Social Return on Investment on Improving Access to Sustainable Water Sanitation and Hygiene Services in Selected Health Care Facilities in Rwanda – A Reflective Baseline Analysis

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Available at http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html
ISSN 1923-6654 (print) ISSN 1923-6662 (online)
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Abstract: Investment decisions in a project or program requires a judgment of whether the expected development results justify the costs. This generally and ordinarily calls for rigorous processes and systems to be institutionalized to help in projecting clear results at both output and outcome levels as well as the costs associated with achieving those results. Social Return on Investment (SROI), in this regard, is one critical measure that is increasingly being deployed by development agencies in respect of the aforementioned but also to measure the social value of interventions. This study is a reflective analysis of social impact of Water Sanitation and Hygiene services implemented by WaterAid Rwanda in selected communities and health care facilities in Rwanda. Social Return on Investment analysis was used as the assessment tool based on SROI 7 principles. The analysis has significantly helped to determine the impacts that the project has created and to identify the most productive aspects. To augment the SROI analysis core aspects of Value for Money - economy, efficiency, and effectiveness were also employed.

Keywords: Health, Hygiene, Investment, Sanitation, Social Return, Water, Rwanda

Introduction

Social return on investment is a framework employed to measure and account for the value created by a program or series of initiatives, beyond financial value. It often incorporates social, health, environmental and economic costs and benefits(Kwizela, Kabole, Dugange, Murungu, & David, 2018). It is of particular relevance to WaterAid as our programming is intended to result in outcomes of this nature, for which there is currently no satisfactory way of valuing or assessing the value for money of(Liza Tong, 2016). SROI uses monetary values to represent social, economic and health outcomes, thus enabling a ratio of benefits to costs to be calculated. i.e. a ratio of 4:1 indicates that an investment of £1 delivers £4 of social value. There are significant benefits of instituting and conducting SROI particularly in a world where the resource mobilization and accountability are becoming more significant, calculating your SROI can give one a competitive edge. Stombauch Heather (2019)illustrates four facets that nonprofit institutions can benefit from a Social Return on Investment Analysis. (1)credibility – as it facilitates nonprofit to communicate its impact(2)Capacity – to invest resources in calculating the SROI (3)Evidence –SROI proves that you collect and manage data and know-how to interpret that information to sustain your work (4) sustainability –SROI is a phenomenal communication tool for fundraising (especially with donors or grantmakers in the financial sector).

To conduct Social Return on Investment, Lombardo & Mazzocchetti (2019)argue that, it is essential to understand the theory of change and how changes can be influenced through economic and social activities.Once this is understood, it becomes clear that social changes can also be measured. Theory of Change (ToC) represents a comprehensive description of how and why a desired change is expected to happen in a certain context. ToC methodology defines long-term sustainability goals and then maps backward to identify necessary preconditions (Nicholls & Cupitt, 2009), or assumptions, that explain both the mini-steps that lead to the long-term goal and the connections between these activities and the outcomes of an intervention or program. For each step in the sequence,

stakeholders outline clear indicators, thresholds, and assumptions. ToC can be developed for different levels of activity, for instance an event, a project, a program, a policy, a strategy or an organization and thus represents a rather important step within the SROI framework, providing the story of how stakeholders are involved in the project or activity and their perception and belief of how their lives have changed or will change.

The SROI methodology was first developed in 1996 by the Roberts Foundation, an organization of American philanthropy venture, in a pioneering report entitled "New Social Entrepreneurs: The Success, Lessons, and Challenge of Non-Profit Enterprise Creation". The SROI methodology is now being carried out worldwide by the Social Value International, a leading international network engaged in the social impact measurement, born from the merger of the SROI Network and Social Impact Analysis Information and currently encompassing members from 45 countries. In general, the SROI methodology describes how change is being created, placing monetary value on that change and thus allowing to measure the value of social outcomes generated by an organization in relation to the relative cost of achieving those outcomes,Social return on investment uses elements of social accounting and cost-benefit analysis, as the costs and the outcomes are quantified in monetary units and compared to evaluate the impact of an activity or intervention. Therefore, SROI measurement should be combined with qualitative assessment of stakeholders' experience, to find meeting points between what an organization and its stakeholders want to achieve, helping to increase social value and to create a dialogue with stakeholders that allows them to be effectively involved in the organization's activities. The SROI methodology is framed in two categories: (1) Evaluative, conducted retrospectively and based on actual outcomes that have already taken place. (2) Forecast, which predicts how much social value will be created if the activities meet their intended outcomes. This study thus fall in the latter category goal-oriented at predicting the social value of a Water Sanitation and Hygiene in Health care facilities program in Bugesera district of Rwanda.

Contextual Background

Adequate water supply and sanitation services are the key drivers for the social and economic development, poverty reduction and public health of Rwandans. (Ntakaritumana & Habineza, 2018, p. 3)According to 2018 national data, progress to basic water and sanitation access−water source is within 30minutes and sanitation facility is not shared−has reached 57% (54 % rural, 70% urban) and 66% (71%rural, 45% urban) respectively. Acces to limited services, with no consideration to water source proximity and sanitation facilities including those that are shared between households is higher at 87%(85 rural, 96 urban) for water and 86% (84%rural, 93%urban) for sanitation.

The target of the Rwandan Government as expressed in national strategic plans is to have an Improved Hygiene and Sanitation and a well-organized health system, with a WASH agenda aimed achieving 100% use of basic water supply and sanitation services by 2024. Available data revealed that 46% of the households' dwellers in rural against 30% in urban areas were still walking long distances to improved source of water, while 29% of rural households and 55% of urban households were lacking access to basicsanitation services. A diagnostic-analysis reveals that hygiene was underestimated compared to water and sanitation with only 4.4% of households equiped with facilities that have soap and water to enable the practice of proper handwashing at critical moments (Rwanda DHS, 2015). Access to WASH services and lack of sufficient data to inform policy decisions are among the big challenges a number of Rwandan population is still facing. Improving access to, and use of sustainable water, sanitation and hygiene services in communities and health facilities in marginalized districts of Rwanda including Bugesera was a paramount objective of a 3-year DFID funded-project (Deliver Life Project) implemented in Rwanda since April 2016.

Methodology

The framing process of this SROI was defined in stages, with a rigorous follow through and adherence to each stage. Table 1 below is descriptive of each stage used to perform this analysis in compliance with the main principles and standard of SROI methodology.

Table 1. Steps required by the Social Return on Investment (SROI) methodology

SROI Stage	Description
1. Definition of the field of analysis, identification, and involvement of the stakeholders	The stakeholders can all be the subjects that live the change or that are influenced by the activity both positively and negatively.
2. Construction of a Map of the Impact modeled through the involvement of the stakeholders	The impact map describes how the analyzed activity uses certain resources (inputs) to produce outputs that in turn will result in outcomes for stakeholders.
3. Evidencing outcome identification and assignment of a value	Stakeholders are fundamental in this stage, being those who have experienced a change. They are also "heard" through qualitative approaches such as questionnaires, interviews or "focus groups", in addition to quantitative data collection. A monetary value is assigned to the outcomes through the identification of adequate financial values that help demonstrate to a stakeholder the importance of the changes in their experiential sphere. Therefore, this stage of the analysis involves the definition of economic proxies for assets that often do not have a market value, also considering that for some goods there is not an objective cost, but it is the result of the subjective perception of those who use it. In this perspective, we used the methods of Contingent Valuation, such as questionnaires, focus groups and stakeholders' interviews
4. Calculation of the impact	This phase is very important as it reduces the risk of overestimating the analysis carried out, thus reporting the value of the impact as a real precautionary measure. The calculation goes through four further steps (1) Estimation of the deadweight. The deadweight is defined as the measure of the amount of outcome that would have occurred even if the activity had not taken place.. (2) Estimation of the displacement. It indicates the displacement given by new negative elements that overlap with pre-existing positive elements, even in neighboring populations.(3) Estimation of the attribution. The attribution is the assessment of how much of the outcome comes from the contribution of other organizations or people. (4)Estimation of the drop off. The drop off indicates the reduction of the impact across time.
5. Calculation of the SROI Ratio	At this step, the value of the outcome in the future is estimated, and the Net Present Value is calculated. The latter is computed discounting the sum of costs and benefits at a certain discount rate. ROI = Net Present Value of Outcomes /Net Present Value of Investment

Stakeholder consultation, theory of change and outcomes mapping

The first step comprised providing an intensive 2-day SROI training for WaterAid and partner organizations. This was followed by a 2-day project-specific design and development workshop with partners. As regards Stakeholders and materiality critical stakeholders were identified before and during the stakeholder consultation process with some assigned as significant for inclusion into the analysis based on time, costs, resources, investment provided by them, or as significant beneficiaries. The following table highlights the rationale for their inclusion/exclusion in the analysis.

Table 2. Stakeholder Inclusion/Exclusion Analysis

Stakeholder	Material to the analysis	Inclusion
Prenatal mothers	Improved WASH facilities at the health facility would have a positive impact on the perception of prenatal mothers about hygiene safety and cleanliness. Good attendance at ANC sessions (Rwanda minimum is 4 per pregnancy) leads to better outcomes for delivery. Fear of attending health facility for actual birth	Inclusion – deemed material and primary intended beneficiaries of the project
Postnatal mothers	Improved WASH facilities and improvements in handwashing facilities and practice - particularly in the maternity and delivery areas will result in improved health outcomes for both mother and baby. For the mother, this is about reducing incidence of WASH-related post-delivery illness notably sepsis. Better hygienic conditions for the baby will result in improved child health (and mortality rates)	Inclusion – deemed material and a key beneficiary of the project
Health center staff	The project targets health workers with training and access to safe WASH facilities in order to improve hygiene behaviors. Health benefits will result in the worker themselves, leading to a reduced incidence of workdays lost due to WASH-related illness	Inclusion – an indirect beneficiary but significant enough to be material

Community members in adjacent and target communities	Community members from villages accessing improved water supply (and hygiene behavior change) in adjacent areas to the Health facility will receive health and economic related benefits. Less tangible but important considerations will be time-saving in relation to fetching water and opportunity cost.	Inclusion – direct beneficiaries
Community members in adjacent and target communities (children)	Children are usually required to fetch water which can be very time consuming and have negative impacts on their academic performance as well as their leisure time. There are also some important safety issues in relation to fetching water as well as health impacts	Inclusion – direct beneficiaries
Local Government –	The government is a indirect beneficiary however they are material because of the potential savings in health-associated costs – i.e. reduced number of admissions in relation to reduced WASH morbidity and associated treatment. As an implementing partner the Bugesera District has duties in coordination	Inclusion – indirect beneficiary

Theory of Change for Pre and Post-Natal Mothers, Health Facility Staff and Community

Reference base for the Theory Of Changeof this forecast study was the original program design, log frame, and activity plan. WaterAid staff and partners constructed the pathways of change for each of the different stakeholders identified as material to the study. Discussions were conducted on intervention strategies and planned program activities which would result in stakeholder benefit, focused on long term outcomes and working backward determined causal links to change. Two Theories of Change were generated one for pre and postnatal mothers and Health care staff and the other for community adults and children in both cases looking at (1) High-level intervention strategies (2)intermediate outcomes and (3) long term outcomes. Measures were put in place to focus on the top four of each stage hence in the TOC for Pre and postnatal mothers and health staff defined High level intervention strategies were to (a) Provide technical assistance and material for WASH improvements , construction in health centers (b) Interventions to increase hygiene knowledge and making accessible handwashing facilities for pre-post natal women (c) Interventions to increase hygiene knowledge and making accessible handwashing facilities for health staff in maternity unitsFacilitate District dialogues on pre/postnatal infection. Core related to these high level intervention strategies four intermediary outcomes were generated focusing on (a) Improved infrastructure and WASH service quality and downtime in disruption at health facility (b) Improved knowledge and behaviours sustained regarding hygienic practice in particular handwashing/ hygienic handling of newborn for pre/post-natal women(c) Improved knowledge and behaviours sustained regarding hygienic practice in particular handwashing for health center staff and (d) Government authorities more supportive to safe WASH at health facilities. In terms of long term outcomes (a) Avoidance of WASH-related morbidity for pre and post-natal women (b) Avoidance of WASH-related mortality for post-natal women and their newborns (c) Avoidance of psychological distress for mothers associated with poor WASH in health facilities (d) Avoidance of WASH-related morbidity for health centre staff (e) Greater leadership provided to staff for safe hygiene.

Monetizing outcomes – identifying financial proxies

This is the most complex and time-consuming stage of SROI involving prolonged fieldwork followed by extensive desk-based analysis. The identified outcomes were valued on the basis of community and partner consultation (revealed preference), secondary research and the Social Value Network recommended techniques. Robustness in the choice of financial proxies was ensured through peer review and through sensitivity analysis (testing the sensitivity of findings to changes in a range of key assumptions)

Table 3. Financial proxies

Stakeholder	Outcome	Indicator description	Financial proxy description	Proxy value RWF
Prenatal / postnatal women	Avoidance of WASH-related illnesses	Reduction in rates of WASH-related infections as recorded by health centre	Opportunity cost of productive time lost due to infection (based on average time it takes to recover following infection in post natal period) – 4 weeks.	20,000

	Avoided psychological distress	Self-reported perception of health centre cleanliness by mothers – this is assuming the cleanliness state of the health center increases the suspicion or stress levels of women needing maternity services. There is weak incentive to use the health facility for delivery. Self-reported wiliness to return or recommend the HCF to others	0.4 of a QALY Adjusted percentage of a QALY (0.4) that relates to mental health - assume here that pyschological distress is equal to mental health	136,824
	Avoided maternal mortality resulting from WASH-related infections	Rates of maternal mortality as recorded by health centre or CHW	Will not be costed	
	Avoidance of child mortality resulting from WASH related infections	Rates of child mortality resulting from WASH related infections	Will not be costed	
Health center (staff and CHW)	Avoidance of WASH related illnesses	Or self reported number of days off sick due to WASH related illness	Cost of average health worker salary per day x	5,260
	Increased functioning (through competence, trust of others)	Average of: Self-reported percentage of health care workers (center staff plus CHW) with improved hygiene behavior at targeted health centers (focusing on practicing handwashing with soap/ash and water) Staff reporting they have not received training in hygiene & expecting to be trained as part of project Staff reporting highest level of skills (excellent, good,fair poor) transferring WASH-related information to other staff and patients	Cost to attend an equivalent training	26,301
Ministry of Health	Avoidance of the need to purchase potable water from vendors	Staff reporting the average cost of water purchased by the hospital	Cost of water to the health facility charged by the vendor	
Community adults in target and adjacent communities	Avoidance of WASH-related illnesses	Self-reported HH no. of days lost due to WASH-related illness based on rates of WASH-related infections (i.e. diarrheal) occurrence and number of days lost from work at each occurrence as self-reported by community members Self-reported percentage of people with improved hygiene behavior in targeted communities (focusing on practicing handwashing with soap/ash and water)	Opportunity cost of time this will be multiplied by the number of days lost to WASH related illness over the year	12,000
	Avoided economic loss resulting from WASH related illness	The sum of Medical expenditure due to WASH related disease Reduced cost from buying water from vendor Reduced time spent collecting water - saved time [days]	Avoided WASH related health associated costs per episode for treatment : Average cost of medicine plus transport to clinic/ pharmacy etc Difference in vendor tariff vs piped water tariff Opportunity cost of time…daily average salary/income	5,193 235 1000
	Improved social wellbeing	Households reporting amount of time spent on improved family time and quality of life	Revealed preference: Measured by a typical cost of a 3 meal a day diet for the family every Sunday (family quality time)	104,000
	Improved dignity/self-esteem	Self reported “feeling good about themselves concerning water situation”	Revealed preference: adult - dressing well trousers and 1 Tshirt or a good dress (every 6 months) with shoes costs 20,000	40,000

	Improved safety	Households reporting experience of violence or aggression towards women when going to fetch water in last 3 months	Revealed preference: Cost of a bicycle to move safely from one place to another	80,000
Community children	Avoidance of WASH related illnesses	rates of WASH related infections as recorded by health centre AND self-reported by community members	Avoided transport and medicine costs for WASH-related illness	5,193
	Improved academic performance	Time lost for school attendance reported for children in relation to the burden of fetching water	Min of Finance -Capital grant per annum per pupil - day	280,000
	Improved safety	Households reporting experience of violence or aggression children when going to fetch water	Revealed preference: Cost of a bicycle to move safely from one place to another	80,000
	Improved happiness (emotional wellbeing)	Time lost for leisure and play for children in relation to the burden of fetching water	Revealed preference Ongoing cost of a toy, football - over the year	24,000
Local government	Improved resource efficiency	No. of avoided treatments for WASH related infections	Unit cost of treating an infection- Rwandan typical outpatients cost to Government . This will be multiplied by the number of forecast reduced infections across all the health units measured	632

Impact

An estimate of impact was calculated in order to avoid over claiming the benefits created by the project. This Impact takes into account 3 different components, the deadweight (counterfactual), the displacement (if any) and the attribution. Impact in this regard was determined by accounting for how much of the achievement of the outcomes will be due to WaterAid and partners. This was reached at by taking account of what would have happened anyway (deadweight or counterfactual), the extent to which we have created a net change (displacement) and the role of others in creating change (attribution). Deadweight is defined as a measure of the proportion of the outcome that would have happened anyway, regardless of the intervention (Social Value UK, 2016) whilst (Watson & Whitley, 2016) defineDisplacement as a measure of whether a positive outcome has simply displaced other negative outcomes elsewhere. Attribution on the other hand is a measure of how much of the outcome can be attributed to the intervention, rather than other factors.

Deadweight and attribution varied per each outcome area. *For this study*deadweight calculations on each outcome was considered against the question *"how much of this would have happened anyway?"* in discussion with project staff and from secondary data analysis associated with each outcome. Displacement was considered 0 for this project for all outcomes as it is predicted that no negative impact will be derived. Attribution took into consideration the contribution of other organisations or people

Stakeholder	Outcome achieved	What would have happened anyway? (evidence – counterfactual)	%age deadweight estimate Low 0- 30% medium 30-60% high 60-100%	How much outcome was caused by the project after considering others role in contributing to the change?	%age Attribution of the project to achieving the outcomes –Low 0- 30% medium 30-60% high 60-100%
Prenatal/postnatal women	Avoidance of WASH-related illnesses	Key WASH-related illness due to sepsis following delivery. Within the project period although Rwandan Health indicators are on a very positive trend there is very low likelihood that any improvements or investments for WASH in the HCF would have materialized over this time.	**Low– 10%**	Assuming high level of attribution towards avoidance of WASH-related illness, as the project focuses on this as a key outcome. Other NGOs are present and have provided some WASH-related infrastructure but limited hygiene behavior change – in order to attain the avoidance of ill health outcome WASH must be seen as an integrated package.	**High 70%**
	Avoided psychological distress	Assumption that women less likely to attend health facility for ANC with poor facilities (concerning WASH) and this is a cause of stress in pregnancy. Government targets increased number of pregnant women completing the four standard ANC visits (Nyamata District hosp strategic plan BL 29% 2012 – 50% 2018)	**Low – 10%**	The role of Government and health staff/nurses, midwives, etc would play a significant part here in reassurance and quality of care.	**Medium 40%**
	Avoided maternal mortality resulting from WASH-related infections	Assuming that much of the decline in maternal mortality would be happening anyway. Evidence suggests : Maternal death ratio and Infant death ratio reduced – 2012 87.6% Rwanda's maternal mortality ratio (MMR) has also trended down at a rapid rate (50% between 2000 and 2010) to a rate of 340/100 000 LB according to modeled data.6 However, RDHS data showed an MMR of 476/100 000 LB in 2010.7 (See Figure 2.) Declines in maternal mortality (non WASH related) are associated with improvements in the contraceptive prevalence rate and skilled birth attendance (success factors for women's and child health Rwanda – WHO 2015)	**High deadweight proportion 60%** likely as GOR policy and investment in trained birth attendants (key indicator to reduce maternal mortality) for most significant factors (skilled birth attendants). WASH-related maternal mortality likely to be infection-related and the decline would be small compared to the other factors		
	Avoidance of child mortality resulting from WASH-related infections	Neonatal mortality (less than 1 month) 5% pneumonia 19% sepsis and other WASH-related – rate 20.1 deaths per 1000 live births - WHO maternal-child, adolescent epidemiology profile Rwanda 2013.	**Medium deadweight proportion 40%** likely as Gov policy to expand immunization services including pneumococcal and rotavirus likely to see huge decreases in		

Stakeholder	Outcome achieved	What would have happened anyway? (evidence – counterfactual)	%age deadweight estimate Low 0- 30% medium 30-60% high 60-100%	How much outcome was caused by the project after considering others role in contributing to the change?	%age Attribution of the project to achieving the outcomes –Low 0- 30% medium 30-60% high 60-100%
			pneumonia. WASH related sepsis strongly linked to WASH improvements at health facility level. Our intervention has a direct affect on this, hence a medium deadweight assigned		
Health center (staff and CHW)	Avoidance of WASH related illnesses	Low likelihood that situation would have improved anyway as the WASH facilities in the health center were the main cause of inability to do effective handwashing , thereby avoiding WASH related illness.	**Low 10% deadweight proportion**	Government – Health Ministry and Nyamata Hospital would have a role here in the provision of guidance, some on the job support and setting standards.	**High 70%**
	Increased functioning (through competence, trust of others)	Hygiene perception survey targeting staff reported 91.7% had no formal training in hygiene in the last 3 years – so unlikely that situation would change for health centre, strong project focus on staff capacity building around hygiene behaviour change in the absence of this being provided form other sources.	**Low 10% deadweight proportion,**	Government – Health Ministry and Nyamata Hospital would have a role here in the provision of guidance, some on the job support and setting standards.	**High 70%**
Ministry of Health	Avoidance of the need to purchase potable water from vendors	Cost of water per litre / jerry can varies depending on lake or tap water 100 – 300 RWF this is standard and unchangeable functioning and reliable WASH facilities installed by project would alleviate the need to purchase from vendors	**Low 10% deadweight proportion** –		**High 70%**
Community adults	Avoidance of WASH related illnesses	The HH survey revealed that for adults 18.8% recalled they had suffered from diarrhoea in the past 1 month. Assumption that most cases of diarrhoea from contaminated food/water consumption through poor hygienic practices. Key aspect of the project is to enable improvements in hygienic practice. Little evidence of any other initiative or trend to improve this situation in absence of project	**Low 10% deadweight** - –	Assuming high level of attribution towards avoidance of WASH related illness, as the project focuses on this as a key outcome. Other NGOs are present and have provided some WASH related infrastructure but limited hygiene behaviour change – in order to attain the avoidance of ill health outcome WASH must be seen as an integrated package	**High 70%**
	Avoided economic loss resulting from	As above Little evidence of any other initiative or trend	**Low 10% deadweight**	**As above**	**High 70% for avoided WASH related illness**

Stakeholder	Outcome achieved	What would have happened anyway? (evidence – counterfactual)	%age deadweight estimate Low 0- 30% medium 30-60% high 60-100%	How much outcome was caused by the project after considering others role in contributing to the change?	%age Attribution of the project to achieving the outcomes –Low 0- 30% medium 30-60% high 60-100%
	WASH related illness	To improve this situation in the absence of project. Economic benefits all related to improved WASH are the opportunity cost of time , medical expenditures on medicines and travel for WASH related illness and reduced cost of water purchased.			**expenditure Medium 40% for reduced water cost High 70% for time savings and opportunity cost**
	Improved social wellbeing	Well being has a strong correlation to effective WASH access. Although whilst deadweight is low – Rwandan economic trends and associated quality of life are apparently improving this would be reflected in overall improvements in social well being, happening regardless of the project.	**Low 20% deadweight**	There are a number of other influences which go towards improving social well-being including the efforts of the community themselves and local community stakeholders such as leadership and CHW specifically supporting families around WASH. The project has assumed a medium level attribution.	**Medium 40%**
	Improved dignity/self-esteem	Here the question was about dignity and self respect concerning WASH. The household survey states 86.7% felt very bad about their water situation which has been used as a proxy for dignity. This very high figure directly relates to their WASH situation Given that the concept is a related to a person's feelings about their situation – and it is feasible but difficult to link this to self - esteem and dignity, a medium/high deadweight rating has been applied	**High 60% deadweight**	**As above**	**Medium 40%**
	Improved safety	As above Linked to the collection of water. Little evidence of any other initiative or trend to improve this situation in absence of project	**Low 10% deadweight**	Whilst there are few or no other mentioned stakeholders which would contribute towards improved safety for women and children in fetching water, it is considered that some level of management or protection would exist within the household or the community . A modest medium attribution level was allocated for the project.	**Medium 40%**
	Avoidance of WASH related	The HH survey revealed that for children U5 adults recalled 40% had suffered from	**Low 10% deadweight**	Assuming high level of attribution towards avoidance of	**High 70%**

Stakeholder	Outcome achieved	What would have happened anyway? (evidence – counterfactual)	%age deadweight estimate Low 0- 30% medium 30-60% high 60-100%	How much outcome was caused by the project after considering others role in contributing to the change?	%age Attribution of the project to achieving the outcomes –Low 0- 30% medium 30-60% high 60-100%
Community children	illnesses	Diarrhoea in the past 1 month.[1] Assumption that most cases of diarrhoea from contaminated food/water consumption through poor hygienic practices of themselves or caregiver. Key aspect of the project is to enable improvements in hygienic practice. Clear link between WASH and child health[2] (cases of diarrhoea in preceding 24 hours) in relation to disposal of faeces, hygiene practices, water treatment		WASH related illness, as the project focuses on this as a key outcome. Other NGOs are present and have provided some WASH related infrastructure but limited hygiene behaviour change – in order to attain the avoidance of ill health outcome WASH must be seen as an integrated package	
	Improved academic performance	Looking at educational statistics from 2011 to 2015 in Rwanda there is no firm trend concerning school completion or drop out (Min Ed educational statistics workbook 2015) rate amongst male or female students. This indicates something of a lull in improving academic achievement. However there is a strong likelihood of other factors driving improved academic performance as well as better attendance of children at school (as a result of not having to fetch water)	**Medium 40% deadweight**	Academic performance whilst strongly associated with school attendance has many other stakeholders who can claim greater influence in this outcome, for example the parents, the school, older siblings. A low level of attribution for the project has been set.	**Low 10%**
	Improved safety	From the household survey only 6.7%% reported themselves or a family member having experienced violence going to fetch water. FGD revealed this issue was more prevalent and low level incidents occurring at the waterpoint. (more bullying/ intimidation than severe violence and health impact – snakes / crocodile). Without any alternative water connection they would have to do a journey and the risk would be present	**Low deadweight 10%**	Whilst there are few or no other mentioned stakeholders which would contribute towards improved safety for women and children in fetching water, it is considered that some level of management or protection would exist within the household or the community . A modest medium attribution level was allocated for the project**.**	**Medium 40%**
	Improved happiness (emotional wellbeing)	The burden of fetching water for children has meant far less time can be spent in leisure, studying or other activities. This is a daily task that is a household necessity and children are regularly called upon to fetch water , at times twice daily, there is little chance of	**Low 10%**	It is assumed that time savings for children have a direct relation to their increased leisure or to be able to choose how they spend their time. Happiness would be dependant	**Medium 40%**

[1] Over 90% of consultations at HCF include cholera, diarrhoea, ARIs intestinal parasites; 60% of school children are infected with worms. Rwanda DHS 2010

[2] The Linkage between Water Sanitation, Hygiene and Child's Health in Bugesera District: A Cross-Sectional Study, University of Rwanda College of medicine, Bugesera District, WaterAid 2016

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		them being released from this duty unless better WASH services were available.		on not just this but other stakeholder influences, i.e. friends, siblings, peers and family. A medium attribution has been set for the project	
Local government	Improved resource efficiency	This is about the costs to Government of WASH-related infections. Given that the deadweight for the avoidance of WASH-related infection is low in each case for pre/post-Natal women community (adults and children) this has also been set at low.	**Low 10%**	This directly relates to the avoided WASH-related illness and savings to Government – a key focus of the project, the attribution is set as high.	**High 70%**

Sustained value, benefit and drop off periods

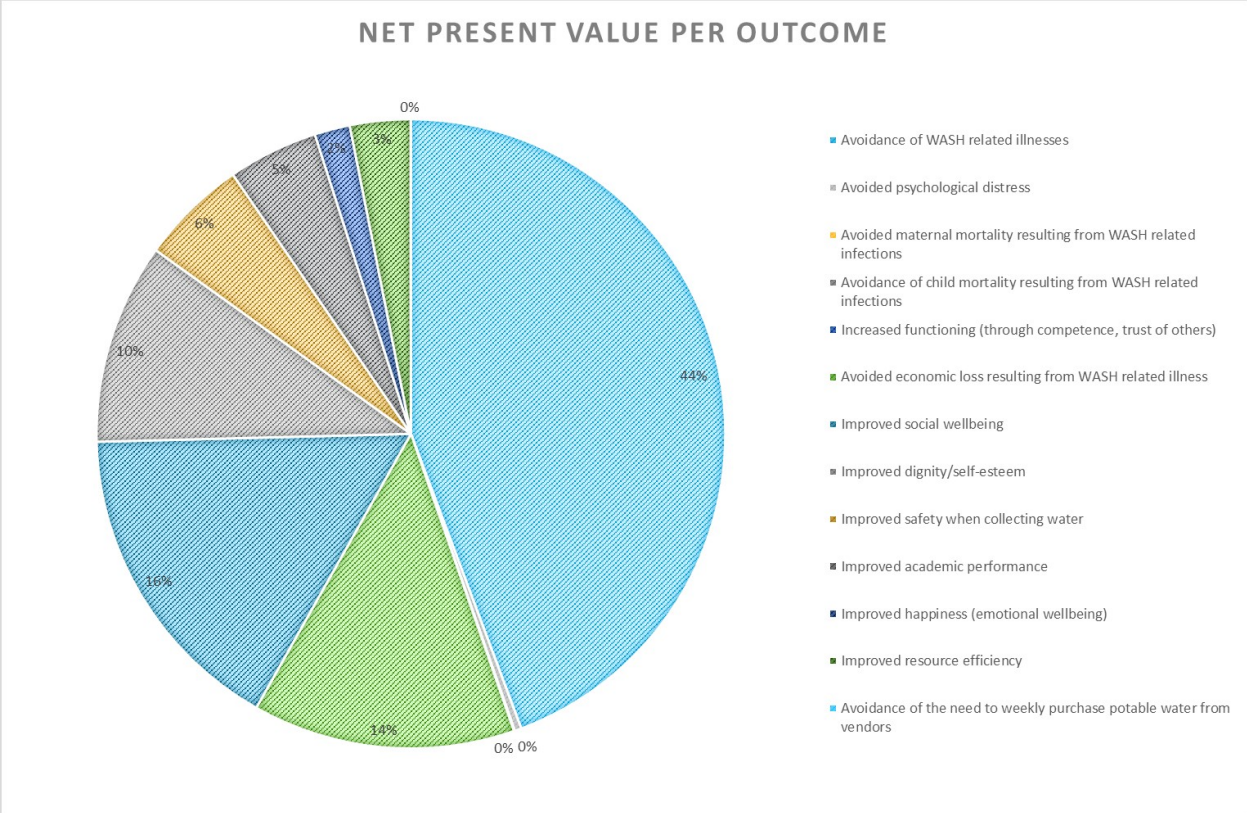
The benefit period and drop off is the period considered to determine how long outcomes last beyond the timeframe of a program, in other words how long one expects to see the benefits sustained into the future (directly due to project influence). The benefit period, in this case, is assumed to be 3 years as this is the point at which historical data to determine the benefit period and to what extent year on year the influence of the program diminishes over time (the drop off rate as a %age). The benefit period for each of the outcomes was considered separately and the following estimated benefit period (years following the end of program) and drop off rate (%age wise, used to account for the decrease in influence the program has on the outcome value in subsequent years)

SROI Findings

Findings included that by reaching 31,776 community adults and children (school age 7-14) – the poorest and most vulnerable, 60 health facility staff and 3,414 pre and post-natal women accessing health facility maternal services a social return on investment of 1:3.16 could be achieved over the first 2 years of the program i.e. for every £1 invested in the project £3.16 would be generated in the form of social and economic value. Whilst this represents a healthy return, it sits on the lower range by comparison with figures from WHO report *Making Water Part of Economic Development 2013* which indicated that by reaching the water-related MDG, the return on investment for the health sector, individuals, households and agriculture was between 1: 3 and 1: 3.4 (depending on region). Our figure is very likely to be underestimated – as WASH improvements to health facilities (in particular maternal health services) are linked to decreases in maternal and child mortality (leading to massive social and economic loss), however, this aspect was not quantified in this evaluation given that it was difficult to estimate the attribution to the WASH program investment.

Other significant benefits of improved WASH for communities that were valued include the avoided health costs for treatment of WASH-related sickness, the adult working days and family time gained (linked to wellbeing and opportunity cost of economically productive adults as a result of less illness and savings in time used in fetching water). For children main benefits were increased time spent in education and in play, as well as increased safety (avoiding risks associated with fetching water). At the health facility, access to reliable and safe WASH had a direct benefit of decreasing illness amongst both staff and patients, but also importantly providing the perception of hygienic, dignified, safe birthing environment amongst pre and post-natal women. The subsequent table shows the projected net present value generated for each of the stakeholders following an investment of GBP638 689 for the first 2 years of the program.

Stakeholder	NPV (£)
Local Government- Ministry of Health	£629,84.12
Community Members (adults) in target and adjacent communities	£1,110,987.21
Community Members (Children) in target and adjacent communities	£832,010.97
Health Centre Staff	£2,502.24
Pre and postnatal women	£10,918.37



The key four outcomes for community adults and children were found to be avoidance of WASH-related illness (44 % of the outcome value), improved social well-being (16% of outcome value), avoided economic loss related to poor WASH (14% of outcome value) and improved dignity and self-esteem in relation to WASH (10% of outcome value.) The model and SROI calculation were tested for sensitivity analysis to variations of financial proxies (50% reduction), decreased key attributions and increased drop-off rates. With the worst-case scenario, the resulting SROI was estimated at 1.03 – confirming the robustness of the model and the expected positive social and financial outcome of the project. In addition to the estimation of the SROI for the project, the study methodology, including the interviews at household and HCFs, allowed for identification important recommendations for the project design and activities prioritization.

Emerging issues from this study are

- The economic and social benefits of improved access to safe water, sanitation, and appropriate hygiene behavioral practices provides a firm economic argument for the continued and further investment in sustainable WASH services for poor people and essential community health facilities
- Tangible and costed benefits can be isolated for unintended stakeholders, for example Local Government, National Ministries, etc. This can provide a rationale to Government for investment, by demonstration of return on investment
- Adherence to the principles of SROI in conducting such studies is necessary to ensure adequate consultation, test assumptions and provide key input from stakeholders, to the economic model
- To further strengthen the case for the economic benefit of integrated WASH in health care facilities, more evidence needs to be generated around the cost of maternal and neonatal premature death to families, communities, and broader economies
- This type of study increases the ability to measure investments value to individual stakeholders; measuring impact analysis beyond numbers and budget.
- The question on measuring residual value/benefit of hardware is unresolved e.g. value after the project life taking into consideration the ongoing maintenance cost of the hardware. Building this cost and benefit into the SROI will be an important addition.

Acknowledgment

The authors would like to thank the staff of WaterAid in Rwanda and UK, Michael Weatherland (NEF) and Vital Nsengiyumva (Baylor University) fortheir technical contribution to this exercise and the leadership of the Bugesera District and Nyamata Hospital for their guidance during the assessmsnt . Our gratitude also goes out to all the partners of WaterAid in Rwandawho contributed to this achievement. Gratitude to mothers, health professionals, local leaders and other respondents who willingly provided useful responses to questions during this analysis. Finally, our thanks go to DFID for the financial support to the project under study without which this assessment and intervention would not have been possible.

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