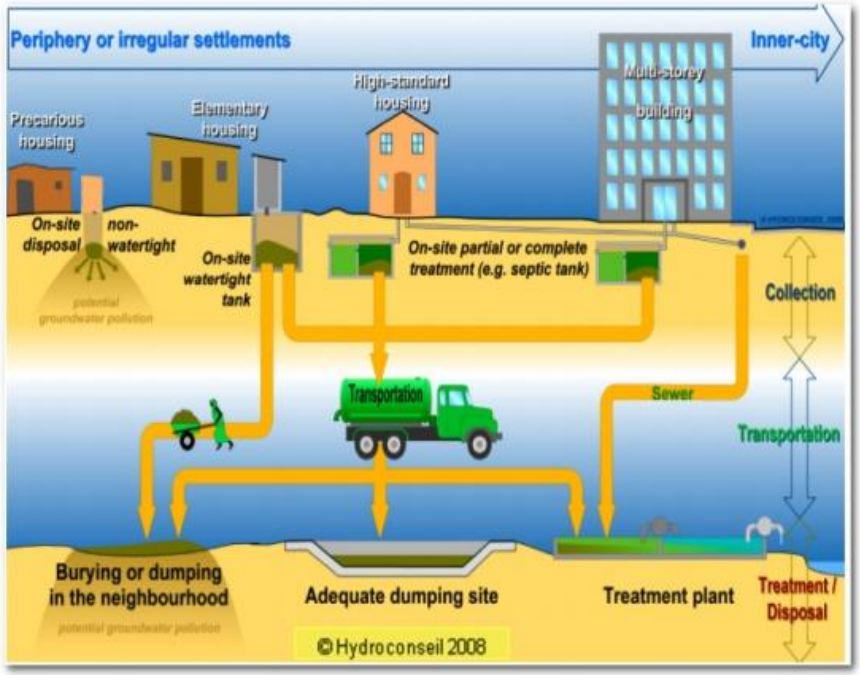
We still don't know how:

We don't have adequate, clear information

Inequalities in the allocation and targeting of development finance

Few cities and towns have robust and credible plans on how they are going to progress to universal coverage

Attempts to deliver at scale has faced several challenges



Research objective

WaterAid proposes an applied research to

understand how to serve the poor in a universal access scenario

The research would demonstrate and investigate

the conditions under which municipalities can deliver town-wide strategic infrastructure plans and sanitation facilities & services

that can deliver inclusive, sustainable sanitation services to all,

with appropriate and viable sanitation solutions that meets the needs of the poorest and most marginalised.

Research questions

1. *Does collaborative and consultative planning, led by municipal government with the support of city planners, result in a city-wide sanitation plan that is owned and feasible with consideration given to the poorest?*

2. *What are the economic, political and policy conditions necessary for municipal authorities to design and implement an inclusive universal access sanitation plan?*

3. *What motivates and drives public (government) and private (households and community groups) initiatives to improve or invest in sanitation facilities and infrastructure in an urban context?*

Ideally, a collaborative and consultative participatory planning process should link bottom-up and top-down actions or approaches.

Methodology

Identification of site

Conceptual framework of analysis to:

- iteratively assess the extent to which the intervention is addressing criteria essential to the successful implementation of the chosen scenario

- whether the proposed collaborative and consultative approach results in plans that can be delivered.

Data collection:

- Desk review / study & literature survey
- Key informants interview and consultation
- Regulatory assessment

Poverty pocket mapping, case studies & anecdotes

Partnerships, Actions & Outputs

We will work with local partners – municipal & regional authority, academics and NGOs ***to develop a citywide plan – with inbuilt scenarios and cost options for universal access***

We will conduct a research to inform the research questions

We will invest on a section of the city to promote sanitation up-take

We will work with others – municipality to strengthen processes and actions to deliver sanitation across the city

Research Uptake: We will use our results and progress stories to influence Government of Tanzania to plan for and roll out universal access for towns

Process guide

Conceptual framework

Citywide sanitation plan

Research papers, project report,

Site selection criteria

We believe universal access can be achieved

We are looking for a small town who believe this as well

- With current plans, interest and capability
- Readiness to strengthen own and actors capacity to deliver a citywide sanitation service
- Population, prior action / plan, economic status, and willingness to invest in sanitation initiatives
- Local citizens' community development interests

Recce visits

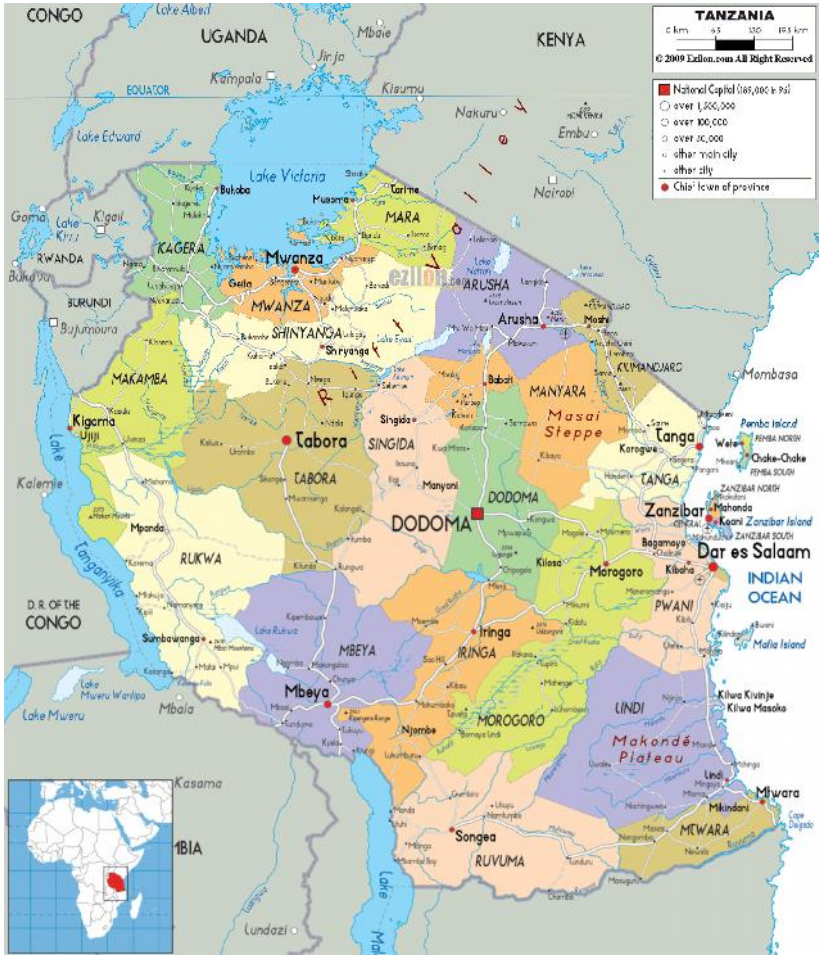
Candidate towns: Geita and Babati

A dating service: Establish a familiarity between municipal / town; regional authority and WaterAid / SHARE

Understanding of the existing and planned situation of sanitation in town

Basic understanding of the SHARE-2 research

A sense of whether a partnership is possible



Thank you

WaterAid Tanzania

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