Financing WaterCredit to enhance access to water and sanitation for attainment of SDGs

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Abstract/Summary

WaterCredit is an innovative credit-driven model being promoted by Water.Org (WO) which enables Financial Institutions to offer loans to their clients for water and sanitation related products and services. WaterCredit was implemented by WO in partnership with 4 Financial Service Providers (FSP) in Kenya and 1 FSP in Uganda with US$3.6 million funding from The MasterCard Foundation. This was the first WaterCredit initiative working with larger FSP partners in Africa implemented by WO. Over a five year period during Oct 2010 to Sep 2015, the program resulted in improved water and sanitation access for over 385,000 beneficiaries in Kenya and Uganda.

An independent evaluation of the WaterCredit program (Prime M2I Consulting, 2016) has brought some interesting findings that is worth considering for financing of Water Supply and Sanitation (WSS) services for people at the Base of the Pyramid (BOP) to reach sustainable development goals. Baseline study in different counties across Kenya established that access to water varied greatly, and as little as 15 percent household in some counties had access to piped water connection (ADREC, 2012) (Microsave, 2012), (Microsave, 2011) (Kipruto & Komen, 2012). A large majority accessed water from sources such as rivers, lakes, shallow wells, borewells, water vendors etc. Market research established the demand from un-served clients for access to finance for investing in household water and sanitation assets. Through WaterCredit, financial instutions leverage commercial capital to meet the WSS needs of the BOP, while leaving public and philanthropic funding to be strategically targeted at (i) measures that increase the availability of financing mechanisms for WSS for all (ii) serve those customers who cannot access or afford private financing due their economic or demographic status, and (iii) increase access to WSS while addressing other societal imperatives such as climate change and environmental conservation.

Access to financing for water assets eases a major bottleneck, and helps clients acquire the assets and access water. FSPs, particularly those focused on the low income segment, can play an important role in addressing the financing issues. However, traditionally, FSPs have prioritized their lending for income-generating purposes and perceive lending for consumption and other non-income generating assets as high risk. They lack the domain knowledge to develop customized products that cater to such demands which is traditionally considered as consumption.

The WaterCredit approach was effective in this context by bridging the gap between clients' needs and FSPs' ability to offer financial products and thereby eased the financial barrier in access to WSS. Institutionalizing the WaterCredit approach within the FSPs, which can secure commercial capital, will ensure sustainability of the approach. Increasing the loan amount and repayment period will further increase outreach to more and poorer clients. This greatly contributes to accelerating self-supply for those who cannot afford water services due to financial constraints. Key findings from a mid-term evaluation of the program in the year 2013 and an end-term evaluation in 2015form the basis of this paper.

Introduction

While the MDG target of halving the proportion of population without access to improved water sources by 2015 was met, 748 million people or 10 percent of global population remains without access. Average investment over the period 2015 to 2030 to meet the SDG goals of universal access to basic water and adequate sanitation is estimated at $ 49 billion (Traub, 2015), whereas current average annual overseas development assistance to the water and sanitation sector stands at approximately $ 12.7 billion (OECD, 2014) which is far short of what is needed to solve this crisis. Today, there is a $12 billion demand globally from families at the base of the economic pyramid BOP) for access to finance to meet their water supply and sanitation (WSS) needs (Lebec, 2015). This is a huge potential market waiting to be discovered and, if targeted well, can result in substantial increase in access to WSS. Several FSPs and NGOs have developed financial products for servicing WSS related loans. Water.org is one such NGO which has developed a unique financing model, named 'WaterCredit'. Through this approach, Water.org encourages Financial Service Providers (FSPs) to finance WSS. Smart subsidies are provided to FSPs to build their organizational capacity, identify communities' needs through market research, develop appropriate financial products and generate awareness on WSS. These financial products can be availed by clients to obtain improved WSS solutions such as piped water connections, water storage facilities, wells, toilets, and rain water harvesting structures, often without much investment or intervention from the government. The WaterCredit project in Kenya and Uganda attracted a large number of women clients as they are the first to be impacted by WSS.

An independent evaluation of the WaterCredit program (Prime M2I Consulting, 2016) has brought some interesting findings that should be considered for financing of Water Supply and Sanitation (WSS) services for people at the Base of the Pyramid (BOP). Baseline study in different counties across Kenya established that access to water varied greatly, and as little as 15 percent household in some counties had access to piped water connection (ADREC, 2012) (Microsave, 2012), (Microsave, 2011) (Kipruto & Komen, 2012). A large majority accessed water from sources such as rivers, lakes, shallow wells, borewells, water vendors etc. Market research established the demand from un-served clients for access to finance for investing in household water and sanitation assets. Through WaterCredit, financial instutions leverage commercial capital to meet the WSS needs of the BOP, while leaving public and philanthropic funding to be strategically targeted at (i) measures that increase the availability of financing mechanisms for WSS for all (ii) serve those customers who cannot access or afford private financing due their economic or demographic status, and (iii) increase access to WSS, but while doing so, also address other societal imperatives such as climate change and environmental conservation.

Context, aims and activities undertaken

Introduction to the WaterCredit approach

Water.org has been working on water and sanitation issues in response to the water crisis faced by millions of people in the developing world. Water.org's analysis revealed that a sizeable share of this global water crisis is faced by people in the Sub-Saharan Africa (SSA). In 2015, 663 million people worldwide lacked access to improved drinking water sources and almost half of these people (319 million) lived in Sub Saharan Africa (UNICEF and World Health Organization, 2015). While at the global level, the MDG goal on access to drinking water was met, four development regions including Sub Saharan Afria missed the MDG target for access to drinking water. From 1990 to 2015, the proportion of people having access to improved water sources in the region only increased from 48% to 68%. In other words, in 2015, one out of every three person in the region did not have access to improved water source. Progress on access to improved sanitation was even worse. The global MDG target for sanitation was missed by almost 700 million people. In the year 2015, only 30 percent households had access to improved sanitation in Sub Saharan Africa. The impacts of this crisis threaten development prospects in SSA and imperil the lives of millions of people. Each year, between 842,000 deaths in low and medium income countries are cuased by inadequate WASH, out of which 502,000 can be attributed to unsafe and insufficient drinking water (World Health Organization, 2014) .

This slow progress in access to improved drinking water and sanitation can be attributed to the massive

gap in the current development assistance and what is needed to meet the SDG goals. It was in this back-drop that Water.org developed a unique a market-based model, named 'WaterCredit', which can potentially contribute to solving the the water crisis the developing world is facing.

The WaterCredit model can be sustainable and scalable as it is market-driven and can attract growth capital. The model involves provision of credit by FSPs to individuals and households for WSS solutions – water connections, toilets, water tanks, rain water harvesting structures. Water.org supports the partner FSPs to scale the model over time by providing technical assistance and smart subsidies to develop a WSS product line for a new market segment, an area in which many FSPs lack technical expertise.

The WaterCredit approach was developed to create or enhance access to WSS by developing an alternative financing mechanism for WSS assets at the household level. This financing model encourages the FSPs to lend for investments in WASH related products and services. Originally, Water.org had also proposed to mitigate the credit risk perceived by FSPs by offering them credit enhancement in the form of gurantees. However, as Water.org gained experience with the approach, it realized that the FSPs could build substantial portfolio in WSS loans without credit enhancement. The model is built on the assumption that once the FSPs have the organizational capacity and appropriate WSS financial products and they work together with the product manufacturers and suppliers to put in place a viable supply chain, they will recognize the market opportunity in the segment and scale up the model. Moreover they will be able to leverage commercial capital to finance their WSS portfolio. Fig 1 below illustrates the interaction of various stakeholders in the WaterCredit model. It is woth highlighting that Watercredit is not just another credit or financial product. It is a comprehensive approach that brings together the physical product, the financial product, the supply chain and demand creation mechanisms in order to enhance access to water and sanitation services to excluded populations.

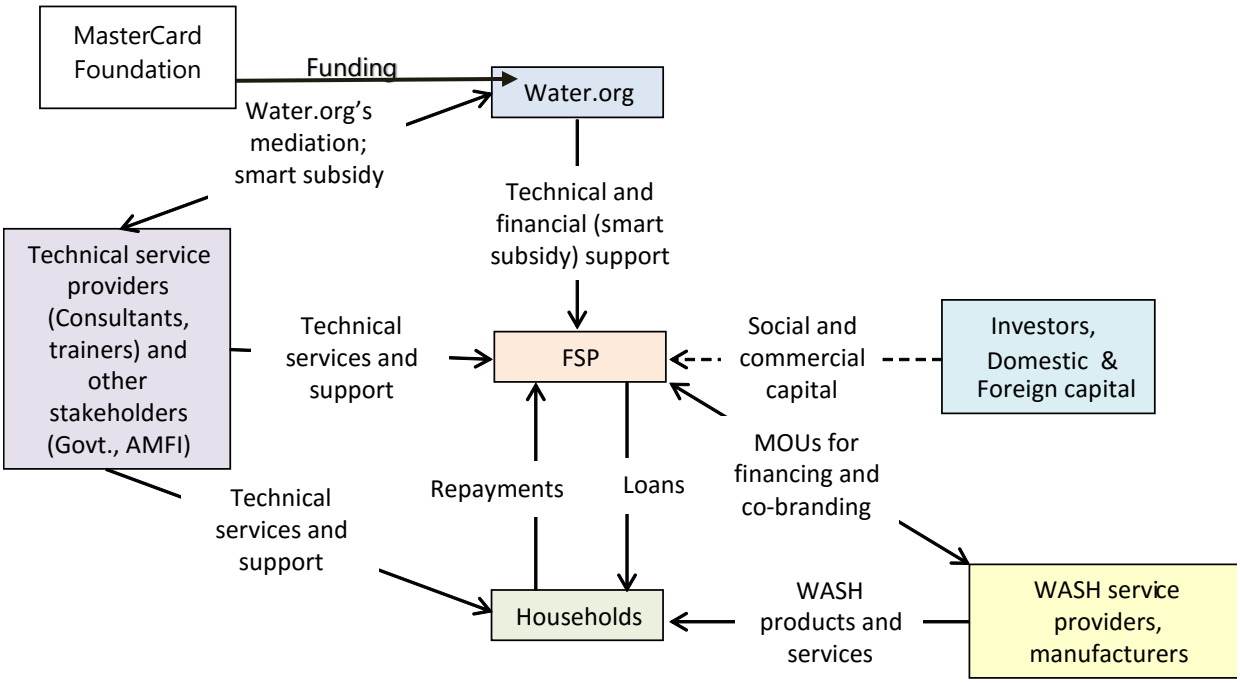

Figure 1: An overview of the WaterCredit Model

Success of WaterCredit approach is conditional upon following factors:

- Aspirational, affordable and modular products and services which satisfy a need/demand
- Community/household demand for WSS financial products
- Presence of product manufacturers, suppliers, WSS service providers and a viable supply chain
- Presence of financial institutions and availability of capital for onlending for WASH assets
- Presence of support agencies to work on awareness and demand generatioin

Role of key Partenrs:

MasterCard Foundation: The MasterCard Foundation provided funding to Water.org to test out the WaterCredit model in Kenya and Uganda. The total funding was $ 3.6 million over a period of five years to present a develop a sustainable, market driven approach for access to water and sanitation.

Water:org: Water.org tested out the viability of the WaterCredit model across different financial service provideder institutions. Water.org played the critical role of FSP selection, market research, product development and providing the technical assistance to the FSPs. Beside these it also built capacity of the FSP staff to understand products and answer queries from customers on WSS.
Financial Service Providers: The FSPs partnered with Water.Org to test the financial products, partnered with tank and sanitation product suppliers to get door step supply and also created awareness among both new and old cleints on WSS.
M2i: M2i carried out the mid term and end evaluation of the project. The mid term evaluation came out with critical recommendations which helped in improving the product package and upscaling the program strategy.

Is there unmet need and demand for WSS?
In the twenty five years since the joint monitoring program was put in place by the UNICEF and World Health Organization, significant progress was made in Kenya and Uganda in access to water, but extremely slow progress in access to improved sanitation as depicted in Fig 2. In Kenya, percentage of population lacking acess to drinking water came down from 57% to 37% during 1990 to 2015, but it fell short of meeting the MDG target. Uganda was successful in meeting its MDG target in access to drinking water, bringing down the proportion of people lacking access from 60% to 21%. However, progress of both the countries in improving access to sanitation was quite slow, and they both failed to meet their MDG targets.

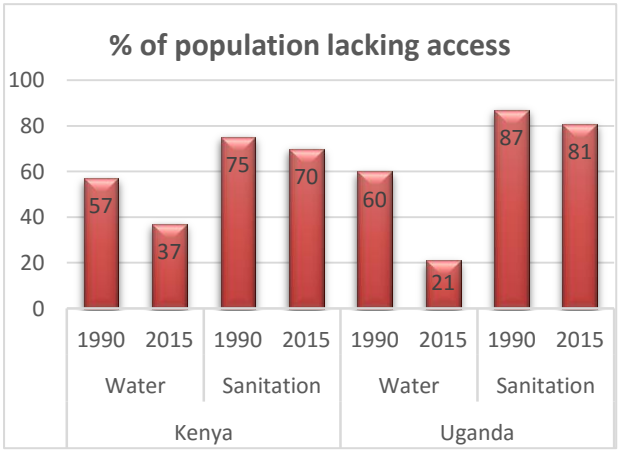

Figure 3: Percetage of people lacking access is coming down

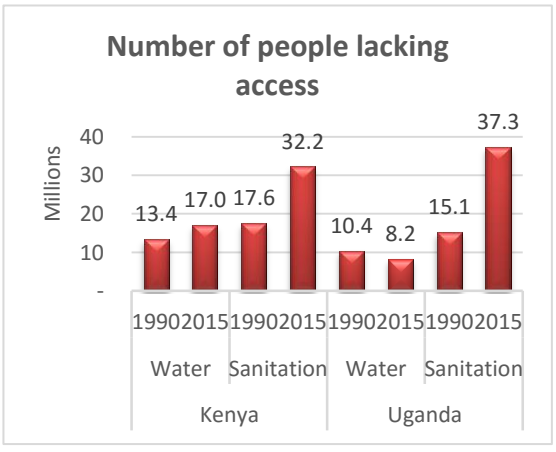

Figure 2: No of people lacking access has increased

During the period 1990 to 2015, the population of Kenya increased by 96%, and that of Uganda increased by 125%. This meant that despite an increase in the percentage of population having access to water and sanitation, the absolute number of people not having access to clean water and sanitation also went up as can be seen in Fig 3. Increase in the number of people lacking access to improved sanitation is quite alarming.

Figure 4: Sources of water during rainy season in Kenya

Water Source	% of households
Rain Water	39%
Piped Water-Piped to compound/plot	13%
Dug Well-Protected Well	11%
Water from Spring-Protected Spring	8%
Surface Water (river/dam/lake/pond/stream/canal/irrigation channel)	8%
Piped Water-Piped into dwelling	6%
Piped Water-Public Tap/Standpipe	5%
Tube Well or Borehole	3%
Dug Well-Unprotected Well	3%
Water from Spring-Unprotected Spring	3%
Tanker Truck	1%
Cart with Small Tank	1%

(Captiva Africa, 2014)

This clearly indicates a massive gap in access to clean water and the urgency with which these need to be prioritized. Coming to the community level, the evaluation found a number of constraints in accessing WSS:

Water

- Need to fetch water from distant sources, including rivers, ponds and lakes. Water from many of these sources is not hygienic, and become particularly dirty during the rainy season.
- Women and children have to spend significant time fetching water which reduces their productive time.
- Those who cannot fetch water due to work engagements, long distance to the water source, disability, old age or sickness, have to buy water from vendors or hire labor to fetch water. Respondents had to spend $1.00- $1.50 per day to access water.
- Dirty water resulted in frequent stomach diseases such as amebiasis.
- Even in areas with a piped water connection, the supply is insufficient. Most people in Nairobi got water once every two or three days. In remote areas people often get water only once a week through the piped connection and the situation worsens in the summer.
- There are community managed boreholes, but people have to spend significant time in queue to get water from boreholes. In certain areas, the water from borehole was 'salty'.
- Respondents reported that issues such as poor maintenance and frequent breakdown of pumps in boreholes often resulted in lack of water availability.
- Many people wanted to have water tanks but could not or did not want to become members of microfinance institutions. This group of people often persuaded existing members to take a loan on their behalf, arranging to pay the installment for making the repayments as per schedule.

As per official statistics 63% of the Kenyan population has access to improved water facilities, even those having these facilities do not get adequate water due to irregular and insufficient supply. Many people depend on water vendors and there is significant demand for storage products. **So, there is still a massive gap in access to regular and reliable supply.** Many wanted to supplement self-supply with that of sporadic or lack of daily municipal supply to get adequate water.

How the WaterCredit project addressed these needs?

The WaterCredit program was implemented by Water.org during Oct 2010 to Sep 2015 in Kenya and during Oct 2013 to Sept 2015 in Uganda. With funding from the MasterCard Foundation, Water.org

identified four FSPs in Kenya and one FSP in Uganda and provided them technical assistance and smart subsidies to develop and roll out financial products to address the WSS needs. The FSPs were selected through a rigorous process of certification and comprised a mix of large commercial banks and large and medium sized microfinance institutions. Water.org helped the FSPs conduct market research and demand assessment studies and helped develop the product prototypes, which were then pilot tested in some of the branches. After running the pilot test for about six months, the products were rolled out across the entire branch network of the FSPs with necessary adaptations. To measure the project's impact, a baseline and an endline impact study were conducted.
The project benefited over 385,000 people through improved access to water and sanitation through disbursement of over 77,000 loans by these FSPs to the clients for investing in water and sanitation products. The loan appraisal by the FSPs followed the standard process. However, instead of disbursing the loans to the customer, the loan amount was directly transferred to the water and sanitation solution provider selected by the client. The water and sanitation solution providers then delivered the product at the doorsteps of the clients. The FSPs monitored end-use of the financed products on a sample basis and often liaised with the product manufacturers and suppliers to ensure that the products were adapted to meet the demands of the customers. Loan repayment was typically made in monthly instalments over a period of 6 months to 24 months and was made directly to the FSPs by the clients. As many as 88 percent of the beneficiaries lived in rural areas. Average loan size advanced by the FSPs was $572.

Main results and lessons learnt

Relevance of the project in meeting the need

The evaluation finds the **project approach to be relevant** for creating and improving access to clean and affordable water and sanitation services for low income clients. In the rural and peri-urban, availability of the WSS products is a big constraint. In the urban markets, while WSS products may be available, affordability is a key concern for both urban and rural customers. Unit cost of typical WSS products (water tanks, boreholes, improved toilet products) ranges between US$ 250 to US$ 3,000 which is a very large amount for low income families to accumulate and pay in one installment.

Access to financing for water and sanitation products through WaterCredit eases this bottleneck and helps clients acquire the products and access water. Financial institutions, particularly those focused on the low income segment can play an important role in addressing the financing issues. However, traditionally, microfinance institutions have prioritized their lending for income generating purposes and perceive lending for consumption and other non-income generating assets such as WSS infrastructure as high risk. FSPs lack the domain knowledge to develop financial products that cater to demands of WSS clients, who often seek information on cost of asset construction, installation, site, technical inputs, qualified masons, and product quality. FSPs lack such information and knowledge.

The WaterCredit approach was effective in this context by addressing the gap between clients' needs and FSPs' ability to offer required financial products and thereby easing the financial barrier for access to WSS access. Institutionalizing the WaterCredit approach within the FSPs who can attract commercial capital might ensure sustainability of the approach.

Why people are accessing WSS financing?

Fig 4 below provides the purposes for which the clients accessed WSS financing. This included purchasing water tanks, securing piped water conection, constructing shallow wells, constructing toilets, buying material and accessories for rain water harvesting and installation of household water or sewer connection. Purchasing water tanks was by far the largest source of demand for WSS financing. What was interesting is that many clients who accessed a loan for buying a water tank, went for a repeat loan to buy a bigger second tank subsequently. This clearly establishes that people see value in accessing loan to buy a water tank, and that is why, over time, they go for a second loan to meet their unfulfilled need for water. This also has implication for design of financial product. Giving a smaller first loan reduces the risk to the borrower and the FSPs to test out the product and see if it benefits them before taking on the larger risk of taking a larger loan. Small size of initial loans allows one to buy only a small tank, and most customers

go for a second loan after repaying the first to buy a bigger second tank.

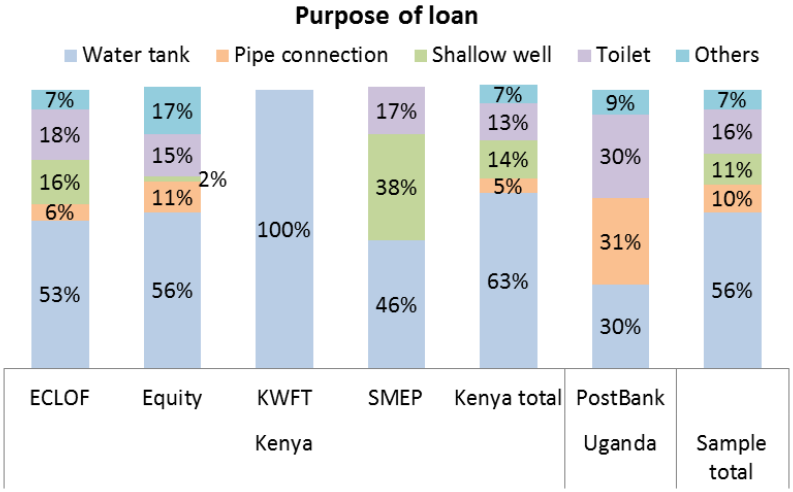

Figure 5: Sample distribution of loans by purpose

Outputs of the WaterCredit program in Kenya and Uganda

The table below shows the total number of different trpes of WSS loans disbursed during the five years of the project and the total amount disbursed through these loans. (The number of loans disbursed during the first two years was quite small, as the FSPs were in the process of product development and roll out.

Total Number of loans	77,230
Water loans	52,247
Sanitation loans	11,446
Water and sanitation loans	13,537
Average loan size(USD)	$572
Number of FSPs involved in the program	5 (4 in Kenya and 1 in Uganda)
Percentage of women borrowers	55%
Total Number of beneficiaries	385,878
Percentage of rural beneficiaries	88%
Interest rate charged by the FSPs	16% to 22% flat rate [i]
Portfolio at risk for FSPs	2% to 4%

Figure 6: Key highlights of the WaterCredit program

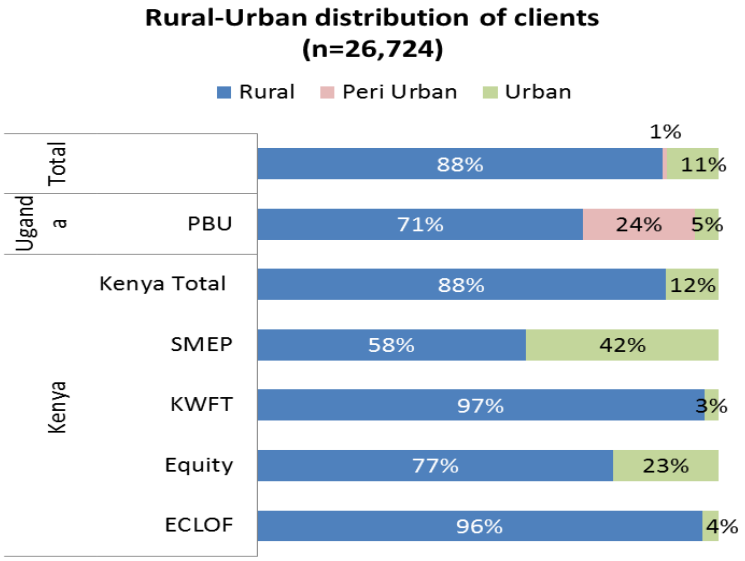

Figure 7: Rural-urban distribution of beneficiaries

The program benefitted a disproportionately large number of rural clients, where the gap in demand and supply for water and sanitation is much bigger. It is important to mention that many propspective clients who were not part of the groups could not access the loans. The Fig- 7 provides the distribution of loans distributed by different FSPs in the ruran, peri urban and uran access. A very large majority of beneficiaries are from rural areas, where infrastructure to provide piped water connection and communal access is poor and self supply remains easier than any other option. Data confirms the core assumption behind the approach that WaterCredit approach will be effective in areas where public or communal access does not exist or is less than satisfactory.

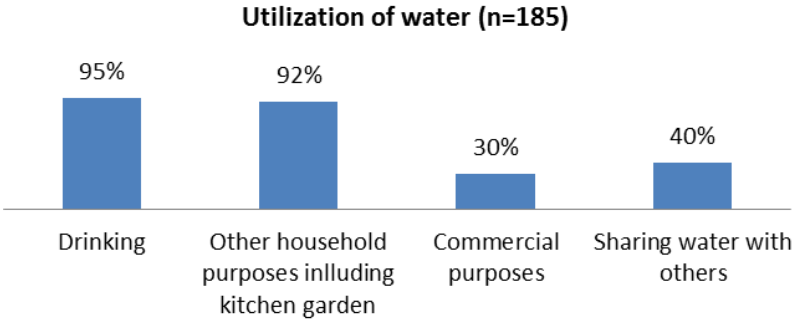

Figure 8: Utilization of Water

People are using the increased access to water for a variety of purposes and not just for drinking purposes, as evident in Fig 8. This project revealed that water financing for self-supply not only addresses the need for drinking water, in almost every case, it was also used for other household purposes, such as mushroom farm, kitchen garden or to support other small income generating activities. As many as 30% of the beneficiaries are also using it for commercial purposes, becoming water vendors and thereby earning an income. Two out of every five beneficiaries or 40% also share water with others such as neighbors. The evaluation found that the actual number of beneficiaries per loan (or multiplier effect) of the project was significantly higher (an average of seven beneficiaries per loan as against five assumed originally.) This was on account of the fact that the WaterCredit approach was designed primarily with households in mind. But when the program was rolled out, it also attracted a large number of institutional borrowers, such as schoolds, church etc where the number of beneficiary for each loan was much

larger.Many schools borrowed loans to buy both water tanks and rain water harvesting structures.

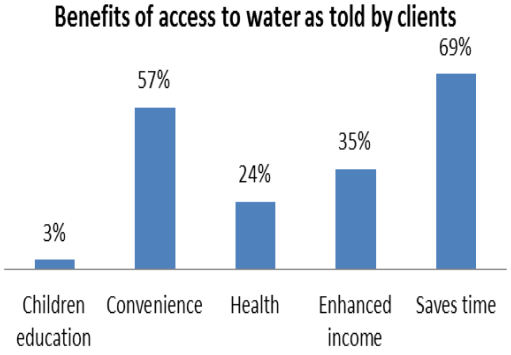

Figure 9: Benefits of access to water

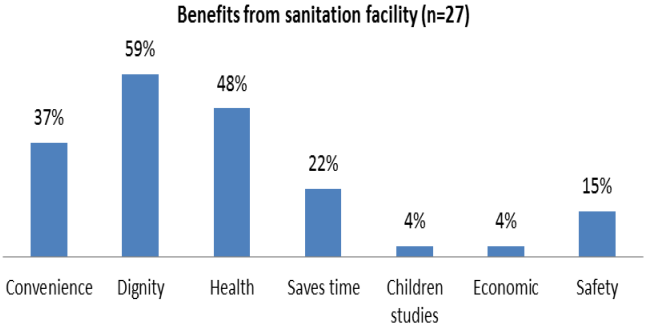

Figure 10: Benefits of access to sanitation facilities

Fig- 9 presents perceived benefits from access to water and sanitation. The amount of time saved and convenience in accessing water came in as two of the highest ranked benefits. Convenience captures several elements- no need to travel long distances, no need to carry heavy jerry cans, ability to access water when needed and where it is needed etc. As many as one in three respondents reported enhanced income as a benefit and one in four reported health benefits of access to clean water. In a small number of cases, the respondents also reported the positive impact on children's education, since they no longer need to spend a significant amount of time fetching water and can devote that time on education.

User feedback on benefits of sanitation (Fig 10) were surprising, with improved dignity ranked as the biggest benefit by as many as 59% of the respondents. This points to a clear dichotomy between the perception of users and promoters of sanitation such as public health agencies, NGOs etc. Whereas for the users the dignity followed by health and convenience rank as the most important benefits, the promoters prioritize improved health outcomes as the key driver for sanitation programs.

Interaction with the water and sanitation clients brings out critical aspects for success of the schemes.

- Well thought out and packaged financing- adequate loan size, quick processing, reasonable repayment tenure aligned to household cashflow and affordability.
- Working on both financing of WSS products as well as WSS product supply and availability. E.g., Transportation cost of water tanks can be as much as the cost of a tank itself. Offering door-step delivery of tanks can thus significantly reduce the cost of ownership. The supplier can distribute the transportation cost across multiple buyers by using transportation planning tools.
- A coordinated approach between the financial institution providing financing, product

manufacturers incorporating design elements in the products as per client preference, product suppliers working out the logistics and finally, organizations working on awareness on correct installation, product usage can ensure good take up.

- Because FSPs are the biggest customers for the water tank manufacturers, they are able to bargain for a volume discount on pricing, which reduces the effective cost for the borrower.

In summary, the four P's of marketing- right product, delivered at the right place at the right price and right promotion are all key to success of WaterCredit.

The evaluators found that some FSPs finance the cost of water tank but not installation. As some clients are not able to cobble together additional funds needed for installation, the water tank that they buy may remain unused for a long time. On the other hand, they have to start repaying the loan the moment they borrow. This affects the borrower satisfaction, and also lack of effective usage of the asset. It was also observed that the average loan size given out by larger banks is significantly larger than smaller MFIs. Clearly, the water and sanitation products cost more, and FSPs with greater financial capability to lend for water and sanitation products will be more successful.

WSS financing can be sustainable for FSPs if it is done at scale and if the product is priced right.

Income	
Yield on portfolio (YOP)	42%
Other income	2%
Total income – A	***44%***
Expenses	
Loan loss cost	2%
Financial expenses	10%
Operating expenses	27%
Depreciation	1%
Total expense ratio – B	***40%***
Margin (A-B)	**4%**

Figure 11: Break-even analysis for WaterCredit Portfolio

The evaluation looked at the operating costs, yield on portfolio, pricing of WASH financing product for all the five FSPs. Analysis in Fig 11 is based on the average incomes and expenses from WASH portfolio of four of the FSPs in Kenya. In all these four cases, the WASH product is priced similar to other credit products of the financial institutions. Assuming that the cost of funds and operating expenses of the financial institution remains the same in the WASH portfolio as in their general portfolio, reaching breakeven is a function of building adequate scale to recoupe the product development cost and fixed costs particular to the WSS product. Average financial marging for the FSPs on WASH products is 4%.

Developing the WSS portfolio also required an upfront investment of about US$ 200,000 per FSP in market research, product prototyping, making necessary adaptations in their management information system, staff training and development, and product roll out across their branch network. In addition, the financial institutions had a recurring cost of $27,000 per year for managing the WSS portfolio over and above their routine operating expenses. If the fixed cost of product development is ignored, then the financial institution can reach breakeven at a volume of 2,700 loans or $675,000 in outstanding WSS loan portfolio. However, if the product development costs, (assumed to be amortized over ten years) is included in the fixed cost, then the breakeven scale increases to 4,700 units or $1,175,000 in outstanding wash loan portfolio.

Given the small size and relatively small balance sheets, most financial institutions do not have adequate capital to make this upfront investment in product development. Thus, even though there is demand for WSS products and WSS financing can be profitable, availability of capital for upfront investment in product development becomes a bottleneck. This is where the catalytic role of funding from government or donors such as MasterCard Foundation becomes critical. By funding the technical assistance and product development cost support to the five FSPs in Kenya and Uganda, the MasterCard Foundation helped Water.org test out the viability of the WaterCredit model across these different institutions. Water.org played the critical role of FSP selection, market research, product development and providing the technical assistance to the FSPs. Because the product development cost was taken out from the breakeven point calculation, as many as three out of four financial institutions in Kenya could reach close

to or exceed the breakeven point. However, if the cost of amortizing the product development cost is included in the breakeven point calculation, then only two out of the four institutions- the larger financial institutions attain the breakeven point. For the smaller institutions, disproportionate concentration of exposure to any one sector is risky. So, they might continue to operate below breakeven point and may not attain sustainability.

Product development cost is a fixed cost. If it can be distributed/ amortized over a larger number of beneficiaries, then it can be sustainable. However, smaller institutions do not have the institutional financial capacity, management bandwidth and funding to go for scale in this product line. As a result, same amount of donor subsidy generates a much larger social return when deployed through a larger institution compared to smaller institutions. Since upfront product development costs can be significant, there is case for the government and donors to subsidize the product development cost, then financial institutions can take the product commercially to a large number of households.

The evaluation finds several cases where clients are going for repeat loans. While that may be a good indicator, a deeper examination reveals that they are going for repeat WSS loan, because the first loan was not adequate to buy a large enough water tank for their purpose. So, they first take a small first loan to buy a small tank (or just offered a small loan first) and then a bigger loan to buy a bigger tank. While for some clients, this incremental approach is less risky and more practical, other clients wanted to have the flexibility of access to larger loans to buy larger tanks. With high dependence on the water tank, a smaller tank does not provide adequate storage. This is where the financial capacity of the institution- to provide larger loan, flexibility in providing longer duration repayment for larger loans, risk management and liquidity management etc become crucial.
Four clear lessons emerge from this evaluation for structuring Water and Sanitation financing.

(i) By smart deployment of subsidy, government and funders can get the financial institutions attracted to WSS financing in a sustainable, market driven manner. Deploying about $3.6 million in donor funding resulted in enhancing access to water and sanitation for almost 385,000 people. The direct cost of enhancing access to WSS for each beneficiary comes at under $ 10 for the donor funds. The cost of water tank itself is a loan from the FSP, which is repaid by the borrower in installments along with interest. $ 3.6 million in donor funding catalyzed over $20 million in private capital deployment towards water and sanitation. In other words, every philanthropic dollar leveraged over six dollars in commercial funds towards enhancing WSS access.

(ii) With the right physical product and financial product availability, a lot of gaps in access to water and sanitation can be addressed by private capital.

(iii) Being successful in this business requires financial institutions that can do this at scale, because at smaller scale, it will not be viable, and

(iv) There are inherent limitations of the WaterCredit model. It can only work for people who can take and repay loan at market rates. It cannot serve the clients who cannot be reached by the financial institutions. In other words, WaterCredit model may not work with the clients who are considered high risk, or who are too far away from the bank branches. This is where new innovations will be needed. Water.org is exploring the use of digital technology and targeted subsidies to extend access to segments considered high risk by the financial institutions.

Role of public funding (funders, government) : how public investment in product development can generate public good rather than benefitting just a few companies. Market research and product development is a rigorous and expensive process. However, once this investment is made, then it can be used by several market players, not just one institution, provided there is a strong knowledge sharing and dissemination strategy. In a market systems development approach, there has to be a deliberate strategy for crowding in other market players, once a viable model has been tested by a few FSPs. While each

institution needs to undergo its own product development process, at least there is some market research information that can make it less expensive and faster for the new entrants to get into the market.

Even a successful model cannot be replicated without taking into account unique context
Deliberate strategies to facilitate learning for new institutions may reduce the cost of product development and time needed to roll out the product, as new institutions can learn from others. In Kenya, Water.org followed a rigourous market research and product development process across all four FSPs. Besides requiring a substantial investment, it also meant a significantly longer process before the products roll out. Learning from this, and using the tool kits that the Water.org team had developed in Kenya, their roll out strategy in Uganda was much faster. As a result, the timeline for product roll out in Uganda was cut down by more than half. However one must exercise caution in replication and scaling up, since a simple copy-paste solution may not work in a different context. In this case, while the expansion in Uganda was much faster, the FSP in Uganda did not do its homework right on the pricing model for the WaterCredit. As a result, their current product pricing is unviable and not sustainable. Due to limited market research, the FSP in Uganda could not anticipate strong demand from institutional clients resulting in much larger average loan sizes. So, on the one hand, their portfolio is not yielding positive financial margin. On the other, it has grown in size at a faster pace than anticipated due to larger than expected average loan size and composition of customer segments that is not limited to individuals and households. This will likely force the FSP to either slow down the roll out in order to cut their losses, or else, change the pricing to make it profitable.

What it means for FIs to have a WSS portfolio

The evaluations from the two countries shows that WSS financial products have the potential to evolve and cater to larger market segment where apart from households even institutions, entrepreneurs, manufacturers, water boards etc. could also become potential clients. Financial Institutions already have experience financing such clients with good repayment. This means they will not just attract old clients but also new clients.

- Except for one, all financial institutions had similar pricing (interest rate, fees and payment) for WSS loans as charged for other regular products. There was no element of direct subsidy in WSS financing.
- Financial Institutions report the operating expenses of the WSS portfolio at the same level as other products. However, there are some additional expenses related to monitoring particularly of toilets but then there is also some additional income in the form of commission for those FIs which have partnership with WSS product suppliers.
- The portfolio quality (measured by Portfolio at Risk Ratio - PAR) of WSS loans for all financial institutions is better than the overall portfolio quality of the institution.
- There is an increasing WSS loan disbursement trend that goes beyond targeted households segment like churches, schools and small businesses (hotels, food joints).

One of the key takeaways is that a rigorous financial analysis should be done to estimate break-even level for FSP at the beginning of the project itself. The analysis should guide the targets for the project in terms of number of disbursements and loan portfolio for FSPs. Ideally, it should be ensured that the WaterCredit portfolio reaches a financially sustainable scale within the project period of 3-5 years with donor support to the FSP. This particular WaterCredit program of Water.org shows the following results from the program evaluation:

- The WSS portfolio had not just helped in client retention but had also helped in new client acquisition. Organizations estimated that more than 20% WaterCredit clients are new.
- Across all institutions, most staff had received training on WSS. Financial institutions also had WSS champions to promote WSS awareness and outreach.
- All institutions had included WSS financing in their strategy, business plans as well as in budgets.
- Financial institutions were engaging with new partners like water purifier and water tank companies and developing partnership to smoothen product delivery.

- New departments and staff structures have been created for efficient delivery of WaterCredit.
- WSS loans were also included in staff performance appraisal.
- Flexibility in product design and adaptive capacity is needed
- Sufficient resources must be allocated to monitoring and evaluation and for follow up

From the facts, broadly it can be concluded that with a reasonable size of WSS portfolio there is a high likelihood for the WSS portfolio to be profitable. But it is important to understand that for executing a specialized product like WSS any FSP will need a team of people who can act as WSS champions or Managers to cover sensitization, promotion and leadership. They will help in technical capacity building, supplier management, efficient product delivery etc. The expenses pertaining to these staff are mostly fixed cost.
Another learning was that the way the product is structured within the organization also impacts its performance. Having a sponsor amongst the senior staff to champion the product within the organization ensures buy in and success. It was seen that organizations where credit operations department were not involved found it difficult to disburse WSS loans or create new clients for the WSS loans.

Spin off in WSS Financing - Rain Water Harvesting

WSS loan disbursements can have seasonality impact related to rain cycles. On geographic distribution, the parameters that affect were FSPs own outreach in different geographies, severity of water problem, opportunity to harvest rain water, supply of communal water and its reliability as well as socio-economic profile of the area.

Initially the FSPs did not include the rain water harvesting accessories but seeing the demand they started providing loan for gutters, sieve, and pipes. Many clients claimed that the mere water tank would not have been as beneficial as with the complete system of water harvesting structures. Flexibility in the product packaging to provide for this modularity in order to cater to diferent needs of different customers is key to customer satisfaction. For the FSPs and for the product supplier, it is important to think not just about provide the financing or the physical product to the client, but to think, how the product will be used and add value to the client. Taking this broader perspectivce, some FSPs also included cost of installations particularly in case of rain water harvesting structures. The strange thing about this was that rain water harvesting was not in the scheme of things to be promoted or capacities to be built for this. The graph below shows that disbursements of loans were high in Rift Valley and Eastern province of Kenya which receives ample rain in bimodal frequency but also is a water shortage area.

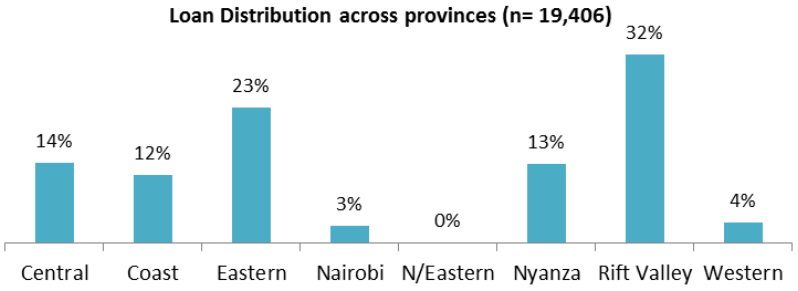

Figure 12:Geographical distribution of loans in Kenya

The big question is 'why have farmers not widely adopted these apparently cheap and beneficial practices in many other regions? It appeared that an improved communication during the loan process could have even further helped more clients both peri urban and rural to adopt RHT which will help both in drinking water as well as for animal rearing and subsistence farming. There are possibilities of taking this further at community level of better rainwater harvesting. Rainwater harvesting can be efficient as a complementary and viable alternative to large-scale water withdrawals, and reduce negative impacts on ecosystems services, not the least in emerging water-stressed basin.

Market segmentation

The WaterCredit program was initially conceptualized to cater to household needs of water and sanitation. However, as the project progressed, a common feature was that WaterCredit had demand beyond households as well, from different segments such as:

- Households for consumption: for creation of water and sanitation facility for family consumption
- Households for income enhancement: enhancing water facilities to be able to do some small water based business or homestead farming that could augment household income
- Small entrepreneurs: for establishing water based businesses or water kiosks
- Institutions: such as schools and churches for creation of WSS facilities
- Farmers and farmer associations: for creation of water facilities for drinking as well as irrigation purposes
- Landlords and small builders: for creation of water and sanitation facilities in their rental houses or small housing projects

Discussions with various WASH-NGOs and government institutions revealed that there were opportunities for WaterCredit for other client segments. These new client segments had demand for credit and this could ultimately lead to higher access of WSS facilities to households. These new client segments include:

- Water scheme operators: In rural areas mostly there were small water schemes like boreholes which were either created by government or by NGOs. These were then operated by entrepreneurs on fee basis and were governed by a local body elected from community called Water Boards. These water scheme operators required credit for maintenance, upgradation or expansion of such schemes. Due to lack of credit many a times the schemes become dysfunctional. Hence, WaterCredit had the potential to cater them as well.
- Private entrepreneurs: There were private entrepreneurs who wanted to develop water schemes or construct toilets and needed credit.

Since, the nature of these clients and need for credit are quite different, it provides opportunity for the FSP to further segment the WSS market and design more customized products for different clientele. Segmenting market and customizing products will help in reaching a larger market and in diversifying risks. FSPs can use the water credits to approach new segments of clients, to get more information and build close ties with the clients (customer loyality). Market segmentation will also provide an opportunity to vary interest rates across client segments (e.g. as subsidy on interest from government for the very

poor).

The findings suggest that WaterCredit had helped people in accessing improved water and sanitation facilities. Most of the borrowers in the study either lacked an improved source or had source which was not sufficient to fulfill the family requirements. Another major finding was the fact that water facilities created with the loan were not just being utilized for drinking purposes but people were increasingly using it for variety of household as well commercial purposes. Usage of water for animals, small poultry business, maintaining kitchen garden, homestead based farming and even selling was found to be common. 30% of the water loan respondents mentioned using water for some commercial activity. Further, people having water also shared it with their neighbors and friends. In 40% cases in the sample such observation was made. Similarly, in case of sanitation too people had benefitted. However, the most important aspect of having an improved sanitation that people felt was enhancement in dignity followed by health benefits and convenience.

Conclusions and Recommendations

Client perspective: Client feedback suggests the criticality of addressing the client preferences and perspectives in product design and delivery. As a whole, there was high level of client satisfaction with the watercredit product. In one FSP where the average client satisfaction was lower compared to other institutions, it was found that major cause of client dissatisfaction was the fact that the financial institutions was not including the cost of installation in the overall product cost and was providing financing only for purchasing the product. This caused significant discomfort for the clients, as they had to look elsewhere for the installation costs, which could be substantial. As a result, there were instances where a client has purchased a water tank, but could not secure money for the installation. The water tank remained unused in this case, while loan repayment for the tank starts right after the tank is purchased. So, clients are paying for the product without being able to use and benefit from it. Small adaptations in the tank design like pre-installed faucet, redesigned cover that allowed it to connect to the rooftop rainwater harvesting system also resulted in greater client satisfaction.

It is telling that clients are not only using water for drinking purposes, they are also using it for small kitchen garden or small income generating activities, water business itself, and also sharing with others. Example from Uganda also clearly identifies a huge untapped segments such as schools or churches who are using the products, but who were not really considered at the time of design. If the financial and physical product design takes into account the needs of different customers, the solutions may be even more useful and there may be more demand.

In a market driven approach like this, while the core objective of increasing access to water and sanitation remains unchanged, the messaging around it clearly needs to change to align with what clients value. In the customer feedback, highest number of responds the dignity that comes with sanitation solution more than any other aspect. It is ranked higher than health aspect, higher than convenience aspect, and it is ranked higher than saving time and safety. While for development agencies, it is the health outcomes and saving time is what would probably rank high on the list of priority. But since it is the client who is paying for the product, the appeal and demand for product could be significantly more if the concerned agencies included the dignity, and time saving aspects in their messaging.

Unintended client outcomes of the project

- **WaterCredit providing direct opportunity for income enhancement**

In rural areas many people were using the water facilities gained through WaterCredit loans for multiple purposes including drinking but also for farming and animal rearing around their houses. Similarly in urban areas, people were applying for loans to set up small water kiosks. These water entrepreneurs would use the loan to establish new water connections and storage facilities and then sell water in their community. Other clients came in for larger loan proposals involving the digging of boreholes to establish their water businesses.

- **Sharing Water:** 40% families in the total sample mentioned sharing water with people outside their family. Those families sharing water shared it with an average of five additional people beyond their family members.

Proliferation of water harvesting practices
The **majority of WSS loans have gone into creating new water harvesting facilities and the procurement of water storage tanks.** Therefore, the **availability of WaterCredit has significantly impacted the practice of water harvesting** in Kenya and Uganda.

It was found that given the nature of WaterCredit model it may not reach people who are from very low income segments or people with irregular incomes or residing in remote areas. This is an inherent feature of the model. However, selection of a poverty focused FSPs and segmenting market can still help reach poorer segments through WaterCredit. WaterCredit is highly relevant in context of developing countries where access to WSS services is still low. Design, packaging and delivery of financial and physical products as wll as follow up and monitoring are absolutely key to succss. As this is a core business of FSP's this is a key strengths of the approach. Water being indispensable has higher demand compared to sanitation which is more complex issue and does not have credit as the only bottleneck. Recent cholera outbreak seems to have positively impacted the demand for water purifiers due to massive campaign by government on need for clean drinking water. Many governments, we believe, will greatly benefit from such a model where the government can actively encourage FSPs with an enabling environment in promoting WSS loans through encouraging public-private partnerships to address the issue of WSS services in such countries.

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[i] This corresponds to an average effective interest rate of about 45% for the borrowers.