Annual Report 2013

SHARE Research Consortium

Submitted to DFID July 2013

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE
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SHACK / SLUM DWELLERS INTERNATIONAL [SDI]
WaterAid
share
Sanitation and Hygiene Applied Research for Equity

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1. Programme Description

Purpose

SHARE (Sanitation and Hygiene Applied Research for Equity) is a Research Programme Consortium designed to generate, synthesise, and translate applied research related to sanitation and hygiene in low-income settings. Its purpose is to contribute to achieving universal access to effective, sustainable and equitable sanitation and hygiene through the use of better data and evidence-based approaches.

Partners

The SHARE Consortium consists of five diverse organisations: London School of Hygiene and Tropical Medicine (LSHTM), WaterAid, the International Institute for Environment and Development (IIED), Slum and Shack Dwellers International (SDI), and the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B).

The Consortium is unique in its combination of internationally recognized expertise, scientific research institutions, policy research, design and implementation of national WASH programmes and in its ability to engage communities in local decision-making affecting sanitation and hygiene. This diversity provides a range of approaches to developing knowledge and identifying opportunities to use that knowledge to create change.

Activities

SHARE activities include research, capacity building, and research into use (RIU). Although activities can be grouped into these categories, they are all part of a single integrated process by which research is transformed into influence and change. SHARE convenes sector partners to identify critical questions or knowledge gaps holding back progress to improved sanitation and hygiene, synthesises existing knowledge or generates new information to fill those gaps, and works with policy-makers, practitioners, and communities to use the information to change policy and practice at different scales. Most individual projects include all of these elements to different degrees.

Countries

SHARE works in four focus countries – India, Bangladesh, Malawi and Tanzania. In these four focus countries SHARE works closely with national sector partners to define research priorities, generate rigorous and relevant applied research, and enhance the uptake of new and existing research. In addition, SHARE also supports specific research projects in over a dozen other countries in South Asia and Sub-Saharan Africa, including Nepal, Uganda, Zambia, Zimbabwe, Kenya and Ghana.

Dates

The programme of work being undertaken by SHARE began on the 20th January 2010 and is due to be completed on the 19th January 2015. The current report covers activities between 1 July 2012 and 30 June 2013. SHARE's logframe includes a number of milestones due at the end of 2013 and this report also describes progress towards those milestones.

Budget

SHARE has a total budget of £10 million allocated over the four key areas of research, research into use (RIU), capacity building and consortium management. Expenditure from inception to 31 March 2013 was £5,962,277 which covers management costs (£838,699), technical expertise (£2,598,688) and projects (£2,524,890).

2. Overview of the Year

2.1 Progress and achievements

SHARE activities are divided into three main areas: research, capacity building and research into use (RIU). These activities are carried out at a global level, but also through Country Platforms in India, Bangladesh, Tanzania and Malawi, as well as other countries where SHARE research is underway.

This has been a critical year in SHARE's development. SHARE started in January 2010 with the ambitious goal of combining research, RIU, and capacity building to transform sectors. A wide and ambitious range of activities was initiated in each of these areas. This year has seen the completion of critical research pieces and their transformation into practice and policy changes with the potential to improve sanitation and hygiene for millions of people. Through this process SHARE has encountered a number of challenges, adapting its strategy to address these and identifying important lessons regarding what works and what is required to maximize the impact of its efforts. These lessons feature prominently in this report and inform plans for the next 18 months and possible avenues for deepening SHARE's impact beyond January 2015.

2.1.1 Research

SHARE's research is implemented through a combination of quick-start projects, internal competitive research calls, Country Platform research programmes in the four focus countries and a portfolio of RIU-led research and synthesis. In each of these areas there has been significant progress over the last year, exceeding that required under the Logical Framework Approach (LFA). Important breakthroughs in the last year include the launch of three new national research programmes, the publication of 16 peer-reviewed articles, and examples of SHARE research transforming practice.

In this year, most of the quick-start projects and Call A and B projects have been completed (with the exception of the longer-term sanitation trial that is on-track and scheduled to publish in March 2014), and important publications are beginning to emerge. This includes a paper on the weaning food hygiene project in Bangladesh, published in Tropical Medicine and International Health Journal that is influencing national and international programmes (see section 6) as well as three papers from the sanitation trial in Odissa published in international peer-reviewed journals. The project evaluating the Joint Monitoring Programme (JMP) classifications of what constitutes an improved form of sanitation was completed in November 2012, and had a first paper published on hookworm contamination in unimproved pit-latrines, while a paper on the main results is in preparation. The study found that facilities shared by more than one family, currently classified as an unimproved form of sanitation were found to be just as hygienic as single family latrines, which are classified as an unimproved form of sanitation. The final reports for all the Call A and B proposals have been peer reviewed and are available on the SHARE website (shareresearch.org).

The past year has seen significant progress on research programmes in the focus countries. Research funded under the Bangladesh Country Platform on safe distances between

latrines and wells is underway, and projects under the India, Tanzania and Malawi Country Platforms are ready to begin. SHARE was also successful in developing a collaboration with the Water Supply and Sanitation Collaborative Council (WSSCC) to increase funding to the India research programme (section 2.1.4) which has allowed additional studies to be initiated.

While most of the projects approved under Call C were finalised in early 2012, additional resources were identified to enable the funding of strategically important work on the contribution of school WASH (Water, Sanitation and Hygiene) to the control of soil-transmitted helminths (Annex E).

Based on lessons learnt last year, SHARE has also introduced a series of process improvements to improve the rigour of its research portfolio. In Call C, as a condition for the award, the submission and peer-review of a study protocol was set. The protocol would provide clear detail on the methods used, minimum sample size, deliverables and outputs. This came about as a response to the outputs of Calls A and B, where the expected form of outputs had not always been clear, and where clear methods, sample size and plans of analysis were not agreed. Although the peer-review has been a time consuming process it has delivered very clear study protocols, and has made management and monitoring of the projects easier.

Two of the largest SHARE-funded projects continue to progress well. The Orissa sanitation trial that was one of the start-up projects funded in January 2010 and is now in the final stages of surveillance, is due to be completed later this year. The project started as an effectiveness trial to assess the health benefits of improved sanitation in a rural Indian setting. Leveraging substantial additional funding from 3IE and the Bill and Melinda Gates Foundation, it has expanded to include the development and application of innovative methods for assessing sanitation use, qualitative approaches to understanding behavioural determinants, measuring the contribution of alternative exposure pathways and assessing the impact of improved sanitation on nutrition. A complete report on its progress is included in Annex K.

The second large SHARE research project is the City Sanitation project led by IIED and SDI. Launched at the beginning of 2012, this project takes place in four cities in Sub-Saharan Africa. This project demonstrates the wide range of knowledge generation styles that SHARE encompasses. It is an action research project that examines the structural barriers to improving sanitation for the urban poor. It tests the innovative hypothesis that enabling communities and their representative organisations to collect, analyse and present information about their sanitation situation and potential solutions can produce knowledge and evidence that effectively catalyses change among municipal and national actors. As such it is not just a project researching urban sanitation, but also an initiative to develop innovative mechanisms for translating research into use. A short project summary and progress report is presented in section 5.2 and a full annual report is included in Annex L.

During the past year, SHARE researchers have also been engaged in developing follow-up research proposals, based on findings from quick-start projects or projects from Calls A and B, to leverage new research investment. This includes proposals to evaluate hygiene interventions at scale and assess the impact of poverty and population density on sanitation benefits. These follow-up proposals are critical to ensuring that SHARE research triggers additional research and innovation in the sector.

2.1.2 Capacity building

SHARE's capacity building projects range from PhD programmes to targeted training on how to incorporate evidence into practice. All of the activities are designed to increase the ability of the sector to generate and effectively use evidence and information to improve access to sanitation and hygiene.

SHARE's six funded PhD students continue to make progress in their training and research. Five of the students passed their upgrading (a requirement at LSHTM and most UK universities before beginning doctoral research). Although the sixth student did not pass the upgrading, SHARE's Management Group felt that the student's proposed research was of strong quality and financial support should be continued. The student is now in the process of registering at Stellenbosch University in South Africa, with Professor Cairncross and Dr Rheingans as co-advisors. All PhD students are currently at their field sites collecting data and most are expected back in London towards the end of 2013 to start writing up their theses. In addition to carrying out their research, the students are already engaging sector actors around their research. Initial findings from the food hygiene research undertaken by the PhD student Om Prasad Gautam were presented at the 2013 Water, Engineering and Development Centre (WEDC) conference in Nakuru, Kenya, while Prince Antwi-Agyei and Sheillah Simiyu presented their research findings at the Early Career Scientist Conference organised by the Wellcome Trust funded SNOWS consortium in Polokwane, South Africa.A full description of the PhD students' progress is provided in Annex F. In addition, four MSc students' research projects were supported by SHARE during 2012/13.

In response to a critical gap identified in the previous annual report, SHARE carried out a series of training activities designed to increase capacity of practitioners at the national and global levels in strategic areas. This included courses on writing and documentation, menstrual hygiene management (MHM) and WASH and maternal health. These are described in more detail in section 3.4. Recognising the need for up-to-date technical guidance on sanitation and hygiene, Professor Cairncross (SHARE Research Director) has been completing an updated version of his seminal textbook on Environmental Engineering for the Tropics.

This year the SHARE capacity building fund has also supported two projects: one was a request by the Tanzanian subsidiary of SDI for a training course on the *Sanitation Mapper* by WaterAid's Joseph Pierce, and the other arose from a request by ICDDR-B for training at the University of Florida on genetic techniques, which is due to take place towards the end of 2013.

Additional activities on developing capacity for RIU are described below.

2.1.3 Research into use

Research into use (RIU) is central to the SHARE theory of change and the approach taken is described in the RIU Strategy (SHARE Inception Report, 2010). In line with the format agreed with the Department for International Development (DFID) last year (SHARE Annual Report, 2012), RIU activities are clustered into five categories: convening boundary partners/users (other sector actors who use SHARE information to inform their practical actions), RIU-led research and synthesis, translation of research for boundary

partners/users, projection of work by online and other means and support to the national platform processes.

RIU activities contribute indirectly to most LFA output and outcome indicators and contribute directly to LFA outputs 1-3. Progress on the LFA is described in section 3, and RIU progress is described in detail there in relation to the relevant indicators. All 2013 milestones relating to RIU have been exceeded. Section 3 should be read in conjunction with section 5 that focuses on 'uptake and engagement with beneficiaries' and the various annexes referred to below.

Highlights this year include presentations of SHARE research at international scientific and policy meetings within the WASH sector (e.g. the Stockholm Water Week) and beyond the WASH sector (e.g. the Global Taskforce on Maternal Health Conference). This year a number of important RIU-led research and synthesis projects delivered influential publications; these included a Cochrane Review for the effect of WASH on childhood undernutrition, the DFID WASH Evidence Paper and the Menstrual Hygiene Management resource book. SHARE has developed strategic partnerships with critical sector actors including the Water and Sanitation Programme of the World Bank (WSP) and The United Nations Children's Fund (UNICEF), engaged non-WASH health sectors to mainstream sanitation and hygiene within their work and has worked closely with practitioners, particularly at the national level, to incorporate SHARE findings into practice (e.g. menstrual hygiene management and weaning food hygiene).

2.1.4 Country Platforms

The Country Platforms were among the most ambitious of the SHARE programme objectives and were identified early on as being higher risk in terms of timely delivery. Despite this, the Platforms have been established in the four countries (India, Bangladesh, Tanzania, and Malawi) and progress has been made against the four respective strategies (Annex G). As originally planned, the platforms have taken different forms and required differing levels and types of support but each has successfully delivered a research programme reflecting nationally identified sector priorities with buy-in from national policy and practice stakeholders.

India

In the past year the India Country Platform has had three main achievements. Firstly, the platform has successfully navigated a major challenge that arose when WaterAid India was forced to withdrawal from the platform lead role in December 2012, due to external factors. Following this, SHARE was able to initiate an alternative management arrangement and to meet or exceed all objectives for 2012/2013. Secondly, SHARE formed a partnership with WSSCC which included co-financing of the SHARE India Request for Proposals (RFP) with an additional £200,000 of support contributed by WSSCC. Lastly, the India platform RFP process was successfully completed and all successful research teams are now contracted. The SHARE India RFP received more than 60 proposals (with a combined value of over £7 million), all of which were independently peer-reviewed and 15 were short-listed and reviewed by a committee of experts. The four final proposals (with a combined value of £450,000) are all led by Indian institutions in partnership with international institutions and were approved by the 31st May, without revisions. These are:

- *Life course approach for exploring the impact of sanitation access*
  Asian Institute of Public Health, Odisha, India and Emory University (£180,017)

- *Sanitation vulnerability: Women's stress and struggles for violence-free sanitation*
  Led by SOPPECOM India and Texas A&M University (£61,705)

- *WASH and CLEAN on the labour ward*
  Indian Institute of Public Health and University of Aberdeen (£99,791)

- *Women WASH and health in rural Pune district. Identifying stress and unmet needs*
  Led by Vadu Rural Health Program and Swiss Tropical and Public Health Institute (£97,206)

Tanzania

The Tanzania Country Platform has shown significant progress this past year. The RFP was launched in October 2012 and the proposals scored and selected during a Country Platform meeting on the 30th November 2013. All four successful proposals were accepted with minor or no revisions:

- *Shared sanitation in Tanzania*
  Ministry of Health Water and Sanitation and LSHTM (£99,994)

- *Drivers for effective sanitation governance in rural/peri-urban areas*
  Led by Governance Links, Tanzania (£24,000)

- *Developing sanitation microfinance in Tanzania*
  Trémolet, WaterAid Tanzania and MicroSave Consulting Ltd (£50,000)

- *Expanding the MTUMBA model: creating a product for scale up*
  Led by National Institute for Medical Research (NIMR), Tanzania (£50,000)

SHARE has organised a number of RIU activities, including the international Symposium "Progress on sanitation and hygiene interventions in East Africa," which took place in Arusha, Tanzania on the 19th April 2013 and producing various publications including a literature review on sanitation and hygiene in Tanzania. SHARE has developed a collaboration with the Ministry of Health and Social Welfare (MoHSW) and is working with MoHSW as well as DFID and WSP to support the evaluation and strengthening of the National Sanitation Campaign.

Malawi

In the past year, the Malawi Country Platform has been established and has successfully completed an RFP. A Country Platform Research workshop was held in August 2012 and attended by various sanitation stakeholders in Malawi to identify key research areas. At the workshop a Memorandum of Understanding (MoU) was signed between SHARE and the Malawi Research Platform led by the Department of Health, Government of Malawi. A RFP

was developed in December 2012 and advertised at the beginning of 2013. The selection of proposals took place in May 2013 and contracts are now being finalised for the successful proposals:

- *Private sector participation in the delivery of sanitation and hygiene services*
  Centre for Excellence in Water and Sanitation, Mzuzu University (MZUNI) (£30,075)

- *Pit emptying and faecal Management*
  The Natural Resources Management Department (LUANAR) (£48,415)

- *Challenges and opportunities in solid waste management: in Malawian cities*
  Ruo Consultants (£58,230)

- *Menstrual hygiene in primary and secondary schools*
  Dr Benjamin Kaneka (£39,000)

Bangladesh

The Bangladesh Country Platform has had three important achievements in the past year. Firstly, the field data collection for the single research project (the 'Safe Distance' project), funded through the national research fund (ICDDR,B),, was completed. This project was selected by the national research group and builds on past collaborations between ICDDR,B and WaterAid Bangladesh. The project also includes participation from UNICEF in Bangladesh and researchers at the University of Dhaka. Secondly, WaterAid Bangladesh agreed to host the Country Platform and recruited a research coordinator who has developed and finalised the RIU strategy for the platform. The RIU efforts focus on practical uptake of research findings from the weaning food contamination start-up project, engaging decision-makers throughout the process of the 'Safe Distance' project and creative outreach on sanitation and hygiene through collaboration with Sesame Street, Bangladesh. Thirdly, building on the findings from the earlier Call B Weaning Foods study, published this year, SHARE has created a partnership with the Ministry of Women and Child Affairs to incorporate the results into district health programmes. A 'training-the-trainer' workshop on weaning food contamination and its control was held in June 2013 and was attended by over 50 district health officials.

2.2 Challenges and disappointments

In last year's Annual Report, SHARE proactively identified potential risks and challenges, notably around the establishment of Country Platforms in the focus countries and implemented various steps to mitigate these (SHARE Annual Report 2012; SHARE CAG Meeting minutes 2013). In many ways the Platforms continue to present challenges, in part, because they are addressing long-standing obstacles to developing, carrying out, and translating applied research in these contexts. During the past year, SHARE has made great progress in each country by convening and engaging sector partners, developing capacity for executing and managing high quality applied research and interpreting evidence to make locally relevant programme and policy decisions. This progress is highlighted above. Nevertheless, challenges continue to emerge that deserve specific mention.

First, SHARE's Country Platform activities are highly dependent upon specific individuals within partner organizations (both in-country and London-based). This dependence is partially a product of trying to maximize SHARE's influence with limited resources. Over the past year, this has created challenges as a result of illness of core personnel and departure of core country staff in one case. SHARE has responded by reallocating core staff time to help sustain momentum in developing the Country Platforms. For example, Dr Sue Cavill has actively engaged the partners in Malawi in addition to her ongoing work as country liaison for Tanzania. In India, changes in country partner staff resulted in a redesign of the National Platform Strategy (outlined in Annex G) and has necessitated additional time inputs from Oliver Cumming (LSHTM) to ensure timely delivery of the RFP. In addition, the core team of research, RIU and monitoring and evaluation (M&E) officers has provided on-going support to Platform activities.

A second challenge for the Country Platforms identified in last year's Annual Report was the development of a critical mass of activities with relatively limited funding available in each country. As outlined in the report, the challenge revolves around the time and financial resources needed to draw researcher institutions, governments, and sector partners into new activities with finite time frames. There have been important successes in addressing this challenge. In India, the size of the SHARE research call was almost doubled through establishing a partnership with the WSSCC that included a £200,000 co-financing contribution to the SHARE India RFP. In Tanzania and Malawi, SHARE is continuing efforts to work with and strengthen existing sector activities, including the Tanzania National Sanitation Campaign, and working with national ministries to address their research agenda. Continued success will likely depend on the development of new collaborations with separate funding bodies to build on the work begun by SHARE.

A final challenge for the Country Platforms continues to be capacity for carrying out core research and RIU activities. To date, much of SHARE's capacity building work at the country level has been focused on either specific technical areas or specific individuals. However there continues to be a chronic need for improved applied research and RIU capacity in several countries. It is important to note that this is more noticeable and pressing in Tanzania and Malawi than in India and Bangladesh. These gaps affect academic institutions, government ministries, NGOs, and community organisations and create challenges in carrying out rigorous research, communicating results, and incorporating results into practice. This report identifies a number of efforts to overcome these barriers in different contexts. However, the scale of these needs is beyond SHARE's capacity; sustained, structural efforts are required to meet them and to creatively and effectively address the national sanitation and hygiene needs.

These challenges are explored further in Section 11 but it has become clear from the significant progress achieved in the last year that there is both significant demand in national sectors for these initiatives and further potential to more firmly embed research in national sector processes.

2.3 Context update

SHARE operates within a constantly shifting policy and research context and reflecting that, and SHARE's objective of relevance, requires adaptation. New evidence, both from SHARE and others, continues to emerge on the impact of sanitation and hygiene on health and

development, as well as the effectiveness of different intervention approaches. SHARE priorities and investments have evolved based on this new and emerging information in order to respond to opportunities and ensure the additionality of research.

An emerging area is that of the contribution of WASH to other health and development sectors. Through the RIU fund (see section 5), SHARE has been able to contribute to the scientific literature in this area and respond to policy and programmatic demand for evidence. In response to a growing interest in the effect of WASH on childhood undernutrition, including stunting, LSHTM conducted a Cochrane Review (Dangour *et al* ,2013) on this topic, referred to in the recent Lancet Nutrition Series (Black *et al*, 2013). The Review provides the evidence base for a forthcoming guideline document by the World Health Organisation (WHO) and United States Agency for International Development (USAID) on integrating WASH and nutrition. Similarly, the RIU fund has supported work by LSHTM researchers linking WASH to maternal health, which will feature in a forthcoming PLoS Medicine Series (Campbell *et al*, 2013), as well as research conducted in Nepal by LSHTM and WaterAid researchers on the feasibility of integrating hygiene messages in national immunisation campaigns (Velleman *et al*, 2013).

These growing connections provide an important opportunity for SHARE. In particular they provide opportunities to expand the delivery of sanitation and hygiene through mainstreaming into other sector activities. Strengthening the evidence base through research as well as synthesis, leads to increased engagement with policy-makers in these areas. These connections also provide opportunities for innovative research. In many cases SHARE is actively involved in building these connections by convening thought leaders, conducting integrative research, and developing cross-sectoral interventions.

3. Logframe Outputs

This section summarises SHARE's progress during the past year (July 2012 – June 2013) with regard to the LFA outputs and indicators. Progress to date is also compared to the next set of SHARE LFA milestones set for the end of 2013. It is important to note that at the time of writing this report, six months remain before these milestones are due. However, SHARE has met or, in some cases, significantly exceeded all of the 2013 milestones in LFA.

Some of the outstanding achievements over the past year include:

- Publication of 16 peer review articles over the past 12 months and 24 since inception (compared to a high milestone of 10). This includes high impact publications and publications by a number of southern researchers.
- Development and publication of 23 manuals, handbooks and reports, for a total of 39 since inception (compared to a high milestone of 6). This includes Menstrual Hygiene Management Resource Book that is being incorporated into programme development.
- Four country research programmes with a total value of over £1.2 million (including £325,000 in co-funding from partners), exceeding a high milestone of £500,000.

A version of the full logframe is presented in Annex A and additional information on specific outputs is included in Annex D.

3.1 Output One

National & global sector-relevant knowledge synthesised and disseminated to:
a) characterise problems
b) identify solutions
c) demonstrate benefits

This output captures the production of knowledge materials (including academic publications, manuals and media) which synthesise problems, solutions and benefits of SHARE research. Output one includes five separate indicators, summarised below.

3.1.1 Indicator One: Number of manuals, handbooks and other major resource materials created or rendered accessible.

2013 Milestone: 6 Manuals, handbooks and resources (High); *Progress by June 2013: 39 reports, 25 media outputs.*

In the past year SHARE has produced 23 manuals, handbooks, policy briefs and reports and nine media outputs (such as webinars and podcasts). A full list of these outputs is included in Annex D. Some of the most notable among these include:

- **DFID Evidence Paper on WASH** (DFID) *Cairncross S, Cumming O, et al.* (LSHTM)
- **Community-driven sanitation improvement in deprived urban neighbourhoods** *McGranahan G (IIED)*
- **Sanitation Mapper User Guide** *Pearce J (WaterAid).*

- **WASH in Emergencies Review** *Brown J, Jeandron A, et al*. (LSHTM)
- **Scaling up the Mtumba approach in Tanzania** *Malebo H (NIMR)*
- **Small-scale finance for sanitation (SHARE)** *Tremolet S & Maruka G (LSHTM)*

In the last twelve months as more SHARE research has been completed, the rate of publications has increased significantly.

3.1.2 Indicator Two: Development and use of national RIU strategies.

2013 Milestone: 4 RIU strategies (High); *Progress by June 2013: 4 RIU strategies operational.*

The RIU strategies have been expanded into 'Country Platform Strategies' to encompass the full range of activities designed to encourage research uptake and influence national sector practice in the four focus countries. These are defined as 1) having identified priority issues for influencing and informing sector policy, 2) identified specific boundary partners, and 3) developed strategies and activities to move towards those objectives. These plans are developed and operate in the context of broader country strategies. The use of the plan will be evidenced by activities within it having been carried out and regular reviews of progress.

SHARE has successfully developed strategies for the four Country Platforms. These are presented in Annex H. Progress towards implementing the strategies has also begun in each of the countries as demonstrated by these examples:

- 'Training-the-trainer' workshop on weaning food hygiene in Bangladesh
- Sanitation symposium showcasing SHARE research as part of the National Institute for Medical Research (NIMR) annual conference in Tanzania (the first of its kind)
- Menstrual hygiene management roundtable in Malawi
- Sanitation evaluation workshop for state and local Government in India

During the past year, the four Country Platforms have focused on establishing their research programs. With these underway, greater priority is given to RIU activities in plans for the remainder of 2013 and 2014. For example, in India SHARE is currently co-organising a conference on sanitation and stunting with the Delhi School of Economics and WSP to take place in August 2013. Similarly, in Tanzania SHARE will work with DFID, WSP and the MoHSW to strengthen evaluation of the National Sanitation Campaign.

3.1.3 Indicator Three: Number of knowledge-sharing events including seminars, technical meetings and conferences organised or supported by SHARE.

2013 Milestone: 20 knowledge -sharing events (High); *Progress by June 2013: 27 knowledge-sharing events.*

Under this indicator, SHARE reports on seminars, workshops and Country Platform meetings but not training events.Since June 2012, SHARE has convened and supported 18 global events, 7 of which took place in the Country Platforms. SHARE research was

presented at two major WASH conferences (World Water Week and UNC Water and Health conference) showcasing papers and leading seminars on the following subjects:

- Monitoring equity and pro-poor performance
- The role of sanitation in addressing violence against women and girls
- Making WASH inclusive
- Menstrual Hygiene Matters
- WASH and undernutrition

From the 15th October to the 30th November 2012, SHARE convened an international exhibition on Sanitation and Hygiene at the London School of Hygiene and Tropical Medicine. The exhibition showcased some of the applied research in the field of sanitation and hygiene, including SHARE studies, bringing together leading researchers and professionals in the WASH sector and other academic fields. Professors Anne Mills, Sandy Cairncross and Dr Val Curtis spoke at the launch on the importance of research in accelerating progress on sanitation and hygiene in low-income countries.

3.1.4 Indicator Four: Number of women participating in those events.

2013 Milestone: 40% of participants are women (High); *Progress by June 2013: 49% women.*

Depending on event and data availability, Indicator 4 could include participants as presenters/facilitators or audience members. In large events such as conferences, the gender of the presenter is the focus, whilst in smaller workshops and technical meetings the gender of those attending is the focus.

The gender breakdown of participants (audience or presenters) is available for 11 of the knowledge-sharing events over the previous year. Overall, 49% of participants at these events were women, exceeding the Milestone indicator of 40%. After initial delays in collection of this data, gender-specific data is now collected for all events where feasible.

3.1.5 Indicator Five: Number of requests for advice from SHARE generating a response.

2013 Milestone: 10 requests for advice (High); *Progress by June 2013: 17 responses to requests for advice.*

This indicator includes requests to SHARE members for advice on WASH-related topics. This is not necessarily based on specific SHARE research, but rather the assessment of the broader body of WASH knowledge and implications for particular settings and problems.

During the past year, SHARE has provided 10 responses to requests for technical advice. These include requests from organisations such as Médecins Sans Frontières (MSF), Oxfam, Action Contre la Faime, and DFID. A full list is available in Annex A.

Since its inception SHARE has responded to a total of 17 requests for advice, compared to the milestone of 10 by the end of 2013.

3.2 Output Two

New knowledge generation dissemination (articles, citations, programmes embodying findings, SPLASH).

This output focuses on the production and dissemination of research findings for publication as well as their incorporation into programmes and policies.

3.2.1 Indicator One: Publications in peer-reviewed journals arising from SHARE research.

2013 Milestone: 10 peer-reviewed publications (High); *Progress by June 2013: 24 articles*

Under this indicator academic publications with at least one SHARE funded author and/or those presenting results from SHARE research are reported. Two levels of publications are acknowledged: 1) those where the research was directly funded by SHARE and 2) those for which SHARE contributed less directly through sharing of information, exchange of ideas, or review.

Since June 2012, SHARE has produced 16 Journal publications, including systematic reviews, documentation of new research methods and the first results of SHARE-funded primary research. The articles provide important insights ranging from transmission dynamics and identifying critical knowledge gaps in the sector, to understanding policy implications. A full list of articles is available in Annex D. Some of the most notable include:

- Dangour A, L Watson, O Cumming, Y Velleman, S Cavill, E Allen, R Ouay (2013) Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutritional status of children. *Cochrane Database Syst Rev* 2013
- Irish S, Aiemjoy K, Torondel B, Abdelahi F and Ensink J (2013) Characteristics of latrines in central Tanzania and their relation to fly catches. *PloSOne*
- Islam MS, Mahmud ZH, Gope PS, Zaman RU, Hossain Z, Islam MS, Mondal D, Sharker MAY, Islam K, Jahan H, Bhuiya A, Endtz, HP, Cravioto A, Curtis V, Touré O and Cairncross S (2013). Hygiene intervention reduces contamination of weaning food in Bangladesh. *Tropical Medicine International Health,* 18(3), 250-258.
- Clasen T, Boisson S, Routray P, Cumming O, Jenkins M, Ensink JH, Bell M, Freeman M, Peppin S and Schmidt W-P (2012) The effect of improved rural

sanitation on diarrhoea and helminth infection: design of a cluster-randomized trial in Orissa, India. *Emerging Themes in Epidemiology*, 9(7), 2-10.

- Sumpter C & Torondel B (2013) A systematic review of the health and social effects of menstrual hygiene management. *PloSOne,* 8(4) DOI: 10.1371/journal.pone.0062004
- Baker S & Ensink J (2012) Helminth transmission in simple pit latrines. Transactions of the *Royal Society of Tropical Medicine and Hygiene*,106(11), 709–710.
- Watts C & Cairncross S (2012) Should the GBD risk factor rankings be used to guide policy? *The Lancet*, 380 (9859), 2060-2061.

Of the 16 publications during the past year, 11 have been the direct result of SHARE research and synthesis.

Since its inception SHARE has produced 24 journal articles, exceeding the milestone indicator of 10 by the end of 2013.

Although there is no specific indicator for tracking the gender of authors of SHARE publications, the importance of assessing the presence of female authors and researchers in the WASH sector has been recognised. Among last year's publications, 32% of the authors are female. Finally, 25% of authors who contributed to those publications are from developing country institutions.

3.2.2 Indicator Two: citations of SHARE publications by other authors.

2013 Milestone: One citation per publication (High); *Progress by June 2013: 6.2 citations per publication.*

Under this indicator, SHARE monitors the citation of current publications, as well those publications produced in previous years, using *Google Scholar*. Due to the normal publication cycle there is a substantial lag between publication and citation in another article, Only those articles that have been published for at least one year were included in the measurement of this indicator.

There are 14 SHARE publications from 2012 and before, with a total of 87 citations in peer-reviewed journal articles for an average of 6.2 citations per article.

Some of the highlights include one article with 43 citations (Curtis *et al,* 2011) and another (Dangour *et al,* 2011) cited in the Lancet review of what works in reducing child under-nutrition[1].

It is also important to note that several very recent SHARE publications (Islam *et al*, 2012 and Toure *et al,* 2013) are already being cited in 'grey' literature and on influential web-sites such as that of the Public Private Partnership for Handwashing with Soap.

[1] Zulfiqar A Bhutta et al, Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?, *The Lancet*, 2013,

3.2.3 Indicator Three: Number of programmes embodying research findings established and documented for replication and/or study visits.

2013 Milestone: 2 programmes embodying findings (High); *Progress by June 2013: Five programmes embodying findings.*

This indicator includes the number of programmes incorporating SHARE research and synthesis findings into their decision-making, targeting strategies or policy guidelines. These could be by SHARE partners, NGOs, governments, bi-laterals or international organisations.

Since June 2012, SHARE research findings have been embodied by three country programmes:

- Findings from the Choose Soap project informed the development of RIU proposal "SuperAma" which was successfully funded under SHARE Call C (see section 6)
- A SHARE Evidence Paper has been used by DFID country offices to develop and plan programme interventions (See section 6).
- Findings from the Safe Distance project in Bangladesh (SHARE Call B) are being embodied in WaterAid Bangladesh programme guidelines.

3.2.4 Indicator Four: Successful completion of SPLASH component funded via SHARE.

2013 Milestone: Three progress reports (Medium); *Progress by June 2013: Three progress reports*

Since its inception, SPLASH has successfully submitted three project reports describing its progress to date.

3.3 Output Three

Engaging partners around research (SHARE initiated consultations, country platforms, downloads, technical support for implementing SHARE research, developing skills).

This output focuses on SHARE's ability to engage sector partners at the national and global scale, with the intent to better identify research needs and to facilitate the uptake of new and existing research.

3.3.1 Indicator One: Number of consultations initiated by SHARE on the basis of Outcome Mapping.

2013 Milestone: Four consultations (High); *Progress by June 2013: 12 consultations with strategic boundary partners.*

Under this indicator, SHARE reports on the number of meetings and consultations among SHARE and external partners to expand or continue research and RIU efforts in the WASH sector. This includes consultations to build collaborative efforts that go beyond SHARE's core research and RIU activities. These consultations are in response to priorities identified in the national and global Outcome Mapping exercises.

In the past year SHARE initiated six consultations based on the Outcome Mapping approach, which in the future may lead to embodying research findings into new projects and programmes. Among the most notable consultations were:

- City Wide Sanitation Project: A SHARE project enabled local NGOs and Federation members in Zambia, Zimbabwe, Malawi and Tanzania to establish consultations and MoUs on sanitation interventions in urban informal areas.

- Consultation with DFID, Tanzania, WSP, and Ministry of Health and Social Welfare to improve the impact and value for money of the National Sanitation Campaign, through joint evaluation activities

- Collaboration with WSP to develop a partnership on research and RIU focused initially on the South Asia region: this has included participation of LSHTM researchers in WSP global and regional planning processes

- Engagement with UNICEF to collaborate on capacity building for RIU and research management: this has included seminars for global, regional and national staff

- WaterAid is working with the Ministry of Health and Population, Child Health and Planning divisions in Nepal to mobilise actors and put together operational guidelines for implementing an approach prior to the introduction of the rotavirus vaccine.

- A senior Gambian environmental health official, currently studying in the UK, is discussing with SHARE the possibility of using his field staff to roll out a weaning food hygiene intervention at a national scale.

3.3.2 Indicator Two: Number of Country Platforms established and active.

2013 Milestone: Four Country Platforms with active strategies (High); *Progress by June 2013: Four Country Platforms established and two Country Platforms fully implemented*

Under this indicator, SHARE reports on the number of Country Platforms with an established research group and action plan to undertake relevant WASH research. An established Country Platform is defined here as including: regular convening of key sector partners, development of research and RIU priorities, definition of plan and actions for carrying out research, and regular activities to share research findings and synthesis.

This indicator is closely linked to Output 1, indicator 2, which focuses on the national RIU strategies. During the past year, each of the four Country Platforms have concentrated on launching national research programmes based around issues identified through consultation process. Priority research questions have been identified in each country and proposals have been selected. Research contracts have been put in place in India and Bangladesh and are being finalized for Tanzania. In Malawi, contracting is occurring through the national government and has taken slightly longer. By the end of 2013 research will be initiated for all projects.

Each of the Country Platforms have different structures, based on conditions and opportunities. During the last year, the India Platform had to go through a restructuring due to the lead partner (WaterAid) not being able to continue due to staffing changes. An alternative approach was agreed with WaterAid and the SHARE advisory group and is now in place and all planned outputs have been delivered. In spite of these challenges, the four Country Platforms are in place and function in all four countries, meeting the high milestone for the end of 2013.

3.3.3 Indicator Three: Number of hits and downloads.

2013 Milestone: 10 per month (High); *Progress by June 2013: Over 1,000 hits and downloads*

As agreed with DFID, and implemented since the 2012 Annual Report, this indicator assesses the monthly number of visits to the SHARE webpage and the monthly number of subscriptions to the SHARE newsletter.

In the past year the average number of visits to the SHARE webpage was 1047 per month a significant increase on the previous year. As of May 2013, the total number of newsletter subscriptions is 364 (See section 5.1 for more detailed information and web-based metrics).

These indicators greatly exceed the current logframe 'High' target of 10 hits or downloads per month. Given past performance, this is too low a target; a new target to increase these numbers by 10% over the next year has been set for management purposes

3.3.4 Indicator Four: Number of external requests for SHARE technical support to implement implications of SHARE research.

2013 Milestone: Four technical support requests (High); *Progress by June 2013: 21 requests responded to.*

Under this indicator SHARE reports on the requests made to its members for support on SHARE research, training, capacity building, writing and editing. In contrast to Output One, Indicator Five, this indicator focuses on applying and interpreting SHARE research and analysis.

Since June 2012, SHARE has responded to six formal requests for technical support. These mainly include requests from DFID country programmes. A full list of requests is available in Annex D.

Since its inception SHARE has responded to a total of 21 requests for technical support, exceeding the milestone indicator of four requests by the end of 2013. Given the high level of success on this indicator, SHARE will set a revised internal target of seven new requests for the coming year.

3.3.5 Indicator Five: Number of non-SHARE agencies participating in SHARE research.

2013 Milestone: Five non-SHARE institutions (High); *Progress by June 2013: 45 collaborating institutions.*

Under this indicator, SHARE reports on the number of organisations and institutions that actively participate in its research, both globally and at Country Platform level.

In the past year, more than 30 external international and national agencies have been involved in SHARE research. Among the most important ones are UNICEF, DFID country programmes, WSP/World, as well as the respective government departments in each Country Platform.

3.3.6 Indicator Six: Skills and competencies of key individuals responsible for planning, managing, implementing and monitoring WASH programmes-especially women- developed or upgraded.

2013 Milestone: *20 individuals trained (High); Progress by June 2013: 190 individuals trained.*

Indicator six includes individuals who are involved in developing and carrying out WASH activities within their organisation. It does not include training of researchers.

In the past year, SHARE has provided training to 144 WASH practitioners, 36% of which are women, exceeding the indicator milestone of 20. The training sessions provided include, "writing in the WASH sector" conducted by WaterAid both in the UK and in Uganda. One of the outputs that emerged from this training is the Policy Brief 'Sanitation for the Improved Health and Wellbeing of the Tanzanians: What will it take?' written by Ferdinandes Axweso (WaterAid Tanzania), who attended the training in London. Another important training event took place in Bangladesh in June 2013: 'One Day training of trainers for Bangladeshi Government officers on essential WASH and hygiene issues', organised by WaterAid Bangladesh and ICDDR, B.

Furthermore, the City Wide Sanitation Project has provided extensive training to Federation Affiliate members in data collection and mapping of urban settlements through the use of mobile phones, GIS and Sanitation Mapper and has included a training session with a women's cooperative of slum dwellers in Tanzania.

Given that the milestone has been exceeded, a new internal target of a 10% increase in people trained will be set for next year.

3.4 Output Four

Strengthen capacity for research and application (to include proposal quality, PhD students, exchange visits, training courses).

This Output measures the progress made by SHARE in generating and reinforcing new skills in the WASH sector to increase sustained opportunities for research, particularly in focus countries.

3.4.1 Indicator One: Percentage of proposals ready for consideration on first submission.

2013 Milestone: 60% of proposals (High); *Progress by June 2013: 56% ready for submission*

Under this indicator, SHARE reports on the number of proposals in both Call C and Country Platforms that required substantial revision before resubmission.

The total percentage of proposals in Call C, and in the Country Platforms with no revision after submission is 56%, performing Medium/High against the indicator milestone of 60%.

Upon reflection, this indicator may not adequately capture SHARE's outputs. For examples, in the India Platform's RFP, none of the selected projects required substantial revision, reflecting the existing strength of national researchers. In other settings, a higher fraction required revision and support in proposal development. The indicator is likely to better reflect existing capacity, rather than SHARE's efforts to strengthen capacity.

3.4.2 Indicator Two: Number of PhD students trained.

2013 Milestone: 5 PhD students (High); *Progress by June 2013: 6 PhD students.*

This indicator refers to the number of PhD students fully or partially funded by SHARE. Although not included in the main indicator, the number of MSc students trained is also tracked.

Since its inception, SHARE has been training six PhD students - all from developing countries, exceeding the 'High' milestone of five. Additional information on each student and their research is available in Annex F. In addition, eight MSc students have received training through SHARE's applied research projects.

3.4.3 Indicator Three: Number of exchange visits organised.

2013 Milestone: 4 visits (High); *Progress by June 2013: 10 visits*

This indicator refers to visits by one practitioner or researcher to another with the purpose of learning from and possibly replicating their approach. This could include visits of different organisations within the same country or to different countries.

Since June 2012, SHARE has arranged four exchange visits. These included:

- James Pearce (WaterAid UK) visited Centre for Community Initiatives (CCI), a member of the City Wide Sanitation project in Tanzania, to provide training on Sanitation Mapper.

- Aurelie Jeandron (SHARE Research Assistant) visited the Department of Veterinary Disease Biology at the University of Life Science in Copenhagen (November 2012) to conduct research
- Sandy Cairncross (SHARE Research Director) visited Malawi to meet with the sector partners and the National Research Group (May 2013)
- Rick Rheingans (University of Florida) visited DFID Tanzania to discuss SHARE's contribution in the evaluation of the National Sanitation Campaign (June 2013).
- Oliver Cumming (LSHTM) attended the World Bank Annual WSP Meeting to contribute to seminars on WASH and nutrition, population density & sanitation and evidence-based decision-making (January 2013)
- Oliver Cumming also attended the World Bank (WSP) South Asian Regional Planning Meeting (March 2013)

3.4.4 Indicator Four: Number of training courses organised annually (on research methods, management, etc.)

2013 Milestone: Four courses (High); *Progress by June 2013: 11 courses*

SHARE Consortium member, WaterAid, has organised seven training courses, exceeding the indicator milestone of four for the end of 2013. The full list of training courses is provided in Annex D. The most notable examples are:

- April 2013: one day 'Training-of-Trainers' on menstrual hygiene management (MHM) in emergencies for Emergency WASH Trainers. Organised in collaboration with WaterAid and RedR UK.
- July 2012: two-day training course for WASH professional entitled 'Writing for WASH: Improving documentation in the WASH sector for policy, programmes and publication'. Organised by WaterAid in London, UK.
- February - March 2013: Webinars given for UNICEF South Asia and HQ – Oliver Cumming and Lenka Benova (LSHTM) – WASH and maternal health.
- February – May 2013:Webinars given for Plan International, WaterAid & World Vision on WASH and maternal health, and WASH and undernutrition (Oona Campbell, Alan Dangour, Oliver Cumming, Lenka Benova).

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3.5 Output Five

Effective consortium management (indicators monitored, value for money money saved, Country Platform groups operating, amount of Country Platform approved proposals, completed projects).

This output assesses the progress in the management of SHARE projects and Country Platform research groups.

3.5.1 Indicator One: Percentage of indicators assessed and reported annually.

2013 Milestone: 100% (High); *Progress by June 2013: 100%*

This indicator refers to the number of logframe indicators assessed as well as Outcome Mapping assessment and SHARE partnership review.

SHARE monitored 100% of the logframe indicators, including mapping of the boundary partners both globally and in each Country Platform, meeting the 'High' indicator milestone of 100%. In addition, SHARE established the following monitoring indicators and mechanisms to promote adaptive strategies to ensure the efficient functioning and performance of the consortium:

- The Consortium established annual Partnership review meetings, the first of which took place in January 2013. (See Partnership section for more information).
- Executive Group meetings have increased in frequency from four to six per year.

3.5.2 Indicator Two: Value for money: avoiding wasteful expenditure on, ineffective hygiene promotion, unused latrines, and -superfluous evaluations by following SHARE advice or implementing SHARE findings (measured in £s).

2013 Milestone: £1 million in savings (High); *Progress by June 2013: Over £4 million in savings*

This indicator refers to documented examples where SHARE research or synthesis contributed to changes in programme design to encourage more effective strategies. The metric includes all costs avoided as a result of SHARE influence. These include programme costs avoided, health system costs avoided, and other unnecessary costs.

Estimates for this indicator are based on the Value for Money (VfM) analysis presented in Annex J. Most of SHARE's influence on programmes has been to increase investment and intervention in new areas, including increased overall sector investment through the DFID WASH Evidence Paper, or interventions targeting weaning food contamination. For these programmatic influences, the main avoided costs are in the form of reduced costs associated with diarrhoeal disease. The analysis suggests that SHARE's work may contribute to a saving of £4.6 million (uncertainty limits: £1.4-9.2 million).

In addition to these quantifiable estimates, there are several areas where SHARE's research is likely to generate additional cost savings. These include costs saved by the distribution of the 'improved methods for hand washing' behaviour change communication from the 'Choose Soap' project, improved sanitation promotion from the 'Mtumba' approach, and improved sanitation for the urban poor through the action research approach embodied in the 'City Sanitation' project. However, there is insufficient data on comparative effectiveness to estimate these benefits.

A second set of SHARE activities have been designed to reduce wasted resources invested in other health areas. These include integrating WASH in maternal health, nutrition programmes, and vaccine introduction. There is early evidence of SHARE influencing programmes in these areas, but insufficient data to estimate the relative increase in effectiveness resulting from it. Lastly, two areas of SHARE research have been designed to improve the effectiveness of substantial investment in education. These include menstrual hygiene management and school WASH (in particular, WASH as a means to increase the impact of helminth control). Again, there is inadequate information to estimate these changes at this point in time.

3.5.3 Indicator Three: Monitoring Country Platforms and evaluation of activities:

a) Number of local research management groups set up
b) Value of research proposals submitted for funding and approved (£s)
c) Percentage of research projects completed on time

2013 Milestone: See full explanations below; *Progress by June 2013: High on a) and b), Medium on c).*

Under this indicator, SHARE reports on three areas:

- The management/research groups set up in each Country Platform
- The total value of SHARE-supported research approved by the Country Platforms, including cost shares
- For Country Platform projects scheduled to be completed, the percentage completed on time. For projects not yet scheduled for completion, the percentage on track for timely completion (within 3 months of schedule).

This indicator overlaps substantially with Output One, Indicator Two (dealing with Country Platform RIU strategies) and Output Three, Indicator Two (dealing with overall Country Platform performance), and should be considered alongside them.

All four Country Platforms have established research groups to identify priority research questions and review research results. The actual management of the research funds differ slightly for each country (see section 11), however, research groups have been established in all four countries and mechanisms are in place in each for on-going management of the research. This meets the 'High' milestone for the end of 2013.

The total value of research proposals submitted and approved in the Country Platforms is £1,213,432, exceeding the 'High' milestone of £500,000. This sum includes leveraging by WSSCC for the India Country Platform and by WaterAid for the Bangladesh Country Platform. The breakdown for each Country Platform is as follows:

- India: £ 438,719 (£200,000 leveraged from WSSCC).
- Malawi: £175,720

- Bangladesh: £ 375,000 (£125,000 leveraged from WaterAid Bangladesh)
- Tanzania: £223,994

It is difficult to assess indicator 3c given that none of the projects were scheduled to be complete at this time. Nevertheless, progress on the 'Safe Distance' project in Bangladesh is underway and on-track. All projects for the India and Tanzania research programmes are in the early stages but on-track. Projects for the Malawi platform have been approved but are awaiting contracting and therefore should not be considered on-track. Overall, 85% of Country Platform projects can be considered as being on-track for timely completion given that, of a total funding of 1.21 million, £1.04 million of this is on-track. This falls between the 'Medium' and 'High' milestone levels for the end of 2013. It is very likely that the remaining projects will be contracted shortly, but it is important to ensure that others remain on-track.

4. Outputs: Additional Information

Although not a part of the official LFA, several additional outputs that supplement the information providing by the existing indicators, were tracked for SHARE management purposes. These additional measures have been developed to better track progress on key priorities and strategic adaptations and, in-line with the Outcome Mapping approach, to enable more responsive and strategic management of resources. These additional measures are also captured in the logframe definitions in Annex A.

Output Two, Indicator One, tracks the number of SHARE peer-reviewed publications. In addition to tracking the quantity of these publications, SHARE is equally concerned with quality in regard to its aims and objectives. As a result, two additional measures of publication performance have been added: the percentage of female authors and the percentage of developing country authors. Although specific milestones have not been set for these measures, SHARE has begun tracking them as well as identifying strategies for improving them. In the case of the India Platform RFP, SHARE stipulated that all proposals be led or co-led by Indian research institutions and the four successful bids are all required to reflect this in the authorship of papers with indicative journal paper titles and authorship submitted prior to contracts being signed.

The 2012 SHARE Annual Report identified the need and opportunity to work with partners beyond the WASH sector to mainstream evidence on sanitation and hygiene into programmes and policies in those areas. Output Three, Indicator One, was initially intended to focus on consultations with strategic partners in the WASH sector. It is now also used to track the number of consultations initiated by SHARE to engage non-WASH sector partners in SHARE research and synthesis. Notably in 2012-2013, SHARE's RIU activities were successful in actively engaging non-WASH partners from the maternal health, nutrition, gender, education, and disabilities sectors to better integrate WASH research and evidence into relevant programmes and policies.

5. Uptake / Engagement with Beneficiaries

This section addresses SHARE's approach to research-uptake through its RIU strategy (SHARE Annual Report 2012). It also provides a specific summary and progress update on the large, multi-country 'City Wide Sanitation' project. This project is a relatively unique effort to create change by directly engaging beneficiaries in an action research process in four cities in four countries.

5.1 Research into use

Translating RIU is central to SHARE's theory of change and occurs at the local, national and global level. Activities over the past year are summarised here.

SHARE has strategically identified and convened a wide range of boundary partners at a global and national level. National level activities are detailed above in section 2 under Country Platforms. At a global level, SHARE convened or participated in sessions and seminars at a number of leading WASH forums that were well attended and received, including the Stockholm World Water Week[2], the University of North Carolina Water & Health Conference[3] and the International Water and Sanitation Centre (IRC) Symposium. SHARE also convened the Emergency Environmental Health Forum[4] at LSHTM with Oxfam, UNICEF, RedR and ACF, at which the keynote was a presentation of the findings from a SHARE systematic review of WASH in emergency settings (Brown *et al*, 2012). A wide range of SHARE research was presented and discussed at these events on topics ranging from menstrual hygiene management, to under-nutrition and stunting and monitoring WASH accessibility in healthcare settings. Other events are detailed in Annex D.

As well as targeting the WASH sector, SHARE has deliberately sought to engage boundary partners in other sectors where relevant, for example, for work related to maternal health and gender-based violence. SHARE convened a seminar at the Global Taskforce on Maternal Heath Conference[5] on 'WASH in birth settings', which was well-received[6] and led to an invitation from the journal PLoS Medicine to publish a series on the topic which is now underway. In April 2013, SHARE organised the event 'Making Connections: Women, Sanitation and Health,' with the aim of forging inter-sectoral connections between WASH, maternal and reproductive health and the prevention of violence against women and girls. Speakers included leading experts on violence against women (Professor Lori Heise) and maternal and neonatal health (Professor Wendy Graham) and the event was successful in

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2 http://www.shareresearch.org/NewsAndEvents/Detail/Stockholm_World_Water_Week_2012

3 http://www.shareresearch.org/NewsAndEvents/Detail/SHARE_UNC_2012

4 http://sanitationupdates.wordpress.com/2012/11/14/fifth-emergency-environmental-health-forum-london-uk-17-19-december-2012/

5 http://www.shareresearch.org/NewsAndEvents/Detail/global_maternal_health_conf_Tz_Jan_13; recording of the session: http://vimeo.com/59982870

6 See organisers blog article covering the session. Last accessed June 26. http://maternalhealthtaskforce.org/discuss/wpblog/2013/01/17/exploring-synergies-between-maternal-health-and-wash/

positioning sanitation as a pivotal, cross-sectoral priority[7]. Partly as a result of this event, WaterAid is now seeking research collaboration with Prof. Graham to assess WASH in health facilities in Tanzania, supported by the Tanzania Country Platform.

This year, a number of important RIU-led research or synthesis pieces have been undertaken or completed, supported by the RIU Fund mechanism[8], and key highlights are presented here. The DFID Evidence Paper on WASH[9] was published in May 2013 and has been used extensively by DFID country programmes (see section 6) and has created debate in the sector. The Cochrane Review on WASH and childhood undernutrition (Dangour *et al*, 2013) has been completed and accepted for publication expected imminently. This important paper has already been cited in the recent Lancet Nutrition Series (Black *et al*, 2013) and is the basis for a chapter in the forthcoming WHO/UNICEF/USAID guidelines for integrating WASH and nutrition.

Research on WASH and maternal and reproductive health has been completed and journal papers are under review with PLoS Medicine. The findings have been the basis for a number of conference presentations and seminars. UNICEF and WHO have also co-financed work with SHARE to review the evidence for the health benefits of shared sanitation in relation to debate concerning the exclusion or inclusion of shared facilities within the JMP definition of 'improved sanitation'. A full report was submitted to WHO and UNICEF in February 2013, and a journal paper is currently under review with the WHO Bulletin (Heijnen *et al*, *forthcoming*). Lastly, a scoping study concerning entry points for integrated handwashing with soap promotion in routine immunisation campaigns was completed in Nepal and a journal paper published (Velleman *et al*, 2013) - the findings of which have informed the development of a pilot intervention by WaterAid that will be rolled out later this year.

The translation of research findings funded by both the main Research Fund and RIU-Fund has led to over twenty publications designed to target specific audience groups. The full list is detailed in Annex D but key highlights are mentioned here. The 'Menstrual Hygiene Management Resource Book' was launched in the US at the UNC Water & Health Conference and in the UK at the LSHTM 'Making Connections' event. Co-published with UNICEF and supported by over twenty leading WASH agencies, this document is a major contribution to knowledge on current best practice. The manual is now being piloted by WaterAid in three countries through an RIU Fund grant, and a number of training sessions have been conducted to support uptake[10]. Two case study reports were published on the use of micro-credit finance in India and Tanzania (Tremolet, *et al* 2013) that have informed research to pilot these approaches in Tanzania. WaterAid, with SHARE support, and technical inputs from LSHTM, has produced policy-briefing notes on a number of key

[7] See for example, the DFID-funded STRIVE consortium's coverage: http://strive.lshtm.ac.uk/news/strive-joins-share-making-connections-women-sanitation-and-health

[8] The RIU Fund permits all partners to submit proposals for RIU work outside of their core contract with the aim of responding to external opportunities for research uptake. Any proposal received is required to be reviewed by two partners not involved in the project.

[9] https://www.gov.uk/government/publications/water-sanitation-and-hygiene-evidence-paper

[10] For example, in 2013, WaterAid staff (Sue Cavill and Therese Mahon) have led training workshops for RedR and for WSUP on MHM.

research areas to support its global and national policy work (Velleman & Pugh 2013, various).

SHARE uses online media as a cost-effective means of reaching audiences and making publications and other materials, such as audio or video, publicly available. Visits to the website have increased steadily from approximately 400 visits per month in 2012 to an average of 1,500 visits in 2013 - this is in excess of the milestones set in the logframe. Newsletter subscriptions have also continued to increase with almost 400 people now subscribing. The SHARE Twitter feed has approximately 600 followers and messages are regularly re-tweeted. One recent highlight in relation to online innovation was the SHARE researcher, Sophie Tremolet, winning the World Bank 'Hackathon' for her idea of a web-based mobile application for sanitation. The Guardian newspaper ran a feature on this[11] and SHARE provided additional funding to develop this tool which was launched in May 2013 for public use[12].

Support to national Platform activities has continued and is detailed in section 2. RIU support for convening events and/or producing publications has been delivered in all four countries in support of national staff and the country liaisons. These activities included supporting a state-level workshop on sanitation evaluation for local government officials and civil society in Orissa, India, a regional (East Africa) research conference in Arusha, Tanzania and a menstrual hygiene management (MHM) meeting organised with the Government in Lilongwe, Malawi.

Finally, a number of opportunities were identified in last year's Annual Report for maximising the impact of SHARE RIU investments, all of which have been taken forward. SHARE has prioritised partnerships with key influential agencies in the sector with an interest in research findings. In particular, SHARE has worked with WSP to share findings, and jointly engage stakeholders. LSHTM researchers have participated in WSP learning and planning events. With UNICEF, SHARE has made a number of presentations for staff by webinar, collaborated on events and is in discussions around supporting UNICEF on research-uptake capacity through training and technical advice. As planned, SHARE has also sought to work more closely with WaterAid on priority issues for uptake and has collaborated particularly around nutrition and maternal health work as well as supporting a multi-country piloting of the MHM resource book for WaterAid country programmes. Later this year, WaterAid will host a learning workshop bringing together international researchers and programme staff from the SHARE partners to discuss findings and identify areas of future collaboration.

5.2 Building city-wide sanitation strategies from the bottom up

5.2.1 Project description

The 'City-Wide Sanitation' project is SHARE's single largest research project with a value of

[11] http://www.guardian.co.uk/global-development-professionals-network/2013/mar/22/how-to-design-a-sanitation-app
[12] http://www.SHAREresearch.org/NewsAndEvents/Detail/SIT_intro

£1.1 million and is led by IIED and SDI in collaboration with four national SDI affiliates[13]. It is currently underway in four southern African countries and is a response to identified failures of conventional approaches to urban sanitation, particularly with regard to informal settlements.

This project will test an approach to pro-poor, city-wide sanitation strategies that can be adopted and driven by federations and networks of community organisations and residents' associations, and can be supported by public authorities and private providers. This action research provides the potential for scalability, adaptation and replication across the Global South. It is being undertaken and documented in a way that will ensure that findings are relevant for those pursuing somewhat different approaches to sanitary improvement, but facing similar obstacles.

To address sanitation needs, obstacles to developing and implementing effective city-wide sanitation strategies needed to be identified and overcome. Drawing on existing research, a preliminary list of key obstacles was identified:

- **A lack of community organisation:** Most approaches to urban sanitation, that do not rely on state provision, either rely on individual demands to drive sanitary provision or assume that it will be easy for communities to organise around sanitary improvement.

- **An overly sectoral and technical approach:** Conventional approaches to urban sanitation, including those adopted by both privately and publicly operated utilities, typically come out of the water and sanitation sector and do not take sufficient account of other urban poverty-related issues. The failure to take account of these issues contributes to the failure of many of the more conventional approaches to sanitary improvement when they are applied in low-income urban settlements.

- **Unaffordable technologies and payment systems:** Most approaches to sanitation are based on technologies and financing systems that are not replicable at scale given the prevailing politics and economics.

- **Poor community-government relations:** To upgrade informal settlements collaborative relations are essential. However, few approaches to sanitation overcome the typically strained relationships between low-income communities and their local authorities. Community-driven approaches rarely engage seriously with government authorities/utilities, except to make demands, while government/utility-driven approaches typically fail to engage seriously with low-income communities, with the same exception.

[13] In each of the four countries, SDI has a community organisation and an NGO partner that work together. The affiliates are: the Malawi Homeless People's Federation and the Centre for Community Organization and Development in Malawi; the Tanzania Federation of the Urban Poor and the Centre for Community Initiatives in Tanzania; the Zambia Homeless and Poor People's Federation and People's Process on Housing and Poverty in Zambia; and the Zimbabwe Homeless People's Federation and Dialogue on Shelter in Zimbabwe.

These obstacles are discussed in more detail in a SHARE report (see McGranahan, 2013). This project attempts to overcome these obstacles in a selection of locations, building on a community-driven model, and adapting approaches that SDI has applied across a range of shelter-related issues. In the process, it is envisaged that the list of obstacles will be altered, added to and refined, and subsequent understanding of the obstacles will be improved. The resulting approach to sanitary improvement will also be examined within a broader context of shelter poverty and the pragmatic politics of community action. In addition to providing a model for urban sanitary improvement, and a better understanding of what is likely to work where, the project will provide SDI and others who develop community-driven approaches with the capacity to adapt and apply this model on a larger scale. SDI has widespread experience in such grounded learning with a network across 37 countries.

The purpose of this research project is to identify and refine a model for the development and realisation of pro-poor citywide sanitation through four scalable examples in the cities of Blantyre (Malawi), Dar es Salaam (Tanzania), Kitwe (Zambia), and Chinhoyi (Zimbabwe).

The four cities were selected by the SDI affiliates following a discussion with national federations. The diverse setting provided by the four countries helps to distinguish local practices that work in particular locations from broad principles that are relevant in a wide range of settings. It also allows the international sharing of experiences not only through formal publications, but also through exchange visits. And significantly, it provides a range of political contexts and allows gains in one city (produced by supportive relations with politicians, officials and/or staff of other agencies) to encourage and catalyse similar or even greater support elsewhere.

The three-year project which started in January 2012 will be realised in three phases, each approximately 15 months in length (as there are overlaps between these phases).

- **Phase One**: Involves the mapping and elaboration of sanitation problems in each of the four cities. This includes: a summary of existing documentation, community-led profiling of the sanitation problems in informal settlements, the enumeration of households facing sanitation difficulties, mapping of the existing services and a participative engagement with other stakeholders and particularly the city authorities. Relationships with the city are often long standing with a history of co-operation and partnership across the scope of pro-poor slum upgrading and urban development activities. Some MoU's were already in place between affiliates, the federation and local authorities at the beginning of the project and others have been signed since the inception of the project.

- **Phase Two**: Involves the development of several sanitation precedents in each city designed to be relevant to addressing sanitation needs within settlements across the city. As circumstances in different settlements differ, the selected precedents will be relevant to a variety of situations.

- **Phase Three**: Involves the planning of a city-wide approach to improving sanitation based on the work undertaken in the first two phases and the relations that have been built, strengthened and enhanced with the relevant government agencies,

utilities and other stakeholders. The project budget includes funds for other SDI affiliates to contribute specific work that adds value to the development of city-wide sanitation strategies.

5.2.2 Progress to date

Phase One

- Project partners have introduced the project to the key agencies in the city and specifically to the organisations of the urban poor themselves (local savings schemes and city federations), the local authorities and any related agencies such as utilities. Considerable efforts have been made to deepen the engagement with the authorities building on existing partnerships and– a vital component for the overall success of this initiative. Successes to date have been achieved through the information collected during the profiling, enumeration and mapping (which has a specific focus on sanitation unlike other SDI data collection that covers a range of services). SDI affiliates have drawn on existing practices in the network which have used community-led information gathering to good effect in terms of relationship-building. Local government is aware that it has little precise data on conditions within informal settlements and generally responds positively to community initiatives to address this void.

- The local federation leaders and members were involved in identifying the specific settlements in which the initial project activities (profiling, enumerations and mapping) have taken place.

- The four national SDI support NGOs have been collecting documentation and drafting the situational analyses and currently all the cities have submitted their final draft reports. IIED staff and the SDI secretariat has reviewed the draft reports which will soon be copy-edited and published.

- International meetings of partners have been held to share experiences, review the obstacles encountered or overcome, draw out lessons and develop and refine the model. The SDI affiliates, SDI secretariat and IIED have met three times so far to support the different affiliates in their activities. The first meeting was held in September 2011 (Harare, Zimbabwe) prior to the beginning of the project to ensure that all affiliates understood the work in hand. The second meeting was held in July 2012 and took place in Blantyre (Malawi). This meeting focused particularly on the profiling, enumeration and mapping activities, sharing both findings and experiences. At this stage the affiliates were in the process of completing these activities. This meeting also specifically addressed the technical issue of augmenting on-the-ground data with GIS information. The Zimbabwe partners took the lead in this as the relevant affiliate already has considerable skills in this area. The third meeting took place in February 2013 and provided an opportunity to report on the situational analysis phase and specifically the relationship building with local authorities and others. This meeting also provided an opportunity to review approaches to the identification of sanitation precedents.

- The SDI secretariat has recruited a new staff member whose responsibilities include work on this SHARE project. Noah Schermbruker (SDI secretariat) has interacted regularly with the responsible staff members in the SDI affiliates to help them complete their work. He has also worked with other staff in the secretariat to identify useful support contributions from other SDI affiliates. To date, two further precedents have been identified in Kenya and Uganda and these will be supported by SHARE to strengthen the work in the four primary affiliates involved in this project. In Uganda, funds have supported a communal sanitation block in Mbale and the documentation focuses on lessons learnt from community management.

- IIED staff have been concerned with supporting the implementation of the project. Their work includes the analysis of the obstacles that have prevented a greater contribution by community-led sanitation solutions. This text is now in draft and is being reviewed with an anticipated completion date of June 2013. IIED staff have also been actively involved in commenting on drafts of the situational analyses and strengthening the arguments presented in these documents. An overview of the situational analyses is being prepared and will be completed by end of August.

- IIED and SDI participated in a SHARE-organised side event in 2011 at the World Water Week activities in Stockholm.

- This SHARE project has also opened new opportunities for the SDI affiliates in the four cities. For example, before the project, the alliance of Dialogue on Shelter and Zimbabwe Homeless People's Federation was only working with the Department of Housing and Community Services in Chinhoyi but now Federation members are also interacting more with the Health and Engineering Department. This has helped to spread the influence of Federation work and, more importantly, provide an in-depth explanation about the existence and needs of the poor to other departments, helping to improve the quality of decision-making and organisational work. For example, by interacting directly with the Health and Engineering Department, the community can make follow-ups and demand answers more effectively on agreed actions and in the acceptance of agreed decisions by other departments involved in the provision of sanitation. The involvement of other departments from the initial stage of the project has helped to improve participation and commitment to the entire process.

- The SHARE project has also been particularly important in developing the capacity of the Tanzania Federation in GIS mapping and the Sanitation Mapper.

- In Blantyre, Malawi, the situational analysis has also provoked an intense discussion within the Federation about strategic interventions to scale-up access to sanitation in the city. The sharing of findings from the situational analysis with the local MP has resulted in the MP promising to ensure the provision of a health clinic in one of the research neighbourhoods.

- In Zambia, the SHARE project has enabled the Federation to improve their skills in enumeration and mapping. While the Zambia Federation has had relations with both the authorities and the water utility in Kitwe for some years, this project has provided an

opportunity for the deepening of discussions and associated strategies. Earlier this year, the city council formally agreed to the establishment of a sub-committee to plan the upgrading of informal settlements that will include representation from both the Federation and the People's Process of Housing and Poverty in Zambia. The utility (Nkana Water and Sewerage Company) has secured a grant from the African Development Bank to improve sanitation in informal settlements and is anxious to work with the SDI affiliate in Kitwe to implement this programme.

Phase Two

The current phase (second phase) of the research is to formulate and then test precedents that together develop a set of sanitation interventions suitable to address needs at the city scale. Together these interventions, which will be undertaken in a small number of communities selected for their representative nature, will be able to act as a basis for addressing sanitation needs in the majority of low-income areas across the city (although 100 per cent coverage is unlikely and will not be attempted).

Precedent development involves action research by communities identified by the City Federation together with NGO affiliate support. Technical advice is being secured locally and supplemented as required by the SDI secretariat. Prior to the commencement of this action research, an assessment framework was established with specific components related to finance, organisation, social impacts, and technical adequacy. These precedents will focus on those interventions most likely to be scalable and with widespread relevance. They will include, but not be restricted to: shared pit latrines (sometimes adapted for ecological sanitation), pit latrine emptying and decentralised waste water treatment. Communal toilets will also be provided using multiple technologies for waste water treatment.

The following research methods will continue to be used:

- Community exchanges will be used to stimulate reflective analysis of the processes through which the precedents have emerged and been amended

- Federation-managed household income assessments (affordability studies) will track and amend financial aspects of the precedents

- The assessment process will be collated by the SDI support NGO and will collect financial information, technical assessments and perspectives of communities and other stakeholders, as well as monitoring the scale of interest within the city location (through press, other media, and community rapid replication). This will include the examination of financial records, documentation of newspaper articles, and semi-structured interviewing.

All the teams in the four cities are currently carrying out the precedent-setting activities with the planning for these precedents having reached an advanced stage.

Research activities for the final phase will be undertaken in Year three and will involve the planning of a city-wide approach to improving sanitation based on the work undertaken in the first two phases.

6. Impacts and Outcomes

SHARE's research, capacity building and RIU outputs are designed to contribute to changing practice and policy on sanitation and hygiene. This is intended to result in an increased number of people with access to effective and sustainable sanitation and hygiene, leading to reduced diarrhoeal mortality. Over the past year SHARE has accelerated progress toward this goal with a series of success in catalysing change among our boundary partners.

6.1 Impacts

SHARE's outputs and outcomes contribute to accelerating progress in sanitation access and reducing diarrhoeal mortality. This is measured through two indicators: 1) the number of people obtaining improved sanitation annually in our four focus countries and 2) the diarrhoeal mortality rate in children under 5 years of age.

Accelerated progress towards universal sanitation and hygiene coverage in Sub-Saharan Africa and South Asia.

Indicator One: The number of people gaining access to improved sanitation in the four focus countries each year.

According to the 2013 Joint Monitoring Programme (JMP) (http://www.wssinfo.org/data-estimates/table/), there are currently 19.4 million new people annually obtaining improved sanitation in SHARE's four focus countries, with increases in all of them. This compares to the high milestone of 15 million people annually. While these changes are primarily the result of other efforts, the success stories below suggest that SHARE is beginning to contribute to these improvements in our focus countries and beyond.

Indicator Two: The below 5-years mortality rate in the focus countries (number of deaths per year).

This indicator is only measured at the inception and end of the programme. It is important to note that there is currently an active debate over the best estimates on diarrhoeal mortality. This is occurring in the context of the new global burden of disease estimates. SHARE is actively involved in ensuring that sanitation and hygiene are appropriately and rigorously captured in these estimates.

6.2 Outcome Indicators

SHARE's outcomes focus on the ability to catalyse change in programmes and policies among other sector actors (boundary partners). Within the logframe there are three outcome indicators. The first is based on SHARE's ability to stimulate change among pre-identified boundary partners at the national level (and to a lesser degree, international level). The second indicator revolves around specific success stories and their consequences. The final indicator focuses on leveraged funds.

6.2.1 Indicator One: Evidence of SHARE catalysing change on the four barriers to

progress in sanitation and hygiene, measured through the percentage of boundary partners' progress met.

In order to plan and monitor progress on SHARE's influence on other sector actors, an Outcome Mapping approach is employed. Boundary partners are identified at the national and global level and potential behavioural change outcomes are specified, in particular, how partners might discuss, plan, coordinate, invest, implement, monitor, or investigate differently as a result of SHARE's research and RIU. Three levels of progress markers are identified for each outcome: expect to see, like to see, and love to see. In order to assess our progress quantitatively we calculate the percentage of boundary partners for which we reach the "love to see" level in each of the countries

Based on the current assessment approach we have reached the highest ("love to see") level for 65% of our national boundary partners, exceeding our high milestone of 50%.

As a planning and strategic development tool this approach continues to be helpful. However it has important limitations as a quantitative measure. First, progress markers necessarily evolve over time as new opportunities arise and old ones become less relevant. This means that progress markers that have not been attained are constantly being added. Similarly, old ones can be dropped because they may no longer be appropriate; however, it is unclear whether they should still count. In addition, the indicator is of limited use because it encourages setting easier, less impactful progress markers. Lastly, new opportunities generate new boundary partners with new progress markers.

6.2.2 Indicator Two: Concrete examples of change, influenced by SHARE, measured by a) the number of such 'success stories' and b) the number of people with improved sanitation and hygiene.

2013 Milestone: Five success stories and five million people with improved sanitation and hygiene (High); *Progress by June 2013: six success stories and over nine million people with improved sanitation and hygiene.*

Section 6.3 below describes six success stories where SHARE research, synthesis and RIU activities are catalysing change in programmes and policies in the WASH sector and beyond. A seventh 'emerging success story' is described in Section 6.4. This exceeds the 'High' milestone of five examples for the end of 2013.

The second component of this indicator is the number of people with improved sanitation and hygiene resulting from these stories. Estimating this with any certainty is challenging for at least two reasons: the difficulty in measuring the numbers actually benefiting and also determining what portion of these are 'attributable' to SHARE's work. The VfM analysis presented in Annex J provides initial estimates of the number of people benefiting and the health and economic consequences. That analysis focuses on two of the success stories for which there is adequate information to provide initial quantitative estimates: the DFID WASH Evidence Paper and the weaning food contamination study.

As described below, the Evidence Paper contributed to a decision to double DFID investment in WASH and to reach an additional 30 million people with improved WASH. Focusing just on the documented examples of business cases citing the paper, it can be estimated that approximately 8.7 million people will benefit with improved services. Given that the Evidence Paper was a critical input to this decision, it can be conservatively estimated that SHARE contributed 20% of the change. It can be estimated that the two

examples combined (Evidence Paper and weaning food contamination study), will account for approximately 9.2 million people benefiting from improved sanitation and hygiene. In addition to considering the total number of people benefiting from the programmatic changes, it is also important to consider the number potentially attributable to SHARE. It can be estimated that the number attributable to SHARE is approximately 2.3 million people (uncertainty bounds 1.0 – 3.5 million).

6.2.3 Indicator Three: Leveraged funds, measured by a) resources invested by other funders in SHARE's research (£s) and b) invested in sanitation & hygiene projects influenced by SHARE (£s).

2013 Milestone: £3 million in SHARE's research and £10 million in projects influenced by SHARE (High); *Progress by June 2013: £4.1 million in SHARE's research and £79 million in projects influenced by SHARE.*

SHARE has leveraged over £4 million in additional research investments, including £3.5 million from the Bill and Melinda Gates Foundation and 3IE. Since June 2012, SHARE has leveraged £200,000 in matching research funding from the WSSCC for the research call for the India Country Platform.

The review of DFID business cases shows that the Evidence Paper was specifically cited as the basis for £159 million in new investments through eight DFID country WASH programmes. With the Evidence Paper as one of the main inputs to the decision, it can be estimated that SHARE contributed 50%, or more than £79 million in new investment. Given that the paper was published in early 2013, this is expected to continue growing.

6.3 Outcomes: Success Stories

6.3.1 Menstrual Hygiene Management

Background

Effective menstrual hygiene is a vital component in the lives of girls and women, affecting their health, well-being, dignity, empowerment, mobility and productivity, with spill-over effects on their development and economic wellbeing. Poor menstrual hygiene can cause stigma, health problems, and, most importantly, it can lead to school absenteeism and school drop-out.

The issue of menstrual hygiene has long been neglected, and there is a reluctance to talk openly about this important subject, which impacts so greatly on the health and wellbeing of women and girls. However, menstrual hygiene is gaining growing attention within the WASH sector as a crucial aspect in achieving improved child health, education retention and gender equity.

SHARE Activities

Recognising the importance of menstrual hygiene management (MHM) and its implications on school performance of adolescent girls and women in low income countries, SHARE

provided funding and support for a study under Call B. The study was led by WaterAid in partnership with a wide range of sector partners and synthesises current practices and knowledge of MHM into a comprehensive publication entitled *Menstrual Hygiene Matters: A resource for improving menstrual hygiene around the world*. In addition, and as a compliment to the manual, LSHTM researchers conducted a systematic review for the evidence of health and non-health benefits of MHM. This was published earlier this year in PLoS One (Sumpter & Torondel, 2013).

The MHM resource book aims to provide WASH and health practitioners with guidance on MHM in several contexts: within communities, schools, the workplace and emergencies. It suggests methods to evaluate the appropriateness of sanitation and water sources available to women and girls, as well as guidance for training.

SHARE has also provided further funding for research within the topic of MHM as outlined below:

- RIU Fund support for piloting the MHM resource book in Zambia and Bangladesh
- Call C: Understanding menstrual hygiene behaviour and practices amongst adolescents in Bihar, India. Principal Investigator: Rick Rheingans, University of Florida.
- India Country Platform: Life-course approach for exploring the impact of sanitation access and menstrual hygiene management on psychosocial stress, behaviour, and health among girls, women, and neonates in Odisha, India. Led by the Asian Institute of Public Health, Odisha, India and Emory University.
- Malawi Country Platform: Status of menstrual hygiene management in primary and secondary schools: Challenges faced and their mitigation measures. Led by Benjamin Kaneka.

Policy and Programme Uptake

SHARE Menstrual Hygiene Management resource book "Menstrual Hygiene Matters" was launched in the US at the University of North Carolina (UNC) conference held in Chapel Hill, North Carolina from the 29th October- 2nd November 2012[14]. It was then launched in the UK at a large event entitled 'Making Connections' convened by SHARE at LSHTM with a number of high-level speakers, including the Chief Executive of WaterAid, Barbara Frost, the UNICEF WASH Chief, Sanjay Wijesekera and Professor Wendy Graham, Chair in Obstetrics and Gynaecology at the University of Aberdeen and DFID Maternal Health Advisor[15]. Since then SHARE/WaterAid has engaged several partners and organisations in the uptake of the manual content into their programmes, through dissemination of the manual at conferences and events, 'training-of-trainers' on MHM and advocacy events.

[14] See: http://www.shareresearch.org/NewsAndEvents/Detail/SHARE_UNC_2012#4. Last accessed June 26 2013
[15] See: http://www.shareresearch.org/NewsAndEvents/Detail/making_connections_29Apr_overview. Last accessed June 26 2013

While it is difficult to assess the actual number of girls and women benefiting from the adoption of the MHM manual content in programmes and policies, Table 1 below provides a list of RIU activities undertaken through SHARE regarding MHM. These involve training, requests for the Manual by key organisations and dissemination of the MHM Manual at dedicated events.

Table 1: List of Research into Use (RIU) activities

	RIU Activity undertaken: Use of MHM Manual in Training Activities		
Date	**Beneficiary organisation**	**Country**	**Details**
July 2011	UNHCR, Government of Uganda	Uganda	Training on WASH and MHM in emergencies undertaken by RedR
October 2011	General Service Agency, Yme, Norway Somali Self-Help Organisation Midnimo Women's Organisation	Somalia	MHM manual employed during the gender and WASH training
November 2011	UNHCR	Kenya	Training on WASH/MHM in emergencies by RedR
May 2012	PeePoo Practica UN Habitat	Global	Training on WASH/MHM in emergencies by RedR
August 2012	Action Contre la Faim (ACF)	Global	Training on MHM
March 2013	UN Agencies and NGOs	MENA Region	Training-of-trainers for hygiene promotion
March 2013	Austrian Red Cross	Croatia	Training on hygiene promotion in emergencies RedR
April 2013	British Red Cross Butyl Products CARE International German Toilet Association BushProof IFRC University of Dublin OXFAM GB UNICEF WEDC	Global	Collaboration with RedR training-of-trainers in MHM in Emergencies for Emergency WASH Trainers by WaterAid and RedR
	RIU activity undertaken: MHM Manual dissemination and presentation of content		
February 2012	Afripads team		MHM manual dissemination
April 2012	UNICEF	West Africa	A draft of the MHM manual was provided for use
May 2012	PeePoo	Global	MHM manual dissemination for integration into programme
May 2012	UNICEF Emergency WASH team	Global	MHM manual to inform new research on menstrual hygiene
May 2012	UNICEF School WASH	Global	MHM manual dissemination

	team		
June 2012	ACF		Session on menstrual hygiene at ACF international workshop for WASH Co-ordinators and Care Practices Co-ordinators
August 2012	ACF UNICEF OXFAM-GB	Afghanistan	MHM manual sharing and discussion
November 2012	Public health academics and practitioners	Global	Side event, "Menstrual hygiene matters: Responding to the rights of women and girls" at Water and Health Conference with Columbia University, Emory University, SHARE, WASHplus, WaterAid, WSSCC
December 2012	EEHF	Global	EEHF event, 'Menstruation – the ultimate taboo; ensuring health and dignity in emergencies' MHM manual presentation, posters and display
March 2013	Participants at DFID World Water Day events	Global	Presentation on MHM at 'Adolescence and Menstrual Hygiene', manual displayed and USBs disseminated
March 2013	Delegates at WSSCC World Women Day events in Geneva	Global	'Celebrating Womanhood: Menstrual hygiene management', manual showcased
April 2013	NIMR Tanzania Government NGOs	Tanzania	Manual displayed at NIMR Symposium in Tanzania + USB sticks
April 2013	Academics and WASH practitioners	Global	Making Connections: Women, Health and Sanitation Conference: Manual Launch
June	WSUP	Global	WaterAid training session for WSUP programme managers on how to integrate MHM into their country programmes

6.3.2 The Mtumba Approach

Background

The Mtumba approach ('Mtumba') to hygiene and sanitation promotion was developed by WaterAid and partners at a workshop held in the village of Mtumba (Dodoma, Tanzania), in

2007. The rationale at the basis of this approach is the awareness that existing sanitation promotion methods have failed to change practices and behaviours in Tanzania. Mtumba draws on the best practices of exisisting participatory and promotion methodologies to create demand for hygiene and sanitation (PHAST, CLTS and PRA), adapting them to the national context. Mtumba was piloted in Tanzania from March 2008 to March 2011 in Singida, Tabora and Manyara regions, with funding support from Irish Aid.

A recent evaluation of the Mtumba pilot study (Malebo et al 2013) based on data gathered through in-depth interviews with key informants, focus groups, household survey and desk research, concluded that:

- Focusing on demand creation through sanitation marketing, Mtumba has generated positive behaviour change in building new toilets, improving existing ones and increasing handwashing with soap. In the three study sites, an average of 50% of surveyed households either made improvements to their existing latrines or built new sanitation facilities, while 50% continued with their previous habits.
- Data collected from health facilities in the pilot areas indicate a reduction of diarrhoeal disease in these communities during a period overlapping with the Mtumba pilot.
- Mtumba empowers communities to use latrines even after the project has ended. This is achieved by building the skills of the District Sanitation Team and lobbying for the District Health Department to include sanitation in the Council Comprehensive Health Plans (CCHP).

SHARE Activities

Drawing on the positive results of the pilot test, SHARE partnered with WaterAid Tanzania to further explore potential for scaling-up the Mtumba approach. In collaboration with WaterAid, SHARE co-funded the development of guidelines for implementing Mtumba, published in the document entitled "*Mtumba sanitation and hygiene participatory approach: Guidelines and tools for scaling-up rural sanitation in Tanzania*" (Msambazi et al 2013). The guidelines are being used to inform the scale-up of Mtumba within the context of Tanzania's National Sanitation Campaign. Following these successes, the SHARE Country Platform in Tanzania has approved funding for further research employing the Mtumba approach, including the project: "Expanding the Mtumba model: creating a product for scale up" with Dr Yolanda Mbatia from NIMR as the principal investigator.

Policy and Programme Uptake

Mtumba has been selected as one of the approaches to sanitation promotion to be used in the National Sanitation Campaign of Tanzania. The National Sanitation Campaign is a four-year programme funded by the ADB ($19 million), which aims to improve the sanitation facilities of 1.3 million households and 701 schools by 2016. The focus of the Campaign is to raise the priority of sanitation amongst communities and prompt households to invest in their sanitation facilities themselves, as well as improving hygiene behaviour. To this respect, the

adoption of demand creation and participatory tools (i.e. Mtumba) is instrumental to the National Sanitation Campaign.

The success of the National Sanitation Campaign is crucial. The Demographic Health Survey (2010) and JMP (2010) state that only between 10% and 13% of Tanzanians have access to improved sanitation facilities, and up to 6.5 million Tanzanians still practice open defecation. The World Bank/WSP estimated that inadequate sanitation costs the Tanzanian economy at least TSH 301 million annually or 1% of the country's GDP, representing a huge burden on the economy.

6.3.3 'Choose soap'

Background

In 2007, responding to a request from Hindustan Unilever PLC, the Environmental Health Group at LSHTM carried out research into handwashing with soap (HWWS) behaviour change in India. A cluster randomised trial was conducted in 10 Indian villages to evaluate the impact on handwashing practices of an existing intervention (designed to promote a commercial soap brand) delivered to 18,000 Indian villages. The intervention was based on the conventional hygiene education approach of raising awareness of germs and the role of soap in preventing disease and was successfully implemented in each village. The proportion of handwashing opportunities followed by HWWS was remarkably constant between trial arms, and before versus after the intervention, suggesting that the intervention had not altered handwashing behaviour. The results supported the initial assumption that interventions based on germ-awareness fail to illicit behaviour change. This provided a foundation for the development of a new innovative approach to HWWS behaviour change and a rigorous evaluation of its effectiveness.

SHARE Activities

Recognising the failure of awareness-based interventions, SHARE funded the development of the 'Choose Soap' toolkit (www.choosesoap.org) aimed at promoting HWWS in households in low-income settings. The toolkit - developed by the Indian creative agency 'Good Pilot', LSHTM and WaterAid - drew on ideas and best practices from different fields including hygiene and health promotion, behavioural sciences and social marketing. 'Choose Soap' offers a low-cost blueprint for activities including family pledging, an animated film and village signage. The intervention can be carried out in households, schools, communities and via. mass media to promote HWWS at key times over a period of a few days, allowing for easy and predictable budgeting.

In 2011, the Wellcome Trust provided £249,660 to fund a cluster-randomised controlled trial in Andhra Pradesh to assess the effectiveness of an intervention to improve handwashing behaviours. The intervention was based on the SHARE 'Choose Soap' toolkit which was then adapted to the rural Indian context of Andhra Pradesh by a local creative agency, Centre of Gravity. The trial proved to be successful in changing handwashing behaviour in seven intervention villages. In particular, for targeted handwashing occasions (i.e. after contact with faeces or before eating), handwashing rates increased to 19% from a baseline

of 1% (indicating no pre-existing 'culture' of handwashing existed in this population). Very recent results suggest that handwashing rates have been sustained six months following the intervention as well. These findings will be reported in a journal paper that is currently being drafted for submission in August 2013.

Policy and Programme Uptake

Following the success of 'Choose Soap', SHARE has funded a new promotion intervention in the seven control villages from the original trial. The campaign is based around the aspirational character of 'Super-Ama' ('super-mom' in Telegu), who ensures that her children wash their hands with soap as part of good manners and expectations of a successful, progressive life. To increase the effectiveness of the use of this intervention in the future, the study will document the intervention process and materials in a documentary film. The footage produced will be the basis for advocacy with the Indian government and other agencies, as well as providing resources for trainers and practitioners that seek to develop and conduct a campaign for handwashing promotion.

The 'SuperAma' project aims to influence hygiene policy and practice in the Indian subcontinent, and, more generally, around the world. The RIU strategy for this project targets the following groups:

- *Government:* to use 'SuperAma' materials in future district level campaigns in India; influence Government policy.
- *Media:* to influence the general public through extensive media exposure (e.g., newspaper columns, interviews).
- *Private sector (e.g. Unilever):* to influence global rebranding exercises for current health-oriented soap marketing campaigns (e.g. Lifebuoy).
- *Academia:* to disseminate 'SuperAma' results in papers and at conferences.

6.3.4 An intervention to reduce contamination of weaning foods

Background

Contaminated weaning foods account for a substantial proportion of diarrhoeal diseases among infants and young children in developing countries. Up to 70% of diarrhoeal episodes among young children in developing countries are caused by pathogens transmitted through food. A study in peri-urban Bamako, Mali, proved that a small-scale hygiene intervention developed on the basis of the Hazard Analysis and Critical Control Points (HACCP) approach was effective in reducing the contamination of weaning foods.

SHARE Activities

Based on the results obtained in Mali, SHARE funded a small intervention study to investigate whether hygiene promotion is effective in reducing weaning food contamination in Bangladesh as one of its quick-start projects. In the study, led by Dr. Sirajul Islam of

ICDDR,B, a total of 60 households in rural Matlab, Bangladesh, were selected (30 control and 30 treatment). Two types of weaning foods–khichuri and suzi– were collected from all the households and analysed for microbial contamination just after cooking and before the child is fed. Following HACCP procedures, critical control points (CCP) were determined. Mothers in the study households were trained to achieve and monitor the CCPs for a period of 4 weeks. Results showed that the hygiene intervention substantially reduced the faecal coliforms present in the food.

Based on these successful results, SHARE funded (under Call C) a proposal to take forward this research in Nepal and design a simple and scalable behaviour-change intervention on the food hygiene behaviours of mothers and measure the level of contamination in food eaten by children as well as diarrhoeal diseases among young children.

Policy and Programme Uptake

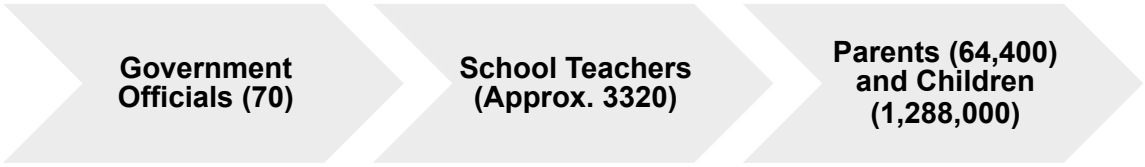
Based on the successful results that the weaning food intervention achieved, the Bangladesh Country Platform developed a set of RIU activities, led by WaterAid Bangladesh. On the19th June 2013, WaterAid Bangladesh and ICDDR, B organised a training event in partnership with the Ministry of Women and Children Affairs. The purpose of the event was to disseminate the lessons learnt from the project, “Hygiene intervention reduces contamination of weaning food in Bangladesh”, among government practitioners, teachers and other stakeholders involved in hygiene programmes. The training, which involved 100 participants, addressed the following stakeholder groups.

- Child Affairs Officers from the Ministry of Women and Children Affairs (MoWCA) from 52 Districts and five Upazilas (subdistricts)

- Shishu (Child) Academy Officers from MoWCA

The ultimate aim of the training is to reach approximately 200,000 beneficiaries as shown in Figure 1 below:

Figure 1: The training chain



SHARE has also been approached by a Senior Environmental Health Officer in the Gambian Ministry of Health, Mr. Buba Manjang, who is currently studying for a PhD at the University of

Birmingham, and is keen to implement a similar weaning food hygiene intervention at a national or regional scale in The Gambia.

6.3.5 Evidence paper

Background

In 2011, as part of the DFID WASH portfolio review (DFID, 2012a), LSHTM was requested to undertake an 'evidence review' to support this wider review of DFID investments in WASH. In December 2011, this 'evidence review' was, in turn, reviewed by the DFID investment committee responsible for the portfolio review.

Although initially classified as a 'literature review', DFID decided to develop the document further, stating that, "*there has been a great deal of interest in the Review from country offices and other stakeholders, suggesting that the document fills an important gap*" (DFID, 2012a). Subsequently DFID requested LSHTM to undertake further systematic reviews and expand some sections in order to meet the new defined requirement of a 'DFID Evidence Paper'. This work was completed in 2012 and the DFID WASH Evidence Paper ('Evidence Paper') was published in March 2013 (DFID, 2013).

SHARE activities

SHARE undertook the evidence exercise at the request of DFID. There was a substantial input of SHARE researcher time to complete the various reviews and sections, led by Oliver Cumming, SHARE Policy Research Manager (LSHTM).In addition to authors' time, there was a substantial investment of time by a large group of external peer reviewers (DFID, 2013).

Policy and programme uptake

The Evidence Paper had a direct influence on the outcome of the portfolio review as well as wider and emerging influences on other DFID investment decisions.

The Evidence Paper contributed to the portfolio review, on the basis of which DFID decided to double UK aid for WASH and to provide 60 million people with access to safe WASH (DFID, 2012b). According to one senior civil servant, who wrote to LSHTM, *"it was your evidence review that formed the basis of the portfolio review, which successfully made the value for money case to ministers*" (correspondence, 2012).

Beyond the portfolio exercise, the Evidence Paper has also been circulated within DFID to country offices to support evidence-based planning and monitoring. In particular, the Evidence Paper has been used for the development of at least eight WASH business cases (see Annex I) with a combined value of more than £159 million.

DFID made the Evidence Paper publicly available earlier this year. It is anticipated that it will provide a useful resource for the wider WASH sector and the use of the Evidence Paper will

be tracked in SHARE M&E efforts. In addition, WaterAid, SHARE's largest implementing partner, plans to use the Evidence Paper in 2013 to identify research priorities based on evidence gaps and its own capacity and operational scope. As part of the SHARE partnership with Unicef, LSHTM will design and deliver an 'Evidence-based WASH practice' course to Unicef staff globally which will build on and refer to the Evidence Paper.

6.3.6 Formative research on viability and feasibility of integrating hygiene interventions into oral vaccination campaigns

Background and SHARE activities:

SHARE's formative research on vaccinations took place between April-May 2012 in Bangladesh and Nepal. The research was conducted jointly by the WaterAid country programmes in Nepal and Bangaldesh, and LSHTM. The following activities were undertaken:

- Bangladesh - LSHTM research team visited the cholera vaccine demonstration project run by ICDDR,B in Dhaka and held discussions with ICDDR, B staff in WASH and vaccine departments

- In Nepal - LSHTM researchers and WaterAid staff visited vaccination booths set up as part of the National Immunisation Day for Polio activities. Focus group discussions were conducted with mothers, female Community Health Volunteers and NGOs and key informant interviews where held with government and agency officials at the district, regional and national level. The results were disseminated at a multi-stakeholder meeting at the Ministry of Health and Population.

Policy and Programme Uptake

The research findings were referenced at a high-level Parliamentary meeting organised by the APPG on Child Health and Vaccine-preventable Diseases on the 26th March 2013 and supported by SHARE. Participants at the meeting included members of the House of Lords, WHO, UNICEF, DFID, LSHTM and others. The outcomes of the meeting will inform a review and report of the Council of Europe.

The SHARE newsletter also featured a blog summarising the research WaterAid is currently working with the Nepali Ministry of Health and Population, Child Health and Planning divisions to mobilise actors and put together operational guidelines for implementing the approach in Nepal prior to the introduction of the rotavirus vaccine (planned for 2016).

6.4 Emerging Success Stories

6.4.1 Nutrition

Background:

Interest in the effect of unsafe sanitation and hygiene on the nutritional status of children has been growing for some time (Esrey, 1991). There are at least three significant plausible pathways by which poor sanitation and hygiene (and unsafe drinking water) could cause undernutrition: repeated bouts of diarrhoea, nematode infections and environmental enteropathy. In 2008, WHO estimated that repeated bouts of diarrhoea and nematode infections caused up to 50% of childhood under-nutrition. A considerable amount of research has been conducted to examine individual aspects of the links between WASH and diarrhoea, and between diarrhoea and undernutrition. However, to date there has been relatively little effort to consider this evidence on a continuum that links WASH as an intervention for the reduction of childhood undernutrition.

SHARE activities:

Lack of evidence, combined with a lack of interest or willingness by policy-makers to broaden the scope of nutrition interventions to include environmental risk factors, has contributed to the neglect of the role WASH interventions in strategies for addressing childhood undernutrition. To address this gap, and support evidence-based dialogue on this issue, SHARE funded a Cochrane Review on the effects of WASH on childhood undernutrition. The protocol was published in 2011, in line with the Cochrane Group's strict guidelines,and the review has now been accepted for publication (Dangour et al 2013).

Policy and programme uptake

It is relatively early to assess the associated policy and programme uptake as the review itself has not been published yet. However, as a result of SHARE activities to generate interest in, and demand for, this research in advance of the publication of findings, there have been a number of early successes that are suggestive of policy and practice uptake:

- DFID Evidence Paper (2013) – this important DFID policy document reports the findings and conclusions of the review

- WHO/UNICEF/USAID Guidelines on Integration of WASH and nutrition (in draft) – this evidence chapter was prepared by SHARE researcher, Oliver Cumming (LSHTM), and draws heavily on the review

- Engaging policy and practice audiences – the preliminary findings have been presented to a number of key sector agencies, including UNICEF, USAID, WSP, WaterAid, Plan International and DFID.

- The Cochrane Review was cited in the high profile Lancet Nutrition Series (Bhutta et al 2013) published in June 2013.

6.4.2 Inclusive WASH

Background

For years, the sanitation and hygiene needs of disabled people are often treated as a low priority, to the detriment of their health and socio-economic wellbeing. A growing body of evidence indicates that disabled people and their families are more likely to experience economic and social disadvantage (such as unemployment, high medical costs, and barriers for school attendance among children), compared to those without a disability.

Recently an increase of awareness in disability has been promoted, supported by international agreements such as the UN Convention on the Rights of Persons with Disabilities.

In the WASH sector however, efforts to promote inclusive sanitation are not widespread. The WHO estimates that 15% of the global population has a disability and this proportion is increasing as the global population ages. It is also a rights issue: exclusion is a violation of the human right to safe drinking water and sanitation.

SHARE activities:

In March 2011, SHARE, WaterAid and the Cross-cutting Disability Research Programme (Leonard Cheshire Disability (LCD) and the Inclusive Development Centre) brought together 22 researchers and policy-makers with expertise WASH, equity, inclusion, and disability to share knowledge and experiences and develop a research programme looking at disabled access to WASH services. Participants from DFID, WSP and UNICEF broadly agreed the need for more quantitative evidence about the scale of the problem, practical details about the solutions, and accurate information about costs involved.

To fill these knowledge gaps, SHARE is working with WaterAid, LCD and the Water, Engineering and Development Centre (WEDC) to conduct research programmes in Zambia and Uganda (where WaterAid partners are about to start implementing new WASH programmes). The first phase of the research included a baseline survey of households in the districts, with specific questions about household members who are disabled, older or chronically ill, and the barriers they face in using WASH services. The data collection for the baseline study and data analysis was completed in June 2012.

Phase two of the research, funded by SHARE under Call C, will document the actual intervention, including the practical steps towards make a WASH programme more inclusive, and the costs involved. WaterAid will follow up with the households involved to see whether this approach is working i.e. whether services are more accessible as a result, and what the impacts on people's lives are.

Policy and programme uptake

Since its inception, the SHARE inclusive WASH project has influenced other research projects, programmes and activities as outlined in the examples below:

- Findings from the SHARE inclusive WASH project baseline have fed into dialogue on post-2015 discussions online

- AUSAID provided LSHTM and IRC with Aus$1 million to conduct research in Bangladesh with WaterAid to track the impact of inclusive WASH.

- WaterAid has developed a partnership with Young Voices, an LCD campaign network which brings together around 50 groups of young persons with disabilities spanning 22 countries across Africa, Asia and the Americas. The groups meet regularly to discuss issues that affect their lives, develop their understanding of the UN Convention on the Rights of Persons with Disabilities (UNCRPD) and build on their leadership and communication skills. WaterAid will work with Young Voices groups in Zambia and Uganda to integrate WASH messages into their work.

- Details of the SHARE inclusive WASH project were presented at the UNC Water and Health Conference, 2012

- LSHTM and WaterAid participated in a wrap-up conference for the UCL/LCD RPC where inclusive WASH was discussed.

7. Costs, Value for Money and Management

7.1 Financial

Budgeting for a programme of SHARE's size and complexity project profile is challenging. To ensure adequate oversight, budgetary projections and expenditure profiles are monitored closely, with any significant changes reviewed by the management and executive groups. Savings are sought wherever possible through a) the supplier framework agreements (SFA) used by LSHTM, b) monitoring and streamlining management activities and c) project budget reviews. Examples of savings obtained through these mechanisms include: use of an SFA for travel which yields savings on published prices and provides a free 24-hour emergency service for travellers, reduction of core administrative staff time through combining roles and savings on the purchase of water testing kits by comparing proposal budgets, making use of bulk purchases and sharing kits to reduce orders.

Savings made through reductions in expenditure are fed back into the budget and used to increase the amount available for core activities. For example, research Call C was given an additional £149,000 and £37,391 was fed back into the provision of extra days for key liaison staff working on three of the Country Platforms.

As SHARE moves towards January 2015, the accuracy of projections will become more critical to ensure full expenditure. A number of projects are still open and some are only just beginning (Annex B). It is likely therefore that some research projects will eventually be underspent or that unforeseen circumstances might curtail activities altogether, for example, political unrest in one of the four core countries. Whatever the reason, the potential for unspent funds is mitigated through planned overspend. These additional sums have been identified now and the situation will be closely monitored to allow for adjustment as required.

Table 2: SHARE's expenditure to 31st March 2013 by activity

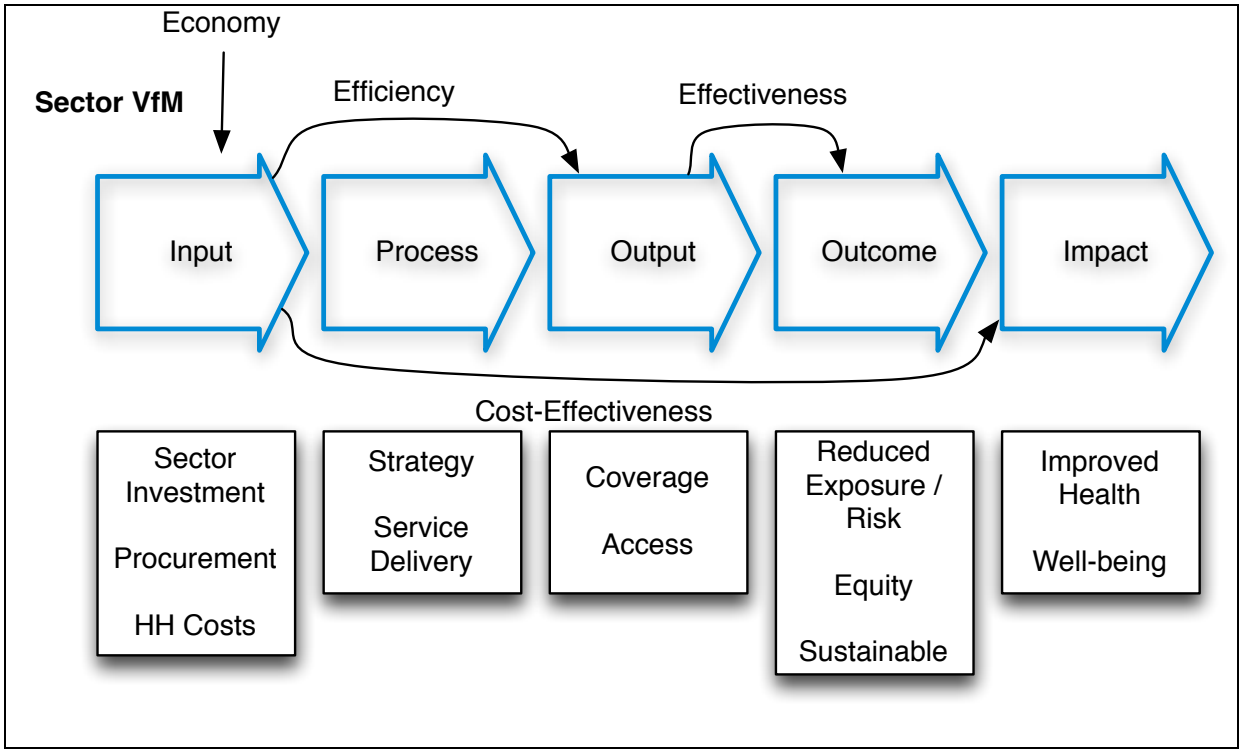
SHARE Activity	Invoiced	% of Budget Spent
CORE: Technical & Management	£1,452,498	81%
PARTNERS: Technical & Management	£981,881	77%
RESEARCH INTO USE: Technical, Projects & Management	£833,021	48%
CAPACITY BUILDING: Technical, Projects & Management	£719,904	52%
RESEARCH FUND: Projects	£1,974,973	51%
TOTAL:	£5,962,377	

SHARE's core costs are slightly high for this point in the programme (see Table 2) but it is important to note that the recent staff savings referenced above will be reflected in the next annual report. Projects within the three funds relating to RIU, Capacity Building and research have increased the number of outputs produced over the past year and this is reflected in the invoicing for the last quarter of this period. Research outputs are expected to continue to be sustained throughout 2013/2014 with a resultant rise in invoicing in December 2013. The forecast to March 2014 is to have expended £8,267,277, bringing SHARE within 2% of its expected target.

7.2 Value for Money

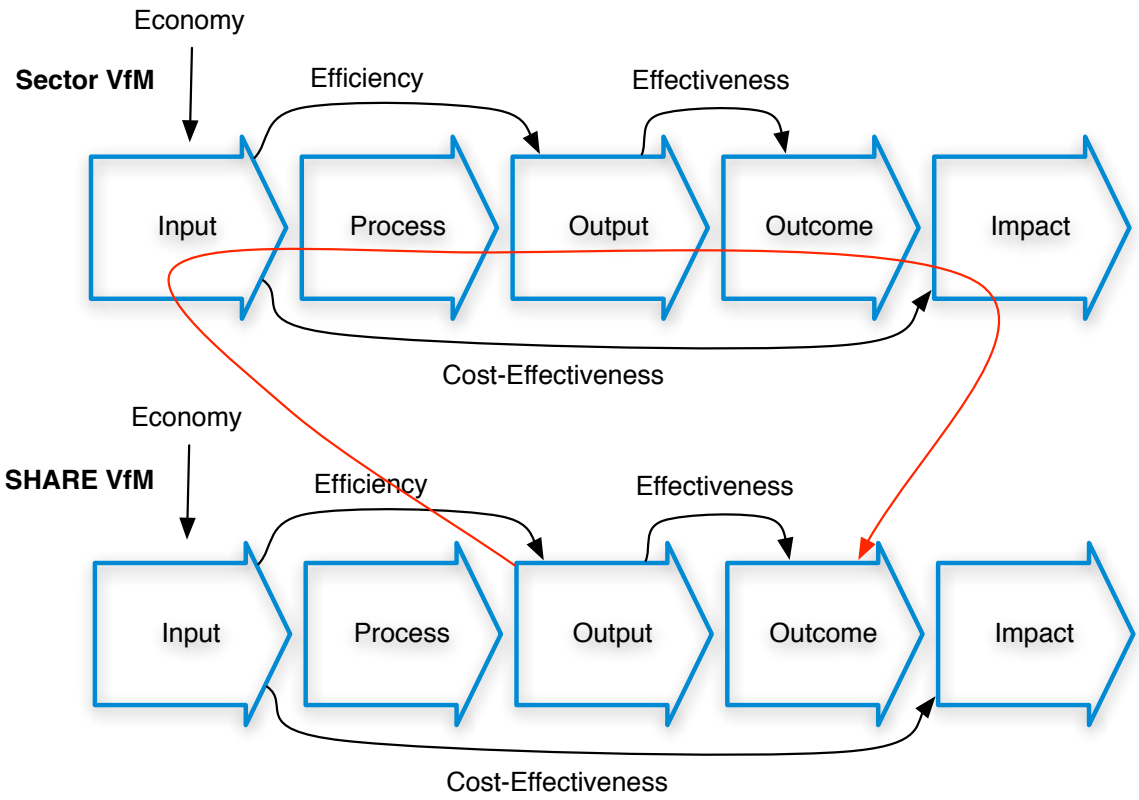
Within Value for money analysis (VfM), three distinct types of indicators can be identified: economy, efficiency, and effectiveness. In some interpretations equity is a fourth category. For the current purposes, equity measures are included as an aspect of effectiveness. In the context of a typical project cycle, economy refers to the wise use of financial resources in the procurement of resources needed for the execution of activities. Efficiency refers to the wise use of resources in translating inputs into quality outputs. Effectiveness refers to how outputs are translated into outcomes. Cost-effectiveness spans the entire process from inputs through to impacts. Figure 2 illustrates these VfM indicators and translates them into the context of the WASH sector.

Figure 2: Value for Money in the WASH Sector



One of the challenges for SHARE is that it does not directly implement sanitation and hygiene interventions Instead, SHARE works to catalyse change among key sector partners. As such, to the indicators of economy, efficiency, and effectiveness are redefined in the context of SHARE's work. This is shown in Figure 2. In this framework, SHARE's effectiveness in VfM terms is based on translating research or RIU outputs into changes in sector performance through other actors. SHARE's VfM is dependent upon increasing the economy, efficiency, effectiveness and cost-effectiveness of others. However this framework also allows for the monitoring of SHARE's own economy and efficiency.

Figure 3: SHARE Value for money in relation to the WASH Sector



In order to understand SHARE's VfM and to increase it, both process and quantitative measures have been developed. The process measures are focused on assessing and improving economy and effectiveness (as described above). This builds on the adaptive management approach introduced in last year's annual report, which focuses on regular monitoring of key processes such as the timeliness of contracts as well as regular critical assessments of what works well (in particular with respect to the Country Platforms). These measures continue to generate adaptive strategies, designed to improve VfM.

These process steps are combined with quantitative VfM analyses. These analyses are designed to estimate VfM, but just as importantly, to quantitatively assess opportunities to increase it. These include questions such as 'what would be the cost-effectiveness and return on investment from increased RIU activities aimed at incorporating new approaches into programmes?' and, 'what would be the value of better information on intervention

effectiveness in a particular context?' The quantitative analyses are detailed in Annex J and some of the findings are highlighted in Section 6. The results also have important implications for setting priorities over the remaining lifetime of SHARE and beyond.

Some of the opportunities identified for increasing the VfM of SHARE projects are highlighted in Table 3 below.

Table 3: Opportunities for Improving SHARE's value for money

Research area	**Research and synthesis accomplishments and work in progress**	**What might be needed to increase VFM?**
Weaning food hygiene	- Characterisation of contamination in several settings. Development of potential approaches to reduce exposure - Some evidence of replication and incorporation into programmes	- Development and adaptation of scalable approaches in different settings (for example in collaboration with a partner like WaterAid Bangladesh) - Evaluation of field trials or programmes designed to reduce weaning food contamination and illness - Replication of efforts to characterise problems in other settings to minimise need for formative research in each setting
Improved behaviour change communications for hand washing with soap (HWWS; 'Choose Soap')	- Evidence of improved effectiveness and sustainability in HWWS behaviour - Some incorporation into programmes and proposals	- More RIU efforts to incorporate the approach into programmes - Evaluations of effectiveness of efforts to incorporate the approach at scale
Menstrual Hygiene Management (MHM)	- Manual of best practices influencing programmatic approaches by multiple partners - Systematic review - Problem characterisation in India	- Evaluations of the effectiveness of MHM interventions in improving educational and health outcomes

Research area	Research and synthesis accomplishments and work in progress	What might be needed to increase VFM?
WASH and maternal health	- Systematic review on contribution of poor WASH to maternal mortality and policy attention to the connection	- Rigorously test the effectiveness of specific strategies to improve maternal and neonate outcomes - Promote improved monitoring or other policy approaches to catalyse improvements in WASH conditions for delivery
WASH and nutrition	- Systematic review on contribution of poor WASH to child nutrition and policy attention to the connection	- Develop and rigorously test WASH interventions that can be scaled through nutrition programs to reduce childhood stunting. In order to complement on-going research by others, this might focus on exposures during weaning, or target children who are already under weight.
Equity	- Document the disparities in sanitation related risks and potential benefits of improved targeting to the most vulnerable	- Demonstrate that improved monitoring and targeting can result in more pro-poor services - Develop and rigorously test specific strategies for promoting more equitable sanitation
Mtumba approach in Tanzania	-Process evaluation suggests approach is effective	- Rigorous evaluation of whether approach catalyses sanitation uptake more effectively, relative to other options. - Research on how to improve and adapt to increase applicability.
Evidence Paper and related synthesis	-Support increased WASH investment by DFID	- Additional benefits possible if funders invest in more effective strategies and if other funders invest more. However, this would require additional capacity building and RIU work to enable funders and programmes to use the Evidence Paper and other sources to assess what will work best within specific contexts.

7.3 Management

7.3.1 Partnership

SHARE is a large consortium bringing together very different organisations around a set of collectively agreed objectives. Maintaining a strong partnership between the different organisations is critical to SHARE's success. To mitigate partnership challenges, an annual face-to-face partners meeting was initiated by the Executive Group at the inception of the consortium. The purpose of the annual meeting is to discuss and assess progress and challenges. In addition, and as part of SHARE's M&E activities, a partnership review exercise was initiated in January 2013, whereby a questionnaire was circulated to all partners for feedback on what aspects they consider to be going well, which aspects not so well, and what adjustments are required.

The partners meeting held in January 2013 used the responses from these questions as a basis for the agenda and provided an important opportunity for all partners to identify areas of success as well as constructively highlight challenges and ways forward. This year, it was decided that the Core Team (Research Officer, Research Uptake Officer, and M&E Officer) should also join given their close working relationship with partners.

Action points were agreed in the meeting and are routinely reviewed (six monthly and 12 monthly) and discussed at subsequent partners meetings. The next meeting is scheduled for January 2014.

8. Work Plan: Highlights June 2013 – January 2015

With 18 months remaining for SHARE, our activities move toward completing research projects, emphasizing research uptake, and developing and implementing a legacy plan. This pattern applies to both our global and focus country activities. The annexed work plan document (Annex C) provides a list of the key research activities for the remaining period of the SHARE research programme.

8.1 Research

With all calls for the main research fund complete, 2013-14 will focus on completing existing projects and ensuring that research results are prepared for publication. For example, over the next 9 months last rounds of diarrhoea disease data collection will take place in the Odissa sanitation trial and in February 2014 the helminth re-infection survey is expected to be completed. The trial is expected to publish in excess of 15 international peer-reviewed papers, of which the health impact papers will be the most important. Although it is unlikely that all health papers will be published by the summer of 2014 at least the results are expected to be available, as well as draft papers. Work funded by SHARE will be presented at the WEDC conference in Egerton, Kenya, the Copenhagen conference on Tropical Medicine and International Health where SHARE will organize a special sanitation session, and SHARE research will be presented at the most important WASH conference of the year at the University of North Carolina, in the USA. In 2013/2014 the main research fund will take stock of under spent research money, and a meeting will be held with all consortium partners to determine research priorities, and identify critical gaps and allocate money for research in these identified priority areas. The core team at the LSHTM will continue to monitor the progress of the different projects, and assure quality of outputs through peer-review, and assistance will be provided where needed to help guide the publication process.

8.2 Research into Use

In the last 18 months of the project, and as all the research funded by SHARE is completed and produces findings, the investment in RIU will naturally increase. There are a high number of events –seminars, workshops, presentations – planned for international conferences, such as the Stockholm Water Week, the UNC Water & Health Conference and the Congress on Tropical Medicine and International Health. SHARE will also convene a number of meetings – conferences, symposia, policy roundtables – globally and in the focus countries. For example, in August 2013, SHARE with the Delhi School of Economics and WSP will convene a conference on sanitation and stunting; and in 2014 we are planning a number of 'Global Evidence & Policy' symposia on critical issues and themes that have emerged from the SHARE research programme.

A number of RIU-led research and synthesis pieces are in the pipeline with publication and launches planned for the next 18 months (see Annex C). In particular, the WASH and Violence Against Women (VAW) Manual will be published at the end of 2013 and launched in early 2014, and the findings from the research into WASH and maternal health will be published in a series of journal papers and supporting policy briefs at the end of 2013. Translation of SHARE research into materials for dissemination to and engagement of policy and practice audiences will continue but with a greater volume reflecting the completion of

more research projects. These materials will range from printed documents – policy reports and briefs to practitioner oriented manuals or notes – to online content – such as the Sanitation Mapper or the forthcoming audio-visual materials on the Super Ama intervention.

Lastly, there will be a strong emphasis on direct engagement of boundary partners through collaboration. Facilitated by the recently agreed MoU between UNICEF and SHARE, LSHTM will provide a certificated course to UNICEF staff globally on 'Evidence-based WASH practice' that will build on many pieces of SHARE research and synthesis. We will also continue to work with WSP and others to support research uptake globally and nationally.

8.3 Capacity Building

In 2013-14 four of the six PhD students will have completed their fieldwork, and will return to London, to analyse their data, discuss their findings and start the write-up of their thesis. One student with a delayed start is expected to complete her data collection towards the end of the summer of 2014 and then return to London. The sixth student will have registered at Stellenbosch University in South Africa, and have started her field data collection following a successful defence of her research proposal. Next year SHARE intends to support at least 4 students doing their MSc research in the field of sanitation and hygiene, and is actively encouraging WaterAid Bangladesh and ICDDR-B to find students that can work within the ongoing platform, and call C research projects. Unallocated capacity building budget will be partly used to support the PhD students through the provision of 6 months additional London stipend, but also to support the platform coordinators in Malawi and Tanzania in order to strengthen their capacity to successfully manage the platforms. The remaining unallocated money, estimated to be around 20,000 GBP will be used for targeted support identified by the SHARE consortium partners. The core team will continue to provide assistance in protocol development for different platform projects and where needed will provide comments and feedback in the writing-up phase of the different project.

8.4 Country Platforms

8.4.1 India

Having established the Research Group, identified research priorities and successfully completed the RFP, the dual priorities for the next 18 months are: (1) ensuring timely and high quality completion of the four studies; (2) ensuring uptake of research findings through further demand creation among boundary partners and engagement through convening and translation. The schedule for completion of the RFP funded research is included in Annex G and regular contact is maintained with PIs to assess progress. As part of the efforts to generate awareness of the research and create demand for the findings, SHARE will work with WSSCC and other sector stakeholders, including the Government of India, to organise a 'sanitation and gender workshop in October 2013. This will both publicise the research to external stakeholders and build ownership, and facilitate links between the four studies. We expect the final deliverables in June 2014 and there will be a series of activities to engage pre-identified boundary partners in India ranging from policy roundtables to local level workshops. This will be supported by translation of research reports into materials adapted for policy and practice audiences. Depending on the outcome of the research, we will also support Indian researchers to present their work at national and global scientific conferences and sector meetings.

8.4.2 Bangladesh

SHARE's research and RIU activities will continue to focus on weaning food hygiene and safe distance between latrines wells. The Safe Distance project, the main research project funded by the national programme, will be completed in early 2014. ICDDR,B researchers and WaterAid Bangladesh will continue to engage sector partners including the UNICEF, NGOs and the Government of Bangladesh to incorporate preliminary findings into programmatic and policy guidelines. The second priority for the next 18 months is to continue promoting the uptake of the findings of the weaning food hygiene study. This will include expanding the collaboration the Ministry of Women and Child Affairs, collaborations with other NGOs such as Plan Bangladesh, and direct use of media to influence mothers' behaviours. The latter will include a collaboration with Sesame Street in Bangladesh along with media outlets.

8.4.3 Tanzania

With successful completion of the RFP call and selection process, focus will be on supporting and monitoring the progress of the selected research projects. With the initial late start, it is important to ensure that there are no further delays and that investigators have the necessary support to complete their analyses and publications. In August 2013 SHARE will begin a collaborative evaluation of the National Sanitation Campaign, working closely with the MoHSW, DFID Tanzania, and WSP. SHARE will closely monitor this activity to determine whether it is successful in improving the impact of the DFID and ADB investment in the campaign.

In addition, the SHARE country liaison and core staff will also work closely with the national partners WaterAid Tanzania and CCI to strengthen their research capacity. This will include trainings, support for analysis and writing, and the development of collaborative research proposals. Additional activities for the coming year include a SHARE event at the 28th NIMR Annual Joint Scientific Conference in April 2014 and the preparation of an edited book on sanitation and hygiene in Tanzania.

8.4.4 Malawi

With final contracts for the national research projects expected in July 2013, a focus for the next 18 months will be on completing the planned research. The initial research call resulted in the allocation of approximately 75% of the available resources and the remainder will be allocated in a supplementary call in September 2013. SHARE will also continue discussions with DFID Malawi regarding the possibility of conducting a collaborative evaluation similar to the one being carried out in Tanzania.

8.5 Value for Money

Over the past year SHARE has developed innovative methods to assess the VfM of current and prospective research and RIU activities. As more SHARE research moves through the pipeline and into use these analyses will be updated and expanded. Specific activities include:

- Directly monitor uptake of weaning food hygiene intervention in Bangladesh to develop an improved estimate of impact and VfM
- Using the collaboration around the Tanzania National Sanitation Campaign, refine the current VfM analyses to estimate impact and VfM of increased investment, accounting for where the interventions are targeted, who is reached, and the degree of behaviour change
- Develop an analysis of the VfM from improved evaluation and adaptive response, based on the Tanzania NSC collaboration
- Write up existing analyses for publication to encourage VfM as a component of assessing applied research investments

8.6 Legacy Planning

One of the keys to maximizing the value for money from SHARE activities is to ensure that existing projects are lead to necessary follow up research and research into use activities. While some of these can be done within SHARE's remaining 18, others will require more time to materialize. However there are actions that SHARE can take during the next 18 months that ensure a legacy by catalysing activities that will occur after that period.

- Identify opportunities to leverage funding for follow up research in high impact areas (identified in VfM analysis in section 7), including WASH and maternal health, MHM, and WASH and nutrition
- Create long term partnerships for ongoing collaboration in focus countries, including proposals for continued capacity building
- Develop collaborations to test interventions at scale, including those emerging from Choose Soap and weaning food hygiene projects
- Work with national and global partners to increase use of evidence and data to improve program efficiency (including WSP, UNICEF and MoHSW in Tanzania)

9. Risk

Last year's annual report proposed an analytical exercise to investigate the risks involved in the effective functioning and sustainable development of SHARE Country Platforms. Table 4 illustrates the internal and external risks that were identified. Several of these risk categories occurred in the year 2012-2013, corresponding with the initial establishment and functioning of the Country Platforms. Table 5 presents the identified risks and the action taken to mitigate them.

Table 4: Country Platform risk identification for research into use (RIU)

RIU COUNTRY PLATFORMS Risks to successful development and sustainability	***External Risks***
	a. Political unrest at country level or other unforeseen circumstances (e.g. natural disasters)
	b. Lack of political will and prioritisation of sanitation and hygiene issues from governments
	c. Existing law and regulations limiting the scope of the Platform
	d. Poor policy environment (i.e. corruption).
	e. Infrastructural failure that prevents normal functioning
	Internal Risks
	a. Scarce capacities and lack of suitable people to conduct research in Country Platform.
	b. Failure to sufficiently moblise stakeholders and sustain momentum for CPs
	c. Lack of cooperation from local partners.
	d. Weak management of Country Platform.
	e. Poor research design and inadequate quality of research proposals

Table 5: Identified risks and mitigation actions

External risks			
Risk	**Probability/Impact**	**Example / Description**	**Action taken**
Political unrest in Country Platform	Possible risk /Minor Impact	Political unrest in Bangladesh (2013)	• Non-urgent trips to Bangladesh have been postponed and the SHARE team met with Country Platform representatives in other countries. • Potential suspension of Country Platform activities for the next 6 months. • ICDDR,B researchers successfully made adjustments to ensure progress on the 'Safe Distance' research project
Lack of political will and prioritisation of sanitation and hygiene issues from governments.	Possible risk/ Major Impact	Malawi: Delays in completing a number of processes due to government bureaucracy (e.g. MoU, Research Coordinator recruitment and selection of proposals)	
Poor policy environment (i.e. corruption).	Possible risk/ Major Impact	Financial reviews of country partners (unrelated to SHARE) to address concerns about accounting and financial tracking	Careful monitoring of the progress of reviews and additional vigilance for SHARE projects

Internal risks			
Scarce capacities and lack of suitable people to conduct research in Country Platform.	Possible risk /Minor Impact	• Malawi: Unexpected medical leave for SHARE country liaison • Dr Martin Mulenga, Malawi CP was absent from work due to medical reasons from February- June 2013	• Dr Sue Cavill acted as SHARE liaison for the Malawi platform in Dr Martin Mulenga's absence • Dr Mulenga has returned to work
		India: WaterAid India's temporary withdrawal as national partner and lead for India Country Platform due to management restructuring	Oliver Cumming appointed to manage RFP process centrally and partnerships established with other national sector agencies to implement RIU activities. Once WaterAId India has completed staffing changes, the option of RIU activity collaboration will be revisited from Jan 2014
Failure to sufficiently moblise stakeholders and sustain momentum for Country Platforms	Possible risk/High Impact	• Tanzania: Failure to sustain momentum around the SHARE research group and sufficiently mobilise stakeholders for RIU activities	• WaterAid Tanzania to play a key role in engaging and mobilising local actors – such as TAWASANET – as part of the RIU objectives; • Prioritisation of RIU activities which are high-impact country lead (Dr Cavill) taking on responsibility for activity planning and organisation. Risk: Medium probability; Medium impact

		• Over-stretched Capacity of National Coordinator	• A new 'reduced' work plan has been developed for the Coordinator. From April 2013 WaterAid Tanzania is providing a dedicated staff member (part time) to assist the Coordinator, support the process and improve overall communication and coordination. Risk: High probability; High impact.
Lack of engagement from local partners.	Possible risk/High Impact	Malawi: Communication breakdown.	The recruitment of the Research Coordinator at the beginning of 2012 has significantly reduced the risk of poor communication and improved Platform management.
Poor research design and inadequate quality of research proposals	Possible risk / Major Impact	• All Country Platforms: Activities, particularly RIU national activities, are not adequately tracked and monitored in terms of SHARE M&E approach	• RIU strategic plans will be jointly prepared and approved by the SHARE management group. • M&E Officer will track the outputs (research, RIU activities) • SHARE will proactively target individuals and institutions with a track record in this field • If quality of proposals is not sufficient SHARE will consider not awarding a contract

		• India: Reflecting the experience from other Country Platforms, quality assurance was flagged as a risk for the India RFP	• Oliver Cumming designed and managed a comprehensive review process for quality assurance. This included each proposal receiving two independent peer reviews, review by expert committee and then review by a selection committee. Although the research has only just begun, this process has already delivered four high quality research protocols.
Newly identified risks			
Risk		**Description**	**Action taken**
Delays in commissioning work in all Country Platforms	Possible risk/critical impact		• Fast-track review process by commissioning reviewers • Work with SHARE members to facilitate contracting process at LSHTM

10. Monitoring and Evaluation

SHARE's logframe defines the main monitoring and evaluation activities that are conducted regularly. The full M&E plan was presented as a part of last year's annual report. Over the past year SHARE has also developed a series of additional M&E activities designed to improve the consortium's effectiveness and VfM. These activities (described below) are in various stages of development, with some well underway and others just being initiated.

10.1 M&E for the City Sanitation Project

The SHARE M&E team, in collaboration with IIED and SDI, has developed a participatory evaluation of the 'City-Wide Sanitation Project', which includes an assessment of the methods adopted by the Federation Model in developing effective urban sanitation strategies in Tanzania, Malawi, Zambia and Zimbabwe. The aim of the evaluation is to support the main learning objectives of the project, to assess and document the project impacts and to evaluate the extent to which action research can contribute to building urban sanitation programmes which are sustainable and accepted by communities. The achievement of these goals will be obtained through the following process:

- Agreement with IIED and SDI partners on the evaluation questions which enhance learning outcomes of the project
- Engaging with IIED, SDI and partners in data collection

The evaluation is based on the Outcome Mapping to critically assess how the project catalysed the desired changes from key boundary partners and follows three main steps:

1) **Step One:** Measuring and evaluating changes in relationships with local authorities and with other government agencies. This will be covered by collecting the following data:

Indicators	Data collection	Frequency
Number of formal MoUs between city councils and affiliates	SDI Secretariat to provide the data to SHARE M&E officer	Every six months (since project inception)
Number of individuals with savings accounts		
Scale and nature of sanitation improvements to date		
Records of who participates in project-related meetings with local authorities		

2) Step Two: M&E of specific project activities: Situation analysis and precedent setting.

Indicators	Data collection	Frequency
a) Situational Analysis		
Media responses to situational analysis inside and outside country	Affiliates to report on indicators via. SDI Secretariat	Every three-six months
Number of people attending launch events of situational analysis documents		
Records of who participates in meetings		
b) Precedent setting		
The sanitary improvements of the technologies implemented	Use of City Wide Sanitation Assessment framework developed by IIED/SDI	At start of project, six months into project and again at one year
The affordability challenge		
The collective action challenge		
The co-production challenge		
Post-precedent ideas dissemination	SDI and affiliates to collect information, assessing city-wide sanitation in the final year	Final year of project

3) Step Three: Evaluating views of the SDI process. This evaluation will take place at key events where the city-wide project's results will be disseminated. The M&E Officer will interview key actors to gauge what the perceived benefits of the SDI models are and whether these actors would apply it in other countries.

10.2 Monitoring for adaptive management

In the previous annual report, SHARE developed an adaptive management approach to make a series of strategic adjustments and to monitor progress against them. Over the past year, this adaptive management approach has been effective in reducing risks, improving performance of struggling Country Platforms and increasing the value for money of SHARE's work. Table 6 outlines progress on these points and flags several new ones.

Table 6: Actions taken on priority areas

Research		
Priorities	**Proposed steps**	**Actions taken**
1) Ensuring the production of quality research outputs	Closely monitor the production and delivery of reports and manuscripts and actively look for situations where research outputs can be strengthened and accelerated through targeted support. Look for opportunities to strengthen the capacity of focus country researchers to produce quality outputs and high impact publications.	SHARE continues to exceed the indicator milestone, producing 16 academic publications in the past year. The proportion of authors from developing country institutions is 25%, showing that SHARE is strengthening opportunities for focus country researchers. Several projects, including the City-Wide Sanitation project, are investing additional resources to support research writing skills SHARE has organised (in collaboration with UNICEF and other organisations) a series of webinars focusing on SHARE research priorities. These include: 1. February 2013: Rheingans, R. & Cumming UNICEF Webinar on Sanitation Disparities. 2. February 2013: Cumming, Campbell, O., Benova, L. – Webinar for World Vision country offices on WASH and maternal health. 3. February 2013: Integrating WASH on health facilities: Cleanliness at birth place and maternal mortality. Webinar for UNICEF provided by Oliver Cumming.
2) Peer review publications	Based on the progress made with publications, look at the possibility of increasing targets.	Although official targets were not changed, SHARE continues to strive to increase: 1) the rate of output, 2) the impact factor of targeted journals and 3) the number of developing country and female authors. The latter two are now reported in the

		annual report.
3) Findings from a number of SHARE's on-going research projects raise important questions that require further work and new strategic ventures	National level follow-up within our focus countries. This will involve developing new priority research questions, capacity, and interest from applied research funders. Priority questions for future research are: • Understanding the contribution of sanitation to investments in de-worming and helminth control • Identifying the role of sanitation in affecting the impact of investments in vaccination • Testing scalable strategies to reduce contamination of weaning foods • Identifying effective strategies to target high-risk poor populations.	SHARE has begun discussing with the Ministry of Health in The Gambia the possibility of an effectiveness trial of weaning food hygiene at scale New proposals are being developed to empirically test the effect of improved health facility WASH on maternal health New proposals are being planned for the contribution of targeted WASH interventions on improved outcomes for children with acute malnutrition SHARE allocated additional funding to explore the contribution of school sanitation to the control of soil transmitted helminths WaterAid is collaborating with the Ministry of Health in Nepal on vaccinations
RIU		
Priorities	**Proposed steps**	**Actions taken**
1) Building on successful partnerships to extend reach and influence	SHARE will seek to deepen and streamline these partnerships around shared strategic objectives.	SHARE is in discussions with UNICEF and WSP to sign partnership agreements around research uptake and capacity globally, regionally and nationally. This year, SHARE has collaborated and deepened partnerships with both agencies An example of this is Oliver Cumming's (LSHTM) participation in WSP's global and regional planning and learning processes.

2) Supporting national RIU through Country Platforms	SHARE will prioritise support to the country leads and Platforms to support the convening of boundary partners, translation of research for different audiences, and commissioning of synthesis where opportunities for uptake are identified.	Tanzania – Arusha conference with NIMR Malawi – MHM Roundtable India – Odisha Sanitation Evaluation Workshop with government and civil society India – Women and Sanitation Research Workshop to bring together policy and research actors from WASH and maternal health/gender sectors India - SHARE is co-convening a conference with the Delhi School of Economics and WSP in Aug 2013 on sanitation and stunting SHARE has signed an MoU with the Bangladeshi Government (ministry of Women and Child Affairs) to provide training and mentoring of national civil servants on weaning food research and strategies
3) Boosting high -impact SHARE research globally	SHARE will boost its support to research projects/issues where the findings offer high potential for influencing sector decisions.	Increased SHARE support for cross-sector research such as maternal health and nutrition Increased SHARE support for research on underexplored risks including weaning food contamination, MHM, and gender violence SHARE will partner with DFID and WSP to provide an evaluation of the National Sanitation Campaign in Tanzania
4) Working with WaterAid to support uptake of research	SHARE will support WaterAid with activities designed to encourage uptake of important research areas (eg. the Orissa RCT and Menstrual	LSHTM has provided technical support to the WaterAid Policy Team to produce policy briefs on key issues (e.g. nutrition,

findings	Hygiene Manual). SHARE will also support WaterAid to influence programme design and policy-making for those priority research areas where WaterAid has helped to build the evidence base through SHARE (eg. nutrition, vaccines and maternal health).	violence against women, maternal health) SHARE supported the MHM piloting project LSHTM researchers have presented work for WaterAid policy and programme staff on emerging research findings: • Alan Dangour & Oliver Cumming (LSHTM) presentation on nutrition and WASH to WaterAid Directors Team (incl. CEO) • Oliver Cumming (LSHTM) presentation to WaterAid policy and campaigns department on nutrition linkages • Oliver Cumming (LSHTM) webinar on WASH & maternal/neo-natal health for WaterAid America, WaterAid Australia and WaterAid UK staff WaterAid has agreed to convene a SHARE Partners Learning Meeting at WaterAid later in 2013 WaterAid India staff supported and participated in the Orissa Sanitation Evaluation Workshop (Nov 2013)
5) Building national and agency capacity to interpret and use evidence	SHARE will address this critical gap by developing a series of evidence translation activities. These will include workshops, analytical tools and case study documentation. The major resourcing implications for the above will be in the use of core SHARE staff time.	An evaluation of theTanzania Sanitation Campaign Current collaboration with WSP and UNICEF at the global level and future plans for collaboration at the national level

Capacity Building		
Priorities	**Proposed steps**	**Actions Taken**
1) PhD support	Closely monitor the progress of PhD students, ensuring that they have the necessary mentoring and resources to successfully carry out their fieldwork	SHARE has provided for a reallocation of one of its PhD students within the University of Stellenbosch. Six months of additional London stipend has been made available to all students until the end of SHARE's lifetime, as none were likely to finish within three years
2) Strengthening the capacity to carry out rigorous applied research among national researchers in country platforms	SHARE will link senior researchers with national researchers, within the context of specific national research projects. This may be supplemented by more general training on research methods in the future	Support for training of ICDDR,B junior researchers in the use of innovative molecular methods for assessing sanitation and hygiene -related exposures Funding allocated to the different platforms to support these exchanges (flights, courses etc.) Tanzania and India platforms to create research partnerships linking national and international researchers
3) Support for technical writing	Support will be given by pairing senior researchers with junior researchers to support the production of manuscripts and reports The need for more general training	IIED researchers working closely with national researchers to develop City Sanitation situation analyses

	will also be assessed	
4) Enhance capacity for translating and interpreting research into policy or practice	During the coming year, SHARE will develop plans for short-term training for national research groups as well as for specific institutions (such as national offices of bilateral organisations) SHARE will explore partnerships with other global sector actors who have also identified this as a critical sector need	Two training events in 'Writing for WASH' were funded by SHARE and conducted by WaterAid in the UK and Uganda. Collaboration with the Ministry of Health and Social Welfare in Tanzania to enhance capacity for using evidence and M&E to increase programme impact See RIU partnerships with WSP and UNICEF above

10.3 Empirical evaluation of field replication

The Value for Money analyses conducted for several SHARE projects highlighted the potential value of additional evaluation evidence on the effectiveness of new intervention approaches. For example, it is anticipated that the impact of SHARE's weaning food research will increase if there is evidence of intervention effectiveness at scale. Similarly, uptake and impact of the menstrual hygiene management manual and related research would be expected to increase with evidence of the effectiveness of the approaches advocated in the manual in improving MHM related conditions, reducing stressors and improving health and educational outcomes. A similar case could be made for further evaluations of effectiveness of the 'Choose Soap' approach at scale. In all of these cases, further evaluation is expected to enhance RIU.

Within the logframe, outputs such as manuals and trainings and changes in practice by key boundary partners are documented allowing estimations of the number of individuals with improved sanitation and hygiene to be made. However, additional rigorous evaluations of field trials and replications have not even planned for. Some limited evaluations have been supported through the research calls and the RIU Fund; however, additional outcome and impact evaluations would be helpful in catalysing additional uptake. While there is no provision to carry out such evaluations within SHARE's current budget, SHARE has initiated several efforts to develop effectiveness evaluations of these approaches in the context of programmes. This includes developing a proposal with WaterAid Bangladesh to rigorously evaluate hygiene behaviour change using approaches from the 'Choose Soap' project and collaborations with WaterAid's Programme Development team to incorporate rigorous evaluation into a series of programme proposals.

An additional example of this is a potential collaboration with the Ministry of Health of The Gambia to evaluate the effectiveness of weaning food hygiene interventions. This would include the use of formative research results from SHARE research in Mali, Bangladesh and

Nepal in order to minimise the requirement for local formative research, and the rigorous evaluation of the results implemented at a national or regional scale. Such evidence could promote further uptake and impact by providing important information on adapting the approach to different settings, using existing field staff for implementation, and rigorously documenting the impacts.

10.4 Evaluation collaboration with Country Platforms

In early 2013, based on an inquiry from the SHARE country liaison (Sue Cavil), the Ministry of Health and Social Welfare (MoHSW) in Tanzania, along with DFID Tanzania and the WSP office in Tanzania, inquired whether SHARE could support the evaluation of the National Sanitation Campaign (NSC). The NSC is a £19 million effort by the MoHSW (financed by the ADB and DFID) to provide sanitation and hygiene for 1.3 million people in Tanzania. The campaign is coordinated by MoHSW and implemented by organisations operating in communities across the country.

DFID and WSP followed up on the offer from SHARE regarding the possibility of supporting the MoHSW in conducting a process evaluation, as well as an assessment of the effectiveness of the program. The objectives of the evaluation include 1) assessing the effectiveness of the process and coordination of the campaign, 2) estimating and comparing the effectiveness of alternative approaches in different contexts, and 3) identifying opportunities to improve the campaign's impact.

SHARE's role will be to assist in the design, data collection, and data analysis of the process and outcome evaluations. This assistance is designed to increase the capacity of the MoHSW and other partners to carry out evaluations (from design to communication of results).

These joint objectives of ensuring a rigorous evaluation and strengthening capacity contribute to SHARE's broader strategic objectives in Tanzania and beyond. Firstly, the evaluation will complement on-going efforts to improve the effectiveness of sanitation promotion through the Mtumba approach. SHARE believes that further evidence of the relative effectiveness of the approach at scale and across different contexts will increase the likelihood that programmes will use the approach where appropriate. Such an evaluation would also provide information on a range of approaches, improving the effectiveness of the approaches used. Secondly, the collaborative process of carrying out such an evaluation is likely to contribute to broader evidence -based programming. There are several elements to this hypothesised improvement in effectiveness including, increased technical capacity in evaluation methods, experience analysing and exploring data to determine what is working and not working within the NSC and engaging the broader literature in the WASH sector to interpret the findings in Tanzania.

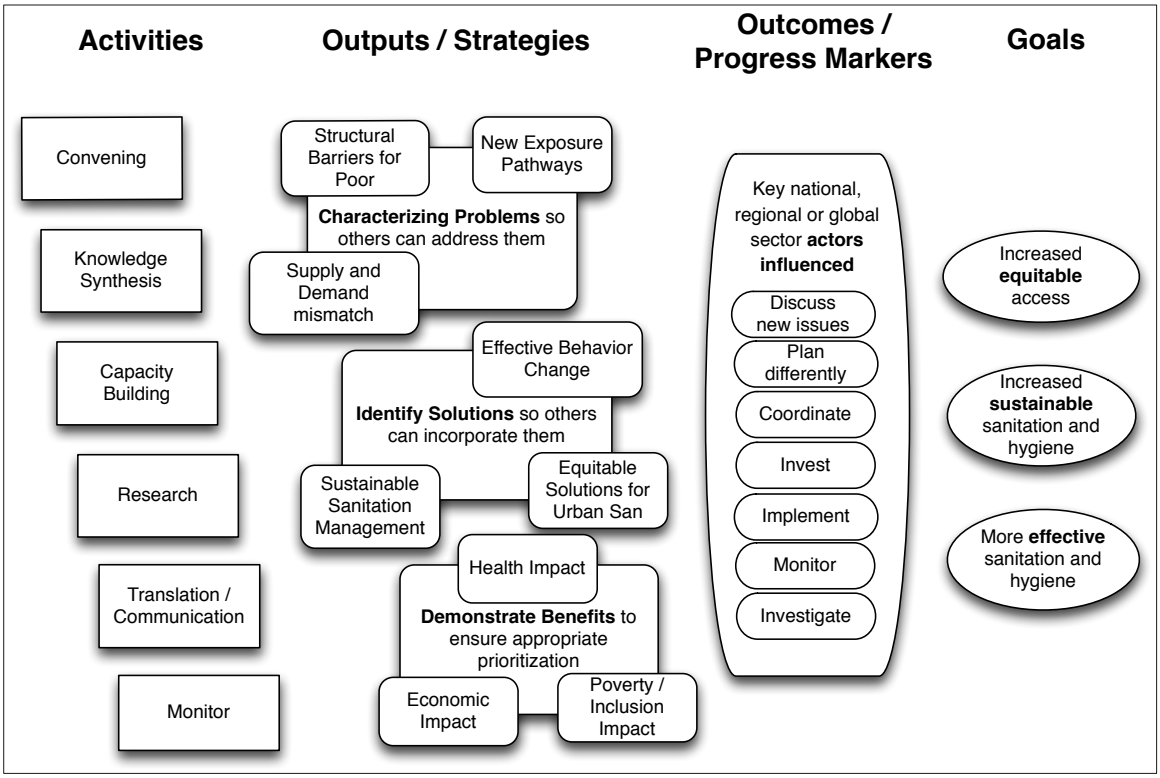
11. Further Information

11.1 Theory of change

11.1.1 Background

Previous annual reports have presented and refined SHARE's Theory of Change (ToC). That ToC (shown in Figure 4) follows the connection between various SHARE activities (including capacity building, research, convening, and research translation) to concrete changes brought about by improved sanitation and hygiene. In almost all cases, this requires the use of information in influencing the actions of boundary partners. The current ToC conceptual framework attempts to cover the diversity of activities, research areas, boundary partners and outcomes.

Figure 4: SHARE's theory of change

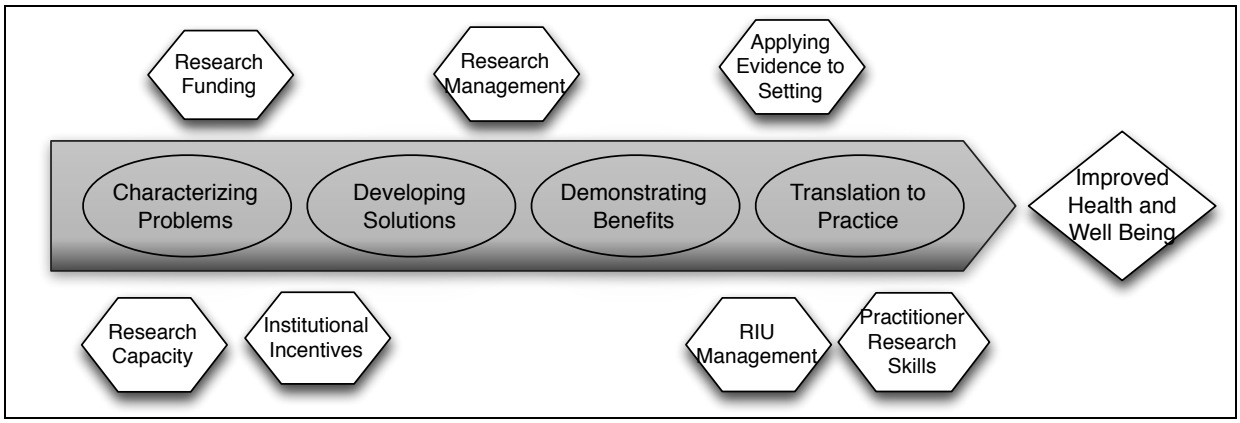


This results in a complex conceptual framework, which at times, is hard to explain or utilise for adaptive planning. It became clear that it would be useful to have a simpler way of explaining this process, as well as conceptualising it for strategic planning. In particular, the approach was developed to help describe, measure and improve the value for money from SHARE activities.

11.1.2 Research into use Pipeline

Figure 5 shows a simplified conceptual framework of an RIU pipeline. For the most part, SHARE's research and synthesis follow a common intended progression from characterising a problem, developing solutions to that problem, demonstrating benefits of the solutions and translating the findings into practice.

Figure 5: SHARE's research into use pipeline



Based on this conceptualization, value for money from SHARE research is realised only when a research finding is translated into improved sanitation and hygiene for individuals in need. Although insight and discovery create potential, actual value is based on concrete changes in health and development outcomes. In any given context, the enabling environment influences the movement through the pipe.

This framework also allows consideration of a product pipeline from a commercial context. In such a context, the objective would be to have an even flow of products working their way towards markets, to ensure stable revenue and resource utilisation. In many areas, this process from discovery to market could take decades. This is the case for other development sectors such as agriculture and other health areas such as vaccines. Developing a balanced product pipeline in context with such lag times can be quite difficult – especially if there is a need to "show results" in the short term. SHARE attempted to deal with this need to demonstrate impact and long lag times from the outset.

The initial quick-start projects built on existing work among the SHARE partners and other sector actors and included work throughout the pipeline. For example the 'Choose Soap' project built on decades of research by LSHTM, corporate partners, and key sector institutions such as UNICEF and WSP, to test a scalable approach to behaviour change for HWWS. The sanitation trial built on past programmes and research reviews to identify the need to rigorously measure intervention impact. The weaning food studies built on past studies to better characterise this critical pathway and develop potential strategies for stopping it. Other research and RIU projects enable products to flow throughout the pipeline. Some of these are already starting to show impacts, such as 'Choose Soap', while others require additional time before they will be 'ready for market' and able to be fully incorporated into programmes.

It is important to note that this leveraging of existing work in the sector (in order to create short-term impact), creates important challenges in measuring value for money from SHARE activities. By design, much of SHARE's research builds on investments by other funders and researchers. Changes that might be catalysed by SHARE research often owe much of their value to these past investments. From an efficiency point of view it makes sense to utilise the existing work, even if it creates confusion or difficulty in measuring contribution and value.

Similarly, some SHARE projects are likely to remain 'in the pipeline' at the end of SHARE's lifetime. Whether or not these produce value in the end may depend on how other efforts take up or build upon the work begun under SHARE. From a strategic point of view, SHARE is assessing how these opportunities should influence work over the remaining 18 months.

11.1.3 Improving the Pipeline

There is a danger that this simple linear metaphor of a pipeline will be misinterpreted and assumed to imply an inevitable flow from research to practice. As professionals working on water and sanitation in resource-poor settings know, pipelines do not often work that way. Without over-using the metaphor, it is worth pointing out some of these parallels. Urban water systems are notorious for their inefficiencies and leaks that result in a significant percentage of water never reaching end-users. Similarly, improved sanitation that transports waste but does not provide for safe treatment is unlikely to provide significant health gains.

SHARE's effort to establish the Country Platforms and to carry out a range of research and RIU activities has helped identify a series of critical barriers that often make it difficult to move research and synthesis down the pipeline towards impact. These are also based on the long-term experience of SHARE partners' working on related applied research and programmes, as well as that of other development sector partners (such as Development Research Uptake for Sub-Saharan Africa, DRUSSA,). These critical barriers include:

- Research capacity: In some of the focus countries, there is a limited pool of researchers who are actively engaged in WASH research. This may be a product of shortfalls in research training or the attraction of these researchers to other areas of research.
- Applied research funding: Limited *sustained* funding for applied WASH research makes it difficult to keep trained researchers engaged in critical applied research and also makes it difficult to attract young researchers from developing countries to the sector. It may not necessarily be the absolute limit on available funding, but actually the accessibility of that funding to national researchers that presents the real challenge.
- Research management: The execution of quality research requires appropriate financial and technical management. This includes resources and processes for the technical review of proposals, systems for efficient contracting and procurement, ethical review boards and systems for monitoring research quality.
- RIU management capacity: There is a growing understanding that moving research into use requires a set of management skills that are distinct from research or communication. While some organisations have begun developing training in this area, there is still a great to do more.
- Interpreting general evidence for local and national planning: Generalised evidence (for example that from randomised trials) may not always translate into clear decisions in other contexts. This may be due to the fact that the incremental choices faced by local policy-makers and programme staff are not reflected in the trials. It may also be due to concerns over how differences in context alter the impact of a particular intervention.
- Applied research methods among programme staff, practitioners and community organisations to critically examine what is working and what is not: Applied and

action research methods can be powerful tools for organisations involved in delivering basic services. In these contexts, research may focus on more incremental choices, understanding local needs, and assessing what is working and what is not.

- The enabling environment among donors and government: In several settings, institutional arrangements and structures provide disincentives or barriers to wider applied research. Examples include insecurity for academic researchers, limited incentives for research participation, funders or practitioners avoiding research and evaluation that might result in critical findings about a program and research management arrangements that create large transaction costs to carrying out research.

As described above, one of the objectives of the simplified conceptual framework is to help facilitate strategic adaptation and adjustments to SHARE's programmes. At this point in SHARE's time-frame, it is particularly important to assess what can be done over the next 18 months to maximise VfM and promote improvements in the health, economic and development outcomes of target populations. This includes activities to increase VfM that can be realised during this 18-month period, and things that can be done to increase the expected quantifiable benefits after this period. The framework can be used to facilitate discussion around the following questions:

- How can existing specific SHARE research, synthesis and technical guidance provide improvements in health and well-being?
- What has already been done to push the research towards practice and what is needed to push it further?
- Are there opportunities to improve the efficiency of the pipeline?
- How can remaining SHARE time and financial resources be used to best maximise the value of what has already been invested?

11.2 Research methods

SHARE continues to contribute to the broader WASH applied research sector by supporting the development of innovative research methods and approaches. These include both new empirical research methods and new methods for research management.

11.2.1 Innovative research methods from projects

Measuring latrine use

Among the few studies that have actually assessed latrine use, structured observation is considered the gold standard. However, it is expensive, time-consuming and has been shown to result in reactive behaviour. Self-report measures also have limitations due to bias and participant burden. Sanitary surveys and latrine inspections are often subjective, lack required sensitivity and specificity and do not help in determining patterns of use over extended periods. Although certain sensory devices are capable of monitoring behaviour at both household and individual levels, their cost, limited battery life, acceptability and compliance issues make them challenging to use in low-income settings.

As part of the sanitation trial in Odissa, SHARE is testing the 'Passive Latrine Use Monitoring' (PLUM) device as a possible method to measure latrine use and uptake. It uses a passive infrared (PIR) motion sensor to detect the presence or absence of a person within its viewing range. It can be fixed within the latrine superstructure either on a wall that does not face a door or on the roof, if one exists, as long as the subject is within range. The PLUM is designed to be weather resistant, battery powered, easily installed and removed, acceptable to households and of sufficiently low in cost to permit its use at scale in a research study.

The PLUM is jointly developed by the University of Berkley and LSHTM and has gone through a number of different iterations. Currently as part of the Odissa trial, the third generation (3G) version is being tested by the PhD student, Antara Sinha. The 3G device, is designed as a more advanced version of the 2G with certain structural and technological modifications to its features. For example, a toggle power switch has been added to the housing cover in an attempt to extend the battery-life of the device. The proposed battery-life of the 3G device is three months. Further, an on-board clock provides an actual time-stamp of the occurrence of an event. In addition, this device has a flash storage capacity and transmits regular updates about its status at a specific frequency band. It is designed to enable wireless data downloading onto a PC using a compatible USB TelosB mote. Once downloaded, data is stored in the local file system in the PLUM 'Dropbox' folder, a cloud-based file storage system.

Determining the role of hands in the transmission of Ascaris infection

The importance of hands in the transmission of soil transmitted helminthes, especially Ascaris and Trichuris infections, is unclear. This is partly due to the absence of a reliable method to quantify the number of eggs on hands. I, As part of a SHARE project, preliminary experiments were carried out to optimise the egg recovery rate in each step of a laboratory experiment and therefore support the development of a standardised method to assess the number of *Ascaris* eggs on hands, These preliminary experiments included, identification of detergents to be tested in the main experiment against deionized water, determining the proper egg counting technique, assessing the influence of pipette and falcon tube surfaces on recovery rates and quantifying the recovery rate from the rinsing bags used.

Under laboratory conditions, hands were then seeded with known Ascaris ova concentrations and the effect of different detergents on egg recovery percentages were tested. The best recovery rate was achieved with a combination of a hand rinse performed with water or a diluted detergent and a classic parasitology method. The use of a diluted non-ionic soap such as 7X gave a recovery rate of close to 90%.

11.2.2 Innovative methods for research management

In addition, SHARE has also developed new methods for rigorously quantifying the value for money of research efforts, both prospectively and retrospectively. The application of these methods is described in full detail in Annex J. The SHARE approach adapts methods of analysing the expected value of information to quantify the value of research projects based on their documented or expected impact on programmatic and policy actions.

The approach uses quantitative uncertainty analysis to address the challenges of, 1) quantifying the contribution of a specific piece of research to the actions of sector partners, 2) quantifying future changes in policy and practice and 3) measuring changes in health and economic outcomes associated with these changes. The approach also borrows from economic evaluations of health and development interventions to quantify these ultimate outcomes.

SHARE believes that these methods provide a more valid approach to assessing the value for money of research investments. Such an approach forces an explicit analysis of the anticipated causal chain between a piece of research and expected changes. Typically this involves at least three levels of assumptions: 1) how the research will affect the decisions of sector actors in the context of already existing evidence, 2) how those actions will change the scale and quality of the services received by populations, and 3) how these changes will affect health and well-being of the populations.

By explicitly stating and quantifying each of these levels of assumptions, they become open to inspection and verification. It also provides a framework for identifying other actions that can be taken to increase VfM. For example, in SHARE's analysis of the VfM of research on weaning food contamination, it is concluded that the full value of the research depends heavily on the success of further research to develop and test scalable intervention approaches that can be used by practitioners in varying contexts.

This quantitative approach is intended to supplement rather than replace other approaches to identifying research priorities. However, it may also have important applications to the analysis of value for money of other health and development investments.

11.3 Challenges and lessons learnt

A number of challenges and lessons learnt are identified and described throughout this report. This section focuses on some of the most important. Many of these revolve around SHARE's efforts to ensure impactful research by actively engaging decision makers and practitioners at the national level – in particular in the focus countries.

From the outset, Country Platforms have been seen as a central element of SHARE's efforts. This was based on a ToC that suggested that ensuring the greatest impact requires engaging sector partners at the national level where critical decisions are made. The Country Platforms are considered central to ensuring the relevance of SHARE research results.

At the end of inception period, it was agreed that the success of the Country Platforms required more dedicated research funding and a budget was allocated for each country and plans set up to create nationally driven and run research initiatives in each of the four countries. Initial attempts to establish the Country Platforms met with mixed results and in last year's annual report it was noted that they were at a critical point and in need of reassessment. Over the last year, the Country Platforms have made important progress as a result of sustained efforts by key SHARE staff. While this progress has yielded new lessons, it also reveals new challenges.

As a diverse consortium, SHARE continues to be convinced that more effective and sustainable sanitation and hygiene can be achieved by enabling communities, practitioners, and government officials to develop and use evidence and data to guide their work. Without

this engagement, evidence-based decision making may never trickle down to affect service delivery. At the same time, it is recognised that this is not a simple or short-term process but one that requires sustained effort and careful reflection on how to best achieve it.

This section explores a series of challenges and corresponding lessons learnt. A number of these challenges are also addressed in Annex H. Potential implications for future SHARE activities are also suggested. In some cases the lessons are small and tactical; in others they are more fundamental and strategic.

It is important to note that each Country Platform has taken a slightly different path and structure. This flexibility was anticipated from the outset, in part in response to diverse partner objectives and capacities. Over time, evolution has continued as each Platform has adapted based on local conditions.

11.3.1 Research management and contracting

The research programmes for each national Platform were designed to stimulate research on national priority questions by national researchers (potentially in collaboration with external partners). This model of smaller national grants necessitates the creation of a system for contracting SHARE research to the national researchers.

The issuing and management of research contracts has been a challenge in several of the countries. One of the fundamental challenges has been to balance the desire for creating independent and empowered national research groups with a fiscal responsibility to donors to ensure research quality. This highlights the necessity of a clear definition of the role of the national research group (or a specific national institution) in selecting proposals, issuing contracts, and ensuring research outputs are delivered. In three of the four focus countries (all but Malawi), contracts are issued from LSHTM directly to investigators. In contrast, in Malawi, the contracting process is through the Government. Direct contracting has almost certainly reduced the lag time between selection and research inception in the other three countries. However, the process in Malawi has created new opportunities to build capacity within the partner ministries. In the long run, it will arguably increase the ability of the national sector to develop applied sanitation and hygiene research.

The Platforms also differ in the management of research progress and outputs. In India and Bangladesh, the progress against deliverables is managed centrally by LSHTM. In Malawi and Tanzania, the national research coordinators are responsible for monitoring progress and SHARE also participates in the assessment of research progress and outputs. In practice, this joint monitoring of progress can be difficult. Exact responsibilities need to be defined for each partner, resources need to be available for carrying out those roles, and there needs to be a shared notion of the criteria for the evaluation of progress. Direct monitoring by a centralised contracting organization (in this case LSHTM) appears to be a more efficient way of ensuring timely progress and quality. However, again, joint monitoring provides an opportunity to build national capacity for managing WASH related applied research.

One of the key lessons from this process is that adequate time must be provided during inception to work through these details. Ideally large applied research programmes would build on existing collaborations and systems for managing grants to national researchers.

11.3.2 Ensuring quality research

In addition to the challenges of managing contracting to national researchers, there is the related challenge of ensuring research quality. This is not an issue unique to the Country Platforms, and the same issues must be addressed with international researchers. However, this issue takes on particular importance in settings where a gap has been identified in national research capacity. While research funding is intended to enhance capacity, rigorous research also presupposes that adequate capacity exists.

These issues are more fully explored in Annex H under ensuring research quality, but are summarised here.

SHARE has found it important to have procedures in place to support and enhance quality, as well as to control and verify it. The latter relies on a modified version of peer review of proposals, protocols and research outputs. SHARE has attempted to create a peer review process that is more constructive and supportive rather than purely an independent evaluation of quality. It has been important to clarify the different stages of peer review as well as clarify the criteria for assessment at each stage. However, this kind of peer review is intensive and requires a large pool of reviewers.

SHARE has also attempted to create systems to link external experts with national researchers to enhance the quality of proposals and research outputs. While there are mechanisms in place for such support, it is not always easy to ensure that they will be used. There are many potential reasons for this. In some cases, the individual national researchers may not see the need for external support. This kind of mentored support also requires additional time both pre- and post- contract award, potentially making it financially difficult.

In addition, structured support at the proposal development stage runs contrary to traditional models of competitive research calls. It requires either a pre-selection of proposals or substantial resources for supporting the development of a large number of proposals. Most importantly, this kind of collaborative proposal development requires adequate time for researchers to go through iterative cycles. In many of the Country Platforms, the need to get research contracted and completed within a certain timeframe can act as a constraint.

One potential lesson for future efforts is to create a separate fund or competition for mentored or collaborative research. Such a fund would need to include arrangements for adequate time for collaborative work and financial support for the researchers involved. It may also include distinct evaluation or selection rounds, providing initial funds for proposal and collaboration development, followed by an evaluation for full funding. A second lesson is that these collaborative efforts would greatly benefit from longer term research programmes.

11.3.3 Embedding research in existing sector platforms

All of the Platforms have engaged national sector partners in a process to define priority research questions and to some extent select specific projects. In the case of India this involved a consultative process engaging a wide range of sector actors, followed by a facilitated workshop to further refine the areas of research. In Bangladesh, a range of sector partners were convened and chose to focus on identifying a specific collaborative research project that they felt would be deliverable. In both of these countries, the model was selected in part based on the existence of a wide range of on-going WASH research by SHARE partners and others.

In Tanzania and Malawi it was agreed to embed the Country Platform activities into existing sector coordination structures. Given the limited amount of on-going sanitation and hygiene research, it was felt that this would help build critical mass within the sector and increase the likelihood that activities would influence policy and practice. Over the past year, both of these Platforms have made substantial progress in identifying questions, selecting projects, and initiating research. Nevertheless, the process has been time-consuming and challenging. This may be due, in part, to the characteristics of multi-institution sector Platforms that entail coordination and complex decision-making and can also create ambiguities in accountability.

In spite of these delays, SHARE is convinced that the decision to embed the national Platforms in these sector structures in Malawi and Tanzania will be critical in achieving long-term success in these countries. This involvement provides SHARE with more opportunities to contribute to national policy making and increases the likelihood that these institutions will expand applied WASH research support in the future. A related lesson is that the cost of setting up this type of embedding is relatively high. Attaining the full value of the investment can only be achieved with long-term collaborations.

11.3.4 Applied research and research into use writing

From the outset, SHARE has sought to blur the line between formal researchers, practitioners and communities – acknowledging that all of these actors have an ability to develop empirical findings, apply them to decisions, and share them with others. Having organisations with these multiple levels of learning within them is one of SHARE's strengths.

One challenge related to this opportunity is that technical and evidence based writing skills can be inconsistent. This situation is likely to arise from a combination of limited formal training in technical writing as well as limited opportunities to apply these skills on a regular basis. For example, the full report on the 'City Wide Sanitation' project documents the challenges of having staff of affiliate organisations write up the situation analyses and reports. This presents a dilemma in that it would often be faster for senior or international staff to do the writing of these documents, however doing so would pass up the opportunity for others to develop these skills.

SHARE has used a number of strategies to address this challenge in a balanced way. This includes WaterAid's development of training on documentation, close mentoring of staff members needing assistance by more experienced researchers, and regular review and editing of documents by core SHARE staff. The key lesson in this area is that concrete steps should be established from the beginning to mentor partners looking to develop these skills. The range of approaches used appears to be successful, but should be established and appropriately resourced from the beginning. A more formal programme of mentored, applied research writing would be extremely helpful to a broad range of partners.

11.3.5 Using data and evidence at multiple levels

As mentioned above, one of SHARE's strengths is having partners with a strong presence in the focus countries and beyond. However, SHARE has been slow to take full advantage of these nationally based partners to translate research into use.

There are several potential explanations for this delay. Firstly, it took time to create the institutional arrangements for the national coordinators in each country. Secondly, SHARE

RIU activities had to be worked into existing work plans, which often resulted in delays. Third, it took time to generate a research and synthesis 'supply' that could be used at the country level. Lastly, although country institutions are often well placed to deliver RIU messages, junior staff would benefit from additional capacity development on technical issues and the interpretation of research findings.

Although these have taken time, it is important to note that SHARE's national partners have made substantial progress over the past year in RIU through direct engagement of municipal authorities, training of district health workers, engaging national policy makers and training NGO staff.

There are several important lessons learnt from this experience. It is clear that national capacity for RIU is essential to avoid a slow trickle down of global evidence to national decision-making. However, there is a need for training in RIU management on WASH issues at this level. There is a growing appreciation of the need for RIU management among other development sector actors (e.g. trainings on RIU management by DRUSSA). Training might include both technical information on the interpretation of evidence, knowledge management and policy and advocacy.

11.3.6 Competitive research calls vs. strategic collaborations

The design of the SHARE research programme was based on several questions, including whether to rely on competitive research calls or the development of strategic collaborative proposals. More than half of the research budget was dedicated to competitive calls through the three rounds of the main research fund and national competitions.

Competitive processes are arguably more reliable in developing high quality research and bringing in new researchers, however, they have limitations: Firstly, they are not always productive in bringing together diverse partners with complementary skills. Such collaborations take time to develop and the competitive process may make it less likely that this will happen. Secondly, competitive processes may not provide sufficient time or support for new or non-traditional researchers to develop quality proposals. Lastly, the strategic value of the research results completely depends on how well the investigator defined the research objective and the relevance of the proposals that are received.

These potential downsides were balanced in several ways, including, defining strategic questions, making strategic relevance an evaluation criterion and having multiple stakeholders involved in the selection process. Targeted investments were also made in predetermined projects such as the three quick-start projects. For example, the 'City Wide Sanitation' project was funded as a single project identified as a priority by two of the SHARE organisations.

In the end the mixed and somewhat ad hoc process yielded a diverse research portfolio including issues that were defined as priorities from the outset and innovative ones that might not have been thought of if relying solely on a more centralised approach.

However, future efforts should consider alternative models to decision-making and selection. One approach would be to explicitly set aside a portion of the research funds for agreed-upon research priorities that could be developed and executed more centrally. This could be carried out by core partner researchers or by proactively engaging outside researchers with known expertise. Secondly, a two-tiered process of concept note submission, followed by

the development of a full proposal with input from SHARE partners, could be used to ensure that the proposal has the optimal rigour and relevance. Finally, competitive calls could set aside specific funds to target the engagement of non-traditional researchers or young investigators to enhance their participation (e.g. students from developing countries).

Annex A - Logframe

The logframe below shows the summary numbers for each indicator. A full list of outputs is provided in Annex D. A more complete discussion of outputs is presented in section 3 and a discussion of outcomes and impacts is presented in section 6.

Indicators	Logframe Milestone for end of 2013		Progress towards the Milestone (Total from Milestone 1- June 2013)	Total since SHARE inception
IMPACT: Accelerated progress towards universal sanitation and hygiene coverage in sub-Saharan Africa and South Asia				
Indicator 1: The annual number of people gaining access to improved sanitation in the four focus countries	(H) 17 million (M) 15.5 million (L) 14.7 million		19.4 million	
Indicator 2: The child (under five) mortality rate in the four focus countries (# deaths/year)	Only at end of 2014		N/A	
OUTCOME: National & global sector partners change the way they plan, implement or monitor in order to increase **i) equitable access,** **ii) sustainability, and** **iii) cost-effectiveness** **of sanitation and hygiene**				
Indicator 1: Evidence of SHARE catalysing change on the four barriers to progress in sanitation & hygiene: a) low priority, b) weak policy and programming, c) inadequate and poorly targeted resourcing, d) Poor monitoring for equity & sustainability. Boundary partners' progress markers met (#%)	(H) 50% (M) 20% (L) 12%		Percentage of boundary partners reaching highest ("love to see") level with at least one progress marker Tanzania: 100% Bangladesh: 75% India: 50% Malawi: 33% Average: 64.5%	
Indicator 2: Concrete examples of change, influenced by SHARE (a) that can directly impact safe sanitation & hygiene for # million people (b) # of such 'success stories'.	a) (H) 5 million (M) 2 million (L) 0.5 million b) (H) 5 (M) 3 (L) 1		a) 9.2 million people b) 6 success stories and 2 emerging success stories	
Indicator 3: Leveraged funds: a) invested by other funders in SHARE's research (£# million)	a) (H) £ 3 million (M) £1 million		a) £4.1 million in research	

b) invested in sanitation & hygiene projects influenced by SHARE (£# million)	(L) £0.5 million b) (H) £10 million (M) £5 million (L) £1 million		b) £79 million in WASH investment	
OUTPUT 1 **National & global sector-relevant knowledge synthesised and disseminated, to help to** **a) characterise problems;** **b) identify solutions; and** **c) demonstrate benefits**				
Indicator 1:# of manuals, handbooks & other major resource materials created or rendered accessible	(H) 6 (M) 3 (L) 1		Total published manuals, reports, discussion papers and handbooks: 23 Total Media Outputs: 9	Published report manuals since SHARE inception 39 25 Media outputs
Indicator 2: Development and use of national RIU strategies	Strategies being implemented in # of focus countries by end 2013 (H) 4, (M) 3, (L) 2		4	
Indicator 3:# of knowledge sharing events including seminars, technical meetings and conferences organised or supported by SHARE	Total (cumulative) (H) 20 (M) 15 (L) 10		Total knowledge sharing events: 18	27
Indicator 4: % female participants at those events	(H) 40% (M) 30%, (L) 25%		Percentage of female participants:49%	
Indicator 5: # of requests for advice from SHARE generating response.	(H)10, (M)7, (L)5		Total requests of advice since June 2012: 10	17
OUTPUT 2 : New knowledge generated by relevant and rigorous sanitation research which a) characterises problems; b) identifies solutions; and c) demonstrates benefits				
Indicator 1: Publications in peer-reviewed journals arising from SHARE research	(H) 10, (M) 5, (L) 3		Total publications since June 2012: 16 % of Female authors: 32% (n=29) % of authors from developing countries: 25% (n=23)	24
Indicator 2: Citations by other authors of those publications	(H) 1 (L) 0		Average citations perpaper:0	

Indicator 3: No. Of programmes embodying research findings established and documented for replication and/or study visits	(H) 2 under way (M) 1, (L) 0		Number of programmes embodying SHARE research findings: 3	5
Indicator 4: Successful completion of SPLASH component funded via SHARE	(H) 5 project reports submitted (M) 3, (L)1		SPLASH submitted 3 reports since June 2012	
OUTPUT 3: Key sector actors engaged around evidence for change				
Indicator 1: # of consultations initiated by SHARE on the basis of outcome mapping	(H) 4 consultations (M) 2, (L) 1		Number of consultations initiated since June 2012: 6	12
Indicator 2: # of country platforms established and active	Country plan of action agreed: (H) 4; (M) 2; (L) 1		Total country plan of action: 4	
Indicator 3: # of hits/downloads on SHARE website	downloads per month (H) 10 (M) 5 (L) 1		Average Monthly Web visits (June 2012-May 2013): 1047 March 2013 (highest monthly visit: 2157) Total newsletter subscriptions as of May 2013: 364 Number of new subscriptions since June (2012): 99	Total average per month web visits 2011-2012: 605
Indicator 4: # of external requests for SHARE technical support to implement implications of SHARE research	By end 2014 (H) 4, (M) 2, (L)1		Total for 2012-2013: 6	21
Indicator 5: # of cases of non-SHARE agencies participating in SHARE research	(H)5, (M) 2, (L) 1		Total non-SHARE Agencies involved since June 2012: 33	45
Indicator 6: Skills and competencies of # key individuals responsible for planning, managing, implementing and monitoring WASH programmes – especially women – developed and upgraded.	(H)20 (M)12 (L) 6		Total individuals trained: 144 (women 52)	190 (69 women)
OUTPUT 4: Capacity strengthened to conduct relevant collaborative research and apply the results				
Indicator 1: %of proposals ready for consideration on first submission	(H) 60% (M) 45%, (L) 30%		Total percentage of proposals with no/minor revisions after	

			acceptance for funding: 56%	
Indicator 2: # of PhD students trained	(H) 5, (M) 3, (L)1		Total PhD students: 6 Total Msc Students: 8	6
Indicator 3: # of exchange visits organised	(H) 4, (M) 2, (L)1		Total number of exchange visits since June 2012: 4	10
Indicator 4: # of training courses organised (on research methods, management, etc.) annually	(H) 4, (M) 2, (L)1		Total training courses organised since June 2012: 7	11
OUTPUT 5: Effective management of the consortium, including M & E of impact and value for money				
Indicator 1: Monitoring; % of indicators assessed and reported annually	(H)80% (M)50%, (L)30%		100% of indicators monitored since June 2012.	
Indicator 2: Value for money; wasteful expenditure on: - ineffective hygiene promotion, - unused latrines, and - superfluous evaluations avoided by following SHARE advice or implementing SHARE findings (£)	saved p.a. (H) £1 million (M) £ 500,000 (L) £ 200,000		£4.6 million	
Indicator 3: Monitoring country research groups (platforms) and evaluation of activities a) # local research management groups set up b) £value of research proposals submitted for funding and approved c) % research projects completed on time	a) (H) 4 (M) 2, (L) 1 b) (H) £500k, (M) £250k (L) £125k c) (H) 100% (M) 75% (L) 50%		a) Research management groups have been set up: 4 b) Total value of research proposal submitted and approved in the CPs: £1,213, 432.71 India: Total value: £ 438,719 (£200,000 leveraged by WSSCC). Malawi: £175,719.71 Bangladesh: £ 375,000 (£125,000 leveraged by WaterAid) Tanzania: £223,994 c) 85% on time	

Annex B – Financial Documents

OPEN PROJECTS

The following tables show all those SHARE projects that are considered open from a financial and management point of view. They reflect work that has been completed but not yet invoiced for whatever reason such as long term pieces like the City Wide Sanitation project and the PhDs, as well as projects that may have stalled. The status of each project is recorded together with the budgets and used within the finance office for progress chasing and forecasting.

The current tables are shown as at the 12th June 2013 and timelines are based on the current contracts and does not take into account those for which documentation is pending. Projects are grouped according to the means by which they were generated, for instance each of the three research calls is shown in a separate table.

Each table shows the total budget amount allocated to that group and percentages relate to that figure. The pie charts show the value of all projects or parts of projects that have not been invoiced. These show the amount of SHARE's financial exposure through that group.

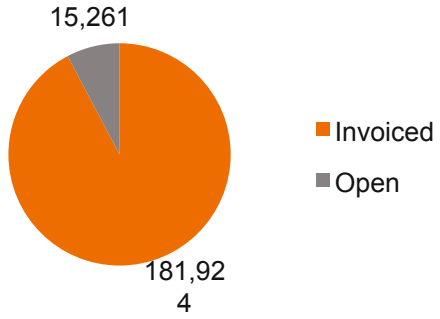
A1, A2... describes the current reasons why the projects are open.
B1, B2... explains what measures were taken to respond to any problems or issues and how processes have been adapted.
C1, C2... scheduled closure.
D1, D2... financial risk is quantified by colour-codingand value of risk as a percentage of the activity group's total budget
.

Low		Medium		High	

OPEN PROJECTS - CALL A

Three projects - CM04, CM05, CM06

A = STATUS
B = ADAPTATION
C = WORK PLAN
D = FINANCIAL RISK

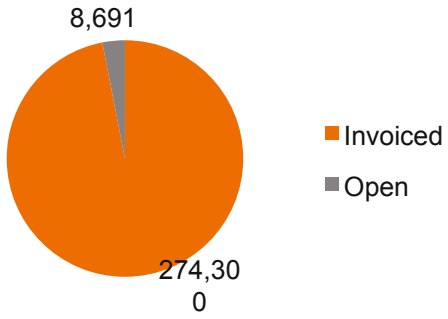


Total Call A Budget £197,185

A1	Contract/timing delays and protracted negotiations		
B1	Following assessment of project value, compromise agreement reached on contract terms. One set of contract documents adapted. One set of documents allowed to time out, no replacements sought.		
C1	Projects to be completed by 30 Sep 2013. Invoices to be submitted by 31 Dec 2013.		
D1	Value of open projects or part projects	8% of Call A Budget	£15,261

OPEN PROJECTS - CALL B

One project ready to complete – MR17



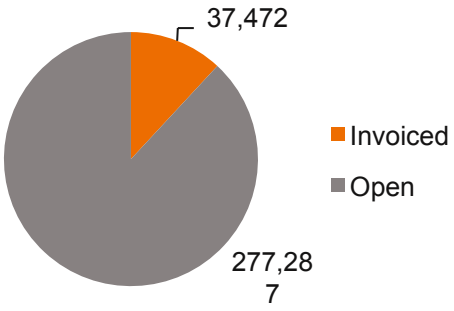
A = STATUS
B = ADAPTATION
C = WORK PLAN
D = FINANCIAL RISK

Total Call B Budget £282,991

A2	Work completed, final output and invoice to be submitted		
B2	Timeframe adapted to assist completion.		
C2	Final outputs scheduled for completion 2013		
D2	Value of open projects or part projects	2% of Call B Budget	£4,613
	Amount payable on receipt of final output	1% of Call B Budget	£4,078

OPEN PROJECTS - CALL C

Six projects on-going
Completion due December 2014

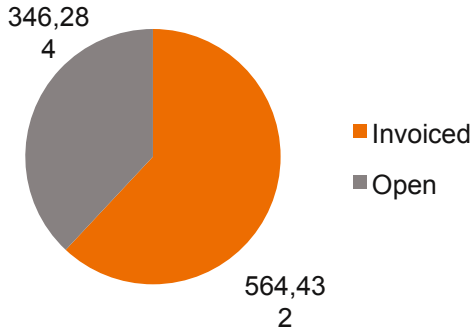


A = STATUS
B = ADAPTATION
C = WORK PLAN
D = FINANCIAL RISK

Total Budget £282,991

A3	Discussions on quality issues & protocols have slowed the start. Majority of projects progressing smoothly.		
B3	Cost of review time and delays assessed. Compromise reached to speed up completion. Minuted review meetings used to capture changes and accelerate response time. Capacity development opportunity taken with PIs for proposal preparation and progress.		
C3	Outputs scheduled for completion by last quarter of 2014.		
D3	Value of open projects or part projects	94% of Call C Budget	£295,603

OTHER OPEN PROJECTS – NO CALL



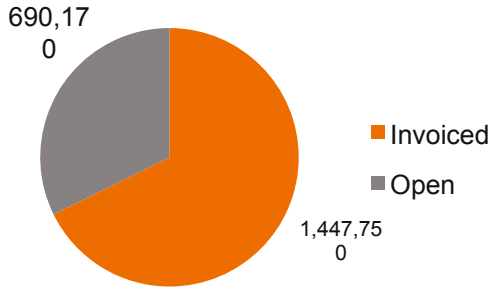
Twenty projects – CB22, CB24, CB25, CB26, CB27,
CM01, CM07A, CM08, CM09, CM19, CM30, CM31, CM32, CM33, CM34, CM36, CM37, CM38, CM39, CM41

A = STATUS
B = ADAPTATION
C = WORK PLAN
D = FINANCIAL RISK

Total Budget £910,716

A4	CB22 £16,523 delayed due to visa issues in Bangladesh. Six month extension requested CB24 – CB27 £6,000 summer projects for completion Sep 2013 CM36, CM38, CM41 due Dec 2013 CM33 due Mar2014 CM19, CM30-32, CM34, CM37, CM39 due for completion end 2014 CM01, CM07A, CM08, CM09 on-going to Jan 2015		
B4	With the exception of CB22 all projects are currently progressing well		
C4	See A4 for completion dates		
D4	Value of outstanding work– CB22	2% of Other Projects	£16,523
	Value of outstanding work– 19 projects	36% of Other Projects	£329,761

HIGH VALUE OPEN PROJECTS



Seven open high value projects.
6 PhDs - CB05, CB06, CB07, CB08, CB09, CB10
City-wide Sanitation Project MR23

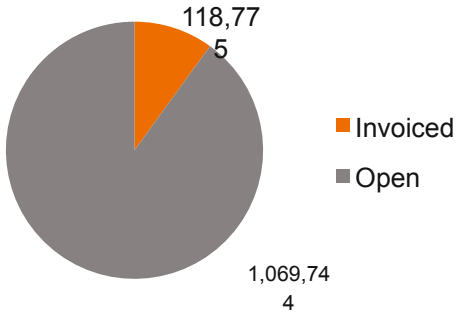
A = STATUS
B = ADAPTATION
C = WORK PLAN
D = FINANCIAL RISK

Total Budget £2,137,920

A5	5 PhD students successfully upgraded and due to complete January 2015. Delays anticipated for completion. CB06 - 1 PhD student failed upgrading. Completion date to be discussed, late completion inevitable. MR23 invoicing on schedule. A number of outputs owed. Potential for time delays in Zimbabwe due to elections in 2014. Delays possible Malawi.
B5	PhD situation monitored by capacity building manager, reviewed by management group.

	Contingency put in place for final write up of all five theses. This will increase the budget by approximately £39,000. CB06 now registered at the University of Stellenbosch, South Africa supported by LSHTM and University of Florida. Funding increased by £7,800 and will be reviewed when date is known for completion of PhD. MR23 more consortium personnel now participating, increasing the value being added to the project. Outputs to be reviewed and rescheduled as appropriate. M&E being further developed. The situations in Zimbabwe and Malawi will be monitored and contingencies set in place if appropriate.		
C5	Workplan extended by si months for all PhDs. Further extension to be discussed for CB06 and DFID when dates are known. MR23 discussions currently on-going regarding deliverables. Predicted end date unchanged.		
D5	Value of outstanding work– 5 PhDs	8% of High Value Projects	£177,407
	Value of outstanding work– 1 PhD	1% of High Value Projects	£29,986
	Value of outstanding work - MR23	23% of High Value Projects	£482,777

COUNTRY PLATFORMS & OPEN PROJECTS – CP CALLS



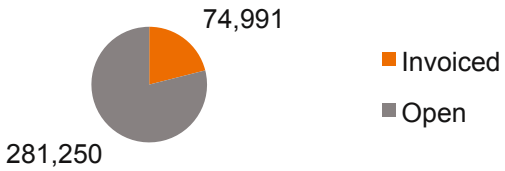
Total Budget £1,099,744

Bangladesh: CM25, MR20
India: CM21A, CM21B, MR19A, MR19B, MR19C, MR19D, MR19E

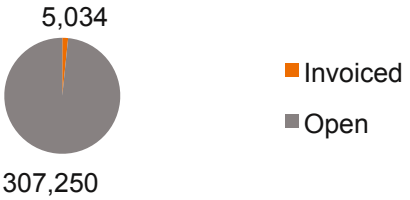
Malawi: CM24, MR22
Tanzania: CM23, MR21A, MR21B, MR21C, MR21D

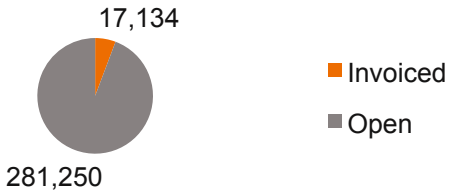
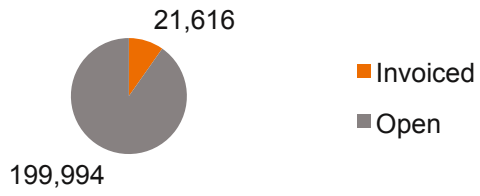
A = STATUS
B = ADAPTATION
C = WORK PLAN
D = FINANCIAL RISK

Bangladesh Platform & Projects GBP

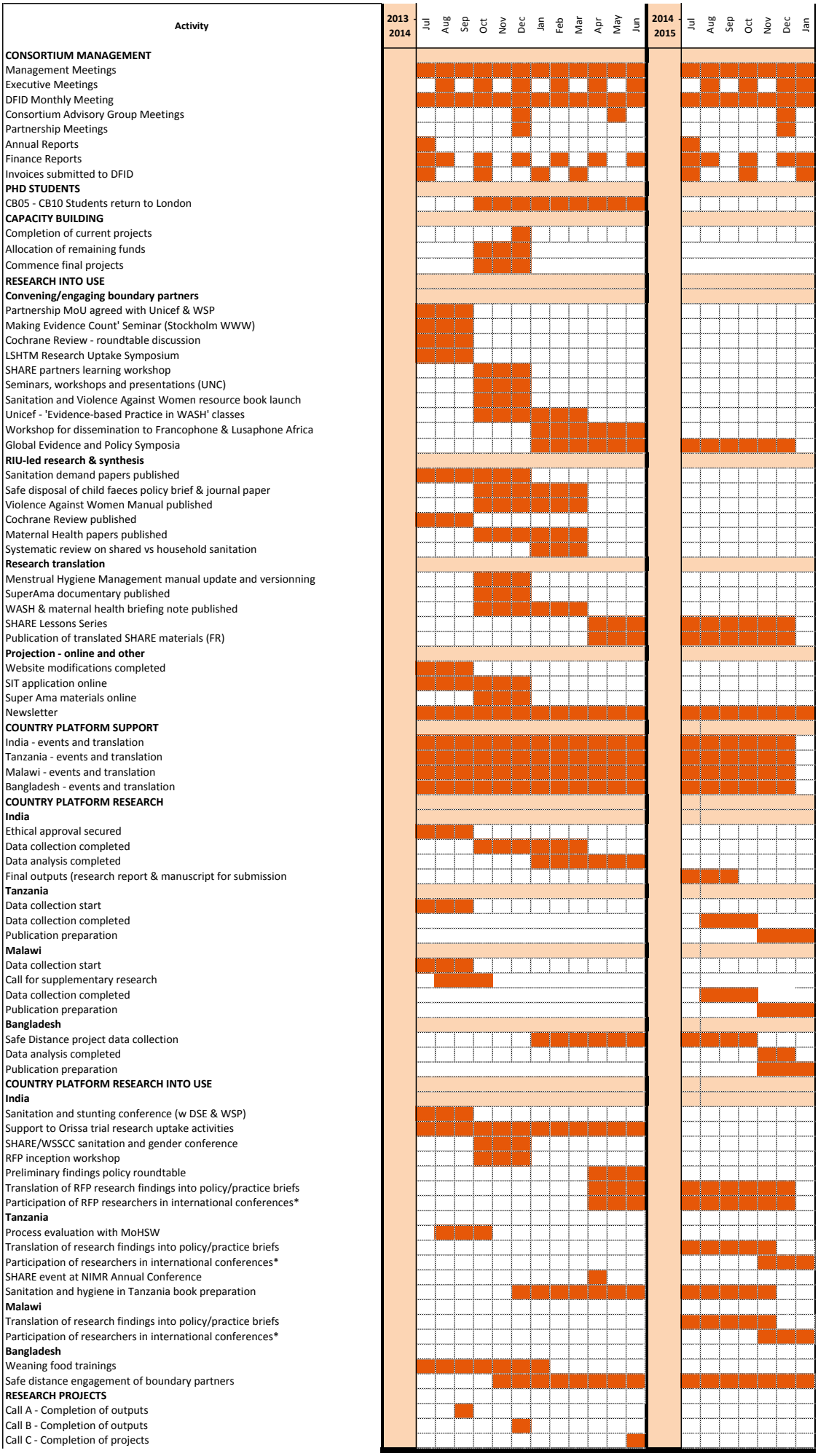


India Platform & Projects in GBP



<table>
<tr>
<td>Malawi Platform & Projects in GBP
 
</td>
<td>Tanzania Platform & Projects in GBP
 
</td>
</tr>
<tr><td>A6</td><td colspan="3">Bangladesh – Projects on-going; internal and national issues may cause concern.
India – Projects on-going.
Malawi – Challenges with contract negotiations and liaison officer’s ill health.
Tanzania – Contract negotiations have proved time consuming.</td></tr>
<tr><td>B6</td><td colspan="3">Bangladesh – Senior member of LSHTM staff to visit ICDDR,B & DFID offices report back.
Malawi –The liaison officer for Tanzania took on extra duties to support the Malawi country platform thereby maintaining momentum.
Tanzania – LSHTM to sub-contract project PI institutions directly.</td></tr>
<tr><td>C6</td><td colspan="3">Projects to run no later than the end of November 2014. Current predictions on schedule with the exception of Bangladesh which remains uncertain pending information.</td></tr>
<tr><td rowspan="4">D6</td><td>Value of open projects - Bangladesh</td><td>24% of Country Platforms</td><td>£281,250</td></tr>
<tr><td>Value of open projects - India</td><td>26% of Country Platforms</td><td>£307,250</td></tr>
<tr><td>Value of open projects - Malawi</td><td>24% of Country Platforms</td><td>£281,250</td></tr>
<tr><td>Value of open projects - Tanzania</td><td>17% of Country Platforms</td><td>£199,994</td></tr>
</table>

Annex C – Forward Work Plan

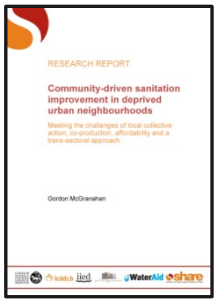
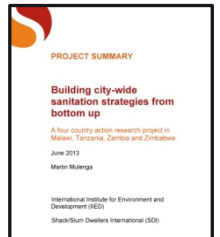


*This is dependent on acceptance of abstracts and is provisionally planned for the Stockholm Water Week, UNC Water & Health conferences

Annex D – List of Outputs

OUTPUT 1: National & global sector-relevant knowledge synthesised and disseminated, to help to a) characterise problems; b) identify solutions; and c) demonstrate benefits

Indicator 1:
# of manuals, handbooks & other major resource materials created or rendered accessible

PUBLISH DATE	RESOURCE DETAILS	IMAGE
2013 – Jun	**REPORT: Community-driven sanitation improvement in deprived urban neighbourhoods** There is an international consensus that urban sanitary conditions are in great need of improvement, but sharp disagreement over how this improvement should be pursued. Both market-driven and state-led efforts to improve sanitation in deprived communities tend to be severely compromised, as there is a lack of effective market demand (due to collective action problems) and severe barriers to the centralized provision of low-cost sanitation facilities. In principle, community-driven initiatives have a number of advantages. This report investigates these challenges and opportunities. **http://www.shareresearch.org/Resource/Details/report_city_wide_challenges**	
2013 – Jun	**PROJECT SUMMARY: Building city wide sanitation strategies from the bottom up** This project summary provides an overview of the City-Wide Sanitation Project which is currently underway in four southern African countries as a response to the failures of conventional approaches to urban sanitation. The purpose of this research project is to develop a model for the development and realisation of pro-poor citywide sanitation through four scalable examples in cities of Blantyre (Malawi), Dar es Salaam (Tanzania), Kitwe (Zambia), and Chinhoyi (Zimbabwe). This action research provides the potential for scalability, adaptation and replication across the Global South.	

2013 - Jun **SUMMARY: Evaluation of the Mtumba participatory approach to sanitation and hygiene**

Hamisi Malebo (NIMR), Robert Njee (MoHSW), Isabelle Pugh and Sue Cavill (SHARE), Norbert Mawanda

The Mtumba sanitation promotion approach was developed in Tanzania which focuses on improving the standard of latrines and empowering the community to ensure sustainability of the approach outcomes once the implementation project is complete. This document summarises the findings from an evaluation of the health and behaviour change outcomes, costs and impact of the Mtumba approach in three regions of Tanzania, to determine whether the approach could be scaled up to other regions.

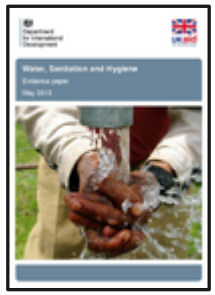
www.shareresearch.org/LocalResources/SUMMARY__Mtumba_approach_evaluation_050613.pdf

2013 - May **DFID Evidence Paper: Water, sanitation and hygiene**

Oliver Cumming, Aurelie Jeandron, Rick Rheingans, Jeroen Ensink, Joe Brown, Sue Cavill, Sally Baker and Wolf-Peter Schmidt(SHARE)

This WASH evidence paper aims to provide an accessible guide to existing evidence including a conceptual framework for understanding how WASH impacts on health and well-being and a description of methods used for ascertaining the health, economic and social impacts of WASH.

https://www.gov.uk/government/publications/water-sanitation-and-hygiene-evidence-paper

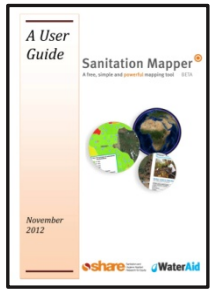


2013 - May **RESOURCE: Sanitation Mapper User Guide**

Joseph Pearce (WaterAid)

The Sanitation Mapper is a low cost and participatory sanitation monitoring tool funded by SHARE which can provide information that will inform practitioner and policy decision-making and planning at district and sub-district level. It has been designed to provide both area-based mapping (e.g. village level coverage) and point-based mapping (e.g. shared latrines in slums). This User Guide is designed to accompany the Sanitation Mapper resource.

www.shareresearch.org/LocalResources/Sanitation_Mapper_User_Guide.pdf



2013 - May **REPORT: City-Wide Sanitation Project Situation Analyses**

Elisa Roma (SHARE)

This report provides a summary of the situational analyses that have taken place in Chinhoyi (Zimbabwe), Kitwe (Zambia), Blantyre (Malawi) and Dar Es Salaam (Tanzania) as part of the City-Wide Sanitation Project, following a project meeting which took place in Dar Es Salaam from 10th to 12th of February 2013.

www.shareresearch.org/LocalResources/CityWide_Sanitation_Project__Summary_of_Situational_Analyses_Feb_2013.pdf

2013 - May **REPORT: Evaluating the potential of microfinance for sanitation in Tanzania**

Sophie Trémolet and George Muruka

This report is a case study investigating microfinance in Tanzania. The research investigates how household financing for sanitation can be mobilised via microfinance institutions and commercial banks in order to accelerate sustainable access to sanitation facilities and/or services.

www.shareresearch.org/LocalResources/REPORT__Evaluating_the_potential_of_microfinance_for_sanitation_in_Tanzania_May_2013.pdf

2013 - May **REPORT: Evaluating the potential of microfinance for sanitation in India**

Sophie Trémolet and TVS Ravi Kumar

This report is a case study investigating microfinance in India. The research investigates how household financing for sanitation can be mobilised via microfinance institutions and commercial banks in order to accelerate sustainable access to sanitation facilities and/or services.

www.shareresearch.org/LocalResources/REPORT__Evaluating_the_potential_of_microfinance_for_sanitation_in_India_May_2013.pdf

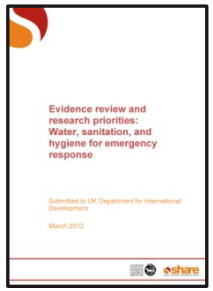
2013 - May

PAPER: Evidence review - WASH for Emergency Response

Joe Brown, Aurelie Jeandron, Sue Cavill, Oliver Cumming (SHARE)

In this review summary, the authors present an overview of current knowledge about what works to prevent disease in emergency WASH response, identify knowledge gaps and make recommendations for future research priorities.

www.shareresearch.org/LocalResources/Evidence_review__WASH_for_emergency_response_March_2012.pdf



2013 - May

REPORT: Sanitation Symposium at 27th Tanzania Annual Joint Scientific Conference

Isabelle Pugh (SHARE)

The Annual Joint Scientific Conference (AJSC) is organised by NIMR the Southern African Centre for Infectious Disease Surveillance. The 2013 Conference aimed to promote health research for sustainable socio-economic development in Africa, share research findings with the key stakeholders and the general public and discuss and explore new health service and research priority areas. SHARE convened a symposium on sanitation and hygiene interventions in East Africa.

www.shareresearch.org/LocalResources/REPORT__AJSC_SHARE_Sanitation_Symposium_Tanzania_April_2013.pdf

2013 - May

EVENT REPORT: Making Connections - Women Sanitation and Health event 29 April 2013

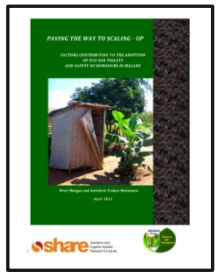
Isabelle Pugh (SHARE)

On 29th April, SHARE hosted the event 'Making connections: Women, sanitation and health'. It brought together a diverse mix of speakers from the WASH, gender and health sectors to debate issues such as violence against women, menstrual hygiene management and maternal health.

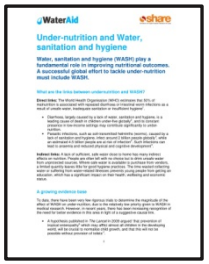
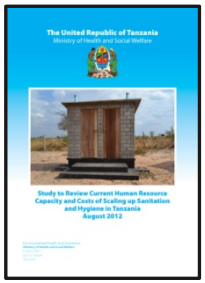
www.shareresearch.org/LocalResources/REPORT_Making_Connections__Women_Sanitation_and_Health_290413.pdf

2013 - Apr **POLICY BRIEF: Sanitation for the improved health and wellbeing of Tanzanians: What will it take?**
Ferdinandes Axweso (WaterAid Tanzania)
This brief gives an analysis of the challenges and opportunities for improving sanitation in Tanzania and concludes with recommendations for the Government of Tanzania.

2013 - Apr **REPORT: Paving the Way to Scaling Up Ecosan**
Peter Morgan and Aselefech Tesfaye Mekonnen
This report draws on research to learn lessons from households' experiences of eco-san toilets promotion so as to understand what factors were appealing or deterred them from adopting the technologies. The report gives recommendations for future standards and guideline developments for the safe management of ecological sanitation and human compost in Malawi.
www.shareresearch.org/LocalResources/Morgan_and_Mekonnen_2013_Paving_the_Way_to_Scaling_Up_Ecosan.pdf



2013 - Mar **REPORT: WASH and Media Partnership Workshop in Odisha, India**
WaterAid Bhubaneswar
Media is an essential tool for generating public discourse, building public interest and pressuring for action on an issue. SHARE researchers recently participated in a Media Partnership Workshop organised by WaterAid in Bhubaneswar, Odisha in February 2013
www.shareresearch.org/LocalResources/WASH_and_Media_Partnership_Workshop_Odisha_India_Feb_2013.pdf

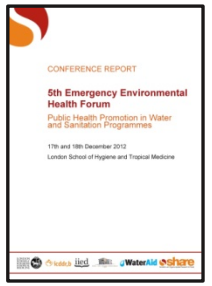
2013 - Feb	**BRIEFING NOTE: Under-nutrition and WASH** *Isabelle Pugh (SHARE) and Yael Velleman (WaterAid)* This briefing note from WaterAid and SHARE outlines how water, sanitation and hygiene (WASH) play a fundamental role in improving nutritional outcomes and gives recommendations of how a successful global effort to tackle under-nutrition should include WASH. www.shareresearch.org/LocalResources/WaterAid_SHARE_Undernutrition_and_WASH_briefing_note_Feb_2013.pdf	
2013 - Jan	**REPORT: HR Capacity and Costs of Scaling up Sanitation and Hygiene in Tanzania** *Grontmij A/S of Denmark and Ardhi University of Tanzania* Based on a literature review and findings from surveys and interviews with a range of actors, the study provides assessments regarding human resource capacity, and financing in terms of scaling up sanitation promotion in Tanzania. www.shareresearch.org/LocalResources/TZ_HR_Capacity_Report_2012.pdf	
2013 - Jan	**CONFERENCE REPORT: Focus on Handwashing Event** *Isabelle Pugh (SHARE) and Michelle Farrington (RedR)* This report summarises the proceedings on the 'Focus on Handwashing in Emergency Settings' Event on 19th December 2012. www.shareresearch.org/LocalResources/Focus_on_Handwashing_19th_Dec_2012_Conference_Report_300113.pdf	

2013 - Jan **CONFERENCE REPORT: 5th Emergency Environmental Health Forum**

Isabelle Pugh (SHARE) and Michelle Farrington (RedR)

This report summarises the proceedings on the 5th Emergency Environmental Health Forum which took place on 17th and 18th December 2012. The Forum focus on public health promotion in water and sanitation programmes in emergency settings with sessions focussed on handwashing, women, CLTS, cholera, technology and nutrition.

www.shareresearch.org/LocalResources/EEHF_17th_and_18th_Meeting_Report_150113.pdf



2013 - Jan **REPORT: Sanitation Markets Pathfinder Paper**

Sophie Trémolet

This paper identifies how market failures affect the ability to extend appropriate and sustainable sanitation services alongside the entire sanitation value chain. The paper examines in turn three main market segments alongside the sanitation value chain, starting with markets for providing 'access' to sanitation (collection services), markets for transport and treatment activities and finally, markets for reuse services.

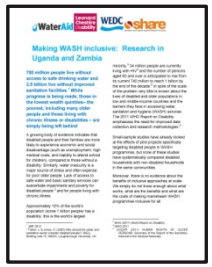
www.shareresearch.org/LocalResources/SHARE_sanitation_markets_pathfinder_Dec_2012.pdf

2012 - Nov **RESEARCH SUMMARY: Making WASH inclusive in Uganda and Zambia**

Spera Atuhairwe and Louisa Gosling (WaterAid)

This Research Summary provides an overview of the baseline findings from the SHARE "Undoing inequity: Inclusive sanitation and hygiene programmes that deliver for all" research project, conducted by WaterAid.

www.shareresearch.org/LocalResources/Making_WASH_inclusive__Summary_of_research_in_Uganda_and_Zambia.pdf



2012 - Oct **RESOURCE: Menstrual Hygiene Matters: Free and comprehensive menstrual hygiene resource**

Sue Cavill (SHARE), Thérèse Mahon (WaterAid), Sarah House

This resource brings together examples of good menstrual hygiene practice from around the world, while providing guidance on building competence and confidence to break the silence surrounding the issue. It also encourages increased engagement in advocacy on menstrual hygiene. The resource is comprised of nine modules and toolkits covering key aspects of menstrual hygiene in different settings, including communities, schools and emergencies.

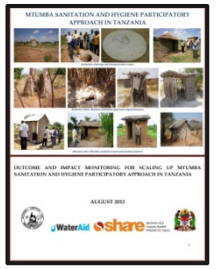
www.wateraid.org/mhm

2012 - Aug **REPORT: Outcome and impact monitoring for scaling up Mtumba sanitation and hygiene participatory approach in Tanzania**

Hamisi Malebo (NIMR)

This study investigates a range of themes including: awareness of the approach in study sites, existing sanitation facilities and open defecation practices, comparisons in latrines before and after the approach was introduced, hygiene and sanitation behaviour change, preferences regarding sanitation technologies, trends in hygiene and sanitation tracer diseases, implementing costs, and challenges encountered in implementing the approach.

www.shareresearch.org/LocalResources/Scaling_up_MTUMBA_report_August_2012.pdf

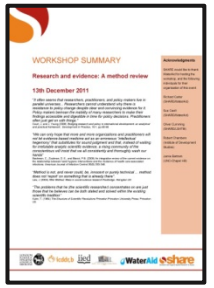


2012 - Aug **WORKSHOP SUMMARY: Research and evidence, a method review**

SHARE

On 13th December 2011, SHARE funded WaterAid to host at its offices a joint meeting with Institute of Development Studies (IDS), University of North Carolina (UNC) and the London School of Hygiene and Tropical Medicine (LSHTM). This workshop summary provides an overview of the meeting and key points arising from the discussions.

www.shareresearch.org/LocalResources/Research_and_evidence_Workshop_Summary_131211.pdf



2012 - Jun **REPORT: Small-scale finance for water and sanitation**

Sophie Trémolet

This report identifies ways in which governments and External Support Agencies can increase access to finance for small-scale WASH providers, by channelling public funding to support the market and leverage private sector financing. The ultimate objective in doing so is to increase access to services for poor households, who either invest in the services themselves or rely on small-scale providers.

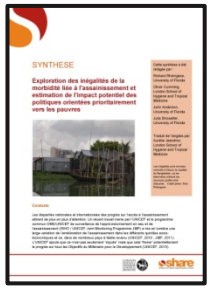
www.shareresearch.org/LocalResources/EUWI_and_SHARE_report_on_small_scale_finance_in_WATSAN_April_2012.pdf

2012 - Apr **POLICY BRIEFING (French): Exploring inequities in sanitation-related disease burden and estimating the potential impacts of pro-poor targeting**

Richard Rheingans (U of Florida), Oliver Cumming, John Anderson and Julia Showalter (LSHTM)

New research shows the poorest are suffering the most from inadequate sanitation as they are more exposed to human waste and are more susceptible to disease. The findings from the study have far-reaching implications for the better targeting of future sanitation investments, and are summarised in this four-page Policy Briefing in French.

www.shareresearch.org/LocalResources/PolicyBriefing_Equity_FrenchTranslation.pdf

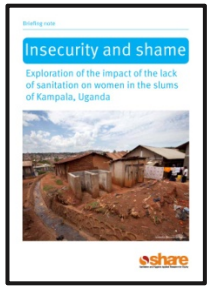


2012 - Mar **BRIEFING NOTE: Violence against women, Uganda**

Keren Massey

This qualitative study, conducted in Uganda's capital Kampala, explores whether women are exposed to humiliation, violence and rape as a result of inadequate toilet facilities. The document by Keren Massey examines the scope and impact of this association in order to inform future policy and programming.

www.shareresearch.org/LocalResources/VAW_Uganda.pdf

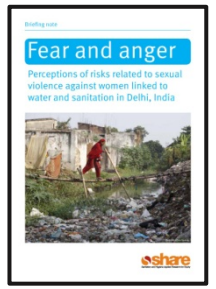


2012 - Mar **BRIEFING NOTE: Violence against women, India**

Shirley Lennon

The link between a lack of access to water and sanitation facilities and sexual violence against women has received insufficient attention. This document by Shirley Lennon highlights this challenge within the context of urban slums in Delhi, and suggests how this problem can be addressed.

www.shareresearch.org/LocalResources/VAW_India.pdf

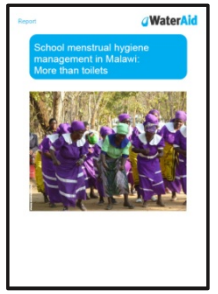


2012 - Mar **REPORT: School menstrual hygiene management in Malawi - more than toilets**

Sally Piper Pillitteri

This study identifies the needs and experiences of girls regarding menstruation. It draws upon participatory group workshops, a questionnaire and semi-structured interviews with school-age girls in Malawi to make various recommendations, including lessons about menstrual hygiene management (MHM), girl-friendly toilet designs, and the provision of suitable and cheap sanitary protection.

www.shareresearch.org/LocalResources/MenstrualHygieneManagement_Malawi.pdf



2012 - Mar **POLICY BRIEFING: Exploring inequities in sanitation-related disease burden and estimating the potential impacts of pro-poor targeting**

Richard Rheingans (U of Florida), Oliver Cumming, John Anderson and Julia Showalter (LSHTM)

This policy briefing makes recommendations based on new research which shows the poorest are suffering the most from inadequate sanitation as they are more exposed to human waste and are more susceptible to disease.

www.shareresearch.org/LocalResources/ExploringInequities_PolicyBriefingFINAL.pdf

2012 - Mar	**RESEARCH REPORT: Exploring inequities in sanitation-related disease burden and estimating the potential impacts of pro-poor targeting** *Richard Rheingans (U of Florida), Oliver Cumming, John Anderson and Julia Showalter (LSHTM)* This report sets out the findings from the study of 10 low-income countries in sub-Saharan Africa and South Asia have far-reaching implications for the better targeting of future sanitation investments. www.shareresearch.org/LocalResources/EquityResearchReport.pdf	
2011 - Nov	**DISCUSSION PAPER: Evaluating the health impact of urban WASH programmes** *Wolf-Peter Schmidt (LSHTM) and Guy Norman (WSUP)* This paper argues for more widespread evaluation of the health impacts of WASH interventions, and suggests more frequent evaluation could contribute to improved effectiveness. http://www.wsup.com/sharing/documents/DP001HealthImpactEvaluation.pdf	
2011 - Nov	**PATHFINDER PAPER: Equity and gender** *Diana Mitlin (IIED)* This paper examines approaches focusing on particular groups and under-served areas, and analyses the potential for alternative political outcomes. www.shareresearch.org/LocalResources/SHAREPathfinderEquityandGender_FINAL_AUGUST2011.pdf	

2011 - Nov **PATHFINDER PAPER: Urban sanitation**

Martin Mulenga (IIED)

This paper discusses the challenges of urban sanitation in developing countries and suggests actions to improve policy and practice.

www.shareresearch.org/LocalResources/Urban_Sanitation_Pathfinder_FINAL_AUGUST2011.pdf

2011 - Nov **RESOURCE: Handwashing with soap guidelines - Why it works and how to do it**

Katie Greenland (LSHTM) and Guy Collender (SHARE)

This explains the benefits of handwashing with soap, highlights when it has the most significant public health impact, and provides tips on how to encourage the practice.

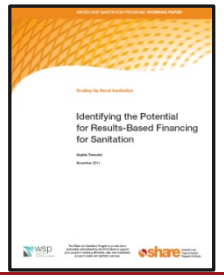
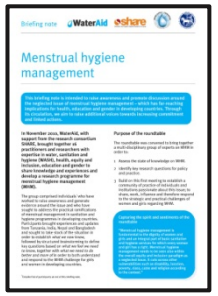
www.shareresearch.org/LocalResources/SHAREHandwashingGuidelines.pdf

2011 - Nov **BRIEFING NOTE: Monitoring urban sanitation**

Guy Collender (SHARE)

This Briefing Note summarises the discussions at a recent SHARE, LSHTM, WaterAid and IIED workshop on improving the monitoring of sanitation in urban areas.

http://www.shareresearch.org/LocalResources/MonitoringUrbanSanitation.pdf

2011 - Oct	**WORKING PAPER: Identifying the potential for results-based financing for sanitation** *Sophie Trémolet* This Working Paper identifies practical ideas for advancing the use of innovative financing mechanisms focused on results and performance, with a view to supporting the delivery of sustainable sanitation services. http://www.wsp.org/sites/wsp.org/files/publications/WSP-Tremolet-Results-Based-Financing.pdf	
2011 - Mar	**BRIEFING NOTE: Disability workshop** *Guy Collender (SHARE), Louisa Gosling and Jane Wilbur (WaterAid)* This briefing note explores the sanitation and hygiene needs of disabled people in developing countries. Based on a two-day workshop held in March 2011, it also suggests how better research could influence policy. www.shareresearch.org/LocalResources/DisabilityWorkshopBriefingNote.pdf	
2011 - Feb	**BRIEFING NOTE: Menstrual Hygiene Management** *SHARE and WaterAid* Summary of discussions from a workshop organised by SHARE and WaterAid to explore this subject, discuss ways of collaborating, and design a new research programme. www.shareresearch.org/LocalResources/Menstrual_hygiene_management__Briefing_note.pdf	

MEDIA

Videos and Webinars

4. What Drives Handwashing Behaviour? By Val Curtis (October 2012) http://www.shareresearch.org/resource/Details/b98f6fac-0202-

435e-9072-a0f300c0938f

5. Is Diarrhoea Mainly Water Borne or Water Washed? By Prof Sandy Cairncross (October 2012) http://www.shareresearch.org/resource/Details/1d720e19-bcf0-43e7-bbea-a0f300c15036
6. Food Hygiene: Why This Matters. By Om Prasad Gautam (October 2012) http://www.shareresearch.org/resource/Details/4c9689a6-0eb3-4c3b-b49e-a0f300c329f6
7. WASH and Undernutrition. Presentation By Oliver Cumming at World Water Week 2012 (Stockholm). Available from: http://www.youtube.com/watch?v=ARwmIXbJdwg
8. February 2013:Sophie Tremolet on Sanitation Marketing and Economics. SHARE Podcast Series. Available from http://www.shareresearch.org/resource/Details/aa726666-bf60-4afa-84c2-a16300ef8121
9. February 2013: Rheingans, R. & Cumming Unicef Webinar on Sanitation Disparities.
10. February 2013: Cumming, Campbell, O., Benova, L. – Webinar for World Vision country offices on WASH and maternal health.
11. February 2013: Integrating WASH on health facilities: Cleanliness at birth place and maternal mortality. Webinar for UNICEF provided by Oliver Cumming.
12. May 13- Integrating WASH at health facilities-cleanliness at birthplace and maternal mortality. Webinar provided by Oliver Cumming for AUSAID, USAID, Plan USA, UNICEF South Asia Region.

Indicator 2: Development and use of national RIU strategies

Indicator 3: # no of knowledge sharing events including seminars, technical meetings and conferences organised or supported by SHARE

Date	EVENT (LOCATION)	SHARE CONTRIBUTION
Aug 2012	World Water Week Stockholm Conference	SHARE convened two side events: • The WASH – Nutrition Link: The potential of a professional Blind Spot. By Oliver Cumming and Robert Chambers. • *WASH and under nutrition*. By O. Cumming. http://www.worldwaterweek.org/documents/WWW_PDF/2012/Thur/No-Food-and-Nutrition/Oliver-Cumming.pdf
Aug 2012	Country Platform research Meeting (Malawi)	
Sep 2012	Seminar on Menstrual Hygiene Management (Malawi)	Convened by WaterAid Malawi, with co-funding from SHARE
Oct 2012	Sanitation and Hygiene Exhibition (London)	SHARE convened the Exhibition at LSHTM. http://www.shareresearch.org/NewsAndEvents/Detail/sanitation_and_hygiene_exhibition_launch_Oct_2012
Nov 2012	UNC Water and Health Conference University of North Carolina, USA	SHARE convened four side events: • Monitoring equity and pro-poor performance • The role of sanitation in addressing violence against women and girls. • Making WASH inclusive. • Menstrual Hygiene Matters Presentations: Cumming, O. Equity is where the smart money is. Cumming, O. Sanitation and violence against women. Atuhairwe S. How a lack of safe toilets threatens to increase violence against women in slums. Atuhairwe, S. Making WASH inclusive - Presentation on research in Uganda and Zambia. Biran. A. Randomized, controlled intervention trial of a village level intervention to promote handwashing with soap in rural Indian households. Cumming, O. Monitoring equity and pro-poor performance – Inputs, outputs, and outcomes.
Nov 2012	CP Platform Research Workshop on Gender and Sanitation (Delhi, India)	Organised and supported by SHARE
Nov 2012	2nd SHARE research group meeting (Dar Es Salam) Tanzania	Organised and supported by SHARE in collaboration with CP key stakeholders

Nov 2012	Seminar on WASH under-nutrition for DFID Advisors	Seminar provided by Cairncross & Dangour.
Nov 2012	Workshop on sanitation: Capitalisation of experiences (Odisha, India)	Supported by SHARE
Dec 2012	Emergency Environmental Health Forum at LSHTM (London)	SHARE convened the Emergency Environmental Health Forum, a two-day event convened at LSHTM hosting practitioners and academics in the field.
Feb 2013	City Wide Sanitation Project Annual Meeting (Dar Es Salam Tanzania)	Supported by SHARE
Feb 2013	Regional workshop on drinking water, sanitation and hygiene for media (Odisha, India)	Supported by SHARE
March 2013	SDN Week Seminar	SHARE provided a presentation on "Overview of WASH and nutrition & Cochrane Review findings and implications for WASH policy disparities in sanitation-related health risk and the usefulness of a 'population density without sanitation' measure", by O. Cumming
March 2013	Seminar on WASH and maternal health for Plan US	O.Cumming (SHARE) provided seminar on WASH and maternal health
March 2013	Seminar on WASH and maternal health for WateAid US	O.Cumming (SHARE) provided seminar on WASH and maternal health
March 2013	High level meeting Celebrating Womanhood: Menstrual Hygiene Management, at the UN Palais in Geneva, Switzerland	SHARE took part in the event
April 2013	27th Annual Joint Scientific Conference of the National Institute for Medical Research (NIMR), Arusha, Tanzania.	Convened by SHARE and Country Platform partners
April 2013	Making connections Women Sanitation and Health	SHARE convened the event at LSHTM. http://www.shareresearch.org/NewsAndEvents/Detail/women_and_sanitation_event_April_2013
Indicator 4: % female participants at those events		

EVENT	Participants (Of Which Females)
World Water Week Stockholm Conference	n.a.
Country Platform research Meeting (Malawi)	n.a.
Seminar on Menstrual Hygiene Management (Malawi)	45 (25)
Sanitation and Hygiene Exhibition Launch (London)	n.a.
UNC Water and Health Conference University of North Carolina, USA	n.a.
CP Platform Research Workshop on Gender and Sanitation (Delhi, India)	34(29)
2nd SHARE research group meeting (Dar Es Salam) Tanzania	15 (6)
Seminar on WASH under-nutrition for DFID Advisors	n.a.
Workshop on sanitation: Capitalization of experiences (Odisha, India)	53 (21)
Emergency Environmental Health Forum at LSHTM (London)	n.a.
Regional workshop on drinking water, sanitation and hygiene for media (Odisha, India)	46 (11)
City Wide Sanitation Annual Meeting (Tanzania)	33 (10)
SDN Week Seminar	n.a.
Seminar on WASH and maternal health for Plan US	n.a.
Seminar on WASH and maternal health for WateAid US	n.a.
High level meeting Celebrating Womanhood: Menstrual Hygiene Management, at the UN Palais in Geneva, Switzerland	45 (34)
27th Annual Joint Scientific Conference Arusha,Tanzania.	39 (15)
Making connections Women Sanitation and Health	n.a.
Total (available) number of participants (of which women):	310 (151)
Total % of women:	49%

Indicator 5: # of requests for advice from SHARE generating response.

Requesting Organisation	SHARE Contact (Date)	Input
ICDDR,B	Rick Rheingans June 2013	Review of protocol for evaluation of school WASH intervention in Bangladesh
3IE	Isabelle Pugh March 2013	Preparation of the Policy Influence Plan “Assessing the effectiveness of improved sanitation on diarrhea, nutritional status and helminth infection: A cluster- randomized, controlled field trail

		in Orissa, India”
Evidence 4 Action	Oona Campbell January 2013	Review of Tanzanian SPA questionnaire to ensure appropriate cover of WASH
MSF Switzerland	Jeroen Ensink September 2012	Household disinfection in cholera Epidemic in Guinea Conakry
Tools with a mission (UK, NGO)	Jeroen Ensink October 2012	Information and advice on how to design toilets which limit spread of infections such as cholera in Sierra Leone.
DFID	Isabelle Pugh	Advice to DFID WASH team on development of evidence ‘theme site’
Oxfam International Andy Bastable	Sandy Cairncross 04/03/13	Documentation that would help influence the authorities in Jordan on transmission of pathogens in soil -
PeePOO People	Sandy Cairncross January 2013	Request to provide an independent evaluation of the PeePoo Project in Pakistan.
ACF Action Contre la Faime	Aurelie Jeandron (December 2012)	Assistance for writing field operational guidelines on conducting KAP surveys for WASH

OUTPUT 2 **New knowledge generated by relevant and rigorous sanitation research which a) characterises problems; b) identifies solutions; and c) demonstrates benefits**
Indicator 1: Publications in peer-reviewed journals arising from SHARE research

Publication title and authors	Total authors	Female authors	Researchers from developing countries
Wazny K, Zipursky A, Black R, Curtis V, Duggan C, Guerrant R, Levine M, Petri, WA Jr., Santosham M, Scharf R, Sherman PM, Simpson E, Young M and BhuttaZ A (2013) Setting Research Priorities to Reduce Mortality and Morbidity of Childhood Diarrhoeal Disease in the Next 15 Years. *PLoS Med* 10(5): e1001446. doi:10.1371/journal.pmed.1001446	14	3	1
Brown J, Cairncross S & Ensink J (2013) Water, sanitation, hygiene and enteric infections in children. *Archives of Disease in Childhood*, 2013, 1–6. doi:10.1136/archdischild-2011-301528	3	0	0
Irish S, Aiemjoy K, Torondel B, Abdelahi F & Ensink J (2013) Characteristics of latrines in central Tanzania and their relation to fly catches. *PLOS One*	5	2	1
Sumpter C & Torondel B (2013) A systematic review of thehealth and social effects of menstrual hygiene management. *PloSOne,* 8(4) DOI: 10.1371/journal.pone.0062004	2	1	0
Islam MS, Mahmud ZH, Gope PS, Zaman RU, Hossain Z, Islam, MS, Mondal D, Sharker MAY, Islam K, Jahan H, Bhuiya A, Endtz, HP, Cravioto A, Curtis V, Touré O & Cairncross S (2013). Hygiene intervention reduces contamination of weaning food in Bangladesh. *Tropical Medicine International Health,* 18(3), 250-258.	16	1	13
Velleman Y, Greenland K and Prasad Gautam O (2013) An opportunity not to be missed – immunisation as an entry point for hygiene promotion and diarrhoeal disease reduction in Nepal. *Journal of Water Sanitation and Hygiene for Development*.	3	2	1
Greenland K, Cairncross S, Cumming O & Curtis V (2013) Editorial: Can we afford to overlook hand hygiene again? *Tropical Medicine and International Health*, 18(3), 246-249.	4	2	0
Funk AL, Boisson S, Clasen T & Ensink JH (2013) Comparison of Kato-Katz, Ethyl-Acetate Sedimentation, and Midi Parasep® in the Diagnosis of Hookworm, Ascaris and Trichuris infection in the context of an evaluation of rural sanitation in India", *Acta Tropica*,126 (3), 265-268.	4	2	0
Clasen T, Boisson S, Routray P, Cumming O, Jenkins M, Ensink JH, Bell M, Freeman M, Peppin S & Schmidt W-P (2012) The effect of improved rural sanitation on diarrhoea and helminth infection: design of a cluster-randomized trial in Orissa, India. *Emerging Themes in Epidemiology*, 9(7), 2-10.	10	4	2
Roma E, Pearce J, Brown C & Islam S (2012) Sanitation Mapper: A tool for mapping and monitoring sanitation in low-income countries. *Waterlines*, 31(4), 309-313(5).	4	1	1
Baker S & Ensink J (2012) Helminth transmission in simple pit latrines. Transactions of the *Royal Society of Tropical Medicine and Hygiene*,106(11), 709–710.	2	1	0
Watts C & Cairncross S (2012) Should the GBD risk factor rankings be used to guide policy? *The Lancet*, 380 (9859), 2060-2061.	2	1	0
Clasen T, Fabini, D, Boisson S, Taneja J, Song J, Aichinger E, Bui A, Dadashi S, Schmidt W-P, Burt Z & Nelson KL (2012) Making sanitation count: developing and testing a device for assessing latrine use in low-income settings. *Environmental Science and Technology,* 46 (6), 3295–3303.	11	3	0
de Barra, M & Curtis V (2012) Are the pathogens of out-groups really more dangerous? *Behavioural Brain*	2	1	0

Science, 35(2), 85-86.			
Brown J, Cavill S, Cumming O & Jeandron A (2012) Water, sanitation, and hygiene in emergencies: summary review and recommendations for further research. *Waterlines*, 31(1-2), 11-29.	4	2	0
Touré O, Coulibaly S, Arby A, Maiga F and Cairncross S (2012) Piloting an intervention to improve microbiological food safety in Peri-Urban Mali. *International Journal of Hygiene and Environmental Health*, 216(12),138-145.	5	3	4
Total	**91**	**29**	**23**

Indicator 2
Citations by other authors of those publications

Authors	Total	Journal	Non-journal
Wazny K, Zipursky A, Black R, Curtis V, Duggan C, et al. (2013)	0		
Brown, J., Cairncross, S. and Ensink, J. (2013)	0		
Irish, S., Aiemjoy, K., Torondel, B., Abdelahi, F. & Ensink, J. (2013)	0		
Sumpter, C. & Torondel, B. (2013)	0		
Islam, M S., Mahmud, Z. H., Gope, P. S,.Zaman, R. U, Hossain,Z., Islam, M. S., Mondal, D, Sharker, M. A. Y., Islam, K., Jahan,H., Bhuiya, A., Endtz, H. P, Cravioto, A., Curtis, V., Touré, O. & Cairncross, S. (2013)	0		
Velleman, Y., Greenland, K. & Prasad Gautam, O. (2013)	0		
Greenland, K., Cairncross, S., Cumming, O. & Curtis, V. (2013)	0		
Funk, A.L., Boisson, S., Clasen, T. & Ensink, J.H (2013)	0		
Clasen, T., Boisson, S., Routray, P., Cumming, O., Jenkins, M., Ensink, J., Bell, M., Freeman, M., Peppin, S. & Schmidt. W-P. (2012)	0		
Clasen, T., Fabini, D., Boisson, S., Taneja, J., Song, J., Aichinger,E., Bui, A., Dadashi, S., Schmidt , W.P., Burt, Z. & Nelson, K.L.(2012)	1	1	0
De Barra, M. & Curtis, V. (2012)	1	1	
Brown, J., Cavill, S., Cumming, O. & Jeandron, A. (2012)	0		
Touré, O., Coulibaly, S., Arby, A., Maiga, F. & Cairncross, S.(2013)	7	3	4
Roma, E., Pearce, J.; Brown, C. & Islam, S. (2012)	1	0	1
Baker, S. & Ensink, J. (2012)	0		
Watts, C. & Cairncross, S. (2012)	5	4	1
Touré, O., Coulibaly, S., Arby, A., Maiga, F. & Cairncross, S.(2011)	3	2	1
Curtis, V., Schmidt. W-P., Luby, S., Florez, R., Touré, O. & Biran, A. (2011)	31	27	4

Schmidt, W.P., Genser, B., Luby, S.P. & Chalabi, Z. (2011)	3	2	1
Barreto, M.L., Clasen, T. & Cairncross, S. (2011)	0		
Burton, M., Cobb, E., Donachie, P., Judah, G., Curtis, V. & Schmidt, W.P. (2011)	11	5	6
Curtis, V., de Barra, M. & Aunger, R. (2011)	51	43	
Collender, G. (2011)	0		
Dangour, A.D., Watson, L., Cumming, O., Boisson, S., Velleman, Y., Cavill, S., Allen, E. & Uauy, R. (2011)	2	2	0

Source: Google Scholar

Indicator 3
No. of programmes embodying research findings established and documented for replication and/or study visits

1) In Tanzania, CCI (partner of SDI in the city sanitation project) received training for sanitation Mapper in order to apply the methodology to slum mapping.
2) City Wide Sanitation Project: SHARE project enabled to local NGOs and Federation members in Zambia, Zimbabwe, Malawi and Tanzania to establish consultations and MOUs on sanitation interventions in urban informal areas.
3) SHARE Evidence Paper has informed DIFD country programme in the development of business cases to improve WASH in 8 countries in Africa and Asia.

Indicator 4:
Successful completion of SPLASH component funded via SHARE

1) Splash Sanitation Research Programme. Consolidated Operational Report nr 3. Reporting period April-September 2012.
2) Splash Sanitation Research Programme. Consolidated Operational Report nr 2. Reporting period October 2011 to end of March 2012
3) Splash Sanitation Research Programme. Consolidated Operational Report nr 1. Reporting period April 2011 to end of September 2011

OUTPUT 3
Key sector actors engaged around evidence for change

Indicator 1
# of consultations initiated by SHARE on the basis of outcome mapping

1. **Bangladesh:** SHARE CP signed a MOU with the Government of Bangladesh to provide trainers to officials from the Ministry Of Women and Child Affairs in 70 districts of the country.

2. **Tanzania:** SHARE discussing with WSP, DFID country programme and WaterAid to conduct an evaluation of the National Sanitation Campaign. 3. **India:** SHARE is collaborating with World Bank/WSP on organising RIU activities in India on WASH and stunting. 4. **Zambia**: (The City Wide project) In March 2013 the city council has formally agreed to the establishment of a sub-committee to plan the upgrading of informal settlements in the city of Kitwe. The utility (Nkana Water and Sewerage Company) has secured a grant from the African Development Bank to improve sanitation in informal settlements in collaboration with SDI affiliate in Kitwe. 5. **Global**: SHARE has signed and MOU agreement with UNICEF to develop research into use and capacity building activities globally as well as in SHARE country platforms.
Indicator 2 **# of country platforms established and active**
Indicator 3 **# of hits/downloads on SHARE website**
WEB VISITS June (2012): 522 July (2012): 763 August (2012): 804 September (2012): 586 October (2012): 1087 November (2012): 885 December 2012 (611 January (2013): 1146 February(2013): 1520 March (2013): 2157 April (2013): 1079 May (2013): 1408 NEWSLETTER SUBSCRIPTIONS (Cumulative) June (2012): 265 July (2012): 268 August (2012): 277 September (2012): 283 October (2012): 292 November (2012): 294 December (2012): 297 January (2013): 306

February (2013): 331
March (2013): 342
April (2013): 348
May (2013): 364

Indicator 4
# of external requests for SHARE technical support to implement implications of SHARE research

Requesting Organisation	SHARE Contact (Date)	Input
Engineers Without Borders Canada	Oliver Cumming 14 April 2013	Discussion on potential collaboration on design and implementation of WASH-related modules in health facility surveys planned with the MOH in Malawi
DFID DRC Phoebe White	Oliver Cumming 22/02/2013	Supporting evidence on stunting
DFID Policy Division Nick Dyer and Chris Whitty	Oliver Cumming and Elisa Roma 06/02/2013	Case Study on Choose Soap
Uschi Eid, Vice Chair of the advisory board on water and sanitation of the UN Secretary General (UNSGAB)	Oliver Cumming 22/02/13	Request of presentation on the nexus between WASH and under nutrition.
DFID	Oliver Cumming October 2012	Key evidence on the impact of WASH on early childhood survival and development - including where evidence gaps remain and what options DFID should be considering
DFID	Oliver Cumming & Katie Greenland November 2012	Measuring Hygiene Behaviour (indicators for use)

Indicator 5
# of cases of non-SHARE agencies participating in SHARE research

Global: African Development Bank;

Tanzania: MicroSave Consulting Ltd (Kenya), Governance Links, UNICEF, WSP, Ministry of Health and Social Welfare, Global Sanitation Fund / Plan International/ WSSCC, DFID (country programme), Ministry of Water; Ministry of Education; PMO-RALG, WaterAid Tanzania, TAWASANET.

Malawi: Ministry of Health; Ministry of Irrigation and Water Development; Ministry of Education; Ministry of Gender, Child Development and Community Development; Ministry of Local Government and Rural Development; Ministry of Environment and Climate Change; Water Utilities; UNICEF; WSP; Plan International, Global Sanitation Fund; DFID (country); WaterAid.

India: WSSCC, Government of India (various departments), World Bank/WSP, UNICEF, DFID country programme.

Bangladesh: Government of Bangladesh, Plan International.

Indicator 6
Skills and competencies of # key individuals responsible for planning, managing, implementing and monitoring WASH programmes – especially women – developed and upgraded

Date	Event	Number of participants (of which women)
July 2012	Two-day training course for WASH professionals entitled "Writing for WASH: Improving documentation in the WASH sector for policy, programmes and publication". London UK	11 (3)
March 2013	Two-day training course for WASH professionals entitled "Writing for WASH: Improving documentation in the WASH sector for policy, programmes and publication". Uganda	15 (6)
April 2013	One day Training of Trainers (ToT) on Menstrual Hygiene Management (MHM) in Emergencies for Emergency WASH Trainers. Organised in collaboration with WaterAid and RedrUK.	18 (11)
June 2013	One Day training of trainers for Bangladeshi Government officers on essential WASH and hygiene issues. Organised by WaterAid Bangladesh and ICDDR, B	100 (32)
Total:		144 (52)

In the City Wide Sanitation project:

- Local community members participated in collecting information and gained skills in doing so. The Federation groups have been involved in the aggregation of household data and the presentation of such data to the local authorities.
- In all four NGO affiliates, the responsibility has been passed to professional staff immediately below director level ie. this project has involved mid-level and early career professionals offering them a defined set of activities through which they can enhance their skills.

First, SDI affiliate professionals have been able to learn from other affiliates in a coherent programme of work. Second, they have been given feedback on report writing and design by IIED and SDI secretariat staff. Third, they have been challenged to improve their technical skills related to the sanitation challenge and potential precedents to address this challenge. While this project has not had a specific research capacity building component, in practice activities have enhanced skills.

OUTPUT 4

Capacity strengthened to conduct relevant collaborative research and apply the results

Indicator 1: %of proposals ready for consideration on first submission

CALL C: Total number of proposals accepted for funding 7. Percentage of proposals with minor/no revisions 28.5% (n=2)

Bangladesh CP: Total number of proposals accepted for funding 1. Percentage of proposals with minor/no revisions 0.
India CP: Total number of proposals accepted for funding 4. Percentage of proposals with minor/no revisions 100% (n=4)
Malawi CP: Total number of proposals accepted for funding 4. Percentage of proposals with minor/no revisions 50% (n=2)
Tanzania CP: Total number of proposals accepted for funding 7. Percentage of proposals with minor/no revisions 100% (n=4)

Indicator 2: # of PhD students trained

1. Md. Tarique Huda: Role of sanitation in preventing faecal contamination of the domestic environment and protecting health: An observational study
2. Sheillah Simiyu: Investigating The Relationship Between Residence and Sanitation Quality in the Urban Slums of Kisumu, Kenya
3. Richard Chunga: Investigating the impact of improving access to sanitation information on the adoption of improved sanitation and latrines that are easier and safer to empty.
4. Om Prasad Gauta Food hygiene intervention to improve food hygiene behaviours, and reduce food contamination in Nepal.
5. Prince Antwi-Agyei**:** Wastewater use in urban agriculture in Ghana – Comparison of the relative health risks among private, public and occupational domains.

MSc Students

1. Sally Piper Pilliteri: Toilets are not enough: addressing menstrual hygiene management in secondary schools in Malawi.
2. Kerren Masse: Sanitation, Safety and Shame: a qualitative study examining the impact of inadequate sanitation on women in the urban slums of Kampala, Uganda.
3. Laura Corder: Hand contamination patterns among female caregivers in urban Dhaka, Bangladesh
4. Shirley Lennon: Exploring the Link Between a Lack of Access to Water and Sanitation Facilities and Sexual Violence Against Women in Delhi, India.
5. Lauren d'Mello Guyatt: The role of food hygiene in the prevention of childhood diarrhoea in Kavre, Nepal.
6. Victoria Sykes: Predictive Factors for Unsafe Disposal of Children's Stools in Africa.

7. Nicola Dickson: Investigate the association between time taken to collect water, per capita daily water collection and water used for hygiene related activities.
8. Courtney Edison: Evaluating behavioural and household factors contributing to faecal hand contamination in rural Tanzania.

Indicator 3:# of exchange visits organised

1. Joseph Pearce from WaterAid visited CCI in Dar Es Salam to provide training on Sanitation Mapper.
2. Aurelie Jeandron visited the department of Veterinary Disease Biology of University of Life Science, Copenhagen from 5 th to 16th of November 2012, in collaboration with Mita Sengupta, Anders Dalsgaard, Stig Thamborg.
3. March-May 2013: Sandy Cairncross visit to Brazil
4. June 2013: Rick Rheingans visit to DFID Tanzania to discuss SHARE evaluation of National Sanitation Campaign.

Indicator 4: # of training courses organised (on research methods, management, etc.) annually

1. July 2012: two-day training course for WASH professional entitled "Writing for WASH: Improving documentation in the WASH sector for policy, programmes and publication". London UK.
2. November 2012- Jeroen Ensink gave a talk/master class on health and sanitation at Raleigh International- London.
3. 4-5 March 2013: Two-day training course for WASH professional entitled "Writing for WASH: Improving documentation in the WASH sector for policy, programmes and publication". Uganda
4. 5 April 2013: One day Training of Trainers (ToT) on Menstrual Hygiene Management (MHM) in Emergencies for Emergency WASH Trainers. Organised in collaboration with WaterAid and RedrUK.
5. February - March 2013 - Webinars given for Unicef South Asia and HQ – Oliver Cumming & Lenka Benova (LSHTM) – WASH & Maternal Health.
6. February – May 2013 - Webinars given for Plan International, WaterAid & World Vision on WASH & Maternal Health, and WASH & under nutrition (Oona Campbell, Alan Dangour, Oliver Cumming, Lenka Benova).
7. June 2012- One Day training of trainers for Bangladeshi Government officers on essential WASH and hygiene issues. Organised by WaterAid Bangladesh and ICDDR, B.

OUTPUT 5
Effective management of the consortium, including M & E of impact and value for money

Indicator 1: Monitoring; % of indicators assessed and reported annually

100% of indicators monitored since June 2012. The total number of indicators assessed is 100%.
Further monitoring procedures have been established:
SHARE Annual Partnership review meetings
Annual number of Executive Group meetings increased from 4 to 6.

Indicator 2: Value for money; wasteful expenditure on: - ineffective hygiene promotion, - unused latrines, and - superfluous evaluations avoided by following SHARE advice or implementing SHARE findings (£)
£4.6 million
Indicator 3: Monitoring country research groups (platforms) and evaluation of activities **a) # local research management groups set up** **b) £value of research proposals submitted for funding and approved**
a) All research management groups have been set up in Bangladesh, Malawi and Tanzania and in India. b) **Total value of research proposal submitted and approved in the CPs: £1,213, 433** India: Total value: £ 438,719 (£250,000 leveraged by WSSCC). Malawi: £175,720 Bangladesh: £ 375,000 (£125,000 leveraged by WaterAid) Tanzania: £223,994

Annex E – Research Activities: Additional Information

Projects funded under Call C

	Title	Principal investigator	Budget (GBP)
1	Assessing the sustainability of behaviour change following a hygiene promotion intervention	Katie Greenland (LSHTM)	27,235
2	Assessing the role of hands in ascariasis transmission among school children	Aurelie Jeandron (LSHTM) + Prof A. Dalsgaard (Copenhagen)	57,656
3	Food hygiene intervention to improve food hygiene behaviours, reduce food contamination and diarrhoeal diseases burden in Nepal	Om Prasad Gautam (WaterAid + LSHTM)	44,706
4	Undoing inequity: inclusive sanitation and hygiene programmes that deliver for all	Louisa Gosling (WaterAid) + Leonard Cheshire Disability and Inclusive Development Centre (UCL) + WEDC	85,000
5	Towards smarter sanitation: understanding disparities in risk, disease burden and impacts	Oliver Cumming (LSHTM)	174,000
6	Understanding menstrual hygiene behaviour and practices amongst adolescents in Bihar, India.	Rick Rheingans (University of Florida)	47,661
7	Effect of School and Household Sanitation and Hygiene Access on Reinfection of Soil-Transmitted Helminths Following School-based Deworming	Matt Freeman (Emory University) + Simon Brooker (LSHTM)	48,114
		Total	**484,372**

Annex F – Capacity Building: Additional Information

PhD Student Progress

Om Prasad Gautam Progress Report to SHARE

Om has designed a study with an aims to implement a simple, feasible and replicable food hygiene intervention and assess the effect of this intervention on mothers' food hygiene practices, and to assess the impact of the interventions on the level of microbiological contamination in food and diarrhoeal diseases burden. The study explores how food hygiene interventions can be integrated into nutrition, health and WASH policy programmes in Nepal. The study was designed to implement into two phases which includes 'formative research' in first phase and 'cluster-randomized, before-after study with control' trial in second phase. Within a year of joining LSHTM for PhD, Om successfully completed his first phase of study i.e. formative research on food hygiene and had successfully upgraded by September 2012. In October 2012, Om embarked Nepal to design, implement and measure the effect of a food hygiene intervention trial in Nepal.

Second phase of the study started in November 2012. The following key actions are progressed so far:

Designed a simple 'food hygiene promotion/motivational package':
More insights on five prioritized behaviours gained from field and a comprehensive creative briefing paper prepared. As planned in research protocol, a creative team was formed to get support to design creative tools. The creative team together with Om visited a study area that allowed them to understand the context, feasibility, setting and socio-cultural aspects. After two months rigorous exercises, creative & intellectual discussions and workshops, Om was able to developed a 'food hygiene promotion prototype package'. The prototype package was discussed and shared with Dr Val Curtis during her visit to Nepal (28 Jan – 02 Feb 2013). After receiving feedback from Dr Val and testing feasibility, acceptability of tools in field, the final 'food hygiene promotion/motivational package' was finalized. The resulting food hygiene promotion package was designed in such a way that it will help to motivate mothers to practices and habituate the five prioritized behaviours includes; cleanliness of serving utensils using ash or soap, handwashing with soap before feeding (mother) and eating (child), storage of cooked or leftover food in container with a tight fitting lid, thorough (>70^0c) re-heating of leftover or stored food, boil milk and water before serving.

The final package included motivational tools, materials, demonstration and public pledging exercises and avoided traditional behaviour change tools such as posters or leaflets, and instead used more creative tools linking the five prioritized positive behaviours. The whole food hygiene promotion package was designed using a campaign approach. The campaign centred on an 'Ideal Mother Concept' with supportive branding such as a logo, colour scheme, and a kitchen makeover plan. The package was designed to be implemented over three months, which includes six community events and six household visits to motivate mothers to practice safe food hygiene behaviours. Together with the package, a campaign implementation guideline that provided detailed session plans for each event, or visit were also developed. Each event is designed around a specific motivational theme such as nurture, disgust, affiliation and social respect. The package includes various tools including storytelling, situation analysis flex, video clips, 3D flip charts, demarcation of the kitchen using branded ribbon and flag, public commitment & use of commitment certificates, use of glo-germs, eye danglers (main board highlighting five behaviours, small danglers linking with

each behaviours, fan, fire blowing instrument), folk song competition, teach the participants demo exercise, public pledging, musical chair game, disgusting exercise, child's real life game, puzzle game, innovative letter exchange, peer review exercise, pile shorting, ideal mother competition, clean kitchen competition, safe food hygiene zone declaration and so on.

Established field offices:

After finalising the food hygiene promotion package, Om established two field offices within the Baluwapati Deupur and Nayagaun village development committees of Kavre district Nepal and recruited office staff members to start field work.

Behaviour observations

25 **food hygiene observers (FHOs)** were recruited to observe study participants' food hygiene practice. Om provided intensive skill and field based training to all FHOs before they embark to observe mother's food hygiene behaviours. Five key food hygiene behaviours were observed simultaneously in each cluster over a ten day period. At least three observers were mobilised in each cluster to observe behaviours and precautions were taken to minimize influence or un-identical bias in mother's behaviours during observation. The FHOs work was closely monitored by Om and local staff. The following are the prevalent food hygiene practices of mothers in both the groups against five key prioritized behaviours obtained through structure observation during baseline:

Behavioural indicators	Specific indicators	Control group (N=119 HH)	Intervention group (N=120 HH)
Proportion of mothers thoroughly re-heated leftover/stored food	• Stored/leftover food **re-heated before serving** to child	19%	13%
	• Re-heated food reached >70^{0}c temp (n=those who re-heats)	23%	20%
Proportion of mothers cleaning food serving utensils using ash/soap	• Serving utensils for child food are **washed using soap/ash before serving** food	4%	3%
Proportion of mothers washing hands with soap before feeding (mothers) and before eating (child)	• Mother washed hands with soap **before feeding child**	5%	4%
	• Child's hands washed with soap **before eating**	3%	4%
Proportion of households practicing proper storage of cooked food	• Households **stores cooked food/leftover food** in container with a tight-fitting lid (no flies, dust/dirt)	25%	24%
Proportion of households treating milk and water before serving to child	• Households **boils milk before feeding to child** (afternoon)	0%	0%
	• Households treats the water before feeding to child	1%	0%

Microbe assessment

The food, water and milk samples were collected from the field using trained lab technicians. Altogether 248 food samples, 80 water samples and 45 milk samples were collected from the eight clusters using a standard protocol. Lab technicians collected from each household 50ml of milk, 250ml of water and 50g samples of child food at each four key stages: immediately after cooking, while feeding, after 5hrs storage and immediately after re-heating. The collected samples were transported in sterilized containers to the Kathmandu lab (CMDN) the same day, taking care to maintaining the appropriate sample temperature. For food and milk samples, 3M PetriFilm (E.coli/Coliforms count plates) were used and for water, membrane filter and Hi-chrome coliform media was used. All collected samples were processed, homogenized, inoculated, incubated and results were interpreted using standard operating guideline prepared for this food hygiene intervention trial.

Recruitment of food hygiene motivators (FHMs):

The Food Hygiene Motivators (FHMs) are the key resource in Om's intervention for transferring knowledge and motivating mothers to practice simple and safe food hygiene practices using the 'Food Hygiene Promotion' package. 15 food hygiene motivators were locally recruited to implement the programme for at least three months. Om have received support from the Project Coordination Committee to announce the candidature requirements and to select the qualified, motivated candidates after performing intensive assessment including group discussion, one to one interview and reference checks. All promoters have at least school leaving certificate education and or similar capacity with the Nepal's Female Community Health Volunteers (FCHVs).

Five days skill based training for FHMs:

Five days residential skill based intensive training programme was organized for all motivators in order to enhance their food hygiene knowledge and skills to execute promotion package. Training was organized to improve the FHMs' technical capacity, skills to conduct community events and households visit, as well as their interpersonal communication skills. The training aimed to ensure that FHMs could implement the food hygiene promotion package independently or with limited support. It was great Om find such a strong team of FHMs in Nepal.

Conducted pre-trial activities:

Before running an actual trial, Om run pre-trial exercise using same intervention package to identify any problems or difficulties. It was also essential to built the confidence of FHMs before the actual intervention. As planned, the pre-trial activities were performed among 21 households using same methods, procedures, techniques, and using the same tools/materials referring to programme implementation guideline. All FHMs were actively involved, giving them the change to practice the whole intervention package with participating mothers in real life scenario. The actual feasibility and relevance of each session and the corresponding materials was also tested during pre-trial sessions. This helped us identify any practical difficulties which might occur while executing actual trial. FHMs also had the chance to experience some real life challenges that might occur and they are pre-prepared to address such difficulties while executing the actual intervention package in real settings.

Launched 'food hygiene intervention trial' in Nepal:

The 'Food Hygiene Intervention Trial' has launched in four intervention clusters in Kavre district of Nepal dated on 25th May 2013. Altogether 12 launch events took place and community participation was really encouraging. The Regional Health Director from the Ministry of Health & Population, Village Development Committee secretaries, members from project coordination committees, teachers, Om himself, and local social or political leaders participated in the launch event as guest. The main purpose of the first event was to launch the food hygiene intervention trial, using the concept of an 'ideal mother' and the motto 'safe

food, healthy child', to inform mothers & community people food hygiene trial and encouraging / motivating behaviour change. The campaign will run for three months and there will be a community event in each 15days and a HH visit in each 15days. FHM will use different motivational tools in each events and HH visits linking with only five behaviours. For more details about each of community events and households visit, pls follow Om's blog at SHARE website:
http://www.shareresearch.org/NewsAndEvents/Detail/om_blog_food_hygiene_study

Parimita Routray Progress Report to SHARE

Literatures revealed low sanitation uptake in India including Orissa. Evaluations of government of India's programmes on sanitation promotion like Total Sanitation Campaign (TSC) had lower acceptance and adoption among the targeted population. These findings from the literatures were substantiated, with personal observation while working in the 'sanitation trial' by LSHTM in Orissa. Huge nos. of unused "latrine cemeteries" were found lying scattered in and around many villages of Puri district in Orissa (It is one of the poorest states of India, and also one of the poor performers in sanitation). These findings clearly indicated a substantial loss of investments made by governments and NGOs and also laid out a scope to research further to explore and understand the causes of low adoption and non use of toilets, and suggest strategies to improve the sanitation status in the state.

In response to the offering of fellowships in 2011 by SHARE research consortium, for research at the LSHTM in the field of sanitation and hygiene in Sub-Saharan Africa or South Asia, a research proposal was submitted titled *'Reviving latrine cemeteries in rural and urban Orissa- India, through an innovative motivation campaign'*, addressing two of the SHARE's identified focus areas i.e. Equity and Gender and Sanitation Markets. The other two focus areas were health and urban sanitation.

Following the selection of the research proposal by SHARE, I registered for PhD in September, 2011. Modules/courses that would help enhancing my skills for research were undertaken at LSHTM. The first year i.e. 2012 was dedicated toward literature review, development of research questions & study protocols, and preparation for upgrading. As part of preparation for upgrading and writing of the upgrading document, preliminary field research was conducted by me, in the rural areas of Puri district, with low sanitation uptake to get insights about the environment and, understand the settings like how different factors around behavior, gender and socio-economic disparity could act as a barrier or constrain latrine adoption and its use. Meetings were held with NGOs implementing the sanitation programme, visited villages that were covered under government's sanitation drive, conducted Focus Group Discussion with different men, women, adolescent boys and girls group, In-depth interviews of latrine owners. The data collected included – opinions of individuals, possible reasons cited by households for not adopting latrine and not using latrine although have built latrines, insights of the local cultural norms, practices and beliefs centered around defecation, and hygiene behaviors associated with post defecation cleansing. The initial findings gave insights on the latrine use patterns in rural areas and indicated the role of societal and household dynamics that influences toilet uptake in these areas.

Following the preliminary research, and with inputs from the advisory committee and supervisor, minor modifications were done to the earlier proposed research, and it was changed to *'Using Sanitation Marketing and Behaviour Change Communication to increase demand for and use of latrines in rural Orissa, India'*. Upgrading seminar presentation was done in February, 2013

Upgrading :

The upgrading panel agreed that the upgrading report submitted by me was well written and structured. Panel was impressed with my initial research findings, my presentation in the upgrading seminar and ability to collect in depth qualitative data. They felt that the topic for the proposed research – Using Sanitation Marketing and Behaviour Change Communication to increase demand for and use of latrines in rural Orissa, India – was clearly addressing an important public health issue but found gaps in the literature review and recommended for a thorough literature search and critical discussion in future work for this PhD thesis.

Panel also felt that some of the questions – especially with regard to sanitation marketing and pilot testing of larger components of potential intervention activities to be developed was too broad in order to be realistic for a PhD thesis, and therefore recommended this PhD to narrowing down the objectives. The upgrading was conditional, and I was asked to submit a supplement by May 2013, describing *three well defined dimensions* of the constraints and the determinants of latrine adoption with a clear set of deliverables, research questions and hypotheses that can be addressed within the PhD timeframe.

Following the feedback and recommendation by the panel, the supplement for the upgrading and the tools for each study dimension was developed and submitted with the examiners in June 2013. The supplement for upgrading has been approved on 28th June by the examiners.

Brief about research; hypotheses and tools:

'Constraints of latrine non use' was chosen for the purposes of this PhD. The three dimensions for in-depth study are :

- External or the physical constraints for latrine non use and low adoption,
- Internal or individual's or household's constraints for low adoption of latrines, and
- Programmatic or implementation constraints in sanitation promotion

Physical constraints for latrine use and adoption include all the external factors that exist in the environment like water scarcity or its unavailability. The preliminary research indicates about water unavailability as a potential physical constraint for low toilet uptake. So the hypothesis set for testing is 'Water availability and access, impacts use of subsidized latrines in rural coastal Puri' and the testable research questions are:

- Does water availability impact uptake of latrines ?
- Will better water storage facilities help revive the unused toilets?

Tools to be used for this research are Latrine use survey, questionnaire, spot checks, semi structured interviews, structured observations, FGDs and behavioral trials.

The second dimension of research was understanding and measuring the household dynamics and intra household decision making and its influences on sanitation decisions. The hypothesis for this dimension of research is 'Women's ability to influence household's financial decisions constrain sanitation uptake'. And the testable questions are

- Does women's ability to take household decision constrain sanitation uptake in rural areas?
- Does latrine adoption adversely impact household task, time allocation, opportunities for socialising and relationship of family members, and does this impact latrine use?

Tools proposed for this research are FGDs, Structured observation, time allocation study, case study, pocket voting, and in-depth interviews.

The third dimension of this PhD is to research on the implementation constraints of the Total Sanitation Campaign (TSC) especially looking at effectiveness and feasibility of community mobilization for toilet promotion in villages, and identify the challenges and constraints of mobilizing such diverse communities (large and heterogeneous) with limited resources like - time, human resources, finance, and technical skills. The hypothesis for this dimension is 'Community mobilisation impacts sanitation uptake in rural areas' and the testable questions are

- Is community mobilisation delivered in rural areas, the way it is supposed to?

- What is the feasibility of village mobilizations for toilet uptake in communities lacking cohesion?

Tools for investigation would involve review of documents of the programme implementing agency, rating scale, participant's observation, focus group discussion, key informants interviews.

Pilot testing of tools :

Research tools were piloted in the June, 2013 and it is being revised and modified.

Data collection Plans:

Data collection for dimension 1 and 2 is planned to be carried out between July to November 2013. The data collection for the 3rd dimension is dependent on the implementation of the sanitation campaign and construction of toilet in the villages of Puri. Therefore, the data collection will be done between August 2013 – March 2014.

I will carryout the data collection with the help of a small team of a supervisor and two enumerators. Most of the qualitative data collections will be done by me, with assistance from the team members.

After the data collection is complete, I will analyse them in Orissa, in consultation supervisors and advisory committee members between April – June 2014. The thesis writing will start along with data analysis and information gaps will be addressed with more field work. The final thesis writing will be done in London between July – October, 2014.

Sheillah Simiyu's Progress Report To SHARE

I did my upgrading at the LSHTM on 3rd of October 2012. The Upgrading panel recommended that I made corrections and resubmit in two months. The focus of the upgrading document was to be on shared sanitation. I submitted a revised document in December, after which the panel met and proposed further corrections that were to be submitted by 31st January 2013.

January-June 2013

While in Kenya, I revised the upgrading document as per the recommendations given by the panel, and submitted it to my supervisor on 31st January 2013. In the meantime, I began the first phase of data collection, mainly observation, which was to lead to another qualitative phase and a final quantitative phase. I received communication on 22nd February, indicating that the upgrading panel had recommended that I should not upgrade. By this time, I had completed the first observation phase of data collection. I met the upgrading panel on 13th March in London, which recommended a change of topic, similar to a previously proposed topic on sanitation demand. I had a meeting with the research degree coordinator (RDC) with whom we settled for a change of supervisor to Prof Sandy Cairncross. Prof Cairncross introduced me to Richard Rheingans who was happy to act as co-supervisor. I travelled back to Kenya and wrote a new proposal on valuation of sanitation using hedonic analysis.

Regrettably, on 5th of April, I received an email from the RDC and an attached report, compiled by my initial supervisor, which stated that the panel had recommended that I withdraw, and that for London University regulation it was not possible to change supervisor.

Fortunately, SHARE offered to continue funding if I registered at another University, as those involved felt that my newly proposed topic was suitable for SHARE. I began exploring other possible countries where I could register and complete my studies, including the Sustainability Institute at the University of Stellenbosch in South Africa. My new supervisor, introduced me to Prof Mark Swilling at the Institute, who was happy with the proposal, and took me on as a PhD student.

I sent an application to University of Stellenbosch, which was successful and I was offered an admission to begin PhD studies beginning 15th July 2013 as an affiliate student.

In May I attended the SNOWS water and Sanitation Early career scientists' conference, held in Polokwane South Africa, where I got the opportunity to present my work to other scientists and researchers.

Planning: July-December 2013

Having secured admission as an affiliate student, I plan to send a detailed proposal to my South African supervisor by the 15th July 2013. This will be circulated to an admissions committee, to which I will present my work at a date that will be determined. If the committee approves my proposal, I will be officially registered as a PhD student by September 2013.

I intend to spend the semester (July-December) at the Sustainability Institute, interacting with colleagues and refining my proposal together with my supervisors at the LSHTM. In January 2014 I intend to begin my field work in Kisumu, Kenya.

Beyond 2013

I will work with supervisors through the stages of the PhD-Data collection, data analysis and writing up. I look forward to advance the studies on sanitation in informal settlements, greater and better collaboration and networking, and successful completion of the PhD.

I am optimistic that it will be a happy ending!

Richard Chunga Progress Report to SHARE

I did my upgrading in September 2012 and was asked to make changes and resubmit my report, following the input from my advisory panel, and examiners I submitted my updated protocol and was upgraded in March 2013. I have been in Malawi to plan and conduct my field research since January 2013 and work has gone smoothly. I intend to return to London in January 2014. Below is presentation of my findings till so far.

Introduction
The Malawi Government through the Ministry of Irrigation and Water Development adopted the sanitation marketing approach in 1998. Since the adoption of this approach, a number of alternative sanitation technologies have been introduced and are being promoted in both rural and peri-urban areas. One of the alternative sanitation technologies being promoted widely in peri-urban areas is the urine diverting toilet. However, very few landlords in peri urban areas have adopted this technology despite the fact that landlords can access compost, it is easier to empty, it is permanent, does not collapse and does not smell when properly managed. This research was therefore set out to investigate factors driving the demand for urine diverting toilets and to assess whether technology choices landlords would make during a survey would be the actual technologies that they would end up installing.

Methods
The study was designed to be carried out in two cities in Malawi (Lilongwe and Blantyre). In each city, the plan was to interview 650 landlords. The survey targeted landlords only as it is landlords not tenants that make decisions on type of technology to be installed at a plot or compound. So far, 650 landlords have been interviewed in Lilongwe City and 60 qualitative interviews have been carried out in both Blantyre and Lilongwe. The next step is to interview 650 landlords in Blantyre city. After completing the survey in Blantyre city, the remaining task will be to monitor whether technology choices landlords make during a survey are the actual technologies which they end up installing. Only landlords that would indicate that they would install new technologies within the next six months will be monitored. At each compound visited, GPS coordinates are taken and I will use these coordinates to revisit the landlords to compare technology choices made during a survey and technologies actually installed.

Initial findings – based on 240 interviews conducted in Lilongwe City

Technologies being used
Landlords in peri-urban areas are predominantly installing pit latrines than urine diverting toilets or other alternative technologies. Pit latrines are very popular because they are easier and cheaper to install, easier to use and can be used by multiple households for many years.

Intention of landlords
Landlords were asked to indicate the type of sanitation technology that they intend to install when the latrine currently being used shall fill up. The intentions of landlords indicate that the demand for urine diverting toilets and other alternative technologies will continue to increase but pit latrines will continue to dominate.

Intentions with access to a sanitation loan
One of the major barriers to adopting urine diverting toilets is finance. Urine diverting toilets are more expensive to install and require a skilled builder to install. Landlords usually salvage building materials from other toilets or from other places when building pit latrines but this is not the case when they want to build a urine diverting toilet. Thus landlords may need a loan to adopt a urine diverting toilet. Landlords were asked to indicate their technology preference if a loan for sanitation was to be made available.

Initial results show that access to loans for sanitation will increase demand for urine diverting toilets as well as other alternative technologies such as lined pit latrines, pour flush toilets and fossa alterna toilets. Loans for sanitation will therefore reduce demand for pit latrines (with a slab, mud floor and cement floor) and increase demand for technologies that are more permanent (lined pit latrines, urine diverting toilets, fossa alterna).

Number of latrine users

One of the key attributes of urine diverting toilets is that they are permanent (do not collapse). But this trait may not always drive demand for this technology because urine diverting toilets are shallow (1 meter deep) but in peri urban areas, toilets are usually shared so landlords prefer deeper toilets. This technology is therefore likely to be adopted by landlords that do not have tenants than those with tenants.

Access to gardens/small farms

One of the benefits of urine diverting toilets is access to compost. Compost is important for landlords that have urban gardens/small farms. But access to compost may not be a key driver for landlords to adopt urine diverting toilets because most landlords do not have urban gardens.

Challenges

No major challenges yet. I have adequate resources to complete the survey in Blantyre City but I may not have adequate resources for the follow up study. I am using 4 GPS handsets at the moment but to complete the follow up study quickly, I may need extra GPS handsets.

Prince Antwi-Agyei Progress Report for SHARE

In August 2012 I completed my upgrading, and 1 month later I left for Accra to start my data collection. In June 2013 I have completed the field data collection for the first phase (rainy season), and together with a student from the LSHTM I am in the process of collecting data during the dry season.

Questionnaires were administered to 80 farmers, 40 market vendors, 29 street food vendors, 160 street food consumers and 160 produce buyers at markets. Non-participant structured behaviour observations were limited to 3 hours on 80 farmers, 29 street food vendors and 40 market vendors. Focus group discussions were conducted with farmers (3 groups) and market vendors (3 groups). Laboratory analysis of *E. coli* were conducted on 85 farm raw produce (lettuce), market raw produce (46 lettuce & 47 cabbage saples) and 34 ready to eat salads from street food vendors (check-check vendors). Helminthes analysis was also done on farm particulate (30), farm produce (22), irrigation water (22), street vendor food (13) and market produce (43). The analysis of produce samples for Norovirus is ongoing.

Field base estimations were also performed. The amount of irrigation water left on raw produce after irrigation was done using 53 lettuce and 48 cabbages samples. Similarly farm bed sizes (perimeter and areas) were estimated using 80 farm beds, while the volumes of watering cans used by farmers were also estimated based. Pictures and videos were also taken from farms, markets and street vending sites and have been put together to produce a 6-minute video documentary.

The research was discussed with and data collected from a host of key informant groups including the Ghana Standard Authority (GSA), the Metro Health directorate and Metro public health directorate of the Accra Metropolitan Assembly, the Food and Research Institution and the Ghana Food and Drugs Authority (FDA). All data collected has since been entered into SPSS and preliminary analysis done.

Presentations

I have presented my research at three conferences. A poster presentation was done at the 6th African Institution Initiative workshop in Accra - organised by the Wellcome Trust, UK. There was also an oral presentation at the local advisory board meeting for the SaniPath project in Accra, Ghana. The third presentation was on the preliminary findings of the research at the Protea hotel, Polokwane – South Africa. The scientific conference for young research scientists was organised by the African SNOWS consortium and funded by the Welcome Trust. My presentation was awarded the third price.

Activities for next quarter (June – August, 2013)

a) Second phase (rainy season) data collection has been planned from June to August. Field work will include environmental sampling of raw produce (lettuce) from farms and markets (lettuce & cabbage), ready to eat food (salad) from street vendors, restaurants and hotels and soil and irrigation water from urban agriculture farms. Other activities will include laboratory analysis of *E. coli* in the environmental samples. The last activity will cover observations and questionnaire administration on a limited scale as compared to the first phase.

b) Data entry and analysis – all data collected will be entered and preliminary analysis conducted on it.

c) Dissemination workshop on preliminary findings – a funding proposal has been written to SHARE to request for funding to organize a workshop to present my preliminary findings to key sector stakeholders and representatives of my study participants.

d) Risk analysis training course – another funding proposal has been sent to SHARE to secure funding to attend a risk analysis training course at the Royal Veterinary College, UK.

Tarique Huda's 2013 ANNUAL REPORT TO SHARE CONSORTIUM

I completed my upgrading in November 2012, following which I returned to Bangladesh. Before my upgrading I conducted a feasibility study (formative research and piloting) from July-Sep, 2012 in Bangladesh. Ethical approval was obtained from Bangladesh in preparation for the main data collection upon my return, and all the logistics had been arranged and staff recruitment process has been completed.

Completed feasibility study

Formative research:

Three-hours unstructured observation was conducted between 23rd July and 11th August, 2012 in 10 households with at least 1 <5 child. This allowed us to identify suitable measures of environmental contamination for the piloting. The <5 children in rural areas of Bangladesh were likely to be exposed to faecal contamination originating within the household as well as in the neighbourhood because of frequent interaction between households The <5 children commonly came in contact with the soil of the floor of living room, yard and kitchen during their daily activities. The <5 children played with wide range of objects made of different materials, size and shape. Not one standard fomite was identified that could be used as a measure of environmental contamination. The survey found that children could be exposed to faecal contamination through their own hands as well as mothers, relatives and older siblings because of lack of handwashing with soap.

Piloting measures of environmental contamination

A verbally administered, questionnaire survey along with spot-check of household water sanitation and hygiene (WATSAN) facilities was conducted in 20 households. Environmental Samples for faecal contamination were collected from the 20 households enrolled for the household questionnaire surveys. The measures of environmental contamination were finalised based on unstructured observation findings. The measures of environmental contamination included mother's hands, child's hands, sentinel non-porous toy ball (details given below), water container used to carry water to the toilet (*Badna*), floor of entrance of the living room and a composite floor sample collected from middle of yard, middle of living room and middle of the kitchen. The samples were processed via membrane filtration technique to detect fecal coliform and *E. coli* within 24 hours of collection.

Key findings from piloting

In the households with an improved latrines the (mean = 2.47) faecal coliform counts on children hands were less as compared to children's hands in households with an unimproved latrine (mean= 3.20). There was very little difference found in the mean faecal coliform counts in households with improved latrines as compared to households with unimproved latrines in the samples collected from sentinel toys, the sponge samples from water vessel (*Badna*), as well as the sponge samples collected from the household mud floor/yards.

There was some difference in the mean *E. coli* count in children's hands and mothers hands collected from the households with improved latrines compared to the households with unimproved latrines. However the differences were not statistically significant at 0.05 level with only 10 samples per group. There was very little difference found in the mean *E. coli* counts in households with improved latrines compared to households with unimproved latrines in the samples collected from sentinel toy, the sponge samples from water vessel (*Badna*) as well as the sponge samples collected from the household mud floor/yard.

Completed data collection to assess inters observer reliability of latrine categorisation

The questionnaire to assess latrine status was tested in the field for inter-observer reliability before the main data collection. Two observers including the PI have assessed latrine status in 50 households from 5 villages selected conveniently. The analysis of this data will help finalise the set of questionnaire that will be used to assess latrine status.

Plan for the next 6 months:

Computer programming to collect data electronically will be completed by end of July, 2013. Training of data collectors will be conducted in the first week of august. Data collection for the main study will start around middle of august and continue for four months. Hopefully by end of December 2013, all data collection and primary data editing will be completed.

Annex G – Country Platform Strategies

SHARE Country Platform Strategy India

1. Background

According to the latest estimates, only 35% of the population in India have access to safe sanitation facilities and 50% of the population defecate in the open (WHO/UNICEF 2013). Sanitation continues to be a low priority issue both for governments and for citizens. To achieve the MDG target in rural sanitation alone, would require a huge expansion of infrastructure. In urban areas, technically feasible and affordable sanitation remains a challenge especially for a large population residing in informal settlements. Hygiene is a neglected issue even when compared to sanitation and the limited available estimates for practice of handwashing with soap (HWWS) at critical times suggests it is even lower than sanitation coverage in India (Curtis et al 2009).

The Indian government launched the national-level Total Sanitation Campaign (TSC) in 1999 and has subsequently been modified and re-launched as the Nirmal Bharat Abhiyan (NBA) in 2012. A key component of both campaigns is the payment by the government of an ex-post financial subsidy or award for every rural household in India below the poverty line that constructs appropriate household sanitation. The NBA aims to address many criticisms of the TSC regarding emphasis on latrine uptake as well as coverage, and behaviour change components.

The issue of school sanitation has gained greater priority in recent years as lack of separate and maintained facilities has been recognised as an important constraint on school attendance, particularly for girls; and more recently, menstrual hygiene management has been added to this. Guidelines have been issued for construction of facilities and cross-sectoral working across ministries but coverage remains low.

As part of SHARE's inception activities, a visit was made to India to meet with local partners - WaterAid India and NSDF/SPAARC - as well as to consult a broad range of sector stakeholders including the Government of India (Rheingans & Cumming 2010). Demand was expressed for a SHARE country platform by a number of these stakeholders and WaterAid India committed to lead the platform. As well as prioritising research relevant to India under SHARE's competitive Research Calls, SHARE committed £250,000 for research identified by the platform.

**In November 2012, LSHTM were informed that WaterAid India would no longer be able to undertake the leadership of the country platform and, following discussion with WaterAid and the SHARE Consortium Advisory Group, and alternative management arrangement was implemented. This management arrangement and the risk mitigation strategy is annexed.*

2. Aims

The over-arching purpose of the SHARE India country platform is to develop a nationally relevant research agenda that reflects critical sector challenges and has the potential to influence progress on sanitation and hygiene.

The specific aims relate to changes we seek to see in the national sector as a result of SHARE inputs, and are as follows:

1. SHARE to convene policy, practice and academic stakeholders to identify critical barriers to progress amenable to research

2. Boundary partners to discuss often neglected aspects of sanitation and hygiene that are of importance in India (e.g. menstrual hygiene management, gender-based violence and maternal

3. Boundary partners to invest in SHARE

4. Indian researchers in collaboration with international expertise to investigate often neglected aspects of sanitation and hygiene that are of importance in India

5. Boundary partners to invest in and to implement projects and programmes that reflect SHARE research findings

3. India Platform research priorities

WaterAid India approached potential members and convened the first meeting of the Platform Research Group in September 2011 with the objective of formalising the MoU for the group and identifying priority research questions. The members included the Government of India, Unicef, DFID as well as a number of civil society representatives and research funders (See SHARE Inception Report 2011, and Annual Report 2012 for Terms of Reference and Meeting Report and Participants List).

The SHARE India Research Group, including representatives from government and other national sector stakeholders, agreed a set of priority research questions around sanitation and hygiene in India. Taking account of other research initiatives, the Group prioritised research that would consider the multiple and cumulative effects of poor sanitation and hygiene on women across the duration of their lives.

In order to develop this broad research question into more specific research questions, a cross-disciplinary research workshop with participation from policy and practice communities, as well as academia, was convened in October 2012. Under the broad heading of the 'cumulative effects of poor sanitation on women and girls across the life course' and number of research areas were identified and literature reviews conducted. This formative work was presented at the workshop and the following four sub-questions were agreed as priorities for use of SHARE research funding in India:

1. The conditions and effects of WASH in health facilities, particularly around childbirth

2. Operational research into menstrual hygiene management:

3. Psycho-social stress resulting from violence experienced by women in the course of using sanitation facilities or practicing open defecation.

4. The practice of limiting, postponing or reducing food and liquid intake to control the urge to urinate or defecate: the prevalence of this behaviour and related health risks.

4. Activities

The following are the key activities of the India country platform:

Convening and consulting
- Consult and identify critical boundary partners
- Establish a Platform Research Group to identify sector research priorities
- Workshops and symposia of policy, practice and research communities
- Establish partnerships for research uptake
- Support research uptake for other SHARE research in India (e.g. Orissa trial)

Research design and implementation
- Identify research priorities and define research questions
- Hold a public Request for Proposals (RFP) for Indian and international agencies
- Design/implement a review process for quality assurance and national ownership
- Leverage research financing

Information-sharing and translation
- Document and circulate process to national stakeholders
- Publicise RFP nationally and internationally
- Publicise the results of the RFP – research focus, institutions and location
- With researchers, to engage identified boundary partners

Monitoring and evaluating
- Monitor progress against stated platform aims
- Monitor progress and delivery of each research project
- Assess value for money (VfM) of platform investments
- Monitor and assess contribution of platform inputs to SHARE global LFA

These activities are to be delivered within the country platform budget that includes research funding (£250,000) as well as management and research uptake resources.

SHARE Country Platform Strategy: Bangladesh

1. Background

Bangladesh is the most populous country in the world, with just under half the population living on less than $1 a day and around 20% characterised as chronically poor. The gap in per capita income and income opportunities between urban and rural areas is widening. The socio-economic condition of urban poor however, is not better than rural poor; and in some cases worse.

Bangladesh experiences frequent flooding as a low-lying country, which presents unique challenges to maintaining safe sanitation and hygiene practices. According to the most recent estimates, 55% of the population have access to safe forms of sanitation, while 4% of the population practice open defecation (WHO/UNICEF 2013). In the urban areas, people are generally using three different types of latrines: ring slab, sanitary and open latrines with septic tanks while in the rural areas the common types are: ring slab and open/hanging latrines. Using open places for defecation is decreasing significantly because of growing awareness although the poorest people cannot afford to buy ring-slabs. Some use latrines of indigenous design e.g. a hole surrounded by bamboo mats. Bamboo and wooden pillars are used to construct hanging latrines. Many schools do not have proper water and sanitation facilities, and for the schools that have them, they are either inadequate or are in a state of disrepair (UNICEF, 2009). Over the past three decades, Bangladesh has made great strides in increasing sanitation coverage and usage in rural areas. These improvements in coverage and reported use reflect a combination of factors. They coincide with the national government policy commitment to improved access and financial support for infrastructure improvements. Implementation is supported through geographically coordinated efforts by a series of national NGOs in order to avoid duplication. Progress in urban areas has been more limited. Between 1990 and 2008 access to improved sanitation in urban areas has declined from 57% to 55%; access to shared facilities has remained essentially unchanged at approximately 25%; and open defecation has declined slightly from 7% to 3%.

The key policy guiding the WASH sector in Bangladesh is the National Policy for Safe Water Supply and Sanitation (NPSWSS) introduced in 1998. The policy aims to bring about changes in the traditional service delivery arrangement and to increase the capacity of the sector through different means like decentralization, (increased) participation of other actors like NGO, private sectors and users. Other key policies include the National Water Policy (NWP), Environment Policy, Health Policy and policy statements related to the sector such as the national PRSP.

2. Aims

Bangladesh has active WASH research sector, with high profile research being conducted by SHARE partners and others. This includes the WASH Benefits study funded by the Bill and Melinda Gates Foundation and the SHEWA-B intervention and evaluation led by UNICEF. Given the high level of activity in the sector, SHARE partners (in consultation with other sector actors) identified two research and RIU aims. The first is to reduce contamination of children's weaning food, through a combination of research and dissemination of intervention approaches. The second is to improve guidelines for the siting

of on-site sanitation and tubewells, based on an improved understanding of factors leading to contamination of wells by latrines.

These two aims were selected in part because they were not receiving substantial research attention from other research efforts. In addition, these are issues around which the two national partners (ICDDR,B and WAB) have established collaborations.

3. SHARE research priorities

SHARE research underway in Bangladesh focuses primarily on health and urban sanitation. The two main projects conducted are:

1. Weaning food: The project aims to investigate whether hygiene promotion is effective in reducing weaning food contamination. Based on a recent ground-breaking intervention study of weaning food hygiene in Mali, the research in Bangladesh involves field workers visiting households over a four-week period to advise mothers about handwashing with soap and food hygiene. The findings will have implications for the reduction of morbidity and mortality associated with weaning food related diarrhoea.
2. Safe distance of tube wells: A pilot study has been conducted on installation of tubewells from a safe distance of pit latrine in Bangladesh. In this study, microbial contamination of underground aquifer based on the hydro-geological condition of that particular area was monitored in a very limited scale with a very limited resource. The methodology for the study has been set up and expertise and experiences have been gathered for doing an in-depth study to develop a guideline for installing tubewells in a safe distance from a pit latrine. The aim of the project is to develop guidelines disseminated to the relevant stakeholders including WaterAid Bangladesh, NGO Forum for Public Health, UNICEF Bangladesh, VERC and other relevant institutions in the country.

4. Activities

The following activities have been planned for Bangladesh Country Platform:

1. Dissemination of ICDDR,B Weaning Food Research result through national print and audio media channels.
2. Creation of MoU with Sesame Street Workshop Bangladesh Country Office for creation of materials and pro
3. Production of Muppet/Puppet show merging weaning food research results with other WAB issues (e.g. WASH and climate change) to disseminate messages to schools children
4. Create Partnership with Plan International for production of RIU and dissemination materials
5. Create a Partnership with High Government Officials (Ministry of Women & Child Affairs) through provision of training activities on weaning food and WASH

6. National dissemination workshop for Safe Distance project results, including UNICEF, NGO forum, and Government of Bangladesh (DPHE)
7. SHARE review of ICDDR,B and UNICEF collaborative research on school WASH
8. Development of collaborative proposals to test intervention approach based on weaning food hygiene

SHARE Country Platform Strategy: Tanzania

1. Background

The National Strategy for Growth and Poverty Reduction (MKUKUTA II) strives to achieve 35% and 45% access to improved sanitation in rural and urban areas respectively by 2015. According to the latest estimates, 67% of Tanzanians use unsafe sanitation facilities, with 12% of the population practicing open defecation (WHO/UNICEF 2013). The large proportion of its population which have access to sanitation facilities, albeit unimproved, has its roots in President Nyerere's *Mtu Ni Afya* campaign in the 1970s and 1980s. Although there are very high levels of basic latrine coverage at the household level, institutional WASH is still lagging. Research by WaterAid, UNICEF and SNV found that only 11% of schools meet the minimum water, sanitation and hygiene standards.

Tanzania has a growing number of programmes promoting hygiene improvement, including WSP's Global Scaling Up Handwashing Programme focused on learning how to apply innovative promotional approaches to behaviour change to generate sustained handwashing with soap at scale.

Recent sector developments include:

- A **Memorandum of Understanding** was signed by the four key Ministries (Health, Education, Water and PMO-RALG) in June 2010 that set out principles, institutional arrangements, roles, responsibilities and obligations for achieving enhanced performance in sanitation and hygiene.

- The African Development Bank committed US$ 18 million to support the **National Sanitation Campaign**, which will provide important investment across the country. The four-year National Sanitation Campaign, was launched in July 2012, aims to improve the sanitation facilities of 1.3 million households and 701 schools by 2016. It is expected to help a total of 6.5 million Tanzanians to access improved sanitation and hygiene.

- The **Water Sector Development Programme** has also increased allocations for sanitation investments.

- In 2012 the **Global Sanitation Fund** Programme was launched in Tanzania, The overall goal of the programme is to see "Communities with increased access and use of improved sanitation facilities and with changed sanitation and hygiene behaviours at district level implementation scale." Dodoma was selected because it is one of the poorest regions in the country; has low sanitation coverage; with high under five mortality rate due to poor sanitation, hygiene and unsafe water supply.

In 2012 the Ministry of Health and Social Welfare developed the National Environmental Health and Sanitation Research Agenda (NEHSRA). It serves as a guide for researchers and funding agencies on priority environment health and sanitation research themes in Tanzania. The Agenda aims to guide stakeholders to direct their limited research resources to areas that will have greatest impact of reducing communicable diseases in the country. It is intended to facilitate the evidence-based formulation and implementation of policies, strategies and programs. The NEHSRA will be implemented for the period of 5 years (2013-2018) with mid review

Under the heading of **onsite sanitation and liquid waste management** the following issues have been prioritized:-

Research topics:

1. Coverage and use of improved sanitary facilities at household and institutional level
2. Evaluation of participatory sanitation and hygiene promotion interventions in triggering behavioural change;
3. Problems associated with onsite sanitation in urban and rural areas;
4. Feasible approaches of liquid waste reduction and minimization;
5. Efficiency of waste water treatment plants and sewers in relation to population served
6. Cost effective methods of treating waste water in urban areas;
7. Environmental and health impacts of mismanagement of waste water
8. Appropriate techniques for liquid waste and on site sanitation in relation to type of settlement in urban and rural areas;
9. Private sector involvement in onsite sanitation;
10. Feasibility study on private participation in the provision of liquid waste management infrastructure services in urban areas;
11. Compliance to effluent standards and safety of treated waste water for reuse;
12. Liquid waste recycling and reuse;
13. Sanitation governance and financing;

2. SHARE Research Platform Aims

SHARE researchers conducted a scoping in August 2010. At that time, Tanzania was at a key moment in relation to sanitation and hygiene research, policy and implementation. During the visit meetings were conducted with the following organisations to seek their views on potential research priority areas:

DANIDA	Ministry of Health and Social Welfare
Dar es Salaam City Council	UNICEF
DFID	WaterAid Tanzania
WSP	World Bank

The challenges and opportunities identified during the scoping visit indicated that SHARE's period of work in Tanzania from 2010 to 2015 was a useful and opportune moment for strategic involvement with the sector.

After the scoping visit and discussions with Ministry of Health and Social Welfare, the SHARE Research Platform was formed. It is hosted and chaired by the Ministry of Health and Social Welfare. It is convened through the Global Sanitation Fund's Programme Coordination Mechanism (PCM), which represents the key sector stakeholders are represented. The Platform is coordinated by NIMR with support from WaterAid.

The aim of the Research Platform is to generate knowledge that will help address major policy and programming constraints. The purpose of the Platform is to jointly identify major research question(s) related to improving progress on sanitation and hygiene in Tanzania; provide strategic oversight for the implementation of research and support ongoing research into use activities.

The Platform will continue to provide support for sharing lessons (by holding workshops or launching reports) that will help ensure research gets into use. The synergies with the Global Sanitation Funds programme are being explored.

From the scoping visit, SHARE's aims for our work in Tanzania were as follows:

- Research is led by the priorities identified by the Government of Tanzania and other national actors.
- The research capacity and evidence base regarding sanitation and hygiene in Tanzania is increased.
- The Ministry of Health and Social Welfare is actively engaged in developing the evidence base on sanitation and hygiene to strengthen decision-making processes.
- Key actors are convened around research findings so that resources can be effectively invested and ways of working in the sanitation and hygiene sector are strengthened.

3. SHARE research priorities

SHARE Platform is contributing towards the implementation of the Environmental Health and Sanitation Research Agenda by giving highest priority to the research topics identified in the Agenda. The following topics were identified by the SHARE Platform for further research:

1. Microfinance for sanitation and hygiene
2. Sanitation governance
3. Shared sanitation facilities
4. School WASH
5. Operational research linking excreta disposal, solid waste management and drainage
6. The sustainability of hygiene practices
7. Equity (including attention to gender)

A Call for Letters of Interest was launched on 26th September, 2012 and advertised on the NIMR, SHARE and WSSCC websites, in Guardian and Daily News magazines and through emails. We received 53 letters of interest. After review by members of the SHARE Research Platform and colleagues in the consortium, 16 Letters of Interest were invited to prepare full proposals.

After review by members of the SHARE Research Platform and other sector experts 4 projects were selected for funding by SHARE in November 2012: once these have been granted Ethical Approvals, the research will begin. The Research Proposals are:

Proposal	Investigator	Rationale	Research Topic under the NEHSRA[16]
Developing sanitation microfinance products in Tanzania	Sophie Trémolet (Trémolet Consulting), WaterAid Tanzania, MicroSave Consulting Ltd	Characterising the opportunities and challenges regarding sanitation microfinance and demonstrating the potential benefits	Sanitation governance and financing
Drivers for effective sanitation governance in rural and peri-urban areas around Lake Victoria-Tanzania	Governance Links	Demonstrating the potential benefits of strong governance for sanitation and identifying solutions to governance challenges	Sanitation governance and financing
Expanding the Mtumba model: creating a product for scale up	NIMR	Characterising the opportunities for scaling up the Mtumba approach and demonstrating the potential benefits	Evaluation of participatory sanitation and hygiene promotion interventions in triggering behavioural change
Shared sanitation; an improved or unimproved form of sanitation?	LSHTM, and Ministry of Health and Social Welfare in collaboration with Msabi and WaterAid	Characterising the health impacts of shared sanitation facilities and associated opportunities and challenges	Coverage and use of improved sanitary facilities at household and institutional level Problems associated with onsite sanitation in urban and rural areas

4. Activities

SHARE is conducting the following activities in order to achieve the country platfor

- Investing resources in nationally relevant research priorities
- Contributing towards the development of research capacity at a national level.
- Providing targeted support to the MoHSW and its partners to deliver the Nation Sanitation Campaign as well as the National Sanitation and Hygiene Technical Committee (NSHTC), chaired by the MoHSW and relevant Technical Working
- Sharing learning across the sector by producing publications and convening ta events.
- Monitoring the impact of SHARE's research and research into use activities in

The key milestones for the SHARE Tanzania platform are:

Aug 2010	Scoping visit to Tanzania by SHARE researchers
2011-2012	Discussions and planning with SHARE research Platform, MoHSW actors
Oct 2012	MoHSW issues research terms of reference and request for propos
Nov 2012	MoHSW-led team finalises selection of research proposals to be fur
April 2013	**SHARE organises the First Symposium at the 27th NIMR** Annua Scientific Conference (AJSC) **on sanitation and hygiene in Tanza**
July 2013	Research starts
July 2013	'State of the Field' review of Sanitation and Hygiene in Tanzania lau
April 2014	**SHARE event at the 28th NIMR** Annual Joint Scientific Conference
Nov 2014	Research completed
Nov 2014	Edited Book on Sanitation and Hygiene in Tanzania launched

SHARE Country Platform Strategy: Malawi

1. Background

Malawi is one of the poorest countries in sub-Saharan Africa with almost 40% of the population living on less that $1 a day. Urbanisation is a strong and growing trend in Malawi as people increasingly migrate away from rural areas looking for work.

Progress towards the Millennium Development Goal target for sanitation is deemed insufficient. According to the latest estimates just over half the population have access to safe sanitation, 8% have access to unsafe facilities and 6% are practicing open defecation (WHO/UNICEF 2013). Due to a high proportion of non-functioning water supply facilities, poor access to sanitation and low levels of good hygiene behaviour, WASH related diseases are prevalent. Hygiene behaviour is still poor; less than 1% of mothers wash hands before feeding a child. Regarding WASH in schools, UNICEF has found that 23% of schools have acceptable sanitation facilities of improved latrines at a ratio of 1:60 pupils or less.

At the time of the SHARE scoping visit to Malawi in July 2010, the National Sanitation Policy was in place but was yet to be officially launched by the government and DFID Malawi were also on the verge of scaling up its sanitation activities to programme level and increasing staffing levels. Stakeholders consulted then raised concerns regarding institutional arrangements, the level of coordination between development partners and implementing agencies, the risk of duplication in research and applied research efforts, a potential gap on urban sanitation and the lack of an agreed framework for monitoring and evaluation of sanitation policy and programmes.

Ecosan is widely promoted in both urban and rural areas, which raises issues such as the safety of using latrine compost, the nutrient value of latrine compost and the possible low demand for compost and urine in urban areas. Sanitation marketing also exists in Malawi as one approach to sanitation promotion although it is hindered by the lack of a consensus on if or how subsidies for hardware might be used and by a weak supply chain capable of providing good quality, low-cost sanitation technologies.

2. Aims

The July 2010 scoping visit indicated that SHARE's period of work in Malawi from 2010 to 2015 was a useful and opportune moment for strategic involvement with the sector. In response to challenges and opportunities identified during the scoping visit, SHARE's aims for our work in Malawi were as follows:

- The Government of Malawi is engaged in and discussing the follow new issues in the sanitation sector such as private sector involvement and menstrual hygiene
- The Malawi sanitation and hygiene sector have addressed coordination issues and blockages
- Research is conducted that will support progress in sanitation and hygiene in Malawi, led by research priorities identified by the Government of Malawi and other national actors
- The research capacity and evidence base regarding sanitation and hygiene in Malawi is increased and strengthened in order to support decision-making and investment.
- Ways of working in the sanitation and hygiene sector are strengthened

3. SHARE research priorities

During the SHARE scoping visit to Malawi in July 2010 and subsequent visits in 2011 and 2012, meetings were conducted with a range of key players in the sanitation sector including the following organisations to seek their views on potential research priority areas:

University of Mzuzu
WaterAid Malawi
Centre for Community Organisation and Development
Lilongwe Federations of the Urban Poor
Members of the National Sanitation and Hygiene Coordinating Unit (NSHCU)[17]
Ministry of Health
UNICEF
DFID Malawi
AusAid
Bunda College of Agriculture

Through this consultative process and the outcome of deliberations at the national workshop held in August 2012, five priority research questions were identified:

1. Private Sector Participation in the delivery of Sanitation and Hygiene Services
2. Challenges and Opportunities in Solid Waste Management: The Case of Malawian Cities
3. Pit Emptying and Faecal Sludge Management
4. Menstrual Hygiene Management in Primary and Secondary Schools: Status of Menstrual Hygiene Management in Schools; Challenges faced and their Mitigation Measures
5. Hand Washing with Soap – "People's Perception and Mindset on Hand Washing

In December 2012, the MoIWD issued research terms of reference and request for proposals and the following research projects were selected for funding:

Title: Private Sector Participation in the delivery of Sanitation and Hygiene Services
Researcher(s): Centre for Excellence in Water and Sanitation
Rationale: Characterising the opportunities and challenges in private sector involvement in sanitation and hygiene and demonstrating the potential benefits.

Title: Pit Emptying and Faecal Sludge Management
Researcher(s): Natural Resources Management Dept. (LUANAR, formerly, Bunda College of Agriculture)
Rationale: Characterising the problems encountered in pit emptying and faecal management in Malawi and identifying solutions.

Title: Challenges and Opportunities in Solid Waste Management: The Case of Malawian Cities
Researcher(s): Ruo Consultants
Rationale: Characterising the opportunities and challenges in urban solid waste management in Malawi and identifying solutions.

Title: Menstrual Hygiene in Primary and Secondary Schools: Status of Menstrual Hygiene Management in Schools; Challenges faced and their Mitigation Measures
Researcher(s): Benjamin Kaneka
Rationale: Characterising the opportunities and challenges regarding menstrual hygiene management in schools in Malawi and identifying solutions.

[17] The National Sanitation and Hygiene Coordinating Unit is made up of government ministries with a role to play on sanitation issues, NGOs and development partners.

No researchers have been selected yet for the fifth research priority area on handwashing and there are plans to make another call by September 2013.

In addition to the above country-platform research agenda, some other research projects have been funded by SHARE at a central level to respond to research priorities identified during the July 2010 scoping visit. One key research theme which was raised by many of the above actors in Malawi was the widespread implementation of ecological sanitation (ecosan). On this issue, SHARE felt it could be well placed to address questions relating to the use of these technologies providing useful learning for the sector globally and so research was funded through the central Call B for research into use in collaboration with Bunda College of Agriculture. Malawi is also one of the four southern African countries participating in the SHARE funded City-Wide Sanitation Project led by IIED and SDI.

4. Activities

SHARE is conducting the following activities in order to achieve the country platform aims:

- Convening and investing in the sanitation and hygiene sector to discuss new issues, such as private sector involvement and menstrual hygiene
- Supporting the national sanitation sector to convene targeted events and round-table discussions between different areas of government and civil society to address coordination issues and blockages.
- Working with the Ministry of Water Development and Irrigation (MoWDI) and other national actors to identify research priorities
- Investing in research into identified research priority areas and develop research capacity at a national level
- Monitoring the impact of SHARE's research and research into use activities in Malawi to identify potential successful ways of working

The key milestones for the SHARE Malawi platform are:

July 2010	Scoping visit to Malawi by SHARE researchers
2011-2012	Further visits by the country lead to discuss and planwith Ministry of Irrigation and Water Development (MoIWD) and other actors over the formation of the Research Group to oversee the running of the country platform.
August 2012	A national research workshop held and attended by various sanitation stakeholders in Malawi to identify key research areas. The MOU between SHARE and the Malawi Country Platform was also signed at this workshop. The position for Research Coordinator was advertised nationally in the daily papers.
Dec 2012	MoIWD issues research terms of reference and request for proposals
Feb 2013	Position of Research Coordinator filled
May 2013	MoIWD-led team finalises selection of research proposals to be funded
June 2013	MoIWD negotiates Contracts with potential researchers
July 2013	Signing of contracts between the country platform and the selected researchers
	Researchers start implementing the research projects
	Second call for proposals (Hand Washing with Soap – "People's Perception and Mindset on Hand Washing) and other research topics depending on availability of funds and time limitation.
Sep 2013	Selection of successful researchers
Oct 2013	Stakeholder midterm research workshop

	Contract negotiations with researchers i.e. after second call for proposals
Jan 2014	Final stakeholder research workshops

Annex H – Framework for Sustaining Country Platforms

The impacts and benefits achieved with SHARE research activities work depends on the Consortium's ability to effectively contribute to this change. Unfortunately, research is often not appropriately translated or does not catalyse the desired changes. Ensuring that the research outputs produced lead to these desired outcomes requires careful evaluation and assessment of the barriers, as well as careful strategic planning of activities. This is particularly true in SHARE's CPs, where our long-term impact will depend upon our ability to contribute to sustained change in how sector actors use and develop information to improve programs and policy. The objective of this Section is to lay out a framework and approach for assessing whether the necessary conditions are in place or being built to ensure ongoing research generation and use. It also identifies potential strategies within and outside the scope of SHARE to promote these changes.

The sustainability framework is based on the conditions that we are seeking to have sustained, rather than how to sustain our current activities. That is, it does not necessarily entail maintaining a 'SHARE-branded' group or activities. Instead, it focuses on three sustainability conditions:

- National sector partners identify information and research needs
- Identify approaches for filling those gaps
- Act on that information and
- Monitor the results and define new actions or information needs

We then identify a series of necessary conditions for achieving sustainability of those actions and corresponding gaps. Potential strategies for creating those enabling conditions are also identified. Given SHARE's limited time and resources, it these actions are likely to be beyond the scope of SHARE's control. However, there are likely to be actions that can be taken that will contribute to these conditions.

The current assessment of gaps and opportunities (Figure 6 – see next page) is based on the experience over the first three and a half years of SHARE and will be assessed more systematically moving forward in the context of our outcome mapping evaluations. While SHARE continues to work on the priority short-term activities, the framework facilitates planning for long-term needs which may be somewhat different than short-term priorities.

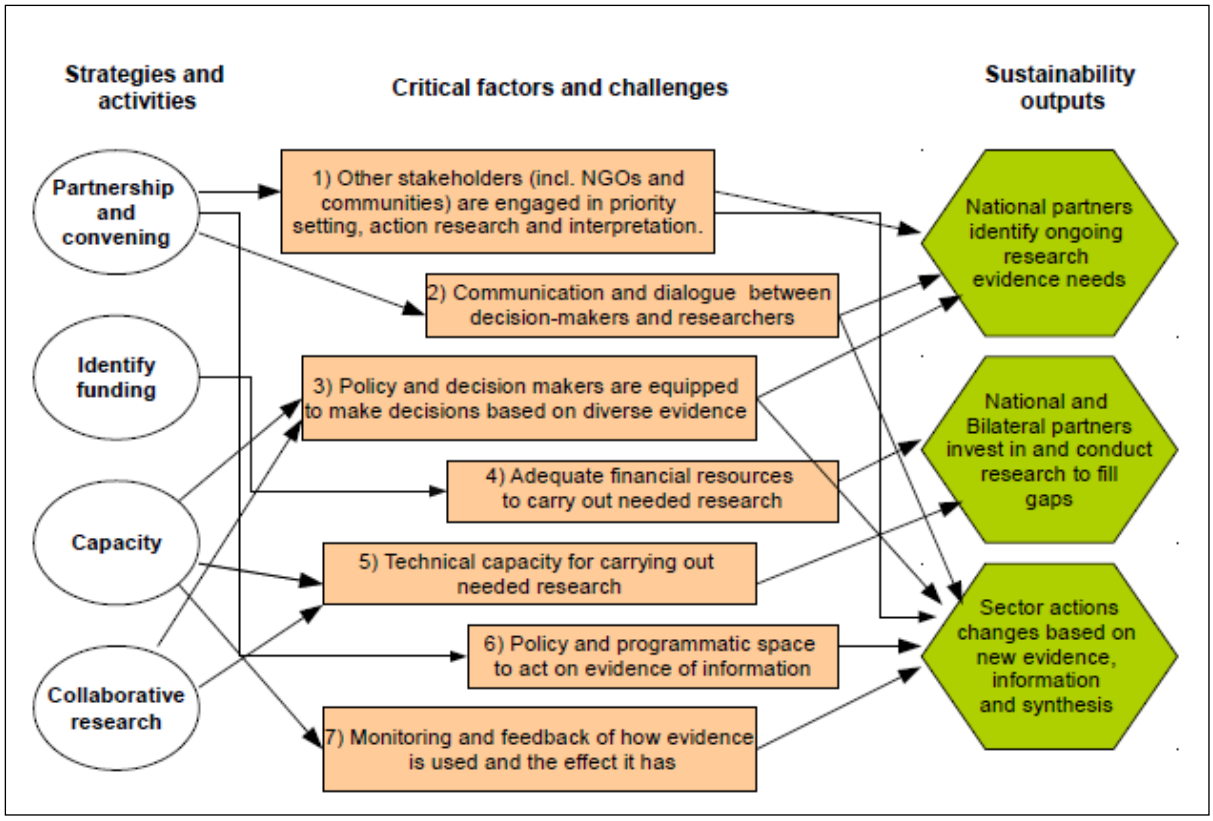


Figure 6: Framework for country platform sustainability

How to measure RIU sustainability in country platform?

To measure the sustainability of research into use within country platforms two main objectives are:

- Measuring impacts against specific RIU goals as indicated in Country Platform research into use plans.
- Monitoring systemic Country Platform progress in order to improve the needs for RIU implementation.

SHARE will continue to carry out activities to support sector partners in identifying research gaps, filling them through research activities, and supporting their translation into practice. We will also begin to identify activities that can lead to conditions that enable long-term sustainability. For each of the critical factors and challenges developed in Table 1 we developed appropriate indicators for measurement. These are illustrated in Table xx below.

Critical Factors and Challenges	**Indicators**
1) Other stakeholders (incl. NGOs and communities) are engaged in priority setting, action research and interpretation.	• Intensity of communication between policy makers and researchers is increased.
2) Communication and dialogue between decision-makers and researchers	• Knowledge generated is clearly translated into available information.
3) Policy and decision makers are equipped to make decisions based on diverse evidence	• Availability of technical staff in key decision making settings. • Presence of contextual data to make decision. • Capacities to synthesize data are available. • Training materials and workshops for decision makers are developed. • Institutional mechanisms to critically review evidence are in place (Scientific advisory group).
4) Adequate financial resources to carry out needed research	• Critical means for fund-raising are created. • Research proposals are developed.
5) Technical capacity for carrying out needed research.	• Technical staff is involved in research. • National PhD students are promoted. • Capacity building events take place.
6) Policy and programmatic space to act on evidence of information	• Internal priorities are the basis for funding decision making. • Funds are (re) allocated on the basis of national priorities. • Legal environment enabling evidence-based decision making.
7) Monitoring and feedback of how evidence is used and the effect it has	• M&E mechanisms for CP are in place. • Collaborative monitoring programmes are carried out building off of the WSP learning laboratories

Annex I – DFID Evidence Paper on WASH in Country Business Cases

COUNTRY	DFID INTERVENTION	FUNDS and DURATION	EXPECTED OUTCOMES	REFERENCE TO EVIDENCE PAPER
Sierra Leone	Water Supply, Sanitation and Hygiene Promotion in Schools, Clinics and Communities in rural Sierra Leone	£21.5 million February 2012-February 2015	In six Target Districts the expected outcomes are: • 364,000 people with improved access to sanitation, • 693,000 people with access to community-owned WASH facilities; • 450 Public Health Units (PHUs) with access to community-owned WASH facilities; • 633,000 school children and teachers in 2,000 schools in the six target districts with access to school-owned WASH facilities, • 100% Open Defecation Free	The Business case refers to the Evidence Paper in justifying the need for the school intervention, mentioning both the health and non health impacts of WASH improvements indicated in the Paper
DRC	Extension to the Village Assaini programme to improve water, sanitation and hygiene and to build on the Village's structures in place, enhancing best practices and harmonising monitoring and evaluation mechanisms.	£11.57 million From September 2012 to September 2013 (Bringing the total value of DFID's contribution to the programme to £36.57 million)	DFID funds will reach 850 new villages across all 11 provinces of DRC and provide: • Improved access to safe drinking water to 408,000 people; • improved sanitation to 326,400 people; • Improved hygiene education and better environmental	Reference to the Evidence paper in the Business case: The case Study uses the Paper definition of Evidence. It refers to the synthesis of

			health to 322,320 people; • Gender equity in village health and water committees; • Improved capacity of government institutions to deliver and sustain water and sanitation improvements; • Improved sector policy environment and an effective government structure	health and non-health benefits of WASH improvements provided in the Evidence Paper.
Nepal	DFID Nepal Rural Water Supply, Sanitation and Hygiene supporting: • an enabling environment at central level, and capacity development at local level • the delivery of improved school- and community-led total sanitation and hygiene and new clean water and sanitation infrastructure • the provision of sustainable, affordable, and durable hardware through the engagement of community-managed finance and private sector.	£3.75m over a period of 3 years 2012-2015	The programme will implement 192 schemes which will benefit: • 5,200 households • 33,000 people and will build • 4,160 household latrines • 20 latrines in schools.	Reference to the Evidence Paper relates to the impacts of WASH interventions on health outcomes, particularly reducing “morbidity and mortality associated with diarrhoeal diseases”.

Malawi	DFID Malawi will support the delivery of rural water, sanitation and hygiene services in 10 low-WASH districts in Malawi	£20 million May 2012 to December 2015	Provision in 10 low-WASH districts: • equitable and sustainable access to and use of safe water supply and improved sanitation for 850,000 people • improved hygienic practices for 1 million people	Reference to Evidence Paper: Reporting global evidence that inadequate water, sanitation and hygiene contributes substantially to the mortality associated with diarrhoea as well as link with other diseases such as under nutrition and acute respiratory infections.
Mozambique	DFID intervention aims to accelerate progress towards achieving the Millennium Development Goals (MDGs) in rural water and sanitation in Mozambique	£20 million over a five year period 2010/11-2014/15	• Provision of clean drinking water to 328,000 people. • 355,500 people will benefit from adequate sanitation with improved latrines and hygiene promotion.	
Tanzania	Water Sector Development Programmes	The UK will provide a total of £30 million from 2012 to 2015,	The expected output are: 652,000 people provided with	Reference to the Evidence paper is on the health and socio-economic impacts of

			access to clean water 1. 652,000 people reached with sanitation and hygiene campaigns 2. 163,000 people build toilets 3. 10% of village water committees legally registered 4. Strong monitoring system in place 5. Programme is focused on poor people in areas of need	WASH improvements.
Zambia	The funding will be channelled through UNICEF to work with local government, NGOs and the private sector to carry out sanitation and hygiene promotion and marketing and to construct latrines at schools and health clinics.	£19 million over 4 years (2011/12-2015/16)	The expected outcomes of the programme are: • Reduced diarrhoea morbidity amongst rural children under 5 from 15% (DHS 2007) to 12%file://localhost/outbind/::81: - _ftn1 (2015). This amounts to 14,300 fewer cases of diarrhoea in children each year. • 3 million additional people consistently using an improved sanitation facility with handwashing.	Use of the evidence paper to develop criteria for choosing the most effective intervention between: Rural water supply Sanitation and hygiene No intervention

Zimbabwe	The funds, managed by UNICEF aim to support rural water, sanitation and hygiene sector (WASH)	£34 million From 2012 to 2016	The expected outcomes of the programmes are: • equitable and sustainable access to, and use of safe water supply to 2,375,000 people; • improved sanitation to 1,140,000 people. • Hygiene practices will be improved amongst the rural population in 30 districts in 5 provinces.	Indirect reference (health impacts of WASH improvements)

Annex J – Value for Money of Key SHARE Projects

RESEARCH REPORT

SHARE Value for Money Analysis:

Quantitative Estimates of Value for Money from Sanitation and Hygiene Applied Research

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SHARE Impact Director

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SHACK / SLUM DWELLERS INTERNATIONAL [SDI]
WaterAid
share
Sanitation and Hygiene Applied Research for Equity

Introduction

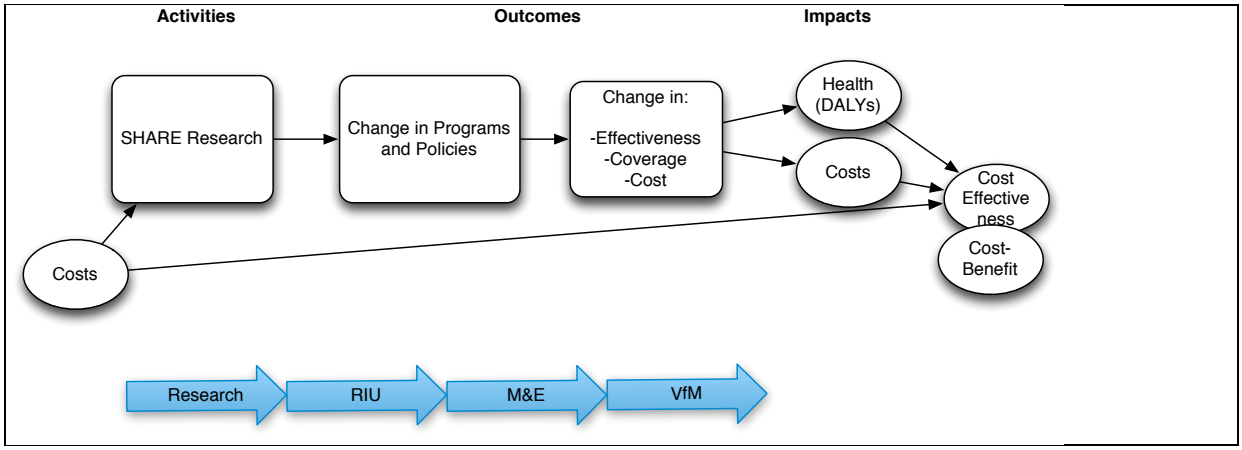
The current work describes SHARE's efforts to develop quantitative estimates of the impact of its research on health and economic outcomes in a value for money analysis. Most other quantitative VfM analyses focus on projects or programs that directly invest in a particular sector. These analyses are typically based on existing cost-benefit analysis models, or are carried out by creating such models. One of the challenges for SHARE's case is that it is not a direct investment program or policy initiative. As such, quantitative VfM requires a impact model that accounts for the effect of program information and applied research on sector performance (e.g., changes in practice or investment). The second challenge in SHARE's case is that there are no readily available impact models that can be used as in some of the other cases.

The purpose of this report is to describe a consistent method for quantifying the health and economic benefits of SHARE research and RIU activities and develop a series of empirical applications for four SHARE activities: research on weaning food contamination, development of the DFID WASH Evidence Paper, promotion of the Mtumba sanitation approach in Tanzania, and the Choose Soap project developing more effective and scalable behaviour change for handwashing with soap.

Methodological Overview

The model (Figure 7) assumes that costs are invested in SHARE research and research into use activities; that these result in changes in programs and policies; that these in turn change performance in terms of coverage, cost and effectiveness; that these can be quantitatively translated into economic and health metrics; and finally summary measures such as benefit:cost ratio and cost-effectiveness ratio can be used to assess the return on the research and RIU investment.

Figure 7. SHARE's Value for Money Conceptual Framework



Each application is slightly different based on the specific research and application, however they have several common features.

Programmatic change

Two types of programmatic change are considered – increasing investment in new or existing activities, or using a new approach in replacement of an existing one. The former includes increased sector investment for example that triggered by the Evidence Paper or increase promotion of weaning food hygiene. The latter includes the possibility of promoting new approaches such as Mtumba or the handwashing with soap methods from Choose Soap. In some cases, both types of change appear to be occurring.

Intervention effectiveness

Estimates of intervention effectiveness focus on diarrhoeal disease reduction in children under 5 years of age. Many of the interventions are likely to have benefits beyond this, including reductions in respiratory illness from improved handwashing, reduced undernutrition, and reduced soil transmitted helminths. However quantitative estimates of effectiveness are less available for these endpoints. We used the pooled estimates of effectiveness for water quality, sanitation and hygiene from the DFID Evidence Paper as the basis for our estimates. However there is substantial uncertainty, as actual effectiveness may change across settings.

For some interventions, such as weaning food hygiene, there are no available estimates of effectiveness in reducing diarrheal disease. Similarly, there currently are no quantitative published estimates of the relative effectiveness of some approaches (e.g., Mtumba and Choose Soap) in comparison with existing approaches. In these cases we directly address this in the more detailed sensitivity analysis.

Health impact

The primary health impact we consider is diarrhoeal morbidity and mortality in children under 5 years. For each application we use national mortality estimates from Black and colleagues [1]. In some cases these are supplemented with more specific information on hospitalization rates or specific age ranges (in the case of weaning food hygiene). Other SHARE research demonstrates that diarrhoeal mortality associated with inadequate sanitation and hygiene is

likely to be heterogeneous within any country, due to differences in exposure, nutritional status, and access to basic medical care (including ORS). If interventions are targeted at high burden and high vulnerability populations, then the potential impact is greater. If they fail to reach the more vulnerable, then the impact may be less. It is difficult to empirically assess this, and as a result it is addressed in the sensitivity analysis.

Costs

In these analyses we focus on the costs associated with diarrhoeal cases, considering both costs borne by the healthcare system and those incurred by the family. Estimates are based on published national estimates of treatment costs from Atherly and colleagues[2] which are based on WHO CHOICE methods and regional estimates based on a multi-country analysis for Africa[3] and Asia[4].

Attribution

One of the challenges of estimating the VfM for applied research and RIU activities is assess what portion of change can be attributed to the specific activity, compared to that of others. Attribution is central to defining the counterfactual for these analyses. That is, what would have happened in the absence of the activity? For example, for many of the SHARE activities analysed here, SHARE's work builds on a long history of work conducted by other institutions as well as SHARE researchers. In some of these cases, SHARE's activities may have been essential in triggering a particular change, in spite of the fact that SHARE's investment is a small fraction of the total effort. In such a case where a SHARE activity pushes the collective effort across a threshold, what portion of the change should it be credited with?

In spite of this uncertainty, it is essential to quantify this contribution. To do so, we use the following principles. First, we only estimate the benefit and claim it as a SHARE impact if it can be documented that SHARE contributed to the programmed change in a concrete way. Second, the magnitude of the attribution should be based on the extent to which SHARE contributed to the specific change. For example in the case of the Evidence Paper, SHARE's contribution was only one part of synthesizing the evidence base for the impact of sanitation and hygiene. In contrast, in the case of weaning food hygiene, SHARE has been central to researching the problem and translating the results into changes in practice and it is appropriate to estimate a higher contribution. One important corollary to this is that if SHARE engages in specific RIU activities that would not likely have occurred otherwise, any resulting research uptake could be substantially attributed to SHARE. Third, given the fundamental uncertainty in these estimates, analyses must explicitly explore the influence of the attribution assumption on estimated impacts and this uncertainty should be reflected in uncertainty bounds around the estimated impact.

Uncertainty

There are varying degrees of uncertainty within each stage of the causal chain laid out in Figure 1.These range from uncertainty in the degree of change in programmes, the effect on household sanitation and hygiene, and the effect on health and economic outcomes. We use Monte Carlo analysis to characterize these uncertainties and quantify the effect on impacts. Each input variable is characterized by a probability distribution representing the range of

likely outcomes. In the simulation procedure, a single value is drawn from the probability distribution of each input variable, and forecast values are calculated for key outcomes. The procedure is repeated (10,000 iterations in this case) and the resulting outcome calculations are used to develop an output distribution. This output distribution represents the expected range of potential outcomes, given the assumed input distributions and the selected structure of the model. Uncertainty limits are estimated based on the 5th and 95th percentile of the output distributions.

Additional sensitivity analyses are conducted to identify the key input variables that explain variability in the outcome. These include one-way sensitivity analyses where a single input variable is varied and two-way analyses where two input variables are varied simultaneously.

Scenario analyses

Scenario analyses are used to estimate the expected outcomes associated with specific actions. For example, we examine the potential return of increased investment in RIU activities to expand the uptake of behaviour change communication techniques from the Choose Soap project.

Value for Money: DFID WASH Evidence Paper

Background

Over the past two years SHARE worked with DFID to develop a WASH Evidence Paper that was published in early 2013. During that time SHARE researchers also worked with several DFID country offices to use the results of the Evidence Paper to develop a business case for increased investment in WASH. The Evidence Paper was also cited in DFID's decision to increase overall investment in WASH.

In this analysis we examine the potential impact of SHARE's synthesis work in the Evidence Paper on increased WASH funding in six specific countries. The countries were selected because their business cases explicitly cite the Evidence Paper as a part of their rationale.

Methods

For each country, the business case is used to estimate the number of people expected to result from water, sanitation and hygiene due to the increased investment. We assumed that the investment would result in changed access to water and sanitation or changed hygiene behaviour over specific time periods (see Table 6).

Table 5. Input variables and ranges for Evidence Paper Value for Money Analysis

Input variables for SHARE Value for Money analysis of WASH Evidence Paper										
	Malawi	Sierra Leone	DRC	Nepal	Mozambique	Tanzania	Zambia	Zimbabwe	Range	Source
Population										
National population	15,380,888	5,997,486	67,757,577	30,485,798	23,929,708	46,218,486	13,474,959	12,754,378		www.worldbank.org
Population <5	2,591,146	946,864	11,800,000	3,535,438	3,820,402	7,565,772	2,281,949	1,707,453		Black et al 2010
Diarrhoeal Burden										
Diarrhoeal deaths in children <5 years	6,169	8,904	102,679	5,416	13,105	20,211	11,222	3,291	Triangular distribution; +-25%	Black et al 2010
Diarrhoea mortality (/1,000 children<5)	2.38	9.40	8.70	1.53	3.43	2.67	4.92	1.93		
Cases (#/child/yr)	3	3	3	3	3	3	3	3	Triangular distribution; 2-4	assumption
Costs										
Health system cost	£ 0.71	£ 0.71	£ 0.71	£ 0.50	£ 0.71	£ 0.71	£ 0.71	£ 0.71	Triangular distribution; +-50%	Atherly et al 2012
Household medical cost	£ 0.73	£ 0.73	£ 0.73	£ 0.92	£ 0.73	£ 0.73	£ 0.73	£ 0.73	Triangular distribution; +-50%	Rheingans et al 2012a b
Household non-medical cost	£ 1.28	£ 1.28	£ 1.28	£ 0.65	£ 1.28	£ 1.28	£ 1.28	£ 1.28	Triangular distribution; +-50%	Rheingans et al 2012a b
Programme Change										
Water										
# Beneficiaries	850,000	693,000	408,000	33,000	328,000	652,000		2,375,000		DfID Country Business Cases
# children	143,196	109,409	71,053	3,827	52,366	106,730	-	317,946		population extrapolation
Sustainability (yrs)	8	8	8	8	8	8	8	8	Triangular distribution; 6-10	assumption
Sanitation										
# Beneficiaries	850,000	364,000	326,400	24,960	355,500	163,000	3,000,000	1,140,000		Business cases
# children	143,196	57,467	56,843	2,895	56,756	26,682	508,042	152,614		extrapolation
Sustainability (yrs)	4	4	4	4	4	4	4	4	Triangular distribution; 2-4	assumption
Hygiene										
# Beneficiaries	1,000,000		322,320		355,500		3,000,000	1,140,000		Business cases
# children	168,465	-	124,759	-	56,756	-	508,042	152,614		extrapolation
% regular handwashing w/soap	30%	30%	30%	30%	30%	30%	30%	30%	Triangular distribution; 10-50%	assumption
Sustainability (yrs)	1	1	1	1	1	1	1	1	Triangular distribution; 0.5-1.5	assumption
Intervention effectiveness										
Water	17%	17%	17%	17%	17%	17%	17%	17%	Triangular; 9-26%	DfID WASH Evidence Paper
Sanitation	38%	38%	38%	38%	38%	38%	38%	38%	Triangular; 19-57%	
Hygiene	48%	48%	48%	48%	48%	48%	48%	48%	Triangular; 38-58%	

Intervention effectiveness in preventing diarrhoeal disease was based on estimates from the DFID WASH Evidence Paper. We treated the effectiveness of each intervention separately. The business cases do not state whether the same individuals benefit from multiple interventions or whether interventions are targeted at different individuals. In our estimates of effectiveness in reducing diarrhoeal disease we did not attempt to adjust for potential differences due to multiple interventions potentially having less effectiveness than the sum of the individual interventions.

Benefits were estimated as changes in diarrhoeal costs and mortality in children under 5 years of age. We used national mortality estimates, but explicitly examined the effect of targeting to regions and households with children with higher mortality.

Results

Based on the baseline assumptions, it is estimated that increases in WASH investment related to the Evidence paper could result in an additional investment of £32 million (uncertainty limits: £10-53 million). This would result in an additional 1.7 million people with improved water, sanitation or hygiene (uncertainty limits: 0.5-3.0 million). These improvements in services are expected to result in 2,305 diarrhoeal deaths averted (uncertainty limits: 688-4,439) cost savings of £4.5 million (uncertainty limits: £1.3-9.1 million).

Table 6. Summary Outcomes. Value for Money of SHARE Contribution to DFID WASH Evidence Paper

SHARE Value for Money: WASH Evidence Paper			
		Mean	
Overall Benefits			
People with Improved WASH		8,690,000	
Deaths averted		9,770	
Costs averted	£	19,148,000	
Estimated SHARE Catalyzed Benefits			**Uncertainty Bounds**
People with Improved WASH		1,728,000	554,000-2,961,000
Deaths averted		2,305	688-4,439
Costs averted	£	4,498,000	477,000 - 19,796,000

For all outcomes, there was substantial uncertainty in the estimates. This can be seen in several ways. Figure 8 shows the effect of changes in individual input variables on the expected health and financial impacts. For both deaths averted and cost savings, the most influential variable is the fraction of change that can be attributable to SHARE. The estimate of deaths averted is also highly dependent on the relative mortality of the targeted population, the effectiveness of sanitation in reducing diarrhoeal disease in these settings and the sustainability of the improvements in sanitation. The estimates of cost savings were dependent on diarrhoeal incidence and treatment costs as well.

Figure 8. Tornado Diagram. Influence of Individual Input Variables on Estimated Deaths Averted. DFID WASH Evidence Paper Value for Money Analysis.

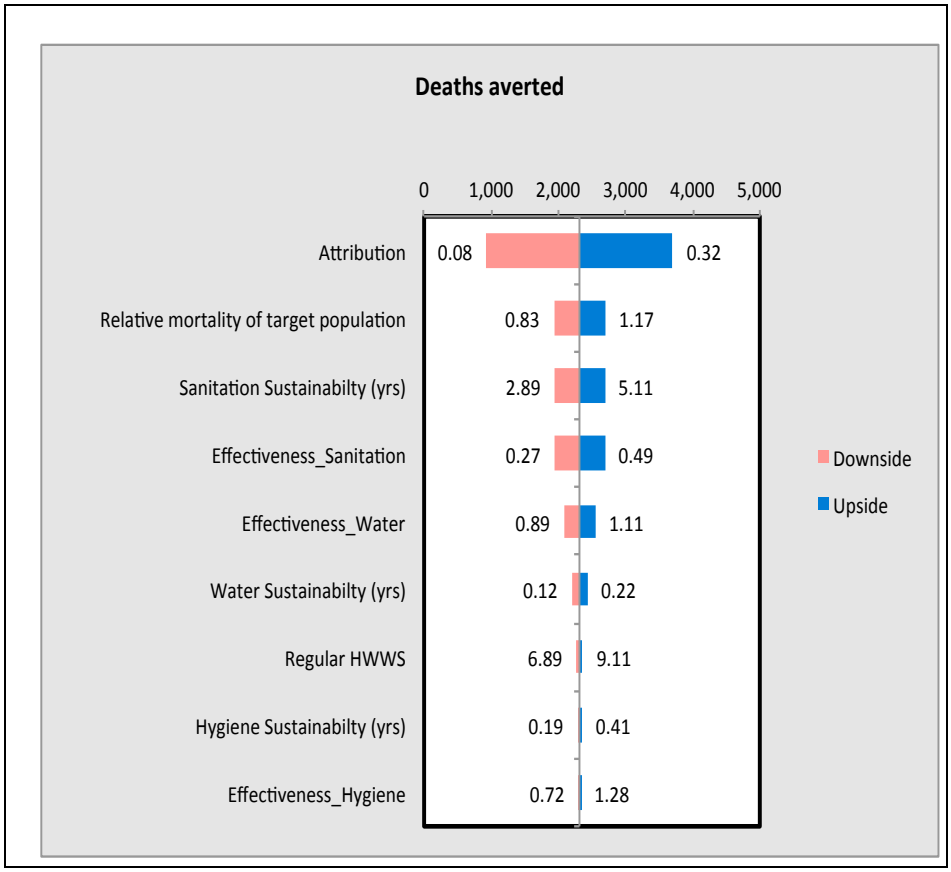
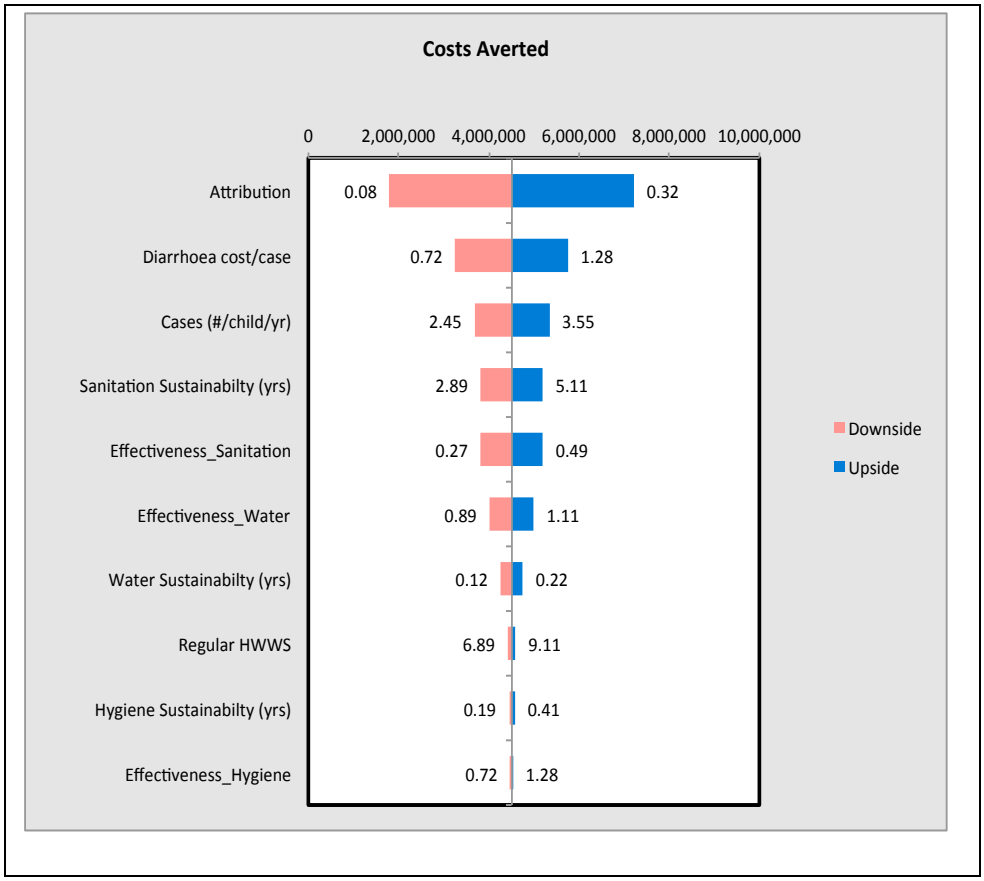


Figure 9. Tornado Diagram. Influence of Individual Input Variables on Estimated Costs Averted. DFID WASH Evidence Paper Value for Money Analysis.



Implications

The analysis suggests that increased investment in water, sanitation and hygiene, resulting in part from the DFID WASH Evidence Paper are substantial. It is important to note that these estimates include only a portion of the health, financial and educational impacts of these investments. The value of SHARE's contribution to these impacts could be substantial, although there is substantial uncertainty in their exact amounts.

In addition to providing estimates of confidence in the quantitative results, the uncertainty and sensitivity analyses have important implications in how to maximize the VfM of SHARE's work (as well as that of the sector).

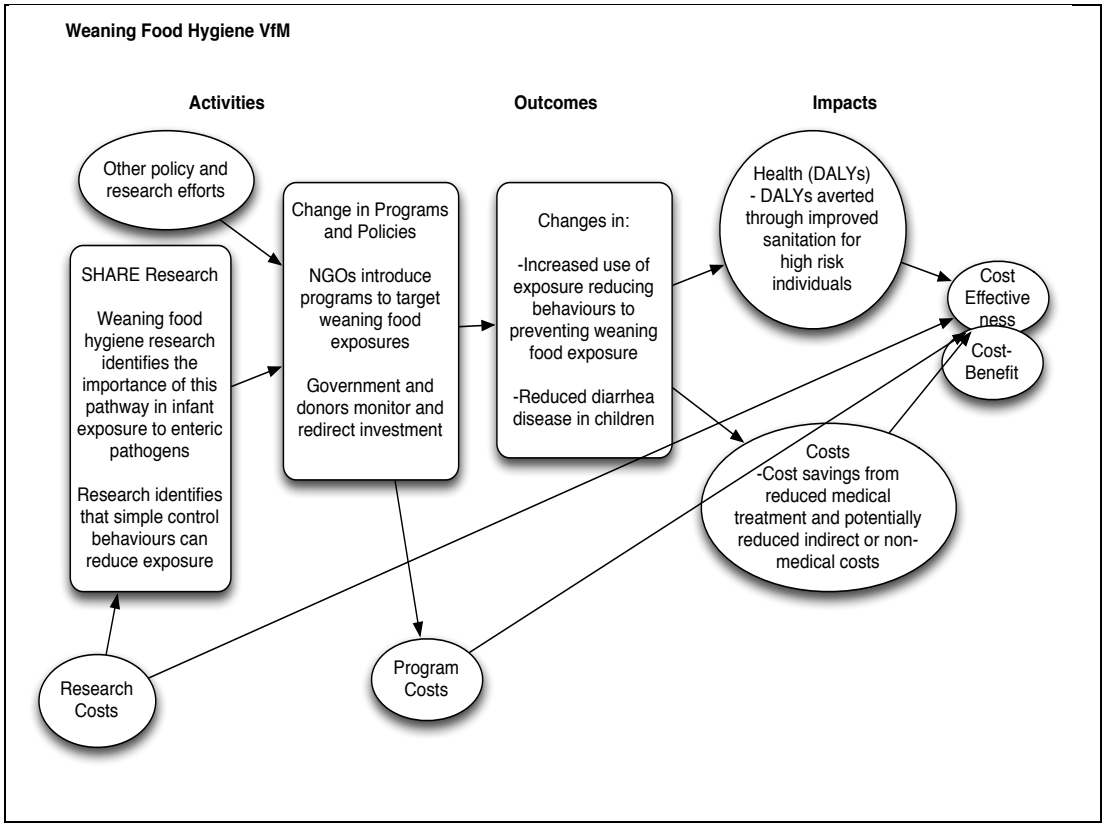
- SHARE's attributable impact can be increased by promoting the Evidence Paper as a basis for WASH investment.
- Targeting of interventions at highly vulnerable populations with greater mortality risk could increase program impact and VfM.
- Methods to improve the effectiveness of sanitation or to increase the sustainability of improvements could improve the health and financial impacts.

Value for Money: Weaning Food Contamination

Background

One of SHARE's earliest research projects examined bacterial contamination of young children's weaning food in Bangladesh and the effectiveness of control measures using a HAACP approach in reducing the contamination. The study, led by Dr. Sirajul Islam and his team of researchers at ICDDR,B found high levels of contamination with faecal indicator bacteria and found the control measures to be effective[5]. The results of the work have been presented in various forum, including a series of trainings and workshops for district health officer, organized by the WaterAid Bangladesh as a part of SHARE's RIU strategy in Bangladesh. Through a MOU with the Ministry of Health, weaning food contamination messages are being incorporated in early in advice to mothers of young children.

Figure 10. Value for Money Conceptual Framework: SHARE Weaning Food Hygiene Research and RIU



Methods

For this analysis we estimated the impact of improved mothers' weaning food hygiene on reduced diarrhoea mortality and costs in Bangladesh. Key input variables are included in the Table 8 There is little available data on fraction of diarrhoeal disease in Bangladesh attributable to contaminated weaning foods, although some estimates are that up to 80% may be due to the pathway. To be conservative in our estimate, we focused on diarrhoea in children 6-23 months of age. We also exclude diarrhoea due to rotavirus, estimated to be over 40% of severe cases. Lastly we conservatively assumed that two-thirds of the

Table 7. Input variables and ranges for Weaning Food Value for Money Analysis

Input variables for SHARE Value for Money analysis of Mtumba Sanitation Project			
	Best estimate	Range	Source
Population			
National population <5yrs	16700000		Black et al 2010
Population 6-23 months	5100000		Zaman et al, 2009
Diarrhoeal Burden			
Diarrhoeal deaths in children <5 years	20155	Triangular distribution; +-25%	Black et al 2010
6-23 months	14089		Zaman et al 2009
% Non-rotavirus severe diarrhoea	57%	Triangular distribution; 47-67%	Zaman et al 2009
% of non-rotavirus diarrhoea attributatable to weaning food contamination	67%	Uniform distribution; 55-79%	assumption
Risk of medical visit for diarrhoea; children 6-23 months	0.081		Zaman et al 2009
% diarrhoeal visits 24 hrs	42.0%	Triangular distribution;38-46%	Zaman et al 2009
% diarrhoeal cases seeking medical care	24.9%	Triangular distribution; 22-27%	Zaman et al 2009
Costs			
Hosp health system cost	£40.76	Triangular distribution; +-50%	Atherly et al 2012
Outpatient health system cost	£6.93	Triangular distribution; +-50%	Atherly et al 2012
Household medical cost	£0.57	Triangular distribution; +-50%	Rheingans et al 2012b
Household non-medical cost	£0.53	Triangular distribution; +-50%	Rheingans et al 2012b
Intervention effectiveness			
% mothers reached	10%	Triangular distribution; 5-15%	assumption
% mothers behavior changed	50%	Uniform distribution; 30-70%	assumption
Efficacy in reducing WF diarrhoe	75%	Uniform distribution; 55-95%	assumption
SHARE impacts			
Attribution	90%	Triangular distribution; 80-100%	asumption

remaining diarrhoea in this age group might be due to weaning food contamination (as opposed to water or direct contact).

There is also uncertainty regarding the fraction of mothers who will be reached through the district health workers. This is primarily due to the fact that the approach is just beginning to be rolled out. We conservatively estimated reaching 10% of mothers in spite of the fact that this is being mainstreamed into a primary delivery mechanism for health information for

mothers. There is also uncertainty regarding the effectiveness of the intervention in terms of triggering behaviour change among mothers and as a result reduced diarrhoea.

For this analysis we assumed a high degree of attribution (80%) given that the triggering ICDDRB research was supported by SHARE and the RIU activities were supported through WaterAid and the country platform strategy.

Ranges for all input variables used in the analysis are shown in Table 3.

Results

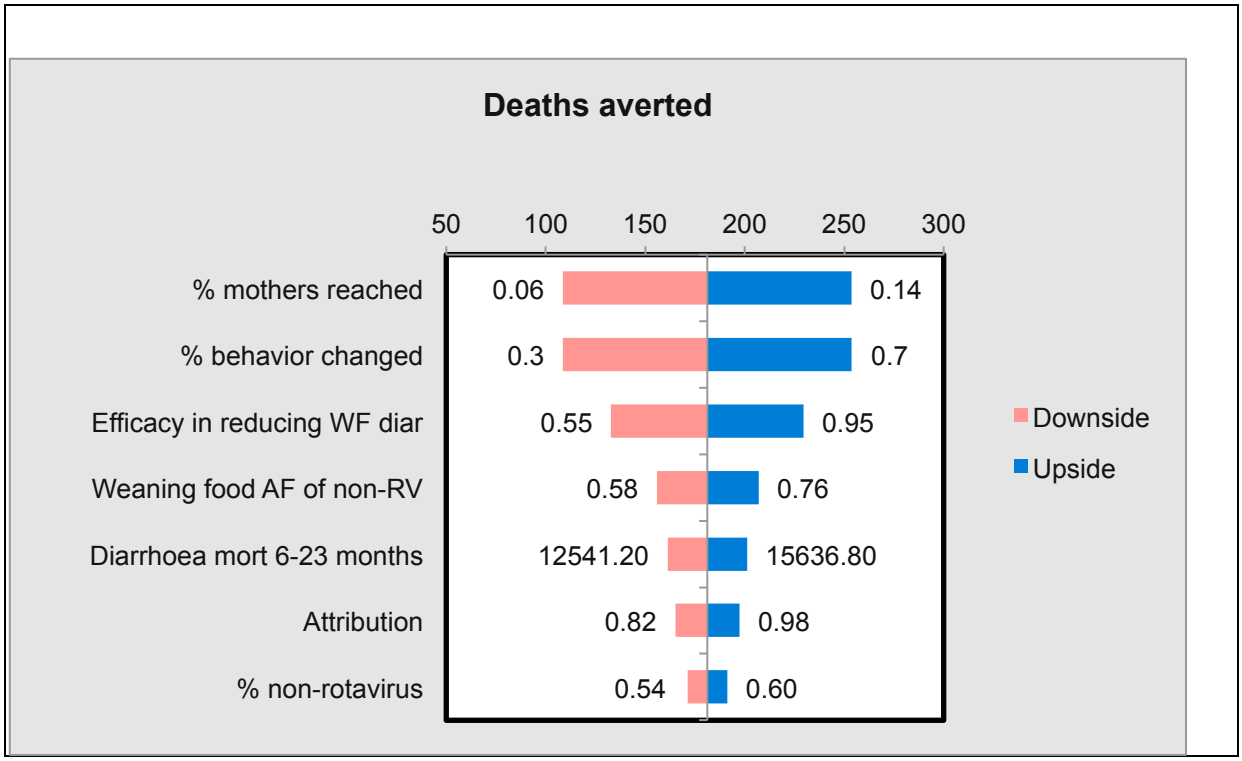
The main results are shown in Table 9. We estimate that SHARE's weaning food contamination research will result in improved hygiene for 459,000 children between the age of 6-23 months. This would in turn result in 181 deaths averted (uncertainty bounds: 89-307) and £65,000 in cost savings (uncertainty bounds: £22,000 – £156,000).

Table 8. Summary Outcomes. Value for Money Analysis of SHARE Weaning Food Hygiene Research and RIU

SHARE Value for Money: Weaning Food Contamination Research		
	Mean	
Overall Benefits		
# Infants reached	510,000	
Deaths averted	201	
Costs averted	£71,759	
Estimated SHARE Catalyzed Benefits		**Uncertainty Bounds**
# Infants reached	459,000	270,000-650,000
Deaths averted	181	89-307
Costs averted	£64,583	22,000-156,000

As described above there is substantial uncertainty in the input variables and the output predictions. The sensitivity analysis shows that estimated deaths averted is most affected by assumptions regarding the percentage of mothers being educated, the percentage who change their behaviour, the effectiveness of the behaviour changes, and the fraction of diarrhoeal disease in this age group attributable to weaning food contamination (Figure 11).

Figure 11. Tornado Diagram. Influence of Individual Input Variables on Estimated Deaths Averted. SHARE Weaning Food Hygiene.



Implications

The results suggest that SHARE's research and RIU work on weaning food contamination is likely on the to reducing substantial mortality and costs associated with diarrhoea. However there remain a number of important uncertainties. Two of these uncertainties (attributable fraction of diarrhoea due to weaning food contamination and the field effectiveness of improved behaviours in reducing diarrhoea) have to due with scientific uncertainties that could be addressed through additional research. The other two are changeable factors that are determined in part by actions of SHARE and others. Specifically, additional RIU activities are likely to increase the fraction of mothers reached with the message. Similarly, field evaluations of alternative behaviour change communication could increase the rate of mothers adopting better hygiene. Better information on the burden of weaning food and the effectiveness of behaviour change might increase the level of uptake by programs and the level of behaviour change by mothers. The VfM of SHARE's existing investment in this area could be increased with these additional activities.

Value for Money and the Expected Value of Information: Mtumba Sanitation Approach in Tanzania

Background

WaterAid has been involved in the development and refinement of the Mtumba approach to triggering sanitation behaviour change in Tanzania. SHARE has contributed to this effort by funding an evaluation of the approach and additional ongoing research on its adaptation to urban settings. SHARE has also supported the dissemination and translation of the results to national policy makers and other NGOs. Mtumba was recently recognized as one of the potential approaches that could be used within the National Sanitation Campaign (NSC).

In this context the VfM for SHARE's work is based on stimulating use of this approach in settings where it might be more effective than other approaches.

At this point there is insufficient evidence to assess the extent to which the Mtumba approach has actually been used to date. There is also insufficient evidence on the relative effectiveness of Mtumba compared to other methods such as CLTS. This makes it difficult to develop reliable estimates of impact. Nevertheless, a quantitative VfM analysis can provide important insights into opportunities for increasing the expected impact.

Methods

In the baseline analysis we estimate the impact of implementers switching to Mtumba approach in some settings, rather than using other approaches. This analysis requires assumptions about the fraction of implementers switching and the relative effectiveness of Mtumba compared to those other approaches. These variables and others used in the model are shown in Table 10.

Table 9. Input Variables and Ranges for Mtumba Sanitation Approach Value for Money Analysis

Input variables for SHARE Value for Money analysis of Mtumba Sanitation Project			
	Best estimate	**Range**	**Source**
Population			
Targeted total	1300000		National Sanitation Campaign
Targeted <5	212805		Estimate based on Black et al 2010
Sanitation and Hygiene Uptake			
Household uptake of sanitation with alternative promotion methods	50%	Uniform distribution; 25-75%	assumption
Added effectiveness in uptake with Mtumba	0	Uniform distribution; -20% to 20%	assumption
Programmatic uptake of Mtumba	20%	Uniform distribution; 5-35%	assumption
Diarrhoeal Burden			
Diarrhoeal deaths in children <5 years	20211		Black et al 2010
Mortality (diarrheal deaths/1,000 children <5)	2.67		Black et al 2010
Relative mortality in target population	1.00	Triangular distribution; 0.9 - 1.50	assumption
Cases (#/child/yr)	3	Triangular distribution; 2-4	Tanzania DHS 2010
Costs			
Health system cost for treatment	£0.71		Atherly et al 2012
Household medical cost	£0.73		Rheingans et al 2012a
Household non-medical cost	£1.28		Rheingans et al 2012a
Total cost	£2.72	Triangular distribution; +- 50%	
Intervention effectiveness			
Sanitation & hygiene	0.36	Triangular distribution; 0.18-0.54	DfID WASH Evidence Paper
Sustainability (yrs)	4	Triangular distribution; 2-6	assumption
SHARE impacts			
Attribution	10%	Uniform distribution; 0-20%	asumption

In addition to the baseline analysis we examine the effect of these two key uncertainty variables (programmatic uptake and relative effectiveness) on the expected benefits in a two-way sensitivity analysis.

We also conducted an additional analysis of the expected value of information (EVI). This analysis examines how improved information might quantitatively improve impact. In the baseline analysis simulations the level of uptake of Mtumba is independent of whether it is comparatively more effective than other approaches for a given context. In the simulations this results in two potential types of losses: 1) where the Mtumba approach is used but not more effective and 2) the approach is not used, but would be more effective. In the EVI analysis we assume that we have information on relative effectiveness and that the information is influential in changing approaches used in a fraction of programmes. With improved information programmes are less likely to make either type of mistake and impacts are increased. This analysis is based on the assumption that Mtumba could be up to 20% more or less effective in triggering household sanitation uptake, but that we currently do not know which.

Results

In the baseline analysis, a high degree of uncertainty regarding the uptake of the approach and the relative effectiveness compared to other approaches results in an expected value of zero for both deaths averted and cost savings, both substantial uncertainty bounds (± 41 deaths averted and ± £114,000 savings).

The results of the two-way sensitivity analysis demonstrate what drives this result. Table 6 shows the estimated deaths averted based on the assumed level of uptake of the Mtumba approach (vertical axis) and the relative effective compared to other approaches (added

Table 10. Two-Way Sensitivity Analysis for Mtumba Sanitation Approach Value for Money Analysis

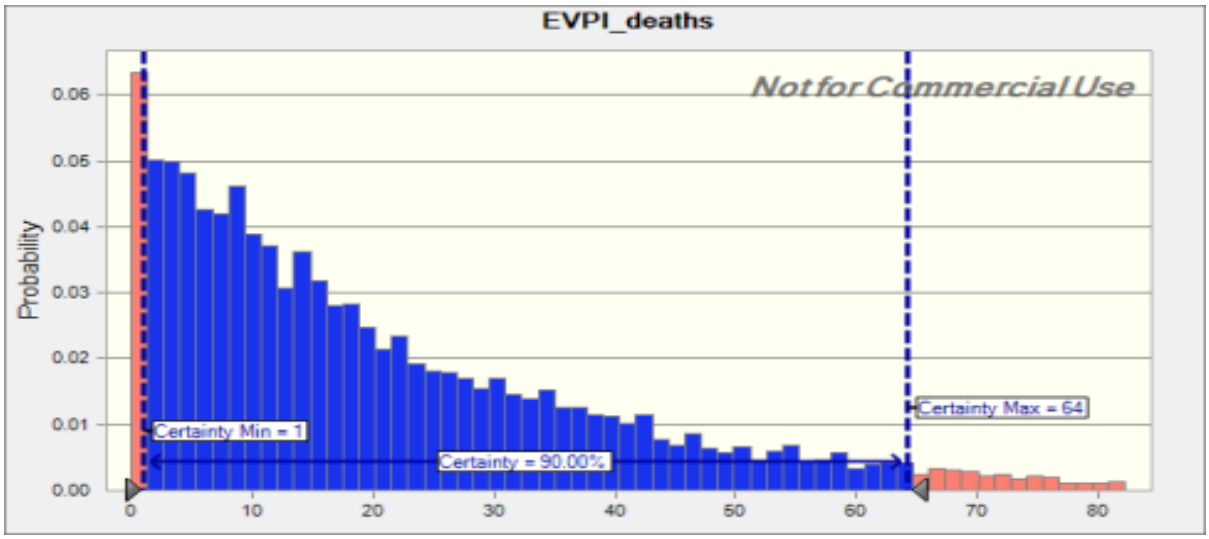
Two-way sensitivty analysis for Mtumba Sanitation Approach.

Programmatic uptake of Mtumba approach	Increase in effectiveness in triggering household uptake (percentage points)								
	-20%	**-15%**	**-10%**	**-5%**	**0%**	**5%**	**10%**	**15%**	**20%**
0.00	0	0	0	0	0	0	0	0	0
0.05	-8	-6	-4	-2	0	2	4	6	8
0.10	-16	-12	-8	-4	0	4	8	12	16
0.15	-25	-18	-12	-6	0	6	12	18	25
0.20	-33	-25	-16	-8	0	8	16	25	33
0.25	-41	-31	-20	-10	0	10	20	31	41
0.30	-49	-37	-25	-12	0	12	25	37	49
0.35	-57	-43	-29	-14	0	14	29	43	57
0.40	-65	-49	-33	-16	0	16	33	49	65
0.45	-74	-55	-37	-18	0	18	37	55	74
0.50	-82	-61	-41	-20	0	20	41	61	82

Note: Estimates the incremental deaths averted by the extent of uptake of the approach (vertical) and the relative effectiveness compared to other approaches (horizontal).

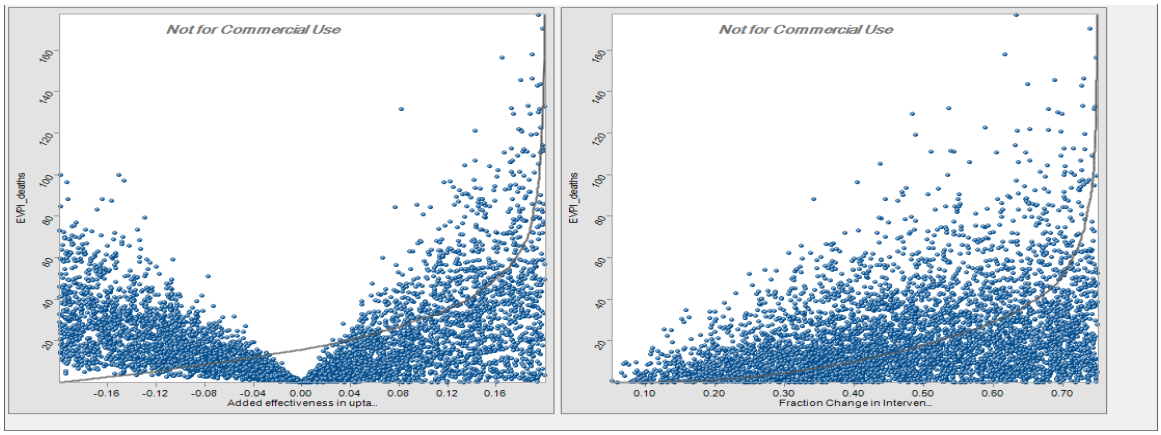
percentage points uptake in improved sanitation by households). As can be seen, there is no benefit if there is no programmatic uptake, or if there is no greater effectiveness. If there is uptake, but less effectiveness, then there is a net loss. Conversely, if there is uptake but increased effectiveness there is a net gain.

Figure 12. Probability Distribution for the Expected Value of Information on Intervention Effectiveness (deaths averted)



The EVI analysis estimates that improved information on the relative effectiveness of the Mtumba approach (or where it would work better) could result in 22 deaths averted (uncertainty limits: 1-65) and financial gains of £59,000 (uncertainty bounds: £3,000-£153,000). The distribution of potential financial and health gains are shown in figure 12. These gains come from reduced programmatic uptake if the approach is not more effective

Figure 13. Scatter Plot of Expected Value of Information on Intervention Effectiveness by Relative Effectiveness (compared to other approaches) and Extent of Programmatic Uptake



and increased uptake if it is effective. This relationship is shown in the scatter plots in figure 13. Expected health benefits with improved information are shown against underlying relative effectiveness and the extent to which programmes take up the approach when it is effective.

Implications

At this point in time there is insufficient evidence to claim that SHARE's investment in further developing the Mtumba approach has produced a quantifiable gain in health or economic

terms. However the EVI analysis suggests that there may be substantial gains from additional information on effectiveness and on subsequent RIU activities to facilitate programmatic uptake.

SHARE is actively attempting to increase the VfM of its current work by supporting further evaluations through the country platforms research program and by developing a collaboration to assist the National Sanitation Campaign to evaluate different approaches and encourage the programmatic uptake of evidence on effectiveness.

Evidence of effectiveness could have implications well beyond the Tanzania National Sanitation Campaign, which could substantially increase the health and financial impacts of such information.

Value for Money: Choose Soap

Background

Choose Soap was a SHARE funded 'start up' project designed to use existing research from the LSHTM Environmental Health Group and others to develop a scalable approach to hygiene behaviour change using marketing techniques. Elements of the behaviour change materials were subsequently incorporated into a trial supported by the Wellcome Trust and led by Dr. Val Curtis of LSHTM (a SHARE researcher). The results of this trial have not yet been formally published, but unofficially show improved effectiveness in triggering behaviour change. SHARE also funded a follow up study to assess the sustainability of hand washing with soap behaviour change. Preliminary results from this trial also appear to be promising, but have not been finalized.

The materials developed through Choose Soap have already been incorporated in programmatic proposals in Bangladesh (with WaterAid Bangladesh) and in a district level field research effort in Zambia. The lessons are also being incorporated into campaigns supported by Unilever. SHARE has also funded further efforts to incorporate the methods into programmes through a RIU grant to Dr Robert Aunger of LSHTM.

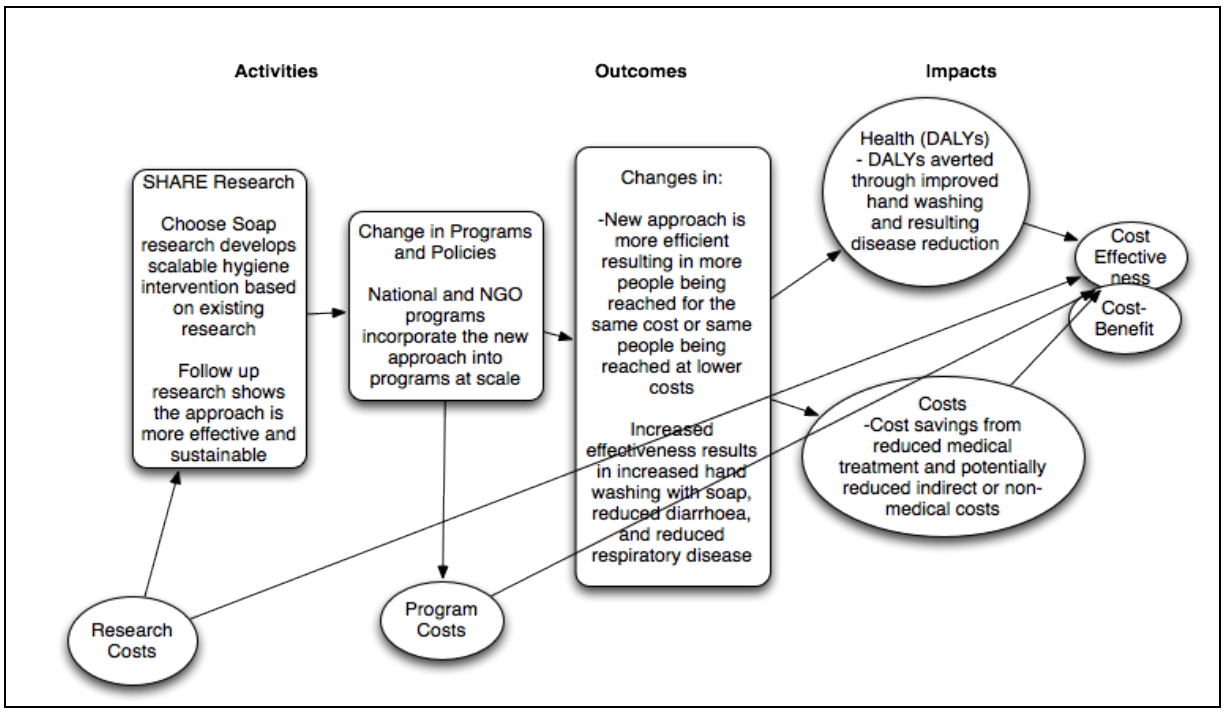
The Choose Soap project poses an important challenge for measuring Value for Money of applied research. The project was based decades of research by LSHTM, marketing experts at Unilever, and researchers elsewhere. Claiming attribution is this context is extremely difficult. It is also difficult at this point because final quantitative estimates of relative effectiveness and sustainability are not yet available.

Rather than attempting to estimate the VfM for this specific project the current analysis is designed to assess the potential impact of research to develop a more effective and sustainable behaviour change communication approach for handwashing. While modelled after the Choose Soap project, this is not intended to be an estimate of SHARE VfM for that project. One of the findings of this analysis is that the impact is highly dependent on the success in generating research uptake. As a result, we present a second analysis of the VfM for additional RIU activities.

Methods

For this model we assume that the new information can create two types of sector change. First, it may prompt existing programs to change their current behaviour change communication methods, for example by switch the intervention being delivered to a fixed number of households. Second, the information could trigger new investments as a result of research. Although there is evidence that both of these are likely to occur, the final impacts will depend highly on the level of RIU progress over time in trigger this uptake of the research. In our base scenarios we examine the impact of changing the intervention being delivered to 100,000 households or a new investment of £1 million. Sensitivity analyses are used to consider a range of outcomes.

Figure 14. Value for Money Conceptual Framework: Choose Soap and Related RIU



In order to estimate the economic and health impact of the different scenarios we use existing evidence for key parameters including diarrhoeal mortality, costs associated with diarrhoeal treatment, intervention costs for traditional and new approaches, and effectiveness and sustainability of traditional and new approaches. Estimates are developed for each of SHARE's four focus countries, although subsequent analyses focus on an average (un-weighted) outcome for the countries (Table).

Table 11. Input Variables for Choose Soap Value for Money Analyses.

Key Input Parameters													
	India			Bangladesh			Tanzania			Malawi			Sources
Under 5 population	118,198,352			17,495,765			8,031,458			2,807,574			http://www.census.gov
Health outcomes													
Diarrhoeal morbidity (events /year)	3			3			3			3			
Diarrhoeal mortality	237,482			20,155			20,211			6,169			Black et al 2010
Diarrhoel mortality rate (/1000 under 5)	2.01			1.15			2.52			2.20			
Costs													
Health system costs/case	£	0.51		£	0.48		£	0.61		£	0.71		Atherly, 2012
Household medical	£	1.26		£	0.57		£	0.73		£	0.73		Rheingans, 2012
Household non-medical	£	0.76		£	0.53		£	1.89		£	1.28		Rheingans, 2012
Total (GBP/episode)	£	2.53		£	1.59		£	3.23		£	2.72		
Intervention costs													
Standard HWWS promotion (£/household)	£	2.00		£	2.00		£	2.00		£	2.00		Disease Control Priorities Project
Improved HWWS promotion (£/household)	£	1.50		£	1.50		£	1.50		£	1.50		Disease Control Priorities Project
Intervention effectiveness													
Standard HWWS promotion: % household change	0.5			0.5			0.5			0.5			Assumption
Standard HWWS promotion: mean duration of change (yrs)	0.5			0.5			0.5			0.5			Assumption
Improved HWWS promotion: % household change	0.7			0.7			0.7			0.7			Awaiting final study estimates
Improved HWWS promotion: mean duration of change (yrs)	0.75			0.75			0.75			0.75			Awaiting final study estimates
Effectiveness of HWWS in reducing diarrheal disease	0.45			0.45			0.45			0.45			Disease Control Priorities Project

For this analysis we consider five outcome measures. Net financial gains are calculated accounting for changes in illness costs and program costs. Health gains are calculated as Disability-adjusted Life Years. For both of these measures we calculate the total gain as well as estimating an 'attributable' contribution from SHARE. This adjustment is used to reflect the fact that SHARE's contribution is just one portion of the input that goes into the creation of the final research output. This attribution is highly uncertain and subjective. For this analysis we have assumed that SHARE contributed 5% of the impact for changing behaviour change methods. For the new investment scenario we assumed that SHARE contributed 25% because SHARE is currently involved in RIU activities to promote these new investments.

Results

First, it should be noted that these results the estimated gains from research to develop a more effective and sustainable approach to promote hand washing with soap. It is based on assumed quantitative differences in effectiveness and sustainability that cannot be verified. As such, the results should not be interpreted as the estimated impacts of the specific approach coming out of the Choose Soap project. Nevertheless they provide important information on the potential value of such improved information.

Health and Economic Impacts

Table 13 shows the total health and financial impacts for the changing practice scenario (first column of results. The health gains come from more sustained handwashing with soap in

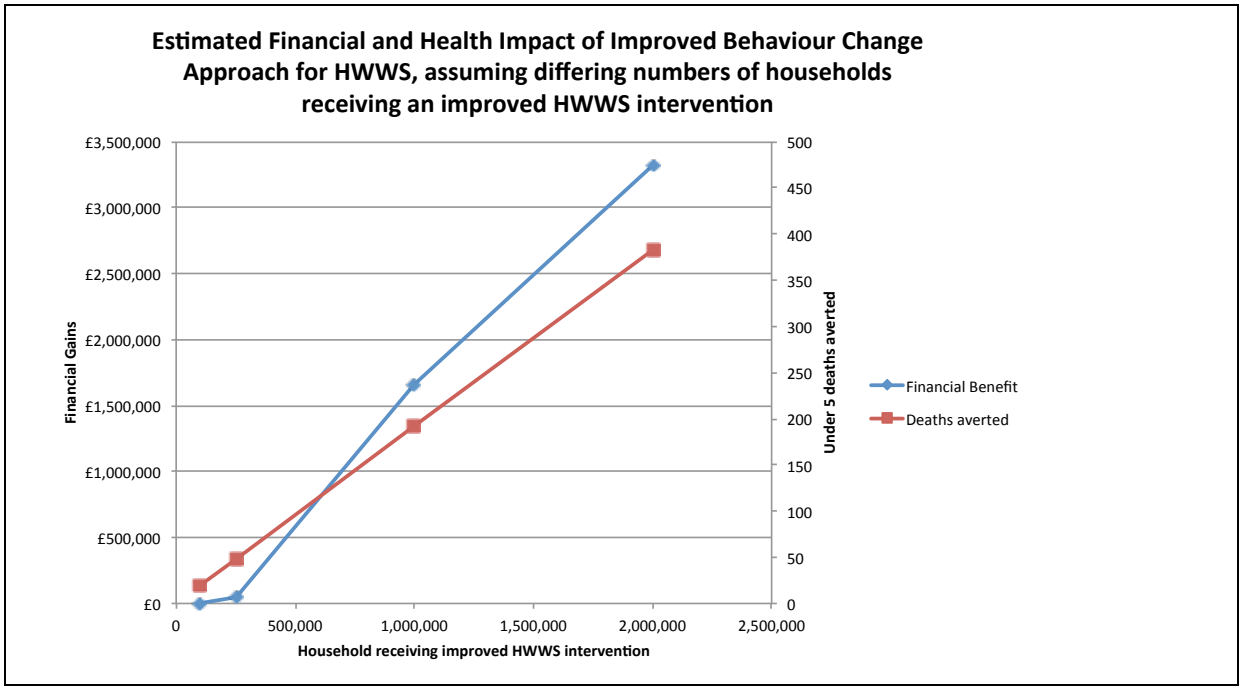
households receiving the new approach, compared to what would have happened with the old approach. The financial gains come from reduced program costs (because the new approach is believed to be less expensive) and reduced household and health system costs associated with diarrhoeal events. This version of the model does not capture health or financial impacts on reduced respiratory illness. These are total estimated impacts, not only those attributable to SHARE or a particular research project.

Table 12. Summary Outcomes. Choose Soap Value for Money Analysis.

Health and Economic Benefits of Improved Approach to HWWS Promotion		
	Impact of 100,000 households receiving improved intervention	Impact of £1 million new investment
Economic		
India	£166,473	£19,136
Bangladesh	£115,745	-£424,727
Tanzania	£204,436	£351,318
Malawi	£176,945	£110,773
Health (DALYs)		
India	664	5810
Bangladesh	381	3331
Tanzania	832	7277
Malawi	726	6354

Both health and financial impacts are highly sensitive to the number of households receiving the new intervention rather than the old (Figure 15). Differences in health and financial gains between countries reflect differences in disease burden (primarily diarrhoeal mortality) and health costs.

Figure 15. Potential Health and Financial Impacts of Research on Improved Hand Washing with Soap Behaviour Change Communication, by Number of People Reached with Improved Approach (instead of less effective approach)



The health and financial impacts of new investments can also be calculated (Table 8). The new investments scenario reflects lower cost savings than the changing practices scenario because it would result in new investment costs rather than programmatic cost savings. Similarly, it results in greater health gains because it would reach households that previously received no intervention.

Benefit:Cost Ratio and Cost-effectiveness Ratio

For both scenarios we can assess the health and economic return on improved information using a cost-effectiveness ratio (net costs resulting from the research per DALY saved) and the benefit:cost ratio (investment cost / net financial gains). To do this we have to specify a level of research cost and a level of attribution. Here attribution can be interpreted as the increased chance that a given change would occur as a result of the research. For this analysis we assumed a research investment of £100,000 and 5% attribution. Figures 16 and 17 show the impact as a function of the level of sector change. For the changing approach scenario (Figure 10), the research would become cost saving at about 1.2 million households, where the BCR (blue line) crosses 1 on the left vertical access. Depending on the threshold used for cost-effectiveness, SHARE's research would be considered cost-effective at some point below 1 million households receiving the improved intervention.

Figure 16. Potential Cost-effectiveness and Benefit:Cost Ratio of Research on Improved Handwashing Promotion that Results in Changed Intervention Approach, by Number of Households Affected.

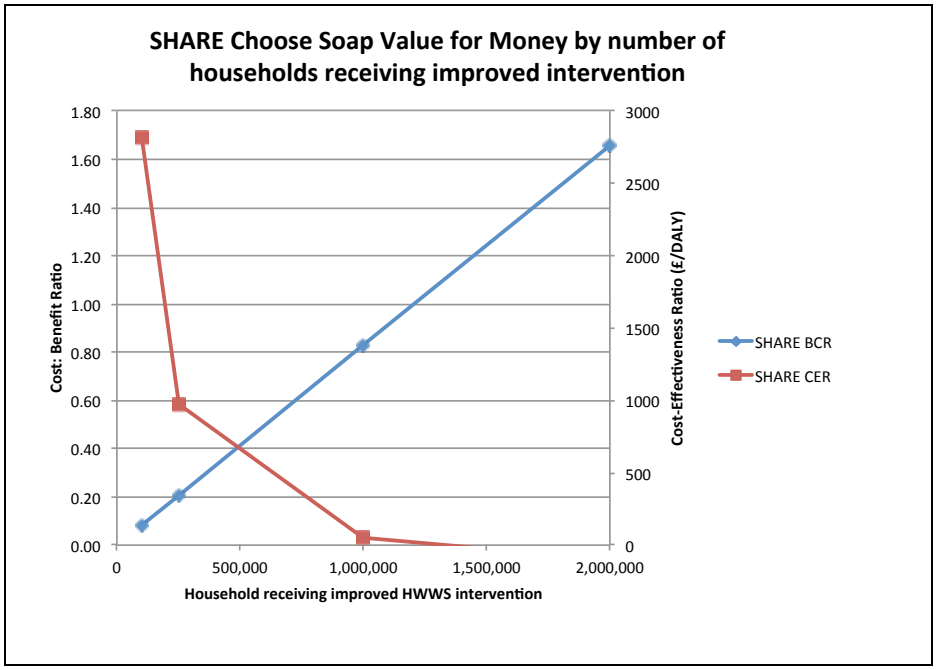
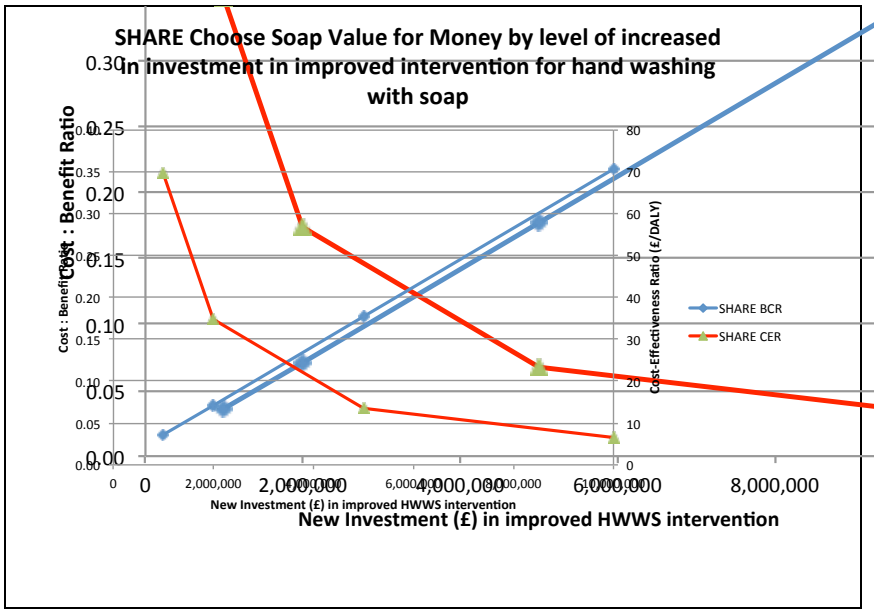


Figure 17. Potential Cost-effectiveness and Benefit:Cost Ratio of Research on Improved Handwashing Promotion that Results in Increased Investment, by Investment Amount



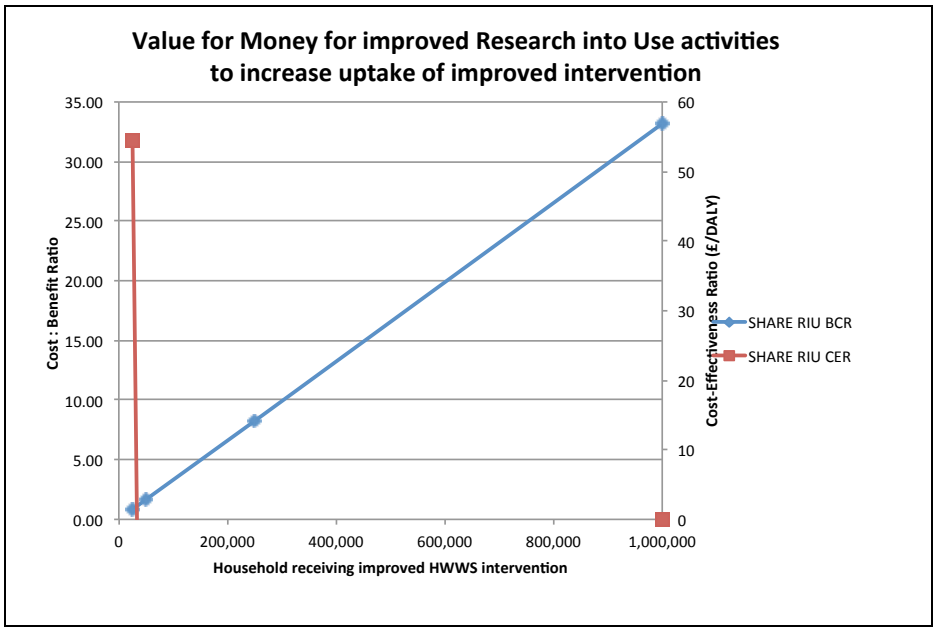
For the new investment scenario, SHARE's activities would not be cost saving at any of the levels of investment considered (Figure 17). However it would be highly cost-effective across the entire range, with CERs below £100/DALY for all levels considered. While it may not trigger cost savings, it would trigger highly efficient health gains.

What is the Value of Additional Research into Use Activities?

The results presented above show that returns on SHARE's research are highly dependent upon the level of RIU success in changing sector practice or investment. This creates an additional important use of the model – we can use it to estimate the return on investments in RIU activities. That is, should we invest more in efforts to trigger greater change in sector practice and investment? We examine this by considering the marginal returns on a £50,000 investment that might trigger changes in approach (such as a manual or training) or levels of investment (such as proposals to or convening funders).

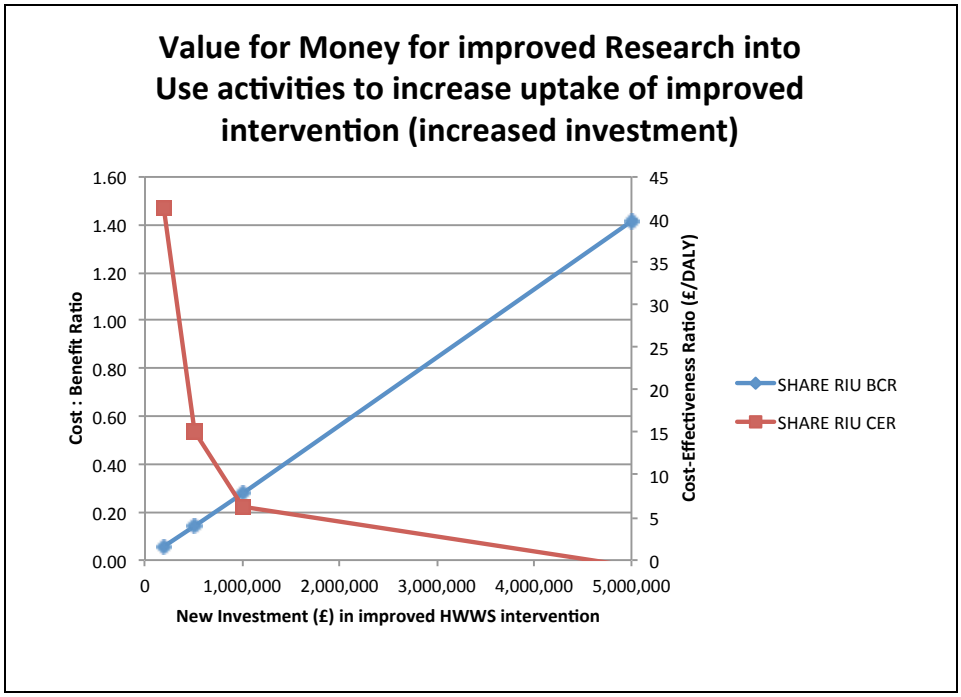
The analyses below consider the return on a £50,000 investment to promote uptake of an improved approach to handwashing promotion. For the changing practice scenario, the results show that the £50,000 investment would be cost savings if it triggered changes in programs reaching as little as 35,000 households and would provide very favourable return on investment in financial and health terms (Figure 18).

Figure 18. Cost:Benefit and Cost-effectiveness Ratios of Additional Research into Use Activities to Increase Uptake of Approach in Existing Programmes



A £50,000 RIU investment designed to generate new program investments would be highly cost-effective even at very low levels of new program investments. In order to become cost savings, it would need to trigger approximately £3,000,000 in new investments (Figure 19).

Figure 19. Cost:Benefit and Cost-effectiveness Ratios of Additional Research into Use Activities to Increase Uptake of Improved Approach as New Investment (Expanded Programmes)



Implications

The current preliminary analysis provides a framework for estimating the VfM of SHARE's past and future research and RIU efforts targeted at improved behaviour change communication for handwashing.

Handwashing with soap is one of the most effective interventions for reducing diarrhoeal disease and improving child health. Although it has been identified as highly cost-effective, large-scale projects have shown limited effectiveness in creating and sustaining behaviour change at scale[6]. Improved methods can both eliminate inefficient spending and achieve important health and economic impacts.

The analyses presented here suggest that applied research efforts such as Choose Soap have great potential for high VfM. They also suggest that research their value will depend in great part on successful RIU efforts. This suggests two important opportunities to maximize the VfM of SHARE's investments. First, increased RIU activities designed to mainstream findings into large-scale programs can generate high returns on investment. Second, efforts to evaluate these approaches at scale can provide important information on where and to what extent they provide a relative benefit over other approaches. This can be an important input into successfully rolling out the approach elsewhere.

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Annex K –Sanitation Trial Update Report

ASSESSING THE EFFECTIVENESS OF IMPROVED SANITATION ON DIARRHOEA AND HELMINTH INFECTION: A CLUSTER-RANDOMIZED, CONTROLLED FIELD TRIAL IN ORISSA, INDIA

SEVENTH INTERIM REPORT

June 2013

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Principal Investigator
London School of Hygiene & Tropical Medicine

This report was prepared by LSHTM to brief its partners in the above-referenced study. This report updates developments since the Sixth Interim Report from February 2012.

A. Surveillance Rounds; End line on HAZ and STH; Power calculation.

Round six of the seven three-month follow-up rounds of surveillance and sampling will be completed in June. The final round is due to be completed in September. Thereafter, we will conduct the end-line assessments of height-for-age (HAZ) and soil transmitted helminth (STH) infection. These end line assessments are due to be completed in December or January. Interim analyses of health outcome data based on 5 follow up rounds revealed a higher than expected diarrhoea prevalence (about 9% weekly prevalence in children under 5). The between village variation proved higher than expected. On the whole, the study power is on track.

B. Data for Spatial Analysis

The GPS and latrine use survey was completed in March 2013. This survey aimed to collect data for all households in the study villages (whether or not selected for disease follow up) on the geographic position, presence of a latrine, age of the latrine, functionality of the latrine, reported use and actual use (based on spot checks). The data will be used to establish latrine coverage at a high spatial resolution, which is required to estimate the effects of herd immunity and effect size by different levels of coverage.

C. Constraints to latrine use

Beginning in July, we will be looking further at the constraints of latrine adoption and use in

rural Orissa and the potential measures for overcoming them. Preliminary research has already been undertaken to identify the underlying factors. This has led us to focus the research on three core dimensions and answer the following research questions: (i) water accessibility or unavailability, (ii) household level gender discrimination and decision-making, and (iii) the effectiveness of social mobilization. A set of qualitative tools and techniques is being used to investigate and find answers to the research questions. The pilot testing of tools will be done in the field to test the feasibility of the tools. The data collection for this research will be starting in July and continues till March 2014. This research will be undertaken in the villages where TSC has been implemented and where NBA will be implemented.

D. Latrine Use Monitoring

The study to monitor latrine use behaviour in surveillance households in the intervention arm of the sanitation trial is ongoing. As planned, data has been collected for two seasons, winter and summer. The summer round was completed in 2012. The monsoon round commenced in the first week of June 2013 and is expected to be completed by August-September 2013. Beyond monitoring latrine use, this study also seeks to explore any methodological advantage in monitoring use behaviour by comparing an improved passive latrine use monitoring (PLUM) device with reported use, observation of objective indicators of use and a latrine construction and quality checklist. Data to address this aspect of the research study is also being collected simultaneously.

E. Determinants of Latrine Use

In February 2013, we started phase I of a sub-study designed to understand the determinants of latrine construction, use, and maintenance of the facility at the household level. While often described as latrine "adoption," the decision to construct a latrine, consistent use of all family members, and maintenance are distinct factors driven by a constellation of factors that includes: community conditions, family demographics, individual roles and responsibilities, and market forces. In a sequential process, the investigators will use existing SafeSan Scale to explore the potential psychosocial determinants of latrine use, develop and test consistent and reliable measures of these determinants, and then assess these determinants against specific behavioral outcomes.

F. Microbial Source Tracking

Steady progress is being made at UC Davis in analyzing the 2012 monsoon season water samples (approximately 600, 24 villages) for molecular genetic markers of general, human-associated and livestock-associated fecal material, and in the case of the water source samples, for select pathogens. Analyses of the large volume source samples for source markers are completed and analyses of the main target pathogens in these samples are nearly done. Analyses of the small volume samples (hand rinse and stored drinking water)

will continue through the summer in the UC Davis Wuertz lab. The detection limits of zoonotic protozoa DNA extraction and PCR molecular processing capabilities at KIIT were evaluated in March and found to be an order of magnitude or more higher than at UC Davis, thus only a very few protozoa microscopy positive samples have sufficient concentrations to proceed with genotyping efforts at KIIT. Preparations, plans, procurements of supplies, and arrangements at AIPH and KIIT are in place for sample collection and processing for the remaining 36 out of 60 MST sub-study villages. The UC Davis team will arrive at the end of June in Bhubaneswar for 2-3 months to complete the MST study field sampling work in these remaining villages during the 2013 monsoon season.

G. Workshop on Sanitation in Orissa

A third meeting of the Orissa Sanitation Group was held on 12 June 2013 at XIMB. The focus of the meeting was on urban sanitation. The 45 attendees heard talks researchers (Marieke Heijnen, LSHTM; Anna Clusters, J-PAL), implementers (Biraja Kabi Satapathy,HUP-PFI; Ganesh Parida, CYSD) and government (Mr. Sanjib Kumar Mishra, IAS Commissioner , BMC). The group also agreed on an organizational structure consisting of three working groups (Research, Monitoring and Evaluation; Advocacy and Communication; Implementation) whose chairs form a Leadership Committee supported by a Secretariat (XIMB and LSHTM). The next meeting is scheduled for November 2013.

H. Papers

Two additional papers arising from the study been for published or accepted for publication. The first is a paper that compares the method used for the STH assays with other conventional methods. Funk A, *Boisson S, Clasen T, Ensink J (2013). Comparison of Kato-Katz, Ethyl-Acetate Sedimentation, and Midi Parasep® in the Diagnosis of Hookworm, Ascaris and Trichuris infection in the context of an evaluation of rural sanitation in India. Acta Tropica 126(3):265-8. The second is a cross sectional study that examines latrine use in villages near the trial area that received their latrines under the TSC at least 3 years previously. Barnard S, Routray P, Majorin F, Peletz R, Boisson S, Sinha A, Clasen T. Impact of Indian Total Sanitation Campaign on latrine coverage and use: a cross-sectional study in Orissa three years following programme implementation. PLOS One (in press) The paper can be downloaded at http://www.ete-online.com/content/9/1/7

I. Commencement of Intervention in Control Villages

WaterAid advises that they plan to start implementing the intervention in the control villages as soon as possible following the completion of the trial. It was agreed that they could begin their promotional work in August 2013 in the 17 villages where LSHTM will have completed surveillance. They will they add additional villages in subsequent months as the surveillance is completed. In the control villages, the plan is to use a comprehensive water, sanitation and hygiene strategy and to encourage 100% coverage and uptake throughout the villages,

not just among APLs. WaterAid is also eager to implement using lessons learned from the trial. Subject to funding, LSHTM will work with WaterAid to document the delivery and impact of this enhanced intervention.

J. No-Cost Extension to Continue Sanitation Research

Although we will lose our control group after September 2013, there are important research questions concerning sanitation and health that can be answered through continued work in the study population and elsewhere in Orissa. These include (i) investigating longer-term latrine adoption patterns, (ii) assessing sludge management practices, including digging and diverting waste to the second pit and safely removing and using or disposing of the contents of the first pit, (iii) understanding and developing options to overcome the barriers associated with disposal of child faeces, (iv) understanding the reasons why shared sanitation is associated with adverse health outcomes, (v) improving microbiological sampling and sanitary surveys to better identify the transmission pathways presenting the greatest risk of faecal-oral transmission and the efficacy, if any, of interventions aimed at mitigating such risk, (vi) examining the impact, if any, on menstrual hygiene management. The Bill & Melinda Gates Foundation has granted a no-cost extension to allow unspent funds to support some of the work on these sub-studies conducted during 2014-15.

Annex L – City Sanitation Annual Report

City Wide Sanitation Project

15 month Report

January 2012-April 2013

Diana Mitlin, Martin Mulenga and Gordon McGranahan (IIED)

Noah Schermbrucker (SDI)

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE
icddr,b
iied
SHACK / SLUM DWELLERS INTERNATIONAL [SDI]
WaterAid
share
Sanitation and Hygiene Applied Research for Equity

Programme Description

Project purpose

This project will develop and test an approach to pro-poor city-wide sanitation strategies that can be adopted and driven by federations and networks of community organizations and residents' associations, and supported by public authorities and private providers. This action research will provide a platform for scalability, adaptation and replication across the Global South. It will also be undertaken and documented in such a way that findings will be relevant for those pursuing somewhat different approaches to sanitary improvement, but facing similar obstacles.

Project partners

The project is realised through a partnership between six organizations, the International Institute for Environment and Development (IIED), the secretariat of Shack/Slum Dwellers International (SDI), and four affiliates of SDI (in Malawi, Tanzania, Zambia and Zimbabwe). IIED is a policy and applied research organization focusing on issues of environment and development in the global South based in London. SDI is a network of affiliated federations of the homeless and landless living in towns and cities of the global South; membership of federation is particularly strong among those living in informal settlements. The federations themselves have a membership of women's led savings schemes based at the neighbourhood level. In each country these federations are supported by a local NGO. The four SDI affiliates involved in this SHARE project are:

- Malawi: Malawi Homeless People's Federation and the Centre for Community Organization and Development
- Tanzania: Tanzania Federation of the Urban Poor and the Centre for Community Initiatives
- Zambia: The Zambia Homeless and Poor People's Federation and People's Process on Housing and Poverty
- Zimbabwe: The Zimbabwe Homeless People's Federation and Dialogue on Shelter

Project approach

The project is working to develop this approach in four cities: Blantyre (Malawi), Dar es Salaam (Tanzania), Kitwe (Zambia) and Chinhoyi (Zimbabwe). These cities were selected by the SDI affiliates following a discussion with national federations. The three-year project itself is to be realised in three phases, each approximately 15 months in length (as there are overlaps between these phases). The first phase involves the mapping and elaboration of sanitation problems in each of the four cities. This includes: a summary of existing documentation; community-led profiling of the sanitation problems in informal settlements, the enumeration of households facing sanitation difficulties and mapping of the existing services; a participative engagement with other stakeholders and particularly the city

authorities. Relationships with the city are often long standing with a history of co-operation and partnership across the scope of pro-poor slum upgrading and urban development activities. Often MoU's are in place between affiliates, the federation and local authorities". The second phase involves the development of several sanitation precedents in each city designed to be relevant to addressing sanitation needs within settlements across the city. As circumstances in different settlements differ, the selected precedents will be relevant to a variety of situations. The third phase involves the planning of a city wide approach to improving sanitation based on the work undertaken in the first two phases and the relations that have been built, strengthened and enhanced with the relevant government agencies, utilities and other stakeholders. The project includes funds for other SDI affiliates to contribute specific work that adds value to the development of city-wide sanitation strategies.

Project cost and timing

The three-year project began in January 2012 with a budget of £1.1 million.

1. Overview of the Year

Progress and achievements

This report covers the first 15 months of the project. This has primarily been the first phase of the project ie. the completion of the situational analysis. This section describes the general activities during this period and then gives a specific report on each city.

This has been a period in which the project partners have introduced the project to the key agencies in the city and specifically to the organizations of the urban poor themselves (local savings schemes and city federations), the local authorities and any related agencies such as utilities. The local federation leaders and members have been involved in identifying the specific settlements in which the initial project activities (profiling, enumerations and mapping) will take place, and then completing these activities. The four national NGOs have had staff that have been collecting documentation and drafting the situational analysis. In terms of the relationships that will be important in taking this work forward, considerable efforts have been made to deepen the engagement with the authorities building on existing partnerships. This has been possible due to the information collected during the profiling, enumeration and mapping (which has a specific focus on sanitation unlike other SDI data collection that covers a range of services). These modalities draw on existing rituals within the SDI network which has used community-led information gathering to good effect in terms of relationship-building; in summary, local government is aware that it has little precise data on conditions within informal settlements and generally responds positively to community initiatives to address this lacuna.

The SDI affiliates, SDI secretariat and IIED have met three times during this period to support the different affiliates in their activities. The first meeting was in September 2011 (Harare) prior to the beginning of the project to ensure that all affiliates understood the work in hand. The second meeting was in July 2012 and took place in Blantyre. This meeting focussed particularly on the profiling, enumeration and mapping activities, sharing both findings and experiences. At this stage the affiliates were in the process of completing these activities. This meeting also specifically addressed the technical issue of augmenting on the ground data with GIS information. Zimbabwe took the lead in this as the affiliate already has considerable skills in this area. The third meeting took place in February 2013 and provided an opportunity to report on the situational analysis phase and specifically the relationship building with the local authority and others. This meeting also provided an opportunity to review approaches to the identification of sanitation precedents.

In Malawi, the Blantyre Federation have been working on the mapping of the settlement of Matope. Federation leaders recognise the value of this work to their own understanding of the sanitation situation in their city. They were themselves

surprised at the scale of deprivation. They have used this information to strengthen their relationship with the city authorities and traditional leaders responsible for specific informal settlements (at present there are no councillors in Malawi). They have also presented the information to local MPs and others responsible. An immediate gain has been the local MP responding to the information by ensuring that a health clinic is provided in one of the neighbourhoods most in need. The Federation has been working in the city for some years providing eco-sanitation and improved access to water. The situational analysis has provoked an intense discussion within the Federation about strategic interventions to scale up access to sanitation in the city and the precedent designs are being finalised. The situational analysis document was completed in 2012 and has being redrafted; a second round of comments has been made from the team at IIED and the SDI secretariat, and a final version is now being prepared.

In Tanzania, the Federation has been working in Dar es Salaam and particularly Temeke municipality for some years. Profiling, mapping and enumeration work has taken place related to this SHARE project. The challenges in a city of this size are particularly acute. Primary data has been collected from all three municipalities of Dar es Salaam City which are Temeke, Ilala and Kinondoni. Two wards were selected in each municipality and in each ward one settlement was chosen for data collection. The sample for the household survey was randomly selected using a community map developed during the training. The SHARE project has been particularly important in developing the capacity of the Tanzania Federation in GIS mapping. As is the case in Malawi, the identification of precedents is advanced. This builds on experiences in Tanzania to date: including the emptying of pit latrines, the improved construction of pit latrines and most recently the construction of a decentralized waste water treatment system. There is interest in building on the experiences of the SDI affiliate in Uganda with the communal provision of sanitation; this is particularly important in a context with a high proportion of tenants in informal settlements (something that Kampala and Dar share). The situational analysis document has been received and had two rounds of comments from SDI and IIED. It is now being copy edited.

In Zambia, the Zambian Federation have been building up their skills in enumeration and mapping. The Federation decided to have a particular focus on the informal settlement of Kamatipa and as with the Tanzanian Federation have benefited from the opportunity to augment existing skills in data collection. While the Federation have had relations with both the authorities and the water utility in Kitwe for some years, this project has provided an opportunity for the deepening of discussions and associated strategies. In March 2013, the city council has formally agreed to the establishment of a sub-committee to plan the upgrading of informal settlements and this will include representation from both the Federation and People's Process of Housing and Poverty in Zambia. The utility (Nkana Water and Sewerage Company) has secured a grant from the African Development Bank to improve sanitation in informal settlements and is anxious to work with the SDI affiliate in Kitwe to implement this programme. The situational analysis document has been received and had two rounds of comments from SDI and IIED. It is being revised for the final time prior to copy editing.

In Zimbabwe, the Federation in Chinhoyi have profiled 11 of the 16 informal settlements in the town and have enumerated one of those most in need. The Federation have been able to build on existing relations to discuss the problems facing the city with the authorities, and a technical committee was established with the City at the beginning of this project. There is a need for precedents to respond to both the lack of services in some areas and the breakdown of services in other areas (due to a lack of local authority investment in maintenance for the reticulated systems). A particular problem facing the City is addressing sanitation needs in two settlements based on former mining activities; these were independent centres but have now being incorporated into the Chinhoyi area. The planning of precedents is advanced – and special attention needs to be taken of the failing water reticulation system in the town. The situational analysis report has been received and revised; final revisions on a second round of comments are currently being completed and the report will be ready for copy editing in the near future.

The SDI secretariat has recruited a staff member to work on this project. Noah Schermbruker is also involved in supporting other activities in SDI (ie. his work on SHARE is part-time). He has interacted regularly with the responsible staff members in the SDI affiliates to help them complete their work. He has also worked with other staff in the secretariat to identify useful support contributions from other SDI affiliates. To date two further precedents have been identified in Kenya and Uganda and these will be supported by SHARE to strengthen the work in the four primary affiliates involved in this project. In Uganda, funds have supported a communal block in Mbale and the documentation focuses on lessons from community management.

IIED staff has been concerned with supporting the implementation of the project. Their work includes the analysis of the obstacles that have prevented a greater contribution by community led sanitation solutions. This text is now in draft and being reviewed with an anticipated completion date of June 2013. They have also been actively involved in commenting on drafts of the situational analyses and strengthening the arguments presented in these documents. Two further documents are being prepared: a four page project summary and an overview of the situational analyses.

Challenges and disappointments

Progress has been going well. The following lessons can be noted:

There was a long discussion in the first six months about accessing maps for the GIS mapping that are more accurate than those freely available on Google earth. However, while additional detail is provided by such commercial maps, their cost ruled out their use in this project. In practice, this has not been a handicap and the relevant authorities have accepted the detail provided within the situational analysis without question.

The design of the precedents has taken time and is still on-going. Both Federation groups and local authorities tend to begin from what they know. However, there are limitations on the scale that existing approaches can achieve. Over the last four months there have been particularly intense and on-going discussions about the selection of precedents. This is a challenge but it is also very much a part of this work. The secretariat is working with SDI's international coordination team to provide examples that help to move local city federation members forward in this respect. To support the development of the precedents we had arranged for a visit of a technical team from the Orangi Pilot Project in April 2013. Unfortunately Perween Rahman who was to head this team was killed in Karachi in the middle of March. This visit is being rescheduled but due to the difficult circumstances facing the OPP this is taking some time.

The situational analyses are running slightly late. It has proved difficult for NGO staff to find the time to complete this work. Moreover writing at such a level of detail and precision is unusual. However, the SDI/IIED support team are confident that their role should remain as originally conceived and we are supporting their redrafting hence retaining a strong local ownership over this documentation.

Context

The political situation in Zimbabwe has delayed activities. There were political objections to the enumeration process (household interviewing) and hence it was only conducted in one area. The political situation in Malawi has also been tricky. Following national government criticism of NGOs, the local authority in Lilongwe raised questions about its collaboration with CCODE. This was in part related to a City project funded by the Bill and Melinda Gates Foundation in which CCODE was expected to play a minor role. For this reason the city was moved to Blantyre due to concerns that the politics in Lilongwe would delay implementation.

Logframe outputs

This Section illustrates the progress towards the Logframe indicators.

Output	General progress to date	Progress against logframe milestones
1. Situational (contextual) analysis and research reports	• Drafts and first stage revisions: Malawi, Tanzania, Zambia, Zimbabwe • Revised following two rounds of comments: Tanzania, Zimbabwe	*1 year: analysis completed. 7 reports of which 3 available on the website and launched.* *1.5 years: 6 further reports available* The situational analyses were all received by the end of year one.

	• Being prepared for publication: Tanzania. • The obstacles paper is being finalized. • The four page summary is completed	The research team commented and these reports were redrafted with additional information being included. Revised drafts have been received. Following discussions with SDI affiliates we have agreed that we will prepare eight-page summaries for the launches to increase the impact with policy makers and other audiences. Templates agreed and being drafted.
2. Design, assessment and ranking of precedent solutions	Some precedents agreed in each city (and implementation being prepared) and others currently being reviewed.	*1 year: precedents agreed* *1.5 years: precedents completed.* We are running slower than anticipated here. The first precedent proposals needed additional reflection and redesign to offer the best selection able to be scaled up.
	Precedent reports To come	*Precedent reports completed.* This will await completion of the precedents
	Research reports on the precedents will be structured around the agreed precedent assessment framework	*1 year: agree assessment framework* *2/3 years: precedent assessments completed* The precedent assessment framework was presented to SDI affiliates in February 2013, comments received and revised for April 2013.
3. Conceptualization of city-wide strategies	To date, emphasis has been given to the development of relationships such that city-wide strategies can be in place by the end of year 3. Some new agreements related to city wide strategies (see box to right).	*1 year: key stakeholders participating* *2 years: at least one MOU per city.* New formal agreements in place in Kitwe (sub-committee on informal settlement upgrading), and discussions ongoing about an MOU with the utility. In Chinhoyi, joint project team established.
	Research reports on city wide planning	Log frame milestones only begin at end of year 2
4. Audience specific communication	There has been good participation with some of the key stakeholder groups building on other SDI activities. In February we discussed participation in international events.	*1 year: engagement with professional groups* *2 year: dissemination plans in place* Plans ongoing.

	Newspaper reports likely to follow launches of these reports. Kitwe meeting with utility and local authority covered by national TV and local radio.	*1.5 years: web dissemination of all situational analysis reports. Policy summaries available. Newspaper reports.* We are likely to meet this target. Key priorities now completion of situational analysis and policy summaries.

Gender in researchers and the research process: The SDI development process is centred on women's led organizations ie. savings schemes. This modality ensures that there is a strong women's leadership and for the most part grassroots women have been organizing and managing the local profiles, enumerations and maps. The same leadership has also been responsible for managing relationships with city politicians. When teams of Federation members participate in events with the city authorities, there are men present. In general men make up between 15 to 25 per cent of participants at such events.

In general the NGO takes the lead in negotiations with officials. In three of the four cities, the NGO teams are led by women professionals (the exception being Zimbabwe where the NGO staff member responsible for SHARE is male).

Gender with respect to the research outputs: The core responsibilities of women generally include care for the household and hence sanitation provision is a key activity that engages women. The teams identifying the precedents includes the women leaders of the Federation and hence women's needs and interests are being considered both in the selection of the precedents and in their design.

The major reason for the delay in fine tuning the selection of precedents is to ensure affordability and scalability. As some of the lowest income households are those led by women without other wage earners, this process is essential to addressing the needs and interests of women headed households.

As a part of the documentation being prepared on Kenya there is an SDI blog by a member of the Secretariat (Ariana MacPherson) which has a detailed focus on "women living with poor sanitation conditions: their stories" (http://www.sdinet.org/blog/2013/04/26/women-wash-kenya/).

Research capacity building: The process of compiling the information for the situational analyses has strengthened research capacity in a number of ways. The two groups that have benefited most are the Federation teams and the NGO staff.

Local community members have participated in collecting information and gained skills in doing so. The Federation groups have been involved in the aggregation of household data and the presentation of such data to the local authorities. This has assisted both in their understanding of local needs, and how the Federation can help to address such needs; and in advancing their understanding of how to manage information dissemination such that it provokes a positive response from the authorities.

Local NGO staff have benefited in numerous ways. In all four NGO affiliates, the responsibility has been passed to professional staff immediately below director level ie. this project has involved mid-level and early career professionals offering them a defined set of activities through which they can enhance their skills. First, SDI affiliate professionals have been able to learn from other affiliates in a coherent programme of work. Second, they have been given feedback on report writing and design by IIED and SDI secretariat staff. Third, they have been challenged to improve their technical skills related to the sanitation challenge and potential precedents to address this challenge. While this project has not had a specific research capacity building component, in practice activities have enhanced skills.

Outputs: Additional Information

Highlights

There are two highlights of this first year, relationship building and Federation understanding. Both are covered in the text above, however they are worth highlighting.

Federation leaders in the four cities have had the chance (through the profiling, enumeration and mapping) to look in detail at conditions related to sanitation in informal settlements. This has been beneficial in the broader shift taking place within SDI away from greenfield site development for tenants and informal residents, and towards the regularization and upgrading of informal settlements. The project has also been helpful in assisting the SDI affiliates at the city level to understand their work in terms of the scaling up of neighbourhood activities to the city level.

In each case the relationship building has consolidated existing activities of the Federation in these cities. The locations were selected because of their potential. Except in the case of Malawi (where the city was shifted due to changes in attitude that in part reflected national political uncertainties), this has been found to be the case and in all four cities there are strengthening relations building on SHARE activities.

Uptake and Engagement with Beneficiaries

Research uptake. We are now making plans to roll out the results of the situational analysis to stakeholders.

Beneficiary uptake. See comments above. This programme is embedded within a broader programme of activities within SDI which assists with uptake although makes attribution more complex. It is playing a significant role in the realignment of sanitation approaches and efforts – and the drawing in of Uganda and Kenya are to assist in this.

Outcomes and Impacts

We think that it is too early to pass substantive comment on either outcomes or impacts. However, some progress has been made:

The numbers in need in each city are now established and that has an immediate impact on negotiations between the organized urban poor and the City. Equally important is that the Federations are now established as experts on the sanitation situation in informal settlements. For example, in the presentation of the profiling and enumeration results to the City of Kitwe (Friday 5th April) with the deputy Mayor, councillors, city officials and senior utility staff present, the deputy Mayor commented on the appalling situation in Kamatipa implying that the response might be removal. The Federation were immediately able to counter with information on the situation in all 48 informal settlements (20 recognised by the authorities) demonstrating that this is not a problem that can be thought about in isolation. The deputy mayor listened carefully and responded more positively. His commitment to the process is verified by his willingness to remain from 1400 until 1815 on a Friday in the meeting.

Considerable effort has been put into ensuring that there is a good understanding within the affiliates with respect to the city-wide objective. Although this was understood at one level (there was a very strong involvement of affiliates in the project preparation) when the precedent designs came forward it appeared that there had not been a substantive consideration of all the aspects required. This is not surprising given the context in which both governments and aid agencies plan for partiality rather than universality. IIED and the SDI secretariat will continue to support this understanding and the progress towards a practice and discourse that opens opportunities for sanitation improvements to all.

Cost, Value for Money and Management

Work Plan and Timetable

Risk

With respect to the earlier discussion in the proposal the major risk, non-engagement of key stakeholders, is not taking place and there is substantive engagement. The next year is particularly difficult in Zimbabwe as national elections will take place and there is a level of continuing political instability. It may be the case that activities will be delayed for some

months in Chinhoyi. The political situation in Malawi also appears to have a higher degree of political uncertainty; however, this is unlikely to affect activities in Blantyre.

Monitoring and Evaluation

As noted above, we have developed a monitoring framework for the precedents. We will use this in further reports. We have also identified a specific monitoring and evaluation framework with the SHARE management related to the Logframe.

Annex M – Evidence Paper-Business Case Studies

COUNTRY	DFID INTERVENTION	FUNDS and DURATION	EXPECTED OUTCOMES	REFERENCE TO EVIDENCE PAPER
Sierra Leone	Water Supply, Sanitation and Hygiene Promotion in Schools, Clinics and Communities in rural Sierra Leone	£21.5 million February 2012-February 2015	In six Target Districts the expected outcomes are: • 364,000 people with improved access to sanitation, • 693,000 people with access to community-owned WASH facilities; • 450 Public Health Units (PHUs) with access to community-owned WASH facilities; • 633,000 school children and teachers in 2,000 schools in the six target districts with access to school-owned WASH facilities, • 100% Open Defecation Free	The Business case refers to the Evidence Paper in justifying the need for the school intervention, mentioning both the health and non-health impacts of WASH improvements indicated in the Paper
DRC	Extension to the Village Assaini programme to improve water, sanitation and hygiene and to build on the Village's structures in place, enhancing best practices and harmonising monitoring and evaluation	£11.57 million From September 2012 to September 2013 (Bringing the total value of DFID's contribution to the programme to	DFID funds will reach 850 new villages across all 11 provinces of DRC and provide: • Improved access to safe drinking water to 408,000 people; • improved sanitation to 326,400 people; • Improved hygiene education and better environmental health to 322,320 people; • Gender equity in village health and water committees; • Improved capacity of government	Reference to the Evidence paper in the Business case: The case Study uses the Paper definition of Evidence.

	mechanisms.	£36.57 million)	institutions to deliver and sustain water and sanitation improvements; • Improved sector policy environment and an effective government structure	It refers to the synthesis of health and non-health benefits of WASH improvements provided in the Evidence Paper.
Nepal	DFID Nepal Rural Water Supply, Sanitation and Hygiene supporting: • an enabling environment at central level, and capacity development at local level • the delivery of improved school- and community-led total sanitation and hygiene and new clean water and sanitation infrastructure • the provision of sustainable, affordable, and durable hardware through the engagement of community-managed finance and private sector.	£3.75m over a period of 3 years 2012-2015	The programme will implement 192 schemes which will benefit: • 5,200 households • 33,000 people and will build • 4,160 household latrines • 20 latrines in schools.	Reference to the Evidence Paper relates to the impacts of WASH interventions on health outcomes, particularly reducing “morbidity and mortality associated with diarrhoeal diseases”.

Malawi	DFID Malawi will support the delivery of rural water, sanitation and hygiene services in 10 low-WASH districts in Malawi	£20 million May 2012 to December 2015	Provision in 10 low-WASH districts: • equitable and sustainable access to and use of safe water supply and improved sanitation for 850,000 people • improved hygienic practices for 1 million people	Reference to Evidence Paper: Reporting global evidence that inadequate water, sanitation and hygiene contributes substantially to the mortality associated with diarrhoea as well as link with other diseases such as under nutrition and acute respiratory infections.
Mozambique	DFID intervention aims to accelerate progress towards achieving the Millennium Development Goals (MDGs) in rural water and sanitation in Mozambique	£20 million over a five year period 2010/11-2014/15	• Provision of clean drinking water to 328,000 people. • 355,500 people will benefit from adequate sanitation with improved latrines and hygiene promotion.	
Tanzania	Water Sector Development Programmes	The UK will provide a total of £30 million from 2012 to 2015,	The expected outputs are: • 652,000 people provided with access to clean water • 652,000 people reached with sanitation and hygiene campaigns • 163,000 people build toilets • 10% of village water committees legally registered	Reference to the Evidence paper is on the health and socio-economic impacts of WASH improvements.

			• Strong monitoring system in place • Programme is focused on poor people in areas of need	
Zambia	The funding will be channelled through UNICEF to work with local government, NGOs and the private sector to carry out sanitation and hygiene promotion and marketing and to construct latrines at schools and health clinics.	£19 million over 4 years (2011/12-2015/16)	The expected outcomes of the programme are: • Reduced diarrhoea morbidity amongst rural children under 5 from 15% (DHS 2007) to 12% (2015). This amounts to 14,300 fewer cases of diarrhoea in children each year. • 3 million additional people consistently using an improved sanitation facility with handwashing.	Use of the evidence paper to develop criteria for choosing the most effective intervention between: Rural water supply Sanitation and hygiene No intervention
Zimbabwe	The funds, managed by UNICEF aim to support rural water, sanitation and hygiene sector (WASH)	£34 million From 2012 to 2016	The expected outcomes of the programmes are: • equitable and sustainable access to, and use of safe water supply to 2,375,000 people; • improved sanitation to 1,140,000 people. • Hygiene practices will be improved amongst the rural population in 30 districts in 5 provinces.	Indirect reference (health impacts of WASH improvements)

Annex N – Maximizing the impact of applied sanitation and hygiene research

The timing of this annual report provides an important opportunity to look back on critical lessons and to make recommendations. In our January 2013 CAG, we were asked "Knowing what we know now, what might we do differently in the future?" and more generally what could be done to ensure that investments in sanitation and hygiene applied research contribute optimally to improvements on the ground and greater value for money (VfM) of services. This document draws on lessons and experiences in this report and elsewhere, to address the question of what could be done in the future to maximize this impact. In particular, five areas of learning are identified:

1. The benefits of research are great but long-run

The VfM analyses show that reaping the full potential impact of existing SHARE research requires careful investment in an often long process to influence policy and practice through iterative research and engagement of research users. This may often require more than one research project or study but rather an iterative and evolving series of research projects to characterize a problem, develop a solution, demonstrate the benefits, and then adapt and test it at scale. This process or pipeline often takes a number of years and it is unrealistic, in many cases, to expect the full benefits to be realized within shorter timeframes. SHARE addressed this issue by funding ‘quickstarts’ during the inception period and some of these have moved through this pipeline to influence policy and practice. Other projects though have just arrived at the stage where they need testing and adaptation at scale for the benefits of this early research to be realised.

One good example provided by SHARE is the work on weaning food hygiene. Demand has been generated in Bangladesh for practical interventions to this problem characterized by SHARE research and there is interest in other countries, such as Nepal and the Gambia, to develop and test the solutions developed through SHARE research at scale, and interest from global partners on the need to address the problem based on the demonstrated benefits.

Other examples are listed in section 6. Longer time frames would allow for the development of research projects that build iteratively on past learning in order to ensure they achieve their full VfM potential. In particular, the promising work that SHARE has done around the contribution of sanitation and hygiene interventions to childhood undernutrition, maternal health and to violence against women offers great potential if the progress made can be built on with further research and engagement of users.

2. Embedding research within national policy processes offers great potential

There have been a number of challenges in implementing the four country platforms, with each evolving differently based on the national context. In Bangladesh and India there is substantial national research capacity in sanitation and hygiene, as well ongoing investment

in research in the sector. While that has made it somewhat easier to launch research efforts like the weaning food hygiene project or the India RFP, it raises questions about how much value future sanitation and hygiene research investment might to existing sector efforts given the funding level. The India and Bangladesh platforms demonstrate the value of substantial research that engages national and international researchers. This contrasts with Tanzania and Malawi, where there is less existing research investment and arguably a greater need to develop applied research capacity. In these two countries it has been important to invest in and build our work into existing national platforms, however this has taken more time than expected. Now that we have done this, the pace of work and potential for impact is much greater. The collaborations that are now in place provide a platform for more effective work in a number of areas including: sustained programmes to develop young independent investigators through mentored research programmes, applied research collaborations with national partners (including the national offices and affiliates of SHARE partners), and improving the use of evidence in national programmes.

3. WASH underpins many sectors but the evidence for benefits and integration varies

In addition to addressing research needs within the WASH sector, SHARE has carried out a series of research synthesis and partner engagement activities to demonstrate the potential role of WASH improvements on nutrition, maternal health and disabilities. This has resulted in high-level policy and research interest in the connection. There is now a need for a second phase focused on developing the necessary applied research to change policy and practice. For example there is still a need for WASH interventions that could be effectively scaled in the context of nutrition or immunization programmes, as well a improved evidence of improved WASH in health facilities on maternal health. Again, longer time horizons with the opportunity for iterative research result in greater impact.

4. Research Funding and Scale

SHARE has been successful in catalyzing sanitation and hygiene research investment from other institutions. In fact, it has leveraged over 125% of its own research budget. Nevertheless, this amount is relatively small compared to the large research and learning investments from other organizations, most notably the Bill and Melinda Gates Foundation. Our strategy has been to rely primarily on smaller projects combined with targeted synthesis and partner engagement. While our documented successes stories point to a high value for money for this approach, it is likely that the scale of our research funding does not reflect the optimal economies of scale. Establishing country platforms, convening global partners, managing research calls, and establishing RIU partnerships all represent relatively fixed cost investments. Our Call C and India RFPs were heavily over subscribed. If these calls had been open to a wider group of researchers the response may have been overwhelming. This reflects utilized capacity for research in the sector that is not being fully utilized. At the same time, two of our focus countries (Tanzania and Malawi) have very low levels of current investment in applied sanitization and hygiene research. Generating sustained capacity for knowledge generation in those contexts requires a sustain availability of applied research funding. Without this, it is difficult to develop new successful researchers.

5. Evidence into Use

Although it was not a part of SHARE's initial work plan, the development of the DFID WASH Evidence Paper has been an important success, contributing directly to increased WASH investment through a global increase in WASH aid and eight country business cases so far. We have developed estimates of the impact and value for money from these efforts based on the increase in funding. However the actual value remains uncertain, and will be determined by on the effectiveness and efficiency of those same programs. The business cases for these investments identify critical factors in whether or not those impacts are realized. First, they point out how programmatic assumptions and evidence gaps noted in the paper create uncertainties about impact. For example, will a given behaviour change approach work in this context? Will changes be sustained? Will the approach be successful in reaching the most marginalized and most in need? While the business cases note these critical gaps, it is unclear whether programmes have the appropriate tools and support to address these gaps and assumptions. Getting the full value out of the existing evidence and increasing investment requires practical approach to confronting the gaps. This includes formative research, adaptive monitoring along the results chain, and conducting effectiveness evaluations at scale that can contribute to the existing literature. The proposed collaboration with the National Sanitation Campaign is one example of the kind of partnership that could do this. Recent partnerships with UNICEF and WSP also provide opportunities to do this as well.

6. The role of applied research in reaching the post-2015 goals for universal access

The international community has signalled its commitment to a global development goal of universal access to sanitation and water. SHARE research and researchers have contributed to this step change in ambition both directly – through participation in the technical advisory groups that proposed this - and indirectly - through research that has been used to build this case.

In the new context of a goal for universal access by 2030, applied research that answers that characterizes problems, develops solutions and demonstrates benefits is of ever more importance. Evidence generated will be critical in sustaining political commitment, enabling progressive policy and influencing sustainable practice. Many of the questions that arise when universal access is considered relate to research themes developed by SHARE and there are specific SHARE studies that already provide insights.

Several of the elements to meeting those goals though correspond to important remaining gaps in knowledge. What works best in delivering improved services and outcomes for poorest and most marginalized? What works in getting improved sanitation and hygiene into other settings such as health facilities and schools? A number of SHARE projects provide important insights to these questions, but they are just a beginning. In addition to answering the questions there is a broader need to enable programmes to incorporate new and existing evidence, as well as contribute to generating their own evidence. These are long-term challenges that require sustain efforts.

Sanitation and Hygiene Applied Research for Equity

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