



# Water.org: Meta Study of Existing WSS Research

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Thematic paper on Women's empowerment and equity

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Sue Cavill

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## List of Abbreviations

FGD	Focus Group Discussion
FI	Financial Institutions
IWDA	International Women's Development Agency
KEWASNET	Kenya Water and Sanitation Civil Society Network
MHH	Menstrual Health and Hygiene
MHM	Menstrual Hygiene Management
NRMC	NR Management Consultants Pvt Ltd)
OD	Open Defecation
RAG	Red, Amber, Green
ToC	Theory of Change
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene
WC	WaterCredit
WEE	Women's Empowerment and Equity
WHO	World Health Organization
WSS	Water Supply and Sanitation
WSUP	Water and Sanitation for the Urban Poor

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## Version Control

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## 1. Introduction

### 1.1 Scope of the meta study

The objectives of the meta study are “to organize, synthesize and translate the (internal) evidence base into meaningful insights that compel action across donor and sector stakeholders” and “to inform Water.org’s future research and learning agenda by identifying key evidence gaps where additional insights and research are needed”. These objectives reflect the breadth of the (internal) evidence that already exists and highlights where evidence between Water.org activities and outcomes related to these thematic areas remains weak. Recommendations are also made in terms of Water.org’s future learning agenda as well as improving Water.org’s programming to strengthen its potential contribution to the five thematic areas.

### 1.2 Women’s empowerment and equity

Women’s empowerment and equity (WEE) is assumed to be a secondary outcome associated with water, sanitation, and hygiene (WASH). Empowerment refers to women taking control over their lives: setting their own agendas, gaining skills, building self-confidence, solving problems and developing self-reliance. Equity is the process of being fair to men, women and gender non-binary people. To ensure fairness, measures must often be available to compensate for historical and social disadvantages that prevent people from operating on a level playing field. This report covers 8 different areas of WEE:

- Women take loans via WaterCredit (WC) for improved WSS.
- Increased women's decision-making and authority.
- Time gains.
- Increased income opportunities.
- School attendance.
- WC improves financial opportunity for women through credit history.
- Health
- Safety and dignity.

The WEE topic cross-cuts other thematic areas, as the impacts related to the other themes such as household finances and health & safety in particular, are similar to women’s empowerment related impacts. As such, it is recommended that it is read in conjunction with these reports. The cross-overs and interlinkage with the other sub-theme narratives are noted in each sub-section.

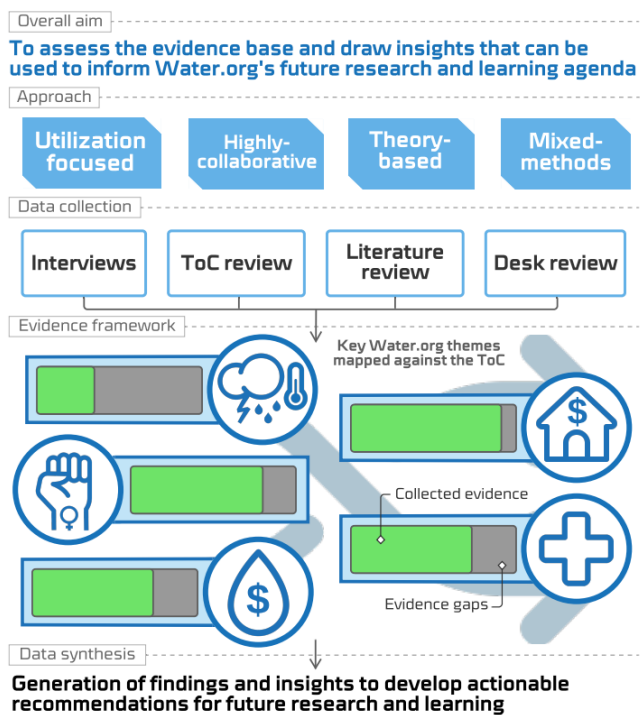
### 1.3 Methodology

Figure 1 summarizes the approach and methodology applied for the meta study.

Six stages of work were carried out:

1. Review and reformulation of the thematic theories of change and development of a Theory of Action;
2. Deep dive document and data review for internal evidence. This incorporated a sense check with Water.org core team to identify whether any additional data was available;
3. External literature review to source evidence on associated sub-themes including any gaps identified with the internal evidence;
4. Drafting of the Thematic Paper;
5. Co-creation workshop to develop and refine the associated Theory of Change;
6. Finalizing the Thematic Paper.

Figure 1. Meta-study approach and methodology



**Analysis framework:** The reformulated theory of change and associated sub-themes was used as the analysis framework.

**Internal evidence data sources:** The meta study analyzed both primary (interviews with country program managers) and secondary data, quantitative (WaterPortal data and mwater data) as well as qualitative analysis (evaluation reports and other such publications).

**External evidence data sources:** External literature was sourced using Google Scholar, reference lists in sourced literature, personal libraries, and cross-over and sharing of literature from one thematic area search to another. Both internal and external evidence were entered into a data capture tool for further analysis.

**Scoring the evidence:** Each sub-theme is given a Red, Amber, Green (RAG) rating. A grey color block depicts that the rating is not applicable.

Table 1. Color classification of RAG rating

Internal data	Strong evidence	External data	Strong evidence
	Emerging evidence		Emerging evidence
	Mixed evidence		Mixed evidence
	Weak evidence		Weak evidence
	Not applicable		Not applicable

**Internal quality control:** in addition to the sense checking by Water.org, three discrete internal quality control steps have been taken: an internal workshop sharing the internal and external evidence to identify and discuss thematic findings and cross-cutting aspects; and 2 rounds of quality assurance of the report (draft and final).

**Internal and external evidence:** two icons are included in the text to denote whether a data source is internal to Water.org or external:

**In** = internal evidence      **Ex** = external evidence

#### 1.4 Structure

The remainder of the report is structured as follows:

**Section 2** provides a summary of findings.

**Section 3** provides detailed findings for each of the sub-themes of (insert theme).

**Section 4** provides a concluding statement.

**Section 5** details the thematic Theory of Change (ToC).

**Section 6** sets out a series of practical recommendations for consideration by Water.org.

**References** are then detailed.

## 2. Summary of findings

The majority of WaterCredit borrowers are women.

**In** **Water.org data reveals that most loan customers through WaterCredit programs are women.** Various sources of evidence available to support this claim. For instance, the Women's Empowerment Dashboard v3.0 shows that 94% of borrowers for WC loans were women. Women are more likely than men to take a loan for improved sanitation and water quality. The loans are mainly used for WSS but a study in Kenya (Davis and Gilsdorft, 2016) found they might also be used for other purposes (business agriculture, home improvements, transportation-related purchases. Women typically share responsibilities for loan repayments where they have no personal income-generating activity. An evaluation in India and Indonesia reported about half of the women respondents were identified as housewives (i.e., had no economic activities) (Water.org and Grameen Foundation, 2020).

For the WASH sector and beyond, there is limited evidence that by providing credit to women, their control over decision making authority in the household increases.

**In** **Imbalances of power and opportunity in society are reflected in WASH systems.** Decision making power is a very complex area to investigate because it spans across multiple dimensions of a woman's life. Holvoet (2005) finds that evaluations of the effects of microfinance programs on women's empowerment generate mixed results. Some find microfinance programs can induce a process of empowerment, whilst others find it can even lead to a deterioration of women's overall well-being. Whether financial instruments such as loans can affect women's participation in household decision-making often depends on women voice and agency and their existing level of control over their own and familial resources as well as women's financial access and financial know-how (Murshid, 2018).

Overall, there is good external evidence that improved (and more convenient) access to WASH is associated with time savings.

**Ex** **Time use surveys show that women perform most of the unpaid care and domestic work that is done worldwide.** This affects the time women have for work or other interests and reinforces gender assigned roles. More convenient access to WSS services reduces the time for women (and

**In** **Recommendation: Engaging male family members in loan/WSS activities could be harnessed as an opportunity to promote broader change in gender relations and norms.** Opportunities here include greater involvement in domestic WASH related activities and support for women in leadership and entrepreneurial roles as well as girls' attendance in schools. Better equipping FIs to more effectively promote sanitation to male clients will bolster this and also to encourage all household members use sanitation facilities.

**Recommendation: Review client protection principles and sharpen monitoring to detect unintended consequences of taking the loan such as gender-based violence and financial stress.** Be proactive in increasing monitoring officers' awareness of risk and establish links with specialist protection agencies that can provide support to women in case of backlash in the household. Maintain strong links with regulators to protect vulnerable women from taking a loan and falling into debt and work with regulators to ensure FIs follow client-protection principles.

dependents) to reach WASH facilities. Time saved through WSS improvements might be spent on a range of activities including leisure as well as income-generating activities or work in smallholder plots. Similarly, the Water.org data provides good evidence on time gains. There is strong evidence that Water.org programs have led to time gains, especially for women. mWater Household Borrower Survey 2.0/3.0 reveals that convenience and time are key reason for women taking a loan. Male and



female respondents in mWater Household Borrower Survey 2.0/3.0 say it takes less time collect water from their primary water source / use a toilet as most new WSS facilities are located on the plot/inside the home.

There is varying evidence on the ways in which WaterCredit and WSS can affect financial opportunities for women.

**In** There was no evidence that WaterCredit or micro-credit improves financial or credit / lending opportunities for women through credit history found in the internal and external literature reviewed. Water.org data indicates that women constitute the majority of borrowers, but there is no evidence to demonstrate that WC programs have been the onset of a credit history for women.

**Recommendation:** Reporting and data collection requirements placed on partner financial institutions should be expanded to gain more insight on the financial opportunities that water and sanitation loans have on women. In particular, expanded requirements should include credit history and income opportunities for women who take a loan.

**Ex** There is evidence, however, that the development of the WASH sector can directly contribute to improved employment opportunities for women. Employment opportunities in the WASH sector can lead to improved income generation and wider benefits. Benefits of income generation for women include increased status, financial security and confidence (Duflo, 2012). There is mixed Water.org survey data to demonstrate that Water.org programming contributes to increased income opportunities for women and girls. The responses to the mWater Household Borrower Survey 2.0/3.0 indicates increased income for households in Brazil, Bangladesh, Cambodia, and Indonesia – but this doesn't refer to increased income opportunities for women. Water.org evaluations in India, Bangladesh and elsewhere indicate increased income for women but not necessarily income earning opportunities.

**In**

**Recommendation:** Encourage FIs to link female clients to organizations that support women's business development and training. Where women are not already part of Self-Help Groups, FIs could also have a role in linking female entrepreneurs starting new businesses for mentorship and peer support to increase their chance of success.

Evidence suggests that WASH as a single intervention does not have a significant effect on school attendance.

**Ex** Few external studies find that WASH interventions (either at home or in schools) are sufficient to independently impact pupil attendance. Improved WASH at home is intended to increase school attendance by saving time and reduced illness. Similarly, WASH In schools is intended to have a positive impact on child health and thereby reduce absence from school. WASH services in schools can be an incentive for parents to send their children to school, particularly girls in the transition from primary to secondary schools. Self-reporting by girls suggests that inadequate toilet facilities in schools (lack of toilets, insufficient water, limited access to MHH materials) are a contributory factor for truancy, failing classes, absenteeism, and drop out. There is no specific evidence that private and separate toilets for girls in schools increases school attendance or educational outcomes. One study in Kenya found handwashing with soap and point of use water treatment has reduced absence for girls in schools. Nevertheless, WASH improvements may not be sufficient to address the root causes of absenteeism, enrolment, and dropout.

**In**

Similarly, there is mixed evidence on the school attendance for girls in Water.org data. Male and female respondents to mWater Household Borrower Survey 2.0/3.0 say school attendance of children

is improved, including for girls. An evaluation (Causal Design, 2020) of the program in Cambodia finds a decrease in the number of households who stated that fetching water interfered with children going to school between baseline and endline, although the change disproportionately benefited boys. For some children, lateness for school increased at endline as an impact of children fetching water.

There is good external evidence that improved WSS has gender-specific health impacts for women and girls.

- Ex** **WASH interventions are linked to improvements in a number of important health outcomes such as reduced diarrheal diseases, helminth infections, and childhood stunting.** WASH agencies increasingly take a life course approach to WASH programming for girls, adolescents, women of reproductive age and older women. At different points in the life course, women have additional requirements for support and resources to meet WASH requirements i.e., during menstruation, pregnancy, and perimenopause. There is evidence that adverse pregnancy outcomes are associated with water quality (arsenic contamination, excess fluoride as well as saline drinking water) as well as open defecation/lack of improved sanitation. There is mixed evidence on whether improvements have improved health. In mWater Household Borrower Survey 2.0/3.0 both men and women report that family's health has improved since the water and/or sanitation improvement was installed. mWater Household Borrower Survey 2.0 women say family members are less likely to be ill. However, there is no specific questions on women and girl's health in the survey (aside from menstrual hygiene).

**Recommendation: Consider alternative approaches to collecting meaningful data on health, empowerment, and decision-making authority.** The quality of survey data for these topics is questionable and can often be better explored through longitudinal studies, outcome harvesting or in-depth qualitative research. The Institute of Sustainable Futures (2019) evaluation 'Table A3: Proposed objectives and indicators of evaluation' provide examples of topics to include.

**Recommendation: Steps should be taken to ensure good quality data is available for all programs.** Data on female clients is more consistently available for Brazil, Cambodia, Indonesia, Bangladesh and India – in both the mWater Household Borrower Survey 2.0/3.0 and program evaluations. Standard questions on gender should be asked across all evaluations to enable cross-country comparison.

WASH has an impact on safety and dignity which are key components of empowerment.

- Ex** **There is good external evidence that a lack of WSS undermines perceptions of safety and dignity, thus improved access to WSS should improve feelings of safety and dignity.** Water collection exposes women to the risk of gender-based harassment, abuse and chronic stress. Water insecurity – as well as competing water needs can trigger stress and violence in the household (Sommer et al, 2014; House et al, 2014; Nunbogu & Elliott, 2021). Social expectations of modesty mean that women should not be seen urinating and defecating or washing in public. Women report reduced food/drink (leading to dehydration) or take anti-diarrhea tablets to avoid using the toilet during day light. There is a clear relationship between water supply and sanitation and wellbeing for women and girls as well as people in sexual and gender minorities. Inadequate access to WSS is associated with higher levels of emotional and psychosocial stress, fear and anxiety (Henley, 2014 and Lennon, 2011, House et al, 2014; Sahoo, et al, 2015). Improved WSS can lead to an increase in factors associated with overall wellbeing and happiness as well as pride and social status. Water.org data has emerging evidence that aligns with findings from the external literature. There is emerging evidence that Water.org programs have led to improvements in safety and dignity. Male and female respondents to mWater Household Borrower Survey 2.0/3.0 say they feel safer after WASH improvements from both humans and animals. Male and female respondents to mWater Household Borrower Survey 2.0/3.0 and

evaluations in India (Water.org, 2014, Institute for Sustainable Futures, 2019, Water.org and Grameen, Foundation 2020) and Bangladesh (Water.org, 2018) report greater dignity.

Table 2. Robustness of the Internal and External Data for the WSS and WEE

**Recommendation: Disaggregated data on age, disability, wealth, and minority groups should be collected.** This is essential for programs, advocacy and learning. In addition, define terms like safety and dignity so that data is directly comparable across Water.org’s countries.

Sub-themes	Internal Data	External Data
Women are taking WC loans for improved WSS		
WSS improvements lead to increased women's decision-making- authority		
WSS improvements leads to time gains women and girls		
WC improves financial opportunity for women through credit history		
WSS improvements leads to increased income opportunities for women		
WSS improvements leads to increased school attendance for girls		
WSS improvements improves health of women and girls		
WSS improvements improves safety and dignity of women and girls		

### 3. Findings

#### 3.1 Women are taking on WC loans for improved WSS

Table 3. RAG rating for evidence of women taking on WC loans for improved WSS

<b>Internal data</b>	<p>Various sources of evidence available to support this claim. For instance, the Women's Empowerment Dashboard v3.0 shows that</p> <ul style="list-style-type: none"> <li>▪ 94% of borrowers for WC loans were women</li> <li>▪ Women are more likely than men to take a loan for improved sanitation and water quality</li> </ul>	<b>External data</b>	<ul style="list-style-type: none"> <li>▪ No external evidence identified</li> </ul>
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Water.org data reveals that most loan customers through WaterCredit programs are women.

**In** Water.org data reveals that most loan customers through WaterCredit programs are women. Data on female clients is more consistently available for Brazil, Cambodia, Indonesia, Bangladesh and India – in both the mWater Household Borrower Survey 2.0 and program evaluations - these are also the countries where WaterCredit programs have resulted in the most WSS improvements. In India, Water.org has designed a new product that targets people with reduced mobility (i.e., people with disabilities, elderly) to ensure sanitation facilities are suitable for different groups.

**In** According to the Women's Empowerment Dashboard for WaterCredit Model Survey V3.0: 94% of borrowers were women and 60% of respondents said it was a joint decision to take out a loan. 98% of respondents said the loan has improved their quality of life.

The data in the **WaterPortal** has been sex disaggregated. Figure 2 shows that just over 50% of loans taken by men were for a water supply, whereas just over 50% of loans taken by women were for sanitation.

Figure 2. Purpose of loan by male and female borrowers (mWater Survey 3.0, Water.org)

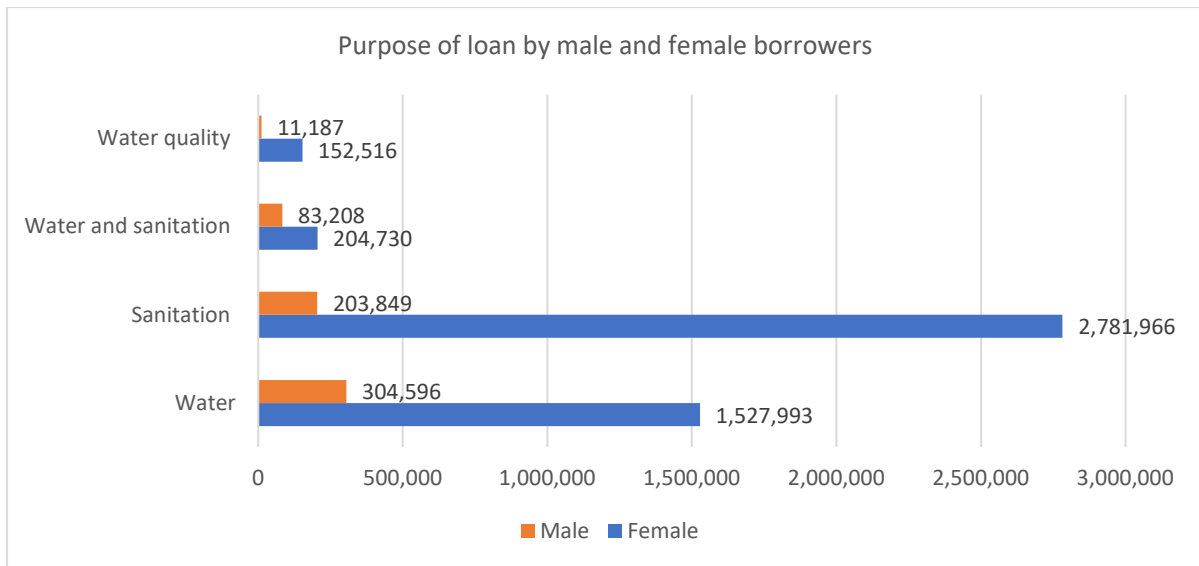


Figure 3 shows that more men than women took loans in Ethiopia, Ghana, Uganda, Tanzania, Peru and Mexico. The reasons for which could be investigated further. Figure 4 shows that men had a higher average daily income than women in all instances except Indonesia. The average daily income suggests that in some contexts Water.org’s programs are reaching those households in lowest wealth quintiles.

Figure 3. Number of loans by female and males in selected Water.org focus countries (mWater Survey 3.0, Water.org)

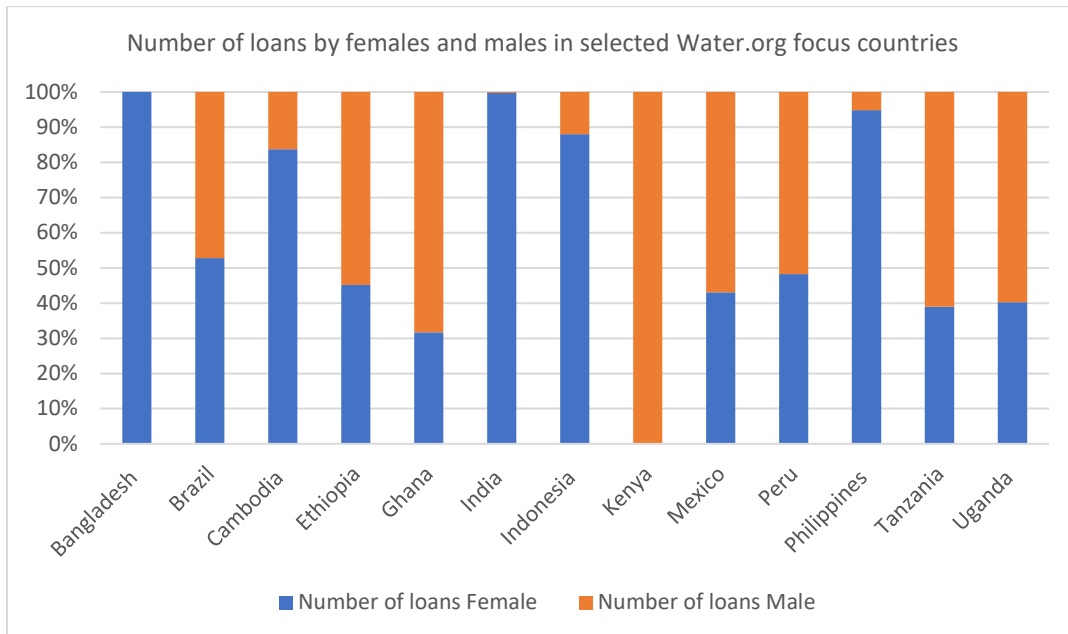
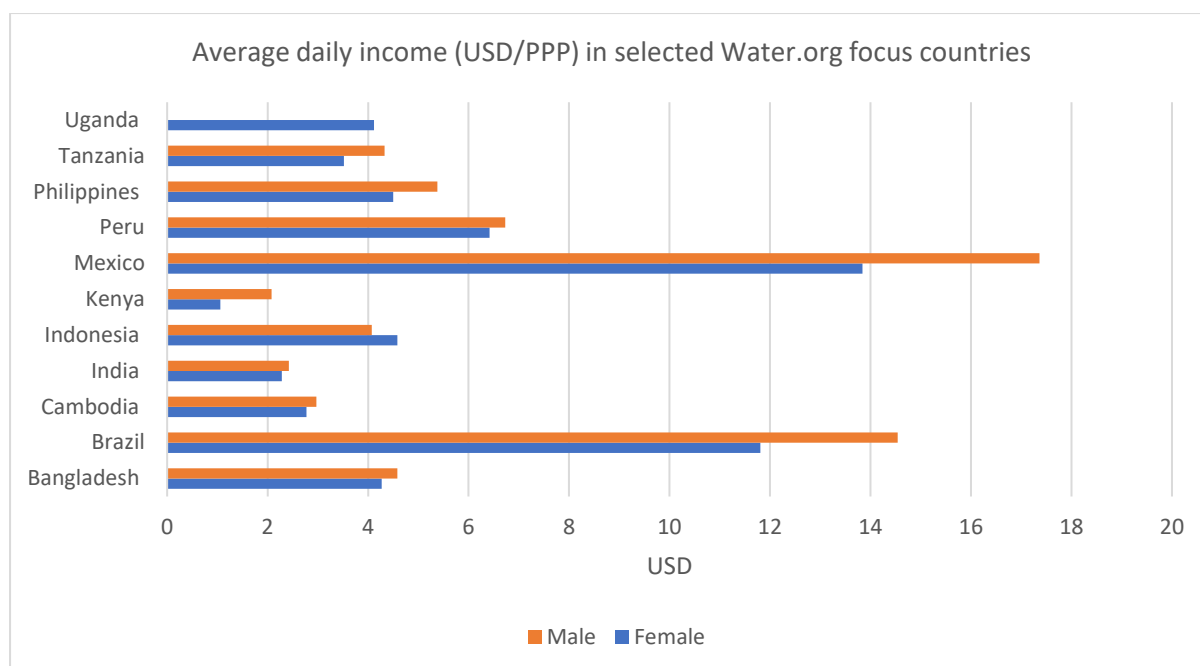


Figure 4. Average daily income in selected Water.org focus countries (mWater survey 3.0, Water.org)



### Evaluation findings:



- Loans are mainly used for WSS but an impact assessment from Kenya found that the loan might also be used for other purposes such as business, agriculture, home improvements and transportation-related purchases (e.g., a motorbike) (Davis and Gilsdorff, 2016).
- An evaluation in India and Indonesia found that about half of the women respondents identified as housewives (i.e., had no economic activities) (Water.org and Grameen Foundation, 2020) this suggests that the women require agreement with their spouse to take the credit as well as share responsibilities for loan repayments where they have no personal income-generating activity.

### 3.2 WSS leads to increased women's decision-making- authority

Table 4. RAG rating for evidence of WSS leads to increased women's decision-making- authority

<p><b>Internal data</b></p> <ul style="list-style-type: none"> <li>Mixed evidence from Water.Org evaluations on women's decision-making authority. Women often play a central role in the decision-making around taking out the WSS loan. Women are themselves often direct borrowers. However, there is little evidence that broader decision-making authority has improved or that gender norms in the households have shifted.</li> </ul>	<p><b>External data</b></p> <ul style="list-style-type: none"> <li>It is plausible that WSS improvements could lead to increased decision-making authority for women but the evidence base for the claim is mixed.</li> </ul>
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For the WASH sector and beyond, there is limited evidence that by providing credit to women, their control over decision making authority in the household increases.



**Decision making is very complex and spans across multiple sectors/areas/dimensions.** Water. org interest in women's decision-making authority refers to women's decision to take out a loan and control over how that loan is used within the household. For the WASH sector and beyond, there is limited evidence to show that by providing credit to women, their control over decision making in the

household and community increases. Thus, it is unlikely that loans/microcredit has a meaningful and substantial impact on women's decision-making authority (Holvoet and Bastiaensen., 2019).

**Ex** **Imbalances of power and opportunity in society are also reflected in WASH systems** (Soeters et al., 2019). In some settings, changes in the enabling environment are required for women to take out a loan and control its use. Allied changes are needed in social norms, stereotypes and intra-household patterns in order to address gender inequality more broadly (WaterAid et al., 2016; WaterAid, 2017; MacArthur, et al. 2020; Winterford, et al. 2020). Additional support is needed for women from disadvantaged groups to ensure they are heard and their rights included in WASH efforts (Cawood and Rabby, 2021; Plan International, 2018; Heller, 2014).

**Ex** **Empowerment of women and marginalized people can come at a cost if backlash and potential harms are not addressed.** There is emerging evidence on the importance of working with male leaders and men that are supportive of gender equality /women's leadership. It is also important to work with Rights Holder Organizations (such as women's groups) as important allies in supporting women's leadership.

**Ex** **Increasingly, WASH programs are gender transformative, conceived to achieve outcomes on WEE.** Specific approaches and tools are needed to increase the voice and decision-making authority of women over WASH (Water for Women, 2019). Participatory dialogue tools can generate insight into decision-making power in the household and community, such as the manual for East Timor developed by WaterAid and partners (2016). Measures to monitor women's empowerment are provided in Box 1 in the references section of this report.

**In** **There is mixed evidence from the Water.org data of wider changes in decision making power or empowerment of women via WC.** Water.org data indicates that women often play a central role in the decision-making around taking out the WSS loan. Women are themselves often direct borrowers. As stated previously, WaterCredit Model Survey V3.0 reveals that 95% of borrowers and respondents are women. Around 200/ 4,284 (around 5%) of respondents to that survey indicated pressure from family as the reason to take out a loan. Women have decision-making authority in so far as most women make the decision to take out a loan and control what to do with that loan. Around 66% of women said that making a loan repayment is easy (10% said it was difficult) compared to 60% for men. Around 78% of women said they never missed or not fully made a loan repayment (compared to 67% for men).

#### **Evaluation findings:**

- In**
- Institute of Sustainable Futures (2019) endline evaluation of WaterCredit project in India found that women and men appeared to participate equally in the decision-making process to take a loan. Female respondents report convincing husbands to agree on constructing these facilities: female participants in Bislawadi village: "It was our idea sir...We took the decision...We convinced our husbands easily".
  - The same evaluation found that targeting women through the WaterCredit program was an effective strategy to influence household decision-making processes (Institute of Sustainable Futures, 2019). However, men were still primarily making the final design decisions on the type of WSS improvement and women were expected to maintain traditional gender roles such as providing food to workers installing the facilities. There was one exception where both men and women cleaned the toilet and the men assisted in collecting water from the public tap.
  - **Women might not always control the use of loans.** An evaluation of the program from Odisha (2016-17) found that although borrowers are women, some stakeholders suggested that male household heads were ultimately in control of the family finances. Similarly, an evaluation in India and Indonesia (2020) found that only half of female clients appear to have a say over the loan they

are availing. 57% of the households had women participating in decisions for the usage of the WSS loans in India; 53% of households had women sharing responsibility for loan repayment in Indonesia.

- **Unintended consequences have been reported such as the financial stress suffered by women in relation to loan repayment.** Women in India and Indonesia report arguing with their spouses for loan repayment. In India 7% of clients frequently argued with spouse over the course of the loan for repayment issues and 4% in India (Water.org and Grameen Foundation, 2020). Further monitoring is needed to better understand financial stress and identify mitigation measures.

### 3.3 WSS leads to time gains for women and girls

Table 5. RAG rating for evidence of WSS leads to time gains for women and girls

<b>Internal data</b>	<ul style="list-style-type: none"> <li>▪ There is strong evidence that Water.org programs have led to time gains, especially for women.</li> <li>▪ mWater Household Borrower Survey 2.0/3.0 results reveal that convenience and time are key reason for women taking a WASH loan.</li> <li>▪ Male and female respondents in mWater Household Borrower Survey 2.0/3.0 say it takes less time to collect water from their primary water source / use a toilet as most new WSS facilities are located on the plot/inside the home.</li> </ul>	<b>External data</b>	<ul style="list-style-type: none"> <li>▪ There is strong evidence that improved (and more convenient) access to WASH is associated with time savings.</li> <li>▪ Engaging men and boys to share the WASH related workload in the household can also lead to time savings for women.</li> </ul>
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Overall, there is good external and internal evidence that improved (and more convenient) access to WASH is associated with time savings



**Time use surveys show that women perform most of the unpaid care and domestic work that is done worldwide (IWDA, 2016).** This affects the time women have to work or conduct other interests. Domestic WSS work is a barrier to equal participation in the formal workforce and makes women financial dependent on others. It also leaves less time for education and reinforces gender assigned roles (IWDA, 2015).



**More convenient access reduces the time for women (and dependents) to reach to WASH services.** Hutton and Haller (2004) estimate the time that could be saved through improved WASH (see Figure 5 below). Another study found that improved water services in underserved neighborhoods in Ouagadougou the daily time to collect water by 10–13 min (Briand and Laré-Dondarini, 2017). In six countries of South-East Asia, the rural households that owned their own latrine saved from 4 to 20 minutes of travel time per trip (Hutton et al., 2014).



Figure 5. Estimated time savings through improved WASH (Hutton and Haller, 2004)

Ex

Benefit by sector	Variable	Data source	Data values (+ range)
<b>3. Consumers</b>			
'Convenience' – time savings	Water collection time saved per household per day for better external access	Expert opinion	0.5 hours (0.25-1.0)
	Water collection time saved per household per day for piped water	Expert opinion	1.5 hours (1.0-2.0)
	Sanitation access time saved per person	Expert opinion	0.5 hours (0.25-0.75)
	Average household size	WHO population data 2002	6 people (4-8)
	Opportunity cost of time	World Bank data	Minimum wage rate (GNP per capita – value added in manufacturing)

Household WASH facilities decrease the time in queuing for water or the toilet, especially beneficially for those women with difficulty seeing/walking long distances for water sources and latrines. Improved WSS can also reduce time caring for sick and elderly family within households as well as time savings in taking older or younger people to the toilet. Although more recently, there are reports that the COVID-19 pandemic has led to more water collection trips – as low-income households often don't have storage containers (Ellis et al., 2021; Anjum and Nagabhatla, 2020). Water insecurity related to climate change is increasingly a 'push' motivator for household migration (Ellis et al., 2019).

Ex

**Gender transformative WASH programs aim to 'recognise, reduce and redistribute' responsibilities for WASH care and domestic work.** Engaging men and boys to share the WASH related labour such as washing cloths and caring for children can also lead to time savings for women (Ambrose and Archer, 2020). Anecdotally, some husbands already help their wives in collecting water from far away (with donkey carts) or when wives are sick, pregnant and during the postnatal period (Assefa et al., 2021).

Ex

**Time saved through WSS improvements might be spent on leisure activities.** One study found that households saved around 30 minutes a day through a household water connection which they used primarily for leisure activities, such as watching TV and socializing (Devoto, et al. 2012).

Ex

**Programs to improve access to WASH can also have an unintended impact on time.** Household WASH facilities can increase existing workload and time demands on women regarding managing WASH in the household and maintaining the overall cleanliness of the house (MacArthur, Carrard, and Willetts, 2020; Singh and Dwivedi, 2020).

In

**The Water.org data provides good evidence on time gains.** Convenience and time were cited as a key reason for taking a WSS loan in WaterCredit Model Survey V3.0. Water.org has systematically collected data on WaterCredit programs' impact on time gains. This data highlights that WaterCredit has had a considerable positive impact on time gains through water supply (see Figure 6 and Figure 7) and sanitation (see Figure 8 and Figure 9) improvements in Bangladesh, Brazil, Cambodia, India, and Indonesia. The majority of women and men say it takes less time to collect water or going/queuing for the toilet now. A considerable number of households have the WSS improvement on the plot/inside the home.



Figure 6. Changes observed in time collecting water (mWater survey 2.0, Water.org)

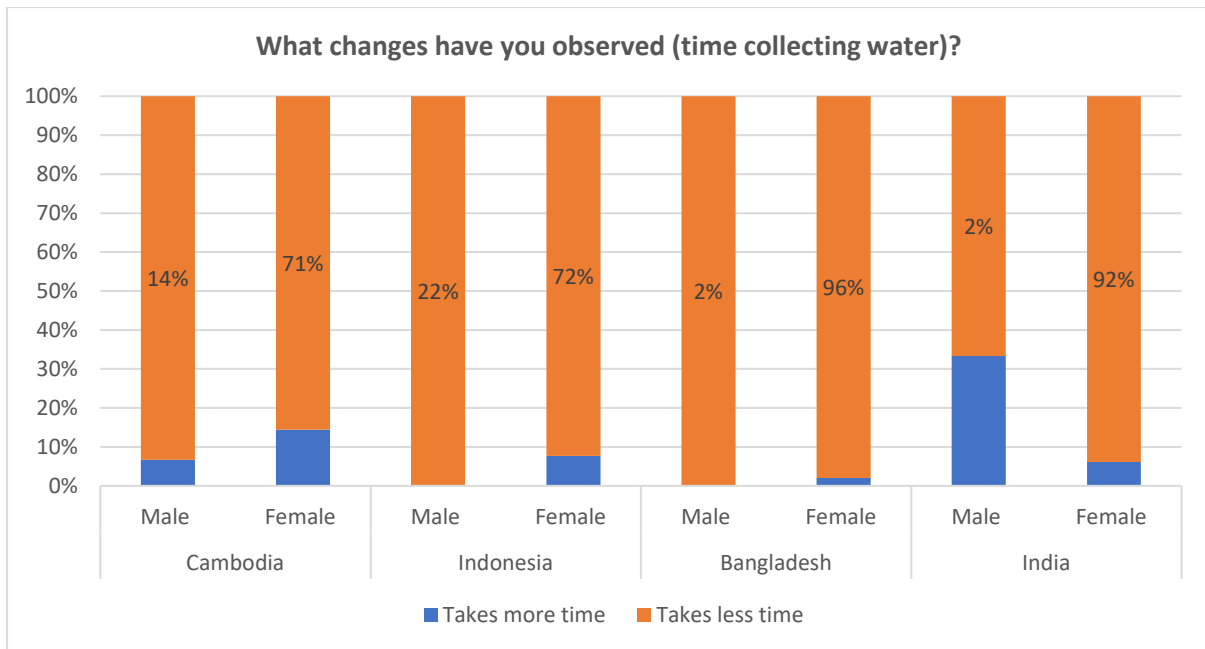


Figure 7. Time taken to collect water from primary water source after improvement installed (mWater survey 2.0, Water.org)

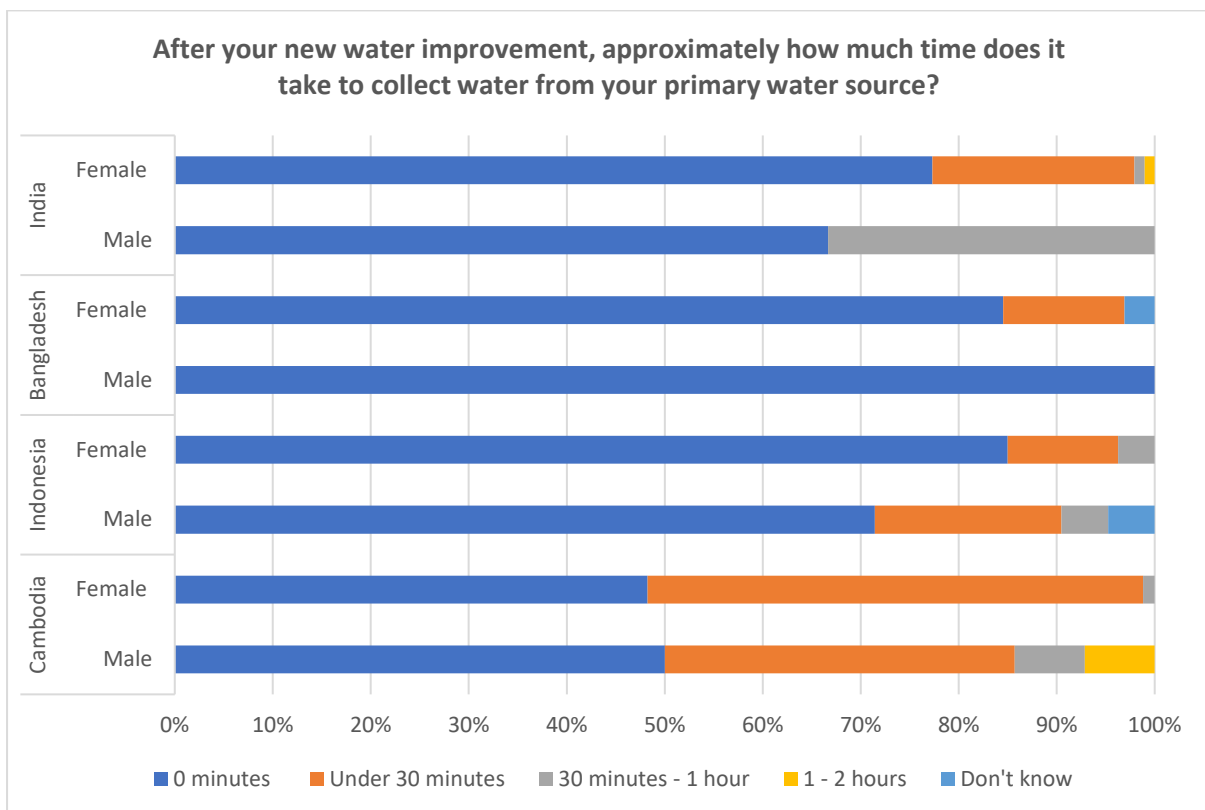
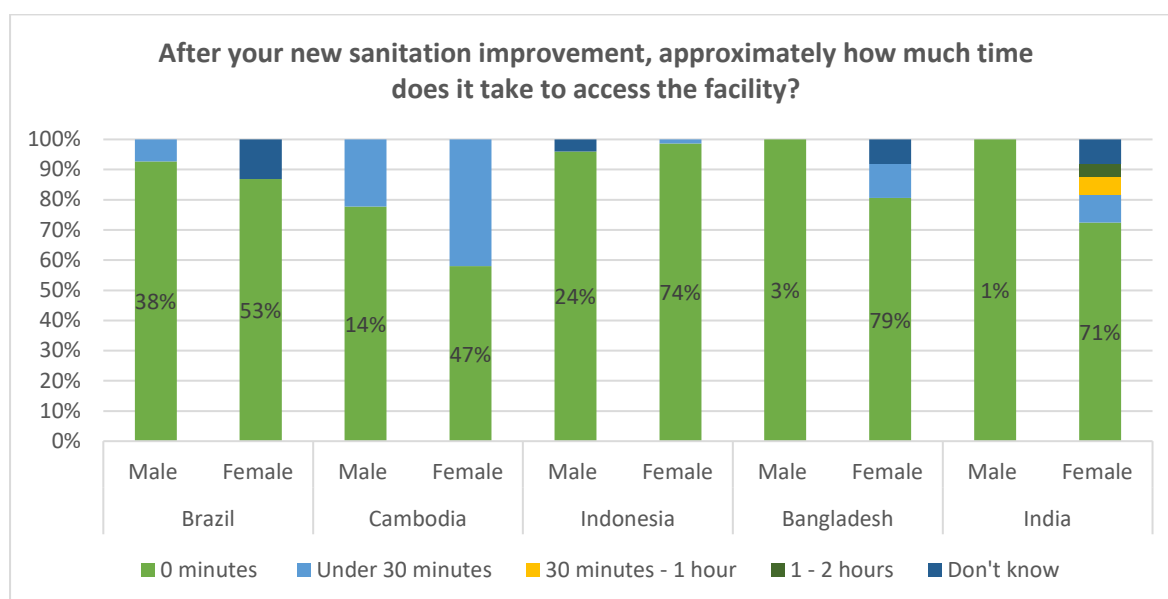


Figure 8. Observed changes in time taken to access sanitation facility after improvement installed (mWater survey 2.0, Water.org)



Figure 9. Time taken to access sanitation facility after improvement installed (mWater survey 2.0, Water.org)



**Evaluation findings:**

- An evaluation from India (Institute of Sustainable Futures, 2019) found that having a water connection in the house meant that women had more time to complete household chores, prepare their children for school and in one FGD group, male participants suggested women now had more time to rest. Health and wellbeing benefits of having a water connection in the house were also noted by participants. This evaluation also alluded to an opportunity for gender transformative WSS to recognise, reduce and redistribute responsibilities for WASH care and domestic work in the household.
- An evaluation from Kenya anticipated time savings (from the reduction in water hauling and queuing) are of the order of 2.35 hours per week (122 hours per year) per household, on average. WaterCredit borrowers included in the study sample who make sanitation improvements are expected to save a median of 11.4 person hours per year (Davis and Gilsdorf, 2016).

### 3.4 WC improves financial opportunity for women through credit history

Table 6. RAG rating for evidence of WC improves financial opportunity for women through credit history

<b>Internal data</b>	<ul style="list-style-type: none"> <li>No evidence identified.</li> </ul>	<b>External data</b>	<ul style="list-style-type: none"> <li>No evidence identified.</li> </ul>
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No evidence that WC or micro-credit improves financial opportunity for women through credit history was found in the internal and external literature reviewed.

It is plausible that Water Credit improves financial opportunity and inclusion for women through improving their credit history but no evidence was found on this in the internal and external literature reviewed. Water.org’s mWater 2.0 survey does not include a question on this and no information has been collected in a systematic manner in evaluations or the research studies commissioned on WaterCredit programs.

### 3.5 WSS leads to increased income opportunities for women

Table 7. RAG rating for evidence of WSS leads to increased income opportunities for women

<b>Internal data</b>	<ul style="list-style-type: none"> <li>There is mixed evidence in Water.org’s evidence. The responses to the mWater Household Borrower Survey 2.0/3.0 indicates increased income for households in in Brazil, Bangladesh, Cambodia, and Indonesia – but doesn’t refer to increased income opportunities for women.</li> <li>Water.org evaluations in India, Bangladesh and elsewhere indicate increased income for women but not whether these income earning opportunities are new</li> </ul>	<b>External data</b>	<ul style="list-style-type: none"> <li>There is mixed evidence in the external literature. It is plausible that improved water supply and sanitation can be used for various direct and secondary income generation.</li> <li>The ability of women to increase their income earning is linked to time savings and better health</li> </ul>
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There is some external evidence that the development of the WASH sector can directly contribute to improved employment opportunities for women.

**Ex** It is plausible that WSS can be used by women for various direct and secondary income generating activities. There is mixed evidence on whether this happens in reality. There is some evidence that women might develop income generation opportunities with a more convenient water supply (such as brewing, hairdressing, laundry, teashops). Women may also work in sanitation related occupations (such as manual scavengers/pit emptiers, managing public toilets or running fecal sludge management enterprises). Access to an improved water supply – and more time available - does not always result in wage employment for women (Lokshin and Yemtsov, 2005). One study (Koolwal and Van de Walle, 2013) found that access to water doesn’t lead to greater off-farm work for women. However, greater access to water provides the ability for women to irrigate and spend extra time on smallholder farming, which could result in greater harvests, which together with the ability to store grains, can lead to greater wealth and reduce seasonal fluctuations in nutrition. Improved water supply can also mean smallholders can diversify and increase crop varieties that could have a monetary value. The availability of water for use by animals can increase their value and might also make it possible to keep larger animals like cows (Ferguson, 1994).

**Ex** There is evidence that the development of the WASH sector can directly contribute to improved employment opportunities for women. Studies in Vietnam, Indonesia and Timor and elsewhere indicate that men hold the majority of professional positions in water and sanitation companies and utilities (Leahy et al., 2017; Grant et al., 2017). However, participation of women in these enterprises is increasing and this participation is driving the achievement of positive results (Indarti et al., 2018;

Indarti et al., 2019). In Nepal (IDE and USAID, 2020), female sanitation sale agents achieve higher overall latrine use rates and were more effective at selling WSS products/ services to marginalized households (IDE and USAID, 2020). Women are also involved in selling water from kiosks (WSUP, 2019).

**Ex** **WASH employment opportunities lead to improved income generation and wider benefits.** These include improved social status, financial security and confidence. However, enabling access to employment and/or business opportunities for women implies addressing multi-faceted barriers that go beyond WASH. These include lack or limited education, family reluctance for women to engage in employment/businesses and restricted mobility (Grant et al., 2017). Such barriers can be lifted through peer-to-peer support networks; technical and financial support; flexible work hours that allow women to work outside the home; support from husbands, families, friends and personal networks (Grant et al., 2018).

**Ex** **Although empowering women via employment and business opportunities can bring huge benefits, it can also expose women to other risks.** Increasing women's financial resources/independence can expose them to domestic conflict and violence (Grameen Foundation, 2021). Violence against women and girls is a potential unintended outcome of interventions when social and gender norms are challenged<sup>1</sup>. Thus, WASH programmers and implementers must be aware of power dynamics in the household and community and plan to mitigate backlash and resistance. Alongside economic empowerment, attention is also needed to challenge entrenched gender roles and expectations to avoid adding to women's existing domestic workloads.

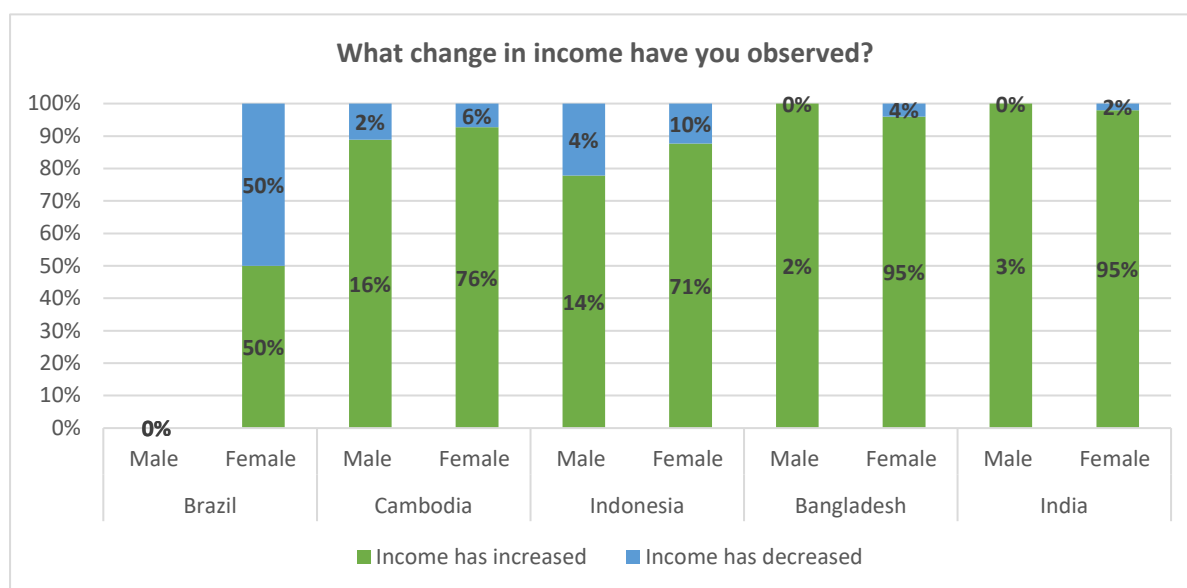
**In** **There is mixed Water.org survey data to demonstrate that Water.org programming contributes to increased income opportunities for women.** Time gains from more convenient WSS are assumed to result in income-generating activities – this represents the primary way WaterCredit programs increase household income. Health benefits resulting from WSS improvements (for the individual and the family) might also improve the ability of women to take up income opportunities.

**In** **Overall, there is limited internal evidence from the surveys on the use of time gains and in particular whether time saved is used for income-generating activities.** In Peru and The Philippines, WaterCredit programs did not have a discernable impact on households' monthly income or expenditures (Water.org, 2019). Whereas, female respondents to WaterCredit Model Survey V2.0 (n = 1,569) reported increased income in Brazil, Bangladesh, Cambodia, and Indonesia (see Figure 10).

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<sup>1</sup> Drivers that cause and exacerbate VAWG include age (younger women tend to face more intimate partner violence than older women), rural residence, poverty, substance abuse, witnessing family violence as a child and gender inequalities in education, autonomy, food security, among others (Grameen Foundation, 2021)

Figure 10. Changes in income observed after improvement(s) installed (mWater survey 2.0, Water.org)



### Evaluation findings:



WaterCredit clients in Kenya and Uganda, India and Bangladesh are using their water supply improvements for direct or secondary income-generating activities, including for women.

- An endline evaluation of three WaterCredit programs in India found a household member re-directed time formerly used for water collection to income-generating activities because of time gains in 21% of households with a water supply improvement. Of these, women (62%) were more likely than men (38%) to become economically active (Pories, 2016). While a household member re-directed time formerly dedicated to defecation towards income-generating activities in 58% of households with a new sanitation improvement, compared to 21% of households with a water supply improvement (Pories, 2016).
- In a 2008-2011 WaterCredit program implemented across five Indian States, 23% of households increased their household income due to the extra time available for women (Water.org, 2014).
- Institute of Sustainable Futures (2019) found none of the female participants interviewed in the FGDs had generated income because of the time saved since installing a water connection in their houses, however, participants in one FGD stated that they knew of women who had.
- In Bangladesh, households that took water loans witnessed a 10% increase in household income compared to non-borrowers between baseline and endline, and 29% of households that took water loans experienced considerable increases in their savings (Water.org, 2018). Households with a loan in Bangladesh report keeping livestock, home gardens, home based micro-enterprises (Water.org, 2018). Use of motorized tube wells have had an increase in income generating activity. Households that took out a sanitation loan only benefited from a 0.5% increase in their monthly household income (Water.org, 2018).
- In Indonesia, 15% of clients leveraged WSS for economic activities (Water.org and Grameen Foundation, 2020)
- Households in Kenya (Davis and Gilsdorft, 2016) with a loan report using water for income generating/ profitable purposes such as agriculture or sale of water: *“The full set of households who obtained WaterCredit loans from Equity Bank and who were interviewed in the endline study. A total of 201 such loans were issued for water-related improvements. Eighty-five percent of respondents from these households reported that Equity funds were used solely for their water supply improvements. Among the 26 respondents who reported also using their loan for other*

purposes, 42% used the money for business or agriculture, 31% made other home improvements, and 12% used the money for transportation---related purchases (e.g., a motorbike)”.

- For an impact evaluation in Kenya and Uganda (Prime M2i Consulting Pvt Ltd, 2015), 185 water loan clients were surveyed, “30% of the respondents mentioned that they were directly generating income either through selling water or using it for agriculture, which was the main source of their livelihood.

### 3.6 WSS improvements increases school attendance for girls

Table 8. RAG rating for evidence of WSS improvements increases school attendance for girls

<b>Internal data</b>	<p>There is mixed evidence on the school attendance for girls</p> <ul style="list-style-type: none"> <li>▪ Male and female respondents to mWater Household Borrower Survey 2.0/3.0 say school attendance of children is improved, including for girls.</li> <li>▪ An evaluation (2020) of the program in Cambodia finds a decrease in the number of households who stated that fetching water interfered with children going to school between baseline and endline, although the change disproportionately benefited boys. For some children, lateness for school increased at endline as an impact of children fetching water</li> </ul>	<b>External data</b>	<ul style="list-style-type: none"> <li>▪ There is mixed evidence in the external literature. The evidence finds that WASH interventions alone (at home or at school) are not sufficient to independently impact pupil education</li> <li>▪ There is limited or mixed evidence on the impacts of WASH in schools and at home on pupil education.</li> </ul>
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Few external studies find an effect of improved WASH - in schools and at home - for school attendance.

**Ex** **WASH improvements alone are not sufficient to address the root causes of absenteeism, enrolment, and dropout.** It is reasonable to assume that interventions for WASH either at home or in schools would reduce illness and subsequently school absence. Yet evidence of impact on pupil education is mixed (Chard et al., 2019; Trinies et al., 2016).

**Ex** **Improved WASH at home is intended to increase school enrolment and attendance through time saved and reduced illness.** One study (Koolwal and Van de Walle, 2013) found that with better access to water at home, boys’ and girls’ enrolments improves. Reducing illness transmission (such as enteric and respiratory infections) could also be expected to reduce absence.

**Ex** **There is some evidence that WASH In schools can have a positive impact on child health and thereby reduce absence from school.** It is expected that WASH in school’s programs will result in reduced disease (diarrhea, helminths, and trachoma) and improve hygiene in students’ households and communities. (Mbakaya et al., 2017; Jasper et al., 2012). A study from Kenya (Freeman et al., 2012) showed that handwashing with soap and point of use water treatment reduced absence for girls in schools. One study in India found that a national government program to build school toilets led to an 8% increase in enrolment among pubescent-age boys and girls and a 12% increase among younger children of both genders (Adukia, 2014). There are studies in China (Bowen et al., 2007) and Egypt (Talaat et al., 2011) to show that improved handwashing with soap can reduce illness and thereby reduce absence from school. However, the long-term sustainability of handwashing behaviors linked to these impacts is unknown. Hunter et al. (2014) found that a strong association between providing free safe drinking water and reduced absenteeism in Cambodia, in the dry season. This was considered to be due (in part) to improved hydration (rather than a reduction in waterborne disease) leading to improved school experience for the children.

**Ex** **WASH services in schools can be an incentive for parents to send their children to school, particularly girls in the transition from primary to secondary schools.** It is plausible that lack of WASH in schools inhibits girls' attendance. Self-reporting by girls suggests that inadequate toilet facilities in schools (lack of toilets, insufficient water, limited access to MHH materials) are a contributory factor for truancy, failing classes, absenteeism, and drop out. However, a systematic review (Birdthistle et al., 2011) found no evidence that private and separate toilets for girls in schools increases school attendance or educational outcomes. The study recommends the need for further research on whether there are sufficient secure, clean, functional and private toilets in schools. Chard et al. (2019) indicates that a health benefit of WASH in schools depends on consistent supply of anal cleansing materials, soap and water for handwashing, supporting hygiene and water related interventions. Boys also report avoiding toilets due to lack of cleanliness or overcrowding. Abuse of boys in public and school toilets underrecognized – due to shame and taboos. Recruitment and retention of female teachers is also affected by WASH services at home and school.

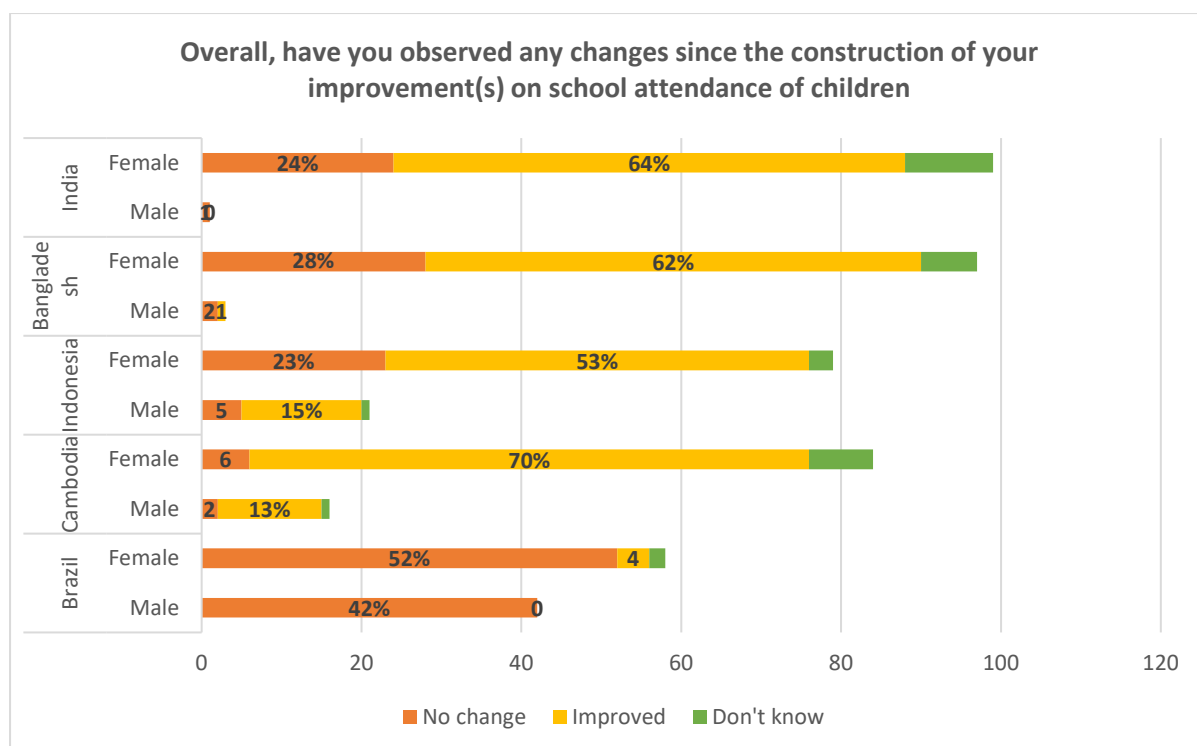
**In** **There is some Water.org data to suggest that Water.org programming does contribute to attendance for girls.** WaterCredit Model Survey V2.0 found the majority male and female respondents in Brazil, Indonesia, Cambodia, Bangladesh and India say school attendance of children is improved (see Figure 11). Households that have invested in improved WASH report that children can devote more time to school and study so there has been an increase in study hours for boys and girls. However, there is no robust evidence that access to WSS has had a positive impact on school attendance for girls in particular. It appears Water.org has made some loans for school WASH improvements but there is no evidence of impact on school WASH for attendance.

#### **Evaluation findings:**

**In** The Cambodia evaluation (Causal Design, 2020) provides the most comprehensive data Water.org has on the effects on school attendance. Attendance includes being late for school as well as absence for the day. The evaluation only includes those households with children already in school. It finds that:

- Taking out a loan for water or sanitation purposes is associated with a 10% decrease in the number of households reporting that fetching water interferes with their children going to school.
- Unfortunately, gender disparities in collection of water became more entrenched through the program: at endline the improvements in fetching water interfering with children going to school disproportionately benefit boys.
- At baseline, 23% of these households also reported that fetching water causes their children to be absent from school. This number drops to 6% at endline. Additionally, no children left school or dropped out as a result of the need to fetch water at the endline, down from 6% at baseline. An unanticipated outcome was an increase in lateness for school as an impact of children fetching water from baseline to endline.
- There had been little improvement in the quality of school's toilet facilities between baseline and endline, whereas there had been an improvement in water availability for schools.

Figure 11. Changes observed on school attendance after improvement installed (mWater survey 2.0, Water.org)



### 3.7 WSS improvements leads to improved health of women and girls

Table 9. RAG rating for evidence of WSS improvements leads to improved health of women and girls

<b>Internal data</b>	<p>There is mixed evidence on whether improvements have improved health</p> <ul style="list-style-type: none"> <li>In mWater Household Borrower Survey 2.0/3.0 both men and women report that family's health has improved since the water and/or sanitation improvement was installed.</li> <li>mWater Household Borrower Survey 2.0 women say family members are less likely to be ill.</li> <li>However, the reliability of self-reported data is limited. Moreover, there are no specific questions on women and girl's health in the survey</li> </ul>	<b>External data</b>	<ul style="list-style-type: none"> <li>WASH interventions have been linked to improvements in a number of important health outcomes, including diarrhoeal diseases, helminth infections, and childhood stunting.</li> <li>There is evidence that depression, anxiety, stress is associated with lack of WASH.</li> </ul>
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There is good external evidence that improved WSS has gender-specific health impacts for women and girls



**There is good evidence that WASH interventions are linked to improvements in a number of important health outcomes, including for women and girls.** WSS improvements can reduce diarrheal diseases, helminth infections, and childhood stunting. Improving water quality at the source and in the home can reduce diarrheal diseases (Cairncross et al., 2013). Reduced instances of diarrhea can improve nutrition and thus have a health benefit. Increasing access to sufficient quantities of water can also contribute to better hygiene (such as handwashing with soap or face washing) and thus improve health (in terms of diarrhea and respiratory infections). Adequate consumption of water can



also lead to better hydration, which has a number of health benefits (Popkin et al., 2010; Hunter et al., 2014). Additionally, increased water access could allow for improved nutrition and calorie intake through increased vegetable and livestock productivity. However, the health benefit of household chlorination of drinking water is unclear as blinded studies have repeatedly found no benefit (Schmidt and Cairncross, 2009). It is likely that sanitation contributes substantially to reducing a range of WASH related infections (although there are methodological issues in measuring this) (Cairncross et al., 2013). There is growing evidence that depression, anxiety, stress is associated with lack of WASH (Sahoo et al., 2015). Nevertheless, there is also evidence to show that wellbeing benefits such as personal safety, private space, cleanliness and convenience were significant determinants ranked ahead of health reasons (Lagerkvist et al. 2014).

There is good evidence that improved WSS has gender-specific health impacts for women and girls.

**Ex** In 2017, WaterAid estimated that WASH-related diseases were the fifth biggest killer of women worldwide, causing more deaths than AIDS, diabetes or breast cancer. For instance, diarrhea is the 8th leading cause of mortality for women globally (WHO, 2020). Women risk infection from faecally transmitted diseases, such as ascariasis, trichiniasis, diarrhea, and trachoma while fetching water (Caruso et al., 2015). Navigation of uneven or slippery terrain with substantial water loads can cause injury, especially if women are pregnant, carrying babies, or have recently given birth (Caruso et al., 2015; Fisher, 2008; Jansz and Wilbur, 2013). Water collection can result in chronic energy deficiency (measured as low body mass index), which affects wellbeing (Caruso et al., 2015; Fisher, 2008). There are health risks of not going to the toilet but also health risks of using filthy facilities, which highlights the importance of conditions of the latrines. Pay per use latrines are often inequitable for women – as there are often fewer cubicles for women and women use toilets more frequently than men (WaterAid et al., 2019).

**WASH agencies increasingly take a life course approach to targeting the effects of WASH programming on women and girls.** This approach entails four stages:

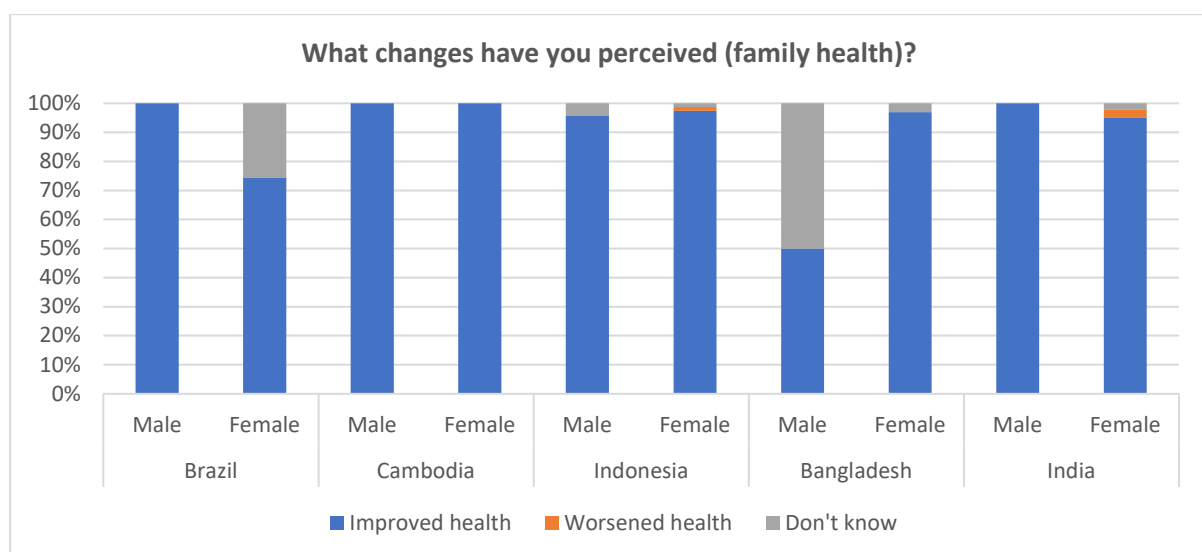
- Ex**
- **Girls:** Children under five years are especially vulnerable to WASH related infections. There is some evidence from Bangladesh (Jarman, et al. 2018) that while girls have higher rates of malnutrition, boys have more acute diarrheal illness than girls. Regular exposure to environments with high fecal loads causes environmental enteropathy (Pickering et al., 2019). Both diarrhea and environmental enteropathy compromise nutritional status; and leads to long-term consequences for growth and cognitive development (Hutton and Chase, 2018).
  - **Puberty to 25 years:** WASH is important for girls at the onset of menstruation, affecting susceptibility to urogenital infections. Women's hygiene linked to their menstrual cycle is now more routinely included in the design and delivery of WASH programming. Various hardware interventions for WASH, products (absorbents), hygiene awareness or behavior change as well as knowledge and management are hypothesized to improve girls' MHH and reduce negative psychosocial consequences (shame, confidence, insecurity and difficulty concentrating). However, there is currently insufficient evidence to establish the effectiveness of menstruation management interventions to improve school enrolment and attendance (Hennegan and Montgomery, 2016).
  - **Reproductive age:** WASH can support healthy pregnancies. Evidence exists that poor WASH might contribute to adverse pregnancy outcomes (Benova et al., 2014). Pregnant women might, for example, limit their intake of food and water to avoid having to use inadequate toilet facilities. Waterborne infections during pregnancy such as hepatitis E are associated with a high risk of death (Emerson and Purcell, 2004). Poor sanitation practices (such as open defecation) can promote infection and induce stress during pregnancy and may also contribute to adverse

pregnancy outcomes (Bijaya et al., 2015). Poor sanitation can also lead to hookworm infestation which causes anemia and may thus increase the risk of adverse pregnancy outcomes and maternal death (Brooker et al., 2008). Both malaria and dengue (associated with water storage) pose high risks to pregnant women (Heymann, 2008; Mota et al., 2012). In addition, chemical water quality e.g., salinity, fluoride, arsenic can affect pregnancy outcomes. Sepsis and other infections are major causes of maternal and new-born mortality. Every year, 17 million women in the Least Developed Countries give birth in healthcare facilities without adequate water, soap and toilets (White Ribbon Alliance).

- **Older women:** Perimenopausal symptoms such as heavy and erratic menstrual periods and sweating require access to WASH facilities for washing and laundry and mean that women drink more water to relieve their symptoms (Bhakta et al., 2019). Incontinence can become more common in older people. Management requires significantly extra water and soap (estimated at five times as much as a person without incontinence), and time to bathe and wash clothes, bedding and pads (Hafskjold et al., 2016; Rosato-Scott et al., 2020). Evidence from Ghana reveals that older people who used unimproved water sources and unimproved sanitation were more likely to report a major depressive episode, with a greater incidence among women compared to men (Simiyu et al., 2021).

**In** **Water.org data on health benefits for women and girls is mixed.** There is no question in the mWater surveys on health of women and girls in particular. WaterCredit clients report improved family health following their WSS improvement. Aside from menstrual hygiene, the specific health benefits for women and girls are not consistently captured in the surveys or evaluations. According to mWater V2.0 survey data, the majority of male and female survey respondents say that family's health (rather than women and girls in particular) has improved since the water and/or sanitation improvement was installed (such as in India, Bangladesh, Indonesia, Cambodia and Brazil). Women in particular say family members are now less likely to be ill. Men are less likely to know (see Figure 12). A number of WaterCredit programs report reduced medical expenditures for customers for WSS improvements. WaterCredit programs include an assessment of borrower households' expenditures on medical costs, which could be a proxy for better health for the household. Yet, there are some discrepancies in the data e.g., in Indonesia households' medical expenditures increased.

Figure 12. Perceived changes in family health (mWater survey 2.0, Water.org)



**In** Prior to the loan, 44% of clients did not have a toilet in the dwelling or on the plot, indicating potential health risks for women and girls (see Figure 13). Yet, there is reasons to challenge the assumption that

once a WASH facility is installed it will be used by all in the household equally. Before the loan, WaterCredit Model Survey V3.0 indicates that 38% of respondents indicated that someone in their household defecated in the open, which reduced to 13% of households after the installation of a latrine. Thus some household members continue to defecation in the open and so face a continued health risk (see Figure 14).

Figure 13. Where was your previous sanitation facility located? (mWater survey 2.0, Water.org)

Answered: 3,024 Blank: 1,562

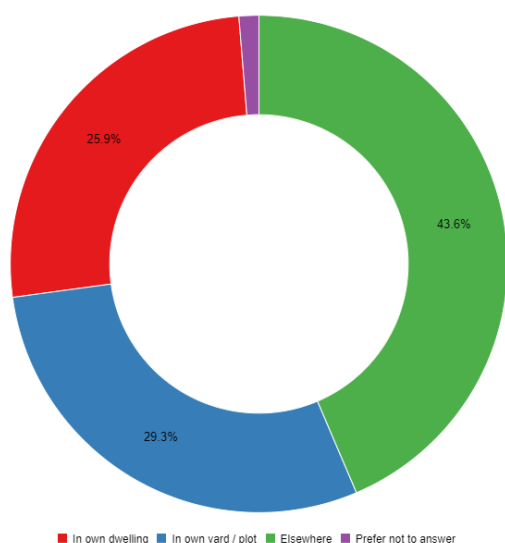
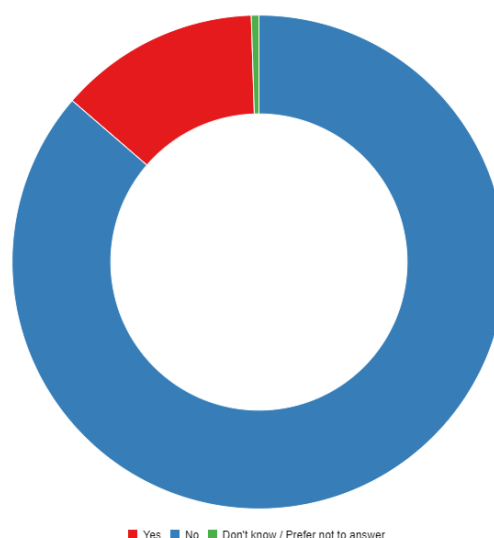


Figure 14. After the installation of your sanitation improvement, when at home, does anyone in your household regularly open defecate? (mWater survey 2.0, Water.org)

Answered: 3,024 Blank: 1,562



### Evaluation findings:



- Sufficient quantities of water to maintain personal and household hygiene could be the main mechanisms through which WSS achieves health benefits. In Kenya, the evaluation found that clients would be expected to increase water usage by 20% from 28 to 34 liters per capita per day (Davis and Gilsdorft, 2016).
- The evaluations in Kenya (Davis and Gilsdorft, 2016), Bangladesh (Water.org, 2018) and India (World Bank & Water.org, 2015) report annual health-related household savings post construction of water and sanitation facilities<sup>2</sup>.
- Increased wellbeing is reported for children, women and older people in particular, often a result of convenience and time saving (Institute for Sustainable Futures, 2019). The health benefits associated with sanitation improvements were mentioned as a reason for applying for a toilet loan in India [e.g., in Borabanda village: “toilets are very important these days, they protect us from diseases, so the toilet loan was vital for us”].

### 3.8 WSS improvements lead to improved safety and dignity of women and girls

Table 10. RAG rating for evidence of WSS improvements lead to improved safety and dignity of women and girls

<b>Internal data</b>	There is emerging evidence that Water.org programs have led to improvements in safety and dignity	<b>External data</b>	▪ There is strong evidence that lack of WSS undermines perceptions of safety and dignity. However insufficient
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<sup>2</sup> It is unclear whether a household that only takes a loan for sanitation without improved water supply or hygiene practices can realistically expect improved health benefits.

	<ul style="list-style-type: none"> <li>▪ Male and female respondents to mWater Household Borrower Survey 2.0/3.0 say they feel safer after WASH improvements from humans and animals</li> <li>▪ Male and female respondents to mWater Household Borrower Survey 2.0/3.0 and in evaluations report greater dignity.</li> <li>▪ There are some inconsistencies in the Water.org data and lack of comparability between countries.</li> </ul>	<p>evidence that improved access to WSS alone is sufficient to improve perceptions of safety and dignity.</p>
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WSS insecurity and scarcity are considered significant factors for the safety and dignity of W&G – and therefore addressing WSS needs can improve feelings of safety and dignity.

**Ex** **Water collection exposes women to the risk of gender-based harassment, abuse and chronic stress.** Perceptions of safety are also important where women bathe and wash clothes. Water insecurity - as well as competing water needs - can trigger stress and violence in the household (Sommer et al., 2014; House et al., 2014). For this reason, women might put partner/family water needs above their own to avoid abuse. Examples have been documented from Kenya of sextortion (the practice of extorting sexual favors) for water supply in low-income settlements (KEWASNET, 2020). There is some evidence that household piped water helps reduce intra-household conflict (Devoto et al., 2012).

**Ex** **Social expectations of modesty mean that women should not be seen urinating and defecating.** In response, women report reduced intake of food/drink or taking anti-diarrhea tablets to avoid using the toilet during the day (Kulkarni et al., 2017). Women fear violence by men in public toilets and open defecation. Women might only let their daughters go out for open defecation at night or go with them (Kulkarni et al., 2017). Women often go to the toilet or open defecation area with a group of other women, or accompanied by a male household members or else use make-shift arrangement (like plastic bags or potties) within the household (Lennon, 2011). Older people also report using pots for urination or defecation at night. Women from minority groups are more vulnerable. Anecdotally, harassment appears more common than sexual assault– although fear of assault is often high (House et al., 2014). Cultural non binary gender minorities (such as in South Asia, East Asia and the Pacific) highlight experiencing violence and abuse when using gender segregated toilets (Boyce et al., 2018; Water for Women, 2019). Men and boys also report feeling shame and humiliation when being seen using public toilets or from open urination and open defecation. Girl and boys face many of the same risks and harassment as adults (Kulkarni et al., 2017).

There is a clear relationship between water supply and sanitation and W&G’s stress and wellbeing

**Ex** **Inadequate access to WSS is associated with emotional and psychosocial stress.** The stresses associated with the lack of sanitation can negatively affect mental wellbeing. Recent literature highlights the potential stress, fear and anxiety around using sanitation facilities (Henley, 2014 and Lennon, 2011). A systematic review of the relationship between sanitation, mental health, and social wellbeing found that privacy or safety had a positive impact on a user’s wellbeing (Sclar et al., 2018). The impact of these stressors disproportionately affects the most vulnerable, marginalized, and stigmatized women (Cavill, 2017). Stress and depression connected to WASH are more common in older women than men (Simiya et al 2021). Women with disabilities as well as those who experience incontinence and who menstruate may have additional unmet WASH requirements (Mactaggart et al., 2021; Carrard et al., 2020; Fisher, 2008; Jansz and Wilbur, 2013). For instance, finding an area for toileting can be more dangerous with additional safety concerns for women with disabilities. Poor

MHM is linked to emotional and psychosocial stress, resulting in feelings of shame, fear, anxiety and distraction. Anecdotally, instances of transactional sex for sanitary pads have been reported in Kenya and elsewhere (Phillips-Howard et al, 2015).

**Ex** **Improved WSS can lead to an increase in factors associated with overall wellbeing and happiness (Deveto et al., 2012).** On-plot water supply (such as household connections) can reduce conflicts with neighbors and others over the use of shared water resources (Devoto et al., 2012). Female friendly public and community toilets can also increase wellbeing. These would be: safe and private, cater for hygiene requirements, accessible for users, affordable and available when needed, well maintained and managed, meet requirements of caregivers and parents. There would also be sufficient numbers of cubicles for men and women to reduce queues (WaterAid et al., 2019). Those implementing sanitation programs should avoid reinforcing patriarchal messages for promoting latrine construction – for instance the Swachh Bharat Mission has been critiqued for slogans emphasizing traditional ideas about women’s dignity to promote sanitation at the expense of entrenching harmful gender norms (Sharma, 2017). WASH programs are increasingly tackling taboos and stigma about menstruation through education as well as availability of WASH facilities in the home and at school as well as by increasing girl’s access to sanitary absorbent materials. WASH also supports dignity in childbirth: a survey by the White Ribbon Alliance (2019) found that women want WASH in health care facilities for a dignified birth experience: expectations include running water, indoor toilets, clean beds and sheets.

[Water.org data appears to align with findings from the literature.](#)

**In** The Water.org data from mWater Survey V2.0 reveals comfort (90.4%) and pride/dignity (84.6%) are the top two changes observed by survey participants as a result of their WSS improvement.

According to the Women’s Empowerment Dashboard for WaterCredit Model Survey V3.0, around 76% of respondents said managing water supply is now less stressful (see Figure 15). Amongst other benefits, improved water supply means they have more time, worry less about supplies of water, and do not have to queue for water. Yet 12% of respondents said they have more stress now. When asked how do they rate the new toilet compared to before, most said that privacy and safety had improved (see Figure 16).

Figure 15. Compared to before your new water improvement, have there been any changes with the stress of managing your household water? (mWater survey 2.0, Water.org)

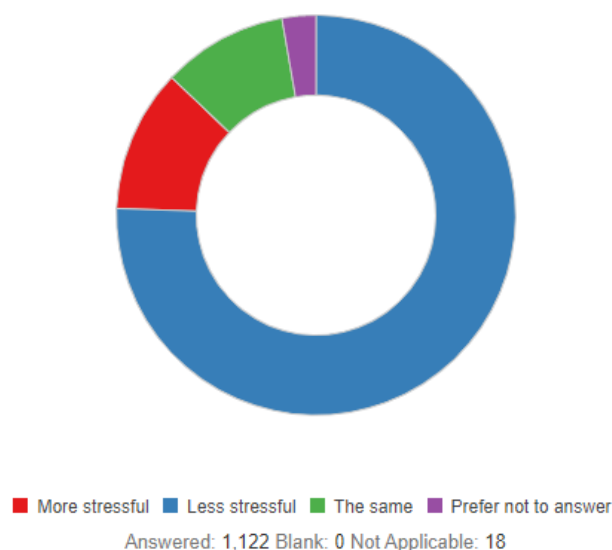
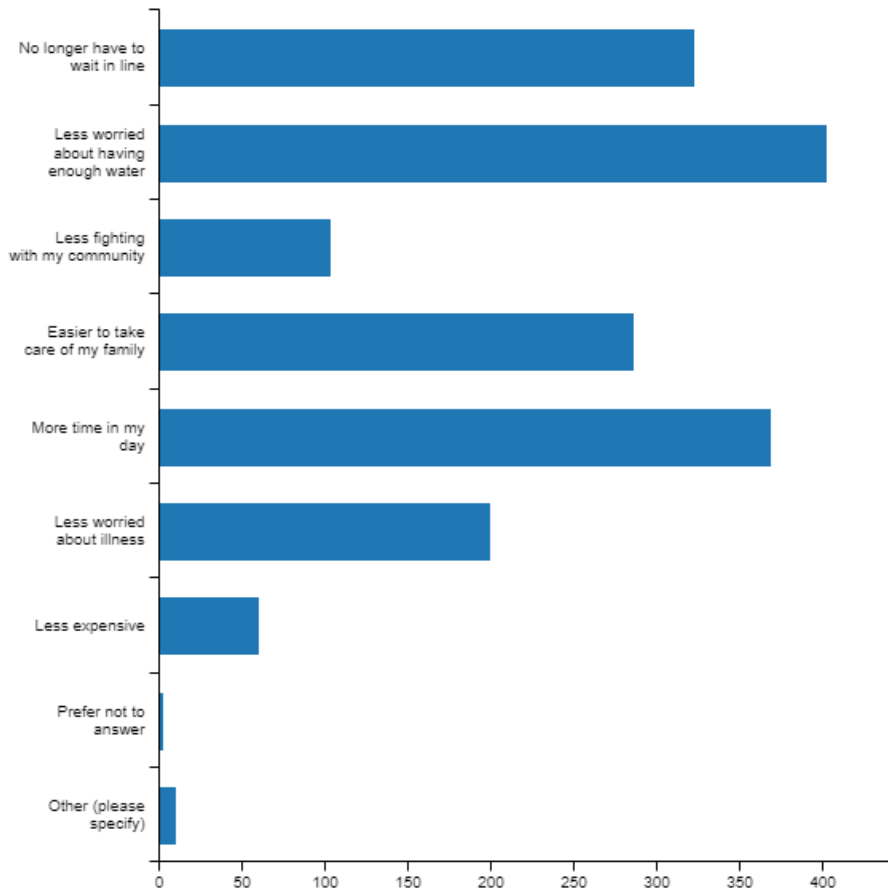


Figure 16. How is it less stressful? (mWater.org survey 2.0, Water.org)

Answered: 744 Blank: 0



According to the WaterCredit Model Survey V2.0 data, the majority of male and female survey respondents (except in Indonesia and India) say they feel safer after WASH improvements (from snakes/animal attack as well as harassment and violence). Households who took sanitation loans report an increase in their sense of safety when going to defecate, compared with those who did not take a loan (see Figure 17, Figure 18, Figure 19, and Figure 20).

Figure 17. Change in personal safety following sanitation improvement (mWater survey 2.0, Water.org)



Figure 18. Change in personal safety following sanitation improvement (mWater survey 2.0, Water.org)

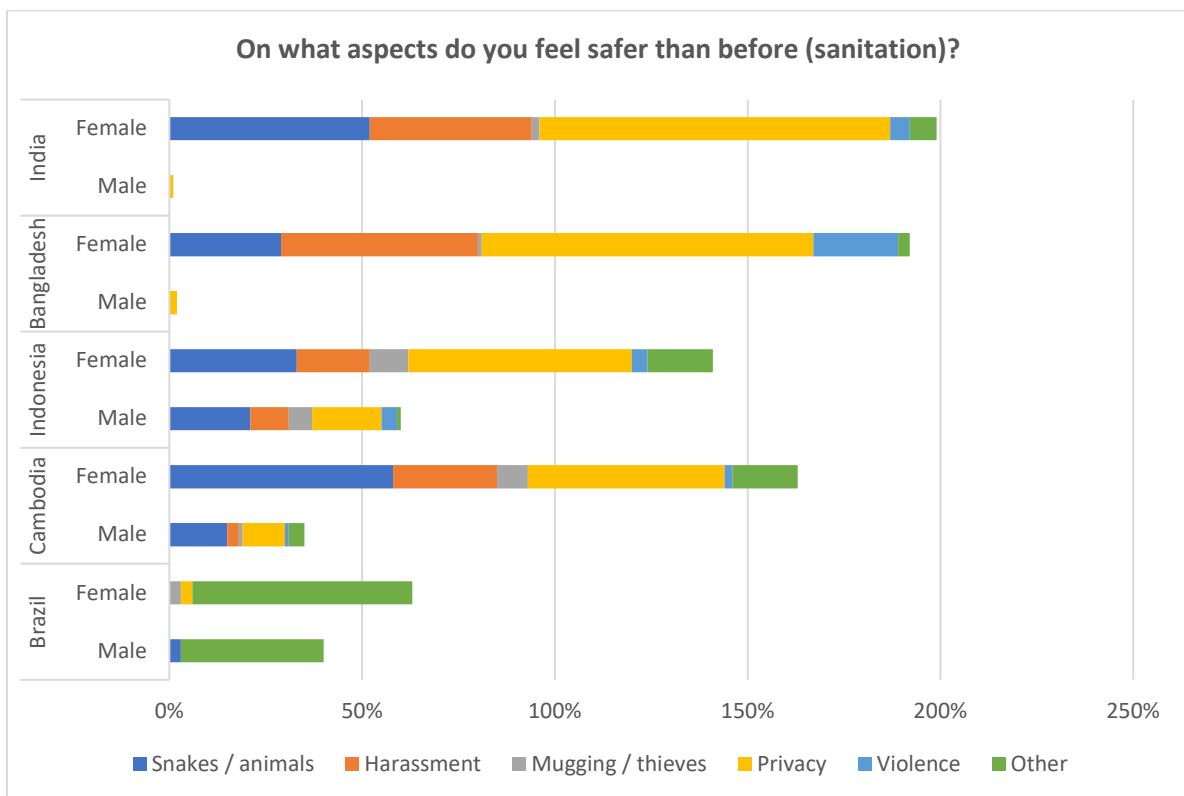


Figure 19. Changes in personal safety following water improvement (mWater survey 2.0, Water.org)

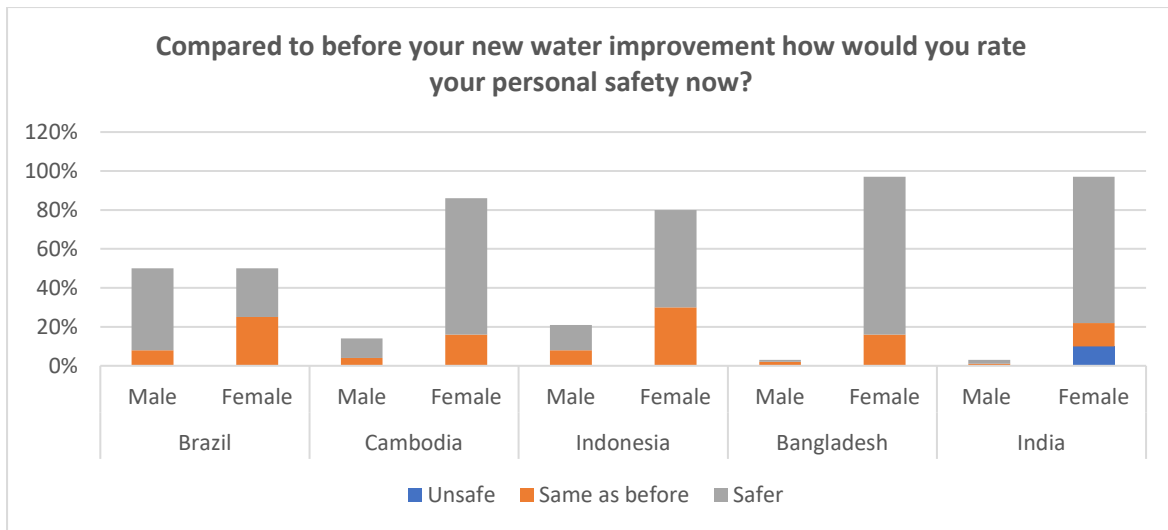
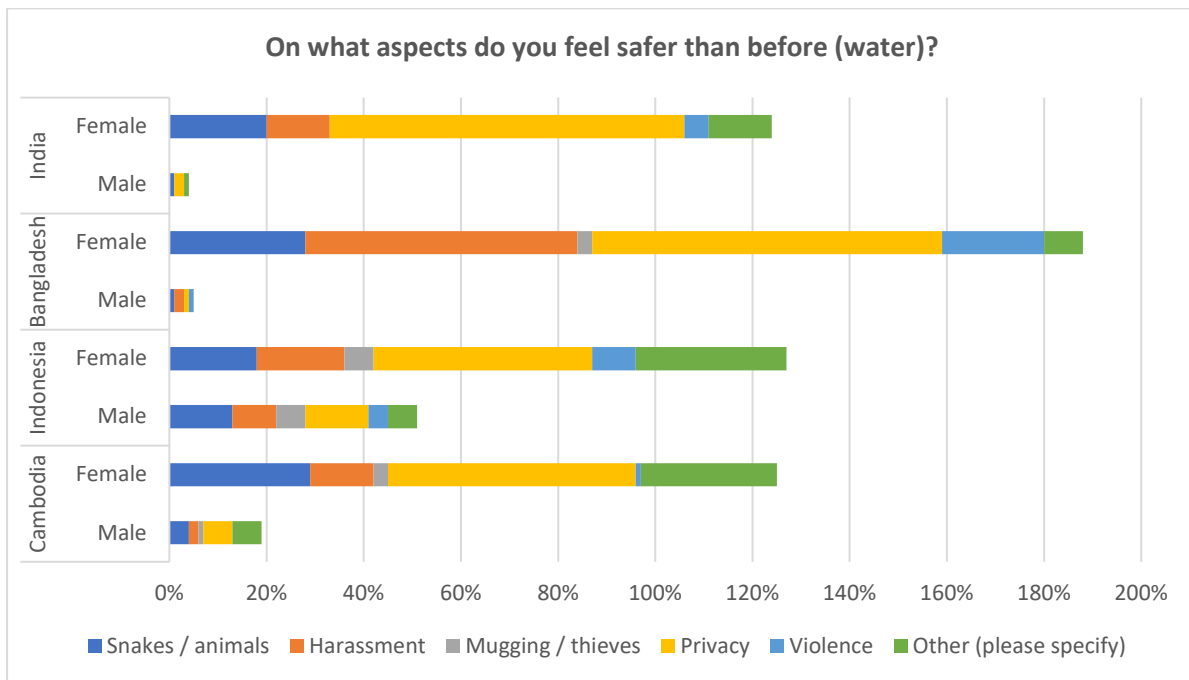


Figure 20. On what aspects do you feel safer than before (water)? (mWater survey 2.0, Water.org)



**Evaluation findings:**



- A program evaluation from Bangladesh (Water.org, 2018) found that “a loan for improving a sanitation facility led to a statistically significant increase in perceived personal safety among loan clients. Women, in particular, reported feeling safer when accessing a sanitation facility”.
- One evaluation from India (Water.org, 2014) indicates that as a result of gaining access to water and sanitation, 39% of WaterCredit borrowers reported increased safety.
- Institute for Sustainable Futures (2019) evaluation also from India found that male participants in one FGD did not have to feel guilty anymore about guests having to defecate in the open. Thus, social reputation and respect can be a driver for men. The evaluation also reports less conflict in the community with improved water supplies, with fewer verbal and physical fights due to water shortages.



- Another endline evaluation in India and Indonesia found improved safety and privacy for women and girls in both countries. Women in India reported an improved sense of dignity (Water.org and Grameen Foundation, 2020). In Indonesia quantitative findings were inconclusive for ‘ever facing harassment’– qualitative findings suggest that WSS solution helped women feel more secure and safe as well as reduced drudgery (Water.org and Grameen Foundation, 2020).

#### 4. Concluding statement

Water.org’s clearly has a high level of ambition to promote women’s empowerment and equity. Its internal evidence provides a range of important insights into progress on women’s decision making and access to loans for WSS, income opportunities, school attendance, health, dignity and safety and especially time gains. Water.org has some evidence to show the positive contribution of WaterCredit programs (in general as there are variations between countries) towards equity and empowerment, especially in the countries where it has had a relatively longer term presence, and that change is being achieved through several pathways.

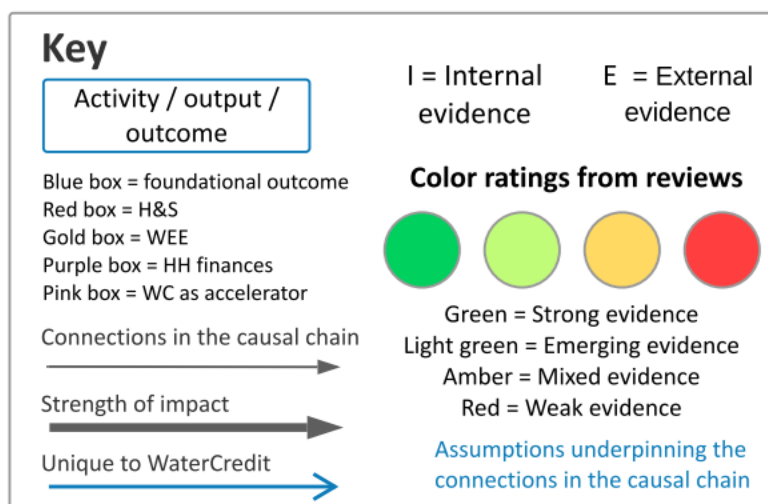
The limitations in the monitoring data noted above must be addressed in order to fully demonstrate the wider impact that WaterCredit programs contribute towards. Currently Water.org appears to more consistently monitor output level achievements (e.g. taking a loan), claims for women’s empowerment and equity outcomes are not fully evidenced (end of program evaluations are used to capture qualitative change for the most part).

Extending Water.org’s contribution to WEE has the potential to bring about enhanced and longer lasting change to the communities where Water.org works. Whilst acknowledging that Water.org has deeper expertise on finance, there is scope for Water.org to become more innovative in the WEE aspect of its programming for instance by taking a gender transformative approach and partnering with national women’s groups as the wider work of empowerment goes beyond the WASH sector and cannot be done alone – it absolutely requires collaboration to influence change. Consistency across programs could be improved by greater sharing of experience within Water.org as well as wider exposure to gender, microfinance and WASH sector thinking. The best practices in each country on WEE should be more routinely documented and used to inform and contribute to improved practices (and more consistency) across Water.org programs. Sharing learning with the global sector would help contribute to filling the remaining gaps in the global evidence base as well as raise the profile and reputation of Water.org on this issue.

#### 5. Theory of Change

The below diagram depicts the Theory of Change (ToC) for the women’s empowerment and equity theme that was co-constructed by the research team and Water.org together during the ToC workshop. The ToC builds from the foundational outcomes (blue boxes) up to the theme-related outcomes (gold boxes + other colors from other themes). The ToC shows how change is expected to occur both in regard to the WC (blue arrows) and WASH contributions (black arrows). It also maps out the linkages between related outcomes, the level of impact associated with these connections, and the strength of evidence associated with each outcome, as explored in the report (please see the key for further detail).

Figure 21. Key for the ToC

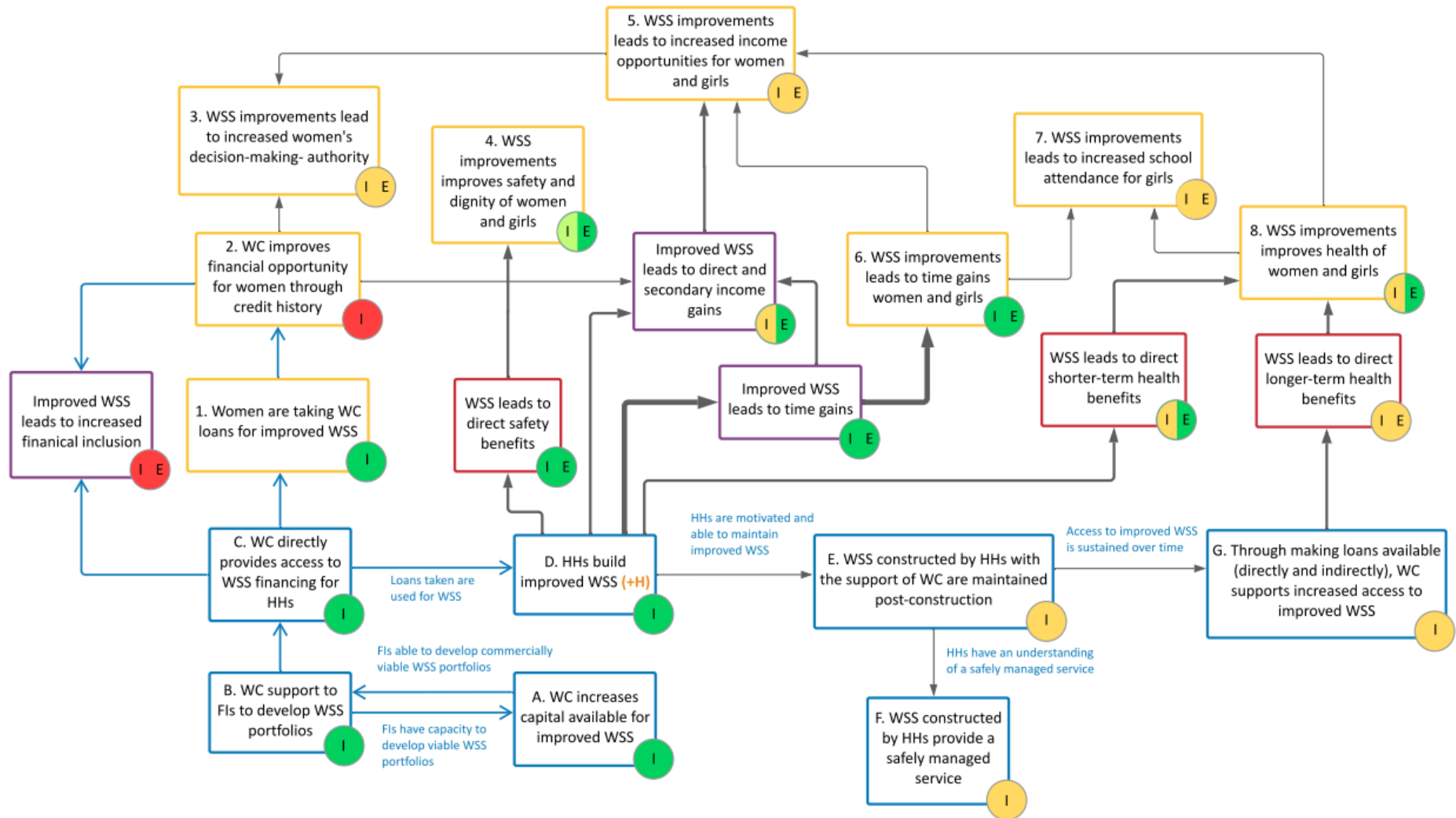


The ToC reveals the pathways by which Water.org programs clearly (or at least with some evidence) lead to improvements in women's empowerment. Water.org evidence indicates that their female borrowers already have some degree of decision-making authority in the household as demonstrated by their decision to take out loans for WSS. WC financing for WSS can be a route for women to improve their financial inclusion and credit history. However Water.org has limited evidence to show that loans can improve financial opportunity for women by improving their credit history.

Water.org has strongest evidence regarding time gains from improved WSS facilities. Water.org has some evidence to demonstrate that WSS at home or in school increases children's school attendance; however the specific evidence on girls' attendance is limited. With improved water and sanitation at home it is also plausible that time and health gains enable women to engage in income earning opportunities. However, Water.org has limited evidence on how women use this time saved and whether it is used for income generation.

Water.org has some evidence to demonstrate that improved household level WSS can increase the health, safety and dignity of women and girls at different stages of the life course –this is mainly through reducing their reliance on neighbour's toilets, community/public toilets or open defecation. Water.org's internal evidence largely corresponds to the strength of evidence found in the external literature.

Figure 22. ToC co-constructed for the women's empowerment and equity theme



## 6. Recommendations

**Steps should be taken to ensure good quality data is available for all programs<sup>3</sup>.** Data on female clients is more consistently available for Brazil, Cambodia, Indonesia, Bangladesh and India – in both the mWater Household Borrower Survey 2.0/3.0 and program evaluations. Standard questions on gender should be asked across all evaluations to enable cross-country comparison. Review the design and tools of the Institute of Sustainable Futures evaluation as an example of good practice. All evaluations should also ask questions on educational attainment, WaterCredit Endline Evaluation (Causal Design, 2020) in Cambodia provided the most comprehensive data on school attendance and could be used to inform other evaluations/routine monitoring.

**Disaggregated data on age, disability, wealth, and minority groups should be collected.** This is essential for programs, advocacy and learning. In addition, define terms like safety and dignity so that data is directly comparable across countries .

**Consider alternative approaches to collecting meaningful data on health, empowerment, and decision-making authority.** The quality of survey (self-reported) data on these topics is questionable and can often be better explored through longitudinal studies, outcome harvesting or in-depth qualitative research.

**Expand the reporting and data collection requirements placed on partner finance institutions.** In particular, with respect to credit history and income opportunities for women who take a loan.

**Encourage FIs to link female clients to organizations that support women’s business development and training.** Where women are not already part of Self-Help Groups, FIs could also have a role in linking female entrepreneurs starting new businesses for mentorship and peer support to increase their chance of success. One good example here is WASEU (Water and Sanitation Entrepreneurs Association) in Uganda<sup>4</sup>.

**Engaging male family members in loan/WSS activities could be harnessed as an opportunity to promote broader change in gender relations and norms.** Opportunities here include greater male involvement in domestic WASH related activities and support for women in leadership and entrepreneurial roles as well as girls’ attendance in schools. Better equipping FIs to more effectively promote sanitation to male clients will bolster this and also to encourage all household members use sanitation facilities.

**Review client protection principles and sharpen monitoring to detect unintended consequences of taking the loan such as gender-based violence and financial stress.** Be proactive in increasing monitoring officers’ awareness of risks and establish links with specialist protection agencies that can provide support to women in case of backlash in the household. Maintain strong links with regulators to protect vulnerable women from taking a loan and falling into debt. Work with regulators to ensure FIs follow client-protection principles (i.e., size of loans, interest rates, measures to re-coup loans). Investigate and monitor other unintended consequences such as increased lateness of children following new WSS facilities.

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<sup>3</sup> Note the recommendations here are presented in a different order to that in the summary of findings, where they are paired with associated findings.

<sup>4</sup> <https://waseu.org/>

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#### **Box 1: Measures to monitor women's empowerment.**

- A [Gender Role Attitude \(GRA\) scale](#) has been used as a pre and post indicator to assess interventions. At one end of the scale are those who would agree with a traditional division of labour between men and women – with those who want a more equal division of labour at the other end of the scale.
- The [Gender Equitable Men's \(GEM\) Scale](#) has been used in multiple contexts and is supplemented by qualitative interviews, focus groups and local expert review to monitor change.
- The [Gender Marker](#) is a tool to help project staff review the extent to which programming or influencing work has the potential to contribute to gender transformative change.
- A compendium of gender and power metrics can be found here: <https://gendermetrics.popcouncil.org/>

WASH sector monitoring tools for measuring progress on women's empowerment, participation, agency and wellbeing include:

- Plan International's [Gender WASH Monitoring Tool](#) has been used for monitoring changes in gender relations through community dialogue
- The [WASH-Gender Equality Measure \(WASH-GEM\)](#) is a quantitative tool designed to reveal intended and unintended gender equality changes associated with WASH programs
- [Empowerment in WASH Index](#): measures empowerment in the water, sanitation and health sector