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Water, Sanitation and Microfinance Toolkits

Introduction to Opportunities in Water, Sanitation and Hygiene Finance



COLLABORATIVELY
CREATED BY

MicroSave
Market-led solutions for financial services

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Acknowledgments

Thanks to the support and vision of our generous partners, we are providing the tools necessary to jump start financial institutions, and others within the sector, to create access to water and sanitation loans for the world's poor. These partnerships are supporting the creation of scalable and sustainable models that will accelerate access to safe water and sanitation throughout the developing world. Collectively, our work is transforming the future with the most basic of needs – water and a toilet.



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List of Acronyms

CBO: Community-Based Organization

FI: Financial Institution

JMP: Joint Monitoring Programme

KWFT: Kenya Women's Finance Trust Limited

MDG: Millennium Development Goal

MFI: Microfinance Institution

NGO: Non-Governmental Organization

SME: Small and Medium Enterprise

SMEP: Small and Micro Enterprise Program

SSIP: Small-Scale Independent Providers

UNICEF: United Nations Children's Fund

VHC: Village Health Committee

VIP: Ventilated Improved Pit (latrine)

WASH: Water, Sanitation and Hygiene

WHO: World Health Organization

WSP: World Bank Water and Sanitation Program



Prologue

Overview of the Water, Sanitation and Microfinance Toolkits

Water.org and *MicroSave* have jointly developed a series of water, sanitation and hygiene (WASH) microfinance toolkits to provide the information and tools necessary for financial institutions (FIs) to develop products for financing WASH investments. The toolkits present essential information, principles and practices for successful development of WASH financial products and are designed to be applicable across a variety of markets, lending methodologies, and business models.

Toolkit 1: Introduction to Opportunities in WASH Finance

Provides global WASH context and information on household WASH needs and demands for WASH financing; introduces the major WASH systems prevalent among low-income populations and explains which are suitable for loan products; provides an overview of WASH stakeholders with which FIs might collaborate to support their WASH financial products; and identifies potential challenges and keys to success.

Toolkit 2: WASH Financial Product Development

Explores the product development process for researching, designing and launching successful WASH financial products, including market research, product design and pilot, and preparation for product rollout.

Toolkit 3: WASH Financial Product Marketing

Explores different marketing strategies and tools to ensure effective demand generation, particularly given high latent demand for WASH financing in the developing world; helps FIs create a marketing plan and explores the cost benefit of a marketing campaign.

Toolkit 4: WASH Process Mapping, Pricing, & Cash-flow Based Lending

Provides the tools for FIs to design effective processes for product delivery, introduces the concept of process mapping, and helps FIs identify the process risks in delivering WASH products. This toolkit also includes pricing a WASH loan product and assessing a client's ability to pay (household cash flow analysis).

Toolkit 5: WASH Portfolio Management

Discusses keys to successfully managing sustainable WASH products, including staff incentives, portfolio monitoring, and delinquency management.



Structure of the Toolkit

This toolkit, **Introduction to Opportunities in WASH Finance**, is the first of five toolkits developed by Water.org and *MicroSave* to strengthen and expand the finance sector's capacity to offer sustainable products designed to finance WASH investments. The content draws heavily from Water.org's practical experience, providing technical assistance to FIs over the past decade through its WaterCredit initiative.

The primary target audience of this toolkit is the staff, management, and board members of FIs, including those that already lend for WASH, as well as those that do not. By introducing the WASH sector and the opportunity for FIs to finance WASH investments, this toolkit endeavors to provide a foundation for the remaining toolkits. The objectives of this toolkit are to:

- Ensure a basic understanding of WASH technologies and services;
- Provide an overview of the scope and scale of the demand for WASH financing;
- Explain the role FIs can play in improving WASH access among their clients, as well as the benefits and challenges of offering these products;
- Introduce examples of WASH financial products that have been successfully launched by FIs; and
- Discuss alliances and partnerships that can be beneficial to FIs offering WASH financial products.

Chapter 1 sets the global context of water and sanitation availability, systems, and challenges, including the significant role that the absence of WASH access plays in exacerbating poverty. It also identifies reasons for limited WASH access among low-income communities.

Chapter 2 builds a case for FIs to offer WASH financial products, highlighting potential benefits to both clients and FIs and presents examples of FIs that have successfully developed and scaled WASH financial products.

Chapter 3 is a beginner's guide to various household water and sanitation systems, including a general discussion of the benefits and drawbacks of each technology.

Chapter 4 highlights potential WASH investments that are well suited to financial institutions and presents product examples from around the world.

Chapter 5 provides a basic overview of partnerships that FIs can pursue to support the effectiveness and growth of their WASH financial products.

About Water.org

Water.org is a non-profit organization that has transformed the lives of more than a million people in Africa, South Asia, Central America and the Caribbean by providing access to safe water and sanitation. Founded by Gary White and Matt Damon, Water.org pioneers innovative solutions, such as WaterCredit, to help solve the global water crisis, giving women hope, children health and communities a future.



WaterCredit by Water.org

WaterCredit is a microfinanced-based solution that first began in Bangladesh in 2003 and has since expanded into India, Kenya, and Uganda. Under WaterCredit, financial institutions have the flexibility to use their existing lending methodologies to develop products that finance locally appropriate WASH facilities. To date, WaterCredit loans for water access have financed network connections, protected wells and boreholes, water pumps, rain water harvesting systems, waterless toilets, and storage tanks. Loans for sanitation access have financed toilet and latrine construction, septic tank installation, and sewage network connections. Water.org is currently launching WaterCredit programs in Peru, Indonesia, and the Philippines and is exploring potential expansion to additional countries in Latin America, Asia, and Africa. Learn more at <http://water.org> and <http://watercredit.org>.

About MicroSave

MicroSave is a consultancy organization that offers practical, market-led solutions to financial institutions and corporations focused on bringing value to the base of the pyramid. *MicroSave* is at the forefront of efforts to move financial services from a product-led to a market-led approach. The market-led approach focuses on putting customers at the center of the business, improving customer loyalty, establishing more profitable organizations, and ensuring greater developmental impact. *MicroSave* works with investors, donors, financial institutions, private foundations, corporate businesses, and regulators to enable them to deliver the high-quality, affordable financial services that are essential for sustainable and inclusive growth. The organization's expertise includes strategy development and governance, product and channel innovation, organizational strengthening and risk management, investment and donor services, research, training, and dissemination of information and best practices. *MicroSave* has implemented projects across Africa, Asia, and Latin America. Learn more at <http://www.microsave.net/>



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Introduction to the Water, Sanitation and Hygiene Sector

This chapter provides an overview of the water, sanitation and hygiene (WASH) sector, including global water and sanitation access, the different water and sanitation service levels, the impact of low access to water and sanitation, and the reasons for limited access to water and sanitation among low-income communities across the developing world.

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The broad definitions of the three WASH components, as used by humanitarian and development practitioners, are:

- » **WATER:** Supply, storage and/or access to safe drinking water.
 - » **SANITATION:** Collection, storage and transportation of human waste.
 - » **HYGIENE:** Hygiene practices and educational instruction of such practices.
-

Access to WASH

Access to safe water and sanitation has been recognized as a basic human right by the United Nations. Still, as of 2011, an estimated 768 million people do not have access to improved sources of water, and 2.5 billion people do not have access to improved sanitation facilities.¹

The United Nations set specific WASH targets in 2000 under the Millennium Development Goals (MDGs). The targets are part of Goal 7 and seek to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation (see Figure 1). Progress toward these targets is monitored by the World Health Organization (WHO) and United Nations Children’s Fund (UNICEF), through the Joint Monitoring Programme (JMP).

MILLENNIUM DEVELOPMENT GOAL 7:

Ensure Environmental Sustainability

“Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.”

Indicators:

- Proportion of population with sustainable access to an improved water source, urban and rural
- Proportion of population with access to improved sanitation, urban and rural

Figure 1: Millennium Development Goal 7. Source: United Nations Millennium Development Project

Water Access

According to the JMP, the progress made from 2000–2011 indicates that the global water access MDG has been met, as 2.1 billion people have gained access since 1990. In absolute terms, as of 2011, more than 6 billion people across the globe have access to water. However, despite this enormous progress, more than 768 million people, roughly one tenth of the global population, still lack access to safe drinking water.

1 WHO/UNICEF JMP, “Progress on Drinking Water and Sanitation, 2012”

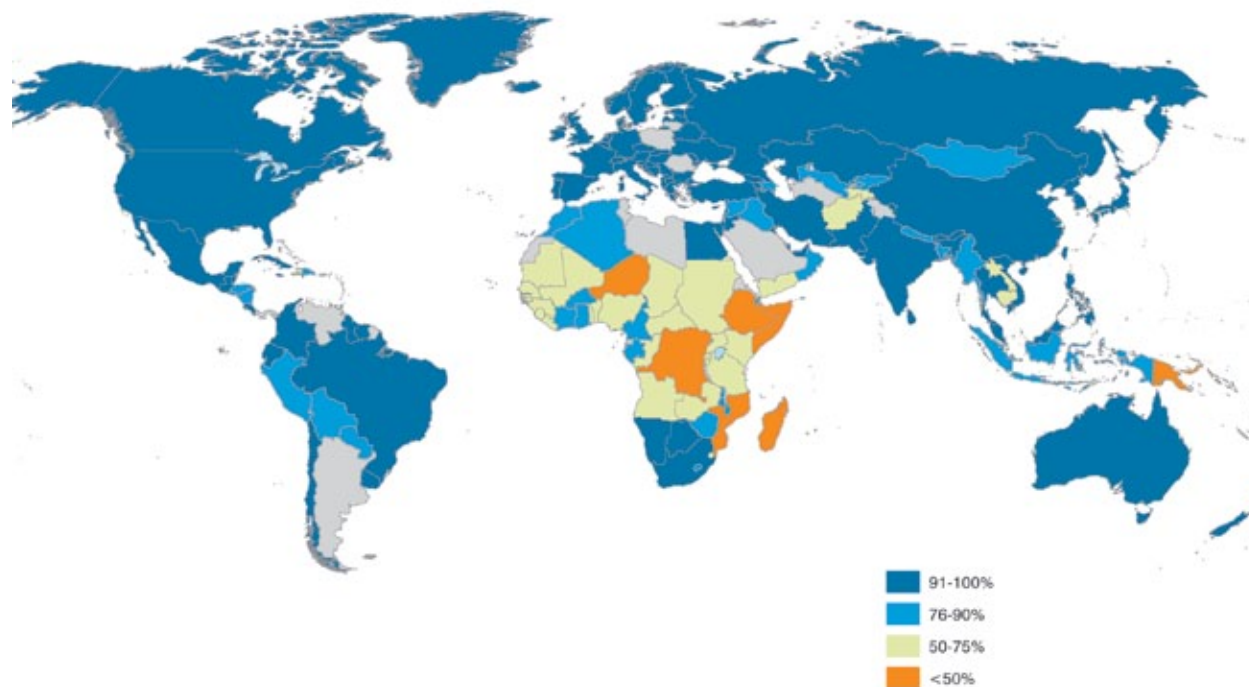


Figure 2: Global access to improved sources of water. Source: JMP 2012

Sub-Saharan Africa has the lowest safe drinking water coverage rates of any region, though some Asian countries also feature prominently on the list. In terms of total population without access to an improved water source, ten countries are home to two thirds of the global population without access:

- China (119 million)
- India (97 million)
- Nigeria (66 million)
- Ethiopia (46 million)
- Indonesia (43 million)
- Democratic Republic of Congo (36 million)
- Bangladesh (28 million)
- Tanzania (21 million)
- Sudan (18 million)
- Kenya (17 million)

Sanitation Access

According to the JMP, the progress made by 2011 indicates that the sanitation access MDG will not be met. Since 1990, almost 2 billion people have gained access to an improved sanitation facility, including 626 million in Eastern Asia. But as of 2011, only 63% of the world's population had access to improved sanitation; the MDG target is to reach 75% of the world's population by 2015. More than 1 billion people are projected to remain without access to improved sanitation by 2015.

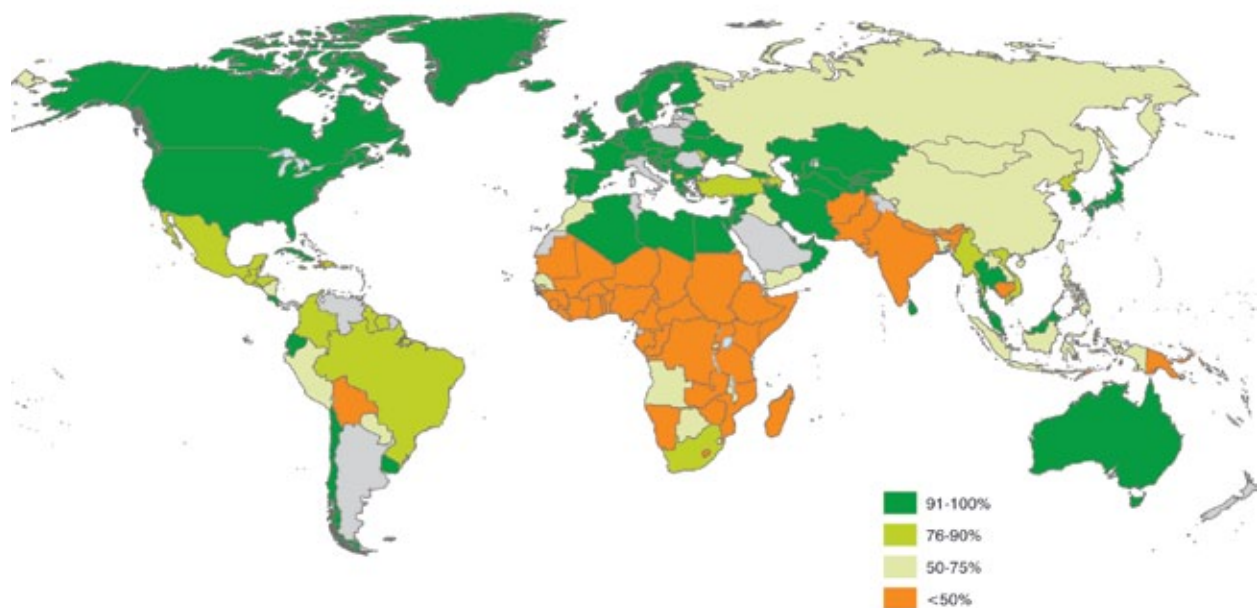


Figure 3: Global access to improved sanitation. Source: JMP 2012

Sub-Saharan Africa (30% coverage), where most countries have low coverage, and South Asia (41% coverage), where India and Bangladesh have particularly low coverage, are the two regions with the lowest rates of access to improved sanitation.

According to the WHO, poor WASH access causes more than 50% of the world's illnesses. Approximately 88% of global cases of diarrheal disease, for instance, are attributed to unsafe drinking water, inadequate sanitation, or poor hygiene, with children under 5 years of age constituting around 90% of total deaths due to diarrheal diseases. Poor WASH access has a significant impact on the economic conditions of developing countries, with inadequate WASH estimated to cost the world \$260 billion in economic losses annually.²

IMPROVED SANITATION:

The hygienic separation of human excreta from human contact.

² <http://environmentalwatchman.blogspot.com/2013/02/world-loses-260-billion-from-poor-water.html>

Understanding WASH service levels

“Service level” refers to the quality of the service received by a user from a particular water source or sanitation facility. Service levels provide a useful framework for understanding the different WASH systems used by households. The critical question for WASH practitioners is not whether people are getting water or using sanitation as such—since there can be no life without water, and people must use some form of sanitation, however minimal, to meet their daily needs—but whether the system being used is safe, hygienic, and adequate to support a healthy life. The JMP classifies water sources and sanitation facilities as improved or unimproved to provide a simple way to qualify the service levels of the various WASH systems,³ as follows:

Service levels of water



Figure 4: Service levels of water. Source: JMP

- **UNIMPROVED SOURCES** are not protected from outside contamination and include unprotected dug wells, unprotected springs,⁴ surface water (such as rivers, lakes, or ponds), and bottled water.⁵
- **IMPROVED SOURCES** are those that, by nature of its construction or through active intervention, are protected from outside contamination, in particular from contamination with fecal matter.

³ <http://www.wssinfo.org/definitions-methods/watsan-categories/>

⁴ An unprotected well or spring lacks a watertight casing to prevent contamination.

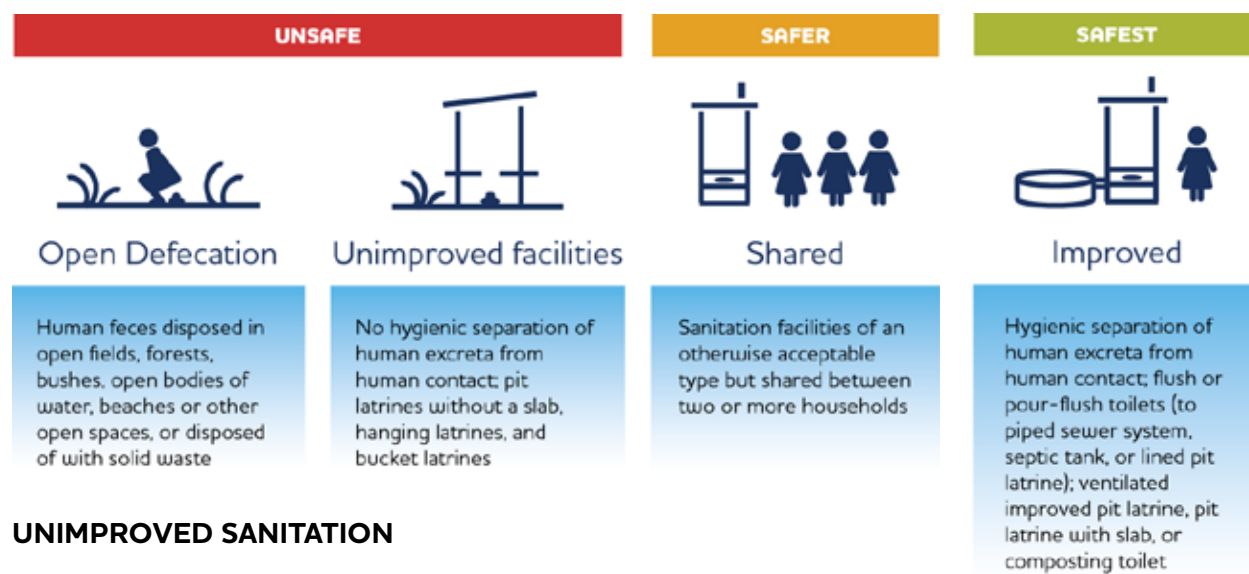
⁵ Bottled water is considered an improved source when the household uses another improved source for cooking and personal hygiene.

There are two types of **improved drinking-water sources**:

- Sources that are **pipled into dwelling** include piped water within the home, plot, or yard of the user.
- **Other improved sources** are public taps or standpipes, tube wells, boreholes, protected dug wells, protected springs, and collected rainwater.

Unimproved sources of water are the most unsafe, inconvenient, and costly. Other improved sources, though safer than unimproved sources, still require effort on the part of the user (such as standing in queues at public taps or the physical labor of carrying water from the source to the place of use). The maximum service level is piped into dwelling, as it is the most convenient and safest form of water access.

Service levels of sanitation



UNIMPROVED SANITATION

- **Open defecation** is the disposal of human feces in open fields, forests, open bodies of water, or open spaces.
- **Unimproved facilities** do not separate human excreta from human contact; includes makeshift latrines along open drainage that directly dispose of waste into the drain, pit latrines (square, rectangular or circular pits) without a slab (a structurally sound cover on the pit), and bucket latrines.
- **Shared sanitation facilities** may be otherwise improved (ensuring hygienic separation of human excreta from human contact) but are shared between two or more households. Shared facilities (such as public toilets) are not considered improved sources of sanitation because increased non-hygienic conditions and disease transfer occurs as a result of sharing.

Figure 5: Service levels of sanitation. Source: JMP

Water Source Examples



Unimproved sources: unprotected well and surface water



Other improved sources: public tap and rain roof



Sources piped into dwelling

Examples of Sanitation Facilities



Unimproved sanitation facilities



Shared public toilet in India



Private household toilet in India

IMPROVED SANITATION FACILITIES ensure hygienic separation of human excreta from human contact, including toilets connected to sewer networks, ventilated pit latrines, and toilets connected to septic tanks or leach pits (pits that collect waste and permit liquid contents to seep into the ground, but retain the solids).

Effects of WASH on poverty

Access to WASH can have diverse impacts on household quality of life and well-being, as well as national-level economic growth and development. According to World Bank estimates, every US\$1 invested in improving WASH conditions in developing countries brings an average economic return of US\$8 (in the least developed countries, the return can be as high as US\$34).⁶ Figure 6 explores how WASH access relates to the eight MDGs. Poor access to WASH facilities and services can adversely affect health levels, school attendance, gender equality, and livelihoods, thus continuing the effects of poverty.

IMPACT ON HEALTH: The mechanisms for transmission of waterborne diseases can be divided into short and long cycles. The short cycle transmits waterborne diseases from excreta to hand to mouth; the long cycle transmits such diseases through environmental pollution that results from improper treatment of human excreta. Both of the transmission cycles have widespread adverse health impacts.

Diarrheal disease is a leading cause of child mortality and morbidity in the developing world, and mostly results from contaminated food and water sources. According to the WHO, diarrheal disease is the second leading cause of death in children under 5 years of age.⁷ On average across the developing world, improved access to safe

MILLENNIUM DEVELOPMENT GOALS

1. Eradicate extreme poverty and hunger:

Access to WASH facilities improves living environments, enhances self-confidence and social status, helps improve the productivity of working family members, and decreases health-related expenses.

2. Achieve universal primary education:

Better WASH access results in improved hygiene, lower morbidity rates, and an increase in time for school and study, leading to better school enrollment and retention figures.

3. Promote gender equality and empower women:

Access to safe and clean WASH facilities improves women's dignity and safety.

4. Reduce child mortality: Better WASH access results in lower child morbidity and mortality due to lower rates of waterborne and sanitation-related diseases.

5. Improve maternal health: Better access to WASH facilities improves pre- and post-natal hygiene, decreases the risk of infection, disease and dehydration for mothers, and decreases need to perform high risk, labor intensive walking to collect water.

6. Combat HIV/AIDS, malaria, and other diseases: Improved WASH access helps reduce the risk of infection and morbidity due to vector-borne and waterborne diseases such as malaria and cholera.

7. Ensure environmental sustainability: Proper use of sanitation facilities prevents contamination of water sources.

8. Develop a global partnership for development: In an era of global economic linkages and cross-cultural exchanges, achieving a better standard of living across the globe calls for international partnerships in financial and technical assistance, including in sectors such as WASH.

6 <http://water.org/water-crisis/water-facts/economics>

7 <http://www.who.int/mediacentre/factsheets/fs330/en/>

Figure 6: Effect of WASH access on MDGs.
Source: United Nations Millennium Project

water sources reduces diarrhea morbidity by 21%, while improved access to sanitation reduces it by 37.5%.⁸

IMPACT ON EDUCATION: Illness resulting from poor WASH access can keep children out of school. For girls, the lack of proper school sanitation facilities can discourage attendance. Additionally, girls often help their mothers collect water, a responsibility which can prevent regular school attendance.

IMPACT ON GENDER: In addition to the impact on girls' education, women in developing countries are typically burdened with the household task of fetching water, which requires substantial physical effort and time. It is estimated that collectively, women spend 40 billion hours a year collecting water in sub-Saharan Africa. In addition, the absence of private sanitation facilities impacts women's security, as open defecation exposes women and girls to greater risk of sexual harassment and assault.⁹

IMPACT ON EXPENSES: Households without access to piped or other improved water sources often buy water from private water vendors at a significant premium. In the case of households reliant on unsafe water sources, such as surface water or unprotected wells, they must treat the water which adds cost. Treatment by boiling water using firewood or other fuels not only adds extra costs, it can also have negative health impacts related to indoor smoke. In addition, spending on medical expenses is typically higher as a proportion of the poor's income, relative to middle- and higher-income populations, due to higher rates of illness stemming from unsafe WASH practices.

IMPACT ON PRODUCTIVITY: Households that queue or travel to collect water sacrifice time that could otherwise be spent engaged in productive

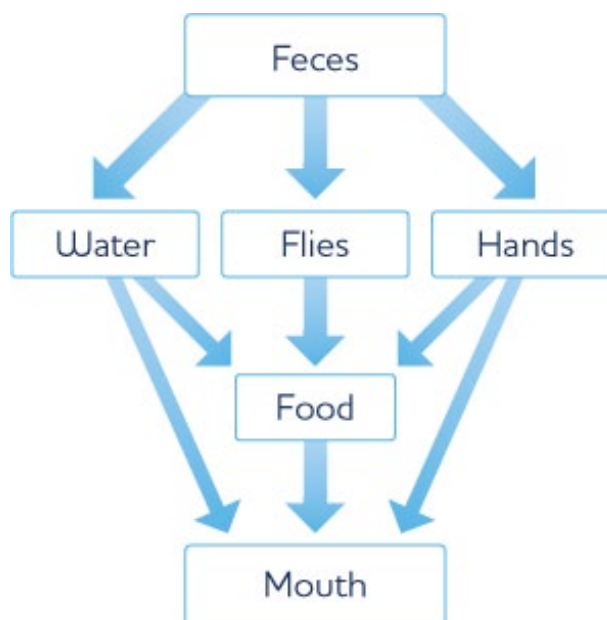


Figure 7: Fecal-oral routes of disease transmission. Source: International Water and Sanitation Center

8 http://www.who.int/water_sanitation_health/publications/factsfigures04/en/

9 World Bank, 2012

activities. Also, the effects of chronic diarrhea can lead to malnutrition, which can stunt cognitive and physical development and reduce long-term productivity.

Reasons for poor access to WASH among low-income populations

Low access to WASH can be attributed to factors including: inadequate public investment, poor public infrastructure, regional water shortages, inadequate financial tools for private household investment, lack of land ownership, lack of cultural understanding or emphasis on sanitation, and unsustainable approaches to increasing access to WASH. This section will take a closer look at each of these factors.

Inadequate public investments in the WASH sector

Funds for public WASH infrastructure investments are derived from three primary sources: tariffs, taxes, and transfers.

- **TAXES** collected by the various levels of government.
- **TARIFFS** paid by users to WASH service providers. These include payments by households to water and sewer utilities.
- **TRANSFERS** dispatched from international organizations to governments in the form of grants, concessionary loans, or guarantees—in general, development assistance—with the express or possible purpose of investments in WASH infrastructure and services.

Tax revenues collected by governments in developing countries are often routed to other sectors deemed higher-priority than WASH, leaving insufficient funds for investment in WASH infrastructure. Tariffs collected from WASH customers are generally sufficient only for maintenance of existing systems and are rarely adequate to fund capital investments required for new WASH infrastructure, such as extracting new water sources or laying pipe networks. Transfers from international donor agencies form a substantial part of WASH financing for some developing countries, but transfers are inconsistent and rarely adequate to meet demand for WASH infrastructure. In 2010, the WHO estimated that developing countries require \$18 billion annually to develop new WASH infrastructure and \$54 billion annually to maintain and service existing WASH infrastructure. The WHO estimated the actual annual spending in developing countries to be \$14–16 billion in total, illustrating the shortfall in public investment in the WASH sector.

Decentralization of the provision of water and sanitation services also affects public WASH investment trends. Development practitioners observe that when WASH services are provided by local, rather than central governments, services can be more context-appropriate and needs-based, assets may be better maintained, and the services are often more sustainable. Many developing countries have already decentralized, or are in the process of decentralizing, WASH service provision, but in many cases decentralization has been ineffective. One major challenge is the transfer of operational authority to the local level without the necessary transfer of technical expertise, funding, or human resources required to manage such responsibilities.

Poor public WASH infrastructure in remote areas and urban slums

Poor access to WASH is often a function of geography. In many countries, rural areas lack basic public infrastructure, directly impacting availability and affordability of WASH services in such areas. Poor local infrastructure increases cost and risk for WASH service providers and product manufacturers. According to the JMP, in 2010, an estimated 96% of the global urban population had access to improved drinking water sources, with 80% having piped connections. Just 81% of the rural population had access to improved drinking water, with just 28% via piped connections. Globally, out of the 768 million people without access to an improved source of water, approximately 637 million live in rural areas.

When considering access to sanitation, the disparities between urban and rural areas are even greater. Open defecation is still common in rural areas, with an estimated 900 million people globally still following this practice in rural areas, contrasting with 100 million people practicing open defecation in urban areas. It is important to note, however, that despite the relatively better WASH access in urban areas, many urban slums still lack piped drinking water and sewage networks.

Water shortages

Potable water is often limited due to environmental changes and water loss. Traditional river systems and water tables are drying up in many parts of the world, impacting both small rural areas and large urban centers. In rural Ethiopia, villagers often walk three hours to collect water from an unprotected river source, while larger cities in Egypt are facing challenges due to a decrease in the quantity of water from the Nile river. In many areas of India, local water utilities do not approve new household water connections during drought and dry seasons.

While environmental changes limit supply at the source, mismanagement and poor infrastructure often further reduce water quantity in the water system itself. According to the Asian Development Bank, every year Asia

loses around 29 billion cubic meters of water because of pipe leakages in substandard water systems—enough to fill more than 11 million Olympic-sized swimming pools. This leakage causes Asia’s water utilities to lose more than US\$9 billion in revenue each year. In Bangladesh, up to 50% of Dhaka’s water is lost due to leaking pipes.

Inadequate financial instruments to facilitate private household investment in WASH

Building a private toilet or securing a water connection requires upfront expenditures, which poor households are commonly unable to afford. For low-income populations, these investments are difficult to prioritize, given urgent needs such as food and healthcare. In most cases, poor households are willing to pay for the subsequent WASH-user fees post-installation, but cannot afford the upfront investment. Appropriately designed loans can help households finance upfront costs and repay over time; however, there is a lack of financial instruments designed for WASH investments. This topic is covered in more detail in [Chapter 2: Rationale for WASH Microfinance](#).

Lack of land ownership

Lack of land ownership amongst low-income populations is often a major barrier to accessing WASH facilities. It discourages household investment in WASH facilities, and the lack of title inhibits the ability to secure debt financing for new WASH facilities.

Lack of public emphasis on proper sanitation

Traditionally, in some developing countries, proper sanitation is not a high priority. In some parts of rural India, for instance, open defecation in fields is normal and is considered by some as beneficial for soil fertility. As the negative health impacts of such practices are not always fully understood by local populations, a significant commitment to hygiene and sanitation education is required to change entrenched attitudes towards sanitation and health.

Unsustainable approaches to increasing WASH access

Many development aid donors have historically pursued project-based aid, delivering assistance through finite, time-limited projects, usually through international non-governmental organizations. These projects often have specific goals and outputs that are easier to implement and monitor than longer-term efforts to build local capacity and strengthen local institutions. Results suggest that project-based aid is not necessarily able to sustain the expected benefits beyond the project life due to inadequate institutional arrangements and insufficient capacity-building of the communities to maintain WASH infrastructure. When projects end, communities often

slide back to their previous positions of limited access to water or sanitation services.

Summary of Chapter 1

- An estimated 768 million people do not have access to improved sources of water, and close to 2.5 billion people do not have access to improved sanitation facilities.
- Part of MDG 7 is to halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.
- WASH service levels for water and sanitation facilities:
 - Water sources range from unimproved (unprotected dug well), to other improved (public taps), to improved (piped into dwelling).
 - Sanitation facilities range from open defecation, to unimproved (makeshift latrines along open drainage), to shared (public toilets), to improved (ventilated pit latrines).
- Effects of WASH on poverty includes factors associated with overall health, education, gender equality, income, and productivity.
- Reasons for poor access to WASH include a lack of public investment in the sector, challenges facing urban slums and remote areas, water shortages, lack of land ownership, and the use of unsustainable solutions.

2

Rationale for WASH Microfinance

This chapter provides background information on the opportunities for financial institutions to finance household WASH investments.

The content focuses on the following:

- » Why microfinance for WASH?
 - » Microfinance providers' strengths relevant for WASH finance
 - » Benefits to financial institutions (FIs)
-

Why microfinance for WASH?

As highlighted in [Chapter 1](#), billions of people lack sufficient WASH access, and there is significant need for investment in WASH infrastructure at the community and household levels. Households that cannot afford to invest in WASH facilities are often left to rely on unsafe options such as surface water collection and open defecation. Microfinance providers are well suited to provide financing for household WASH investments, and evidence suggests that WASH financing represents a significant opportunity for FIs to strengthen their financial and social returns. A study sponsored by the Bill and Melinda Gates Foundation estimated global demand for microfinance for water and sanitation at over US\$12 billion between 2004–2015.¹

Microfinance providers have highly relevant goals, experience, processes and outreach to play a key role in increasing access to WASH facilities. As financial institutions broaden their services beyond business lending and develop products to more fully address their clients' diverse financial service needs, WASH financing emerges as a clear opportunity. The costs of household WASH facilities align very well with loan amounts commonly provided by microfinance institutions (MFIs). In India, for example, loans provided by MFIs commonly range from US\$100–\$1,000. Installation of a toilet in India costs approximately US\$250. For a low-income household, this is often a prohibitive upfront cost, and low access to appropriate financial products restricts households from investing in this type of improved WASH facility. Considering some FI's orientation toward serving poor households, microfinance is a highly applicable approach for bridging the financing gap and enabling households to invest in much needed WASH improvements. Some FIs have already seized this opportunity to better serve their clients. As part of a research project funded by Sanitation and Hygiene Applied Research for Equity (SHARE), researchers identified eight Indian FIs that have already made over 146,000 toilet loans as of 2013.

The potential benefits to a FI offering WASH financial products include deeper engagement with current clients, attracting new clients, improving client health and well-being, and healthy portfolio growth. Evidence from the field suggests that loans for WASH home improvements can earn similar returns when compared to products designed to finance business investments or income-generating activities. The cumulative repayment rate on WASH loans disbursed by Water.org partner FIs from 2007–2013 exceeds 98%. Due to the lower household water expenditures, time savings, and healthcare costs resulting from WASH improvements, like piped water connections and toilets, households are able to pay market-based interest rates on WASH loans.

1 Assessing Microfinance for Water and Sanitation, Meera Mehta and the Bill and Melinda Gates Foundation

Microfinance providers' strengths relevant for WASH finance

Microfinance providers employ business models specifically designed to provide financial services to the poor. Innovations in client outreach, lending methodologies and product design have enabled many FIs to overcome constraints to serving low-income populations. The following attributes are particularly relevant for FIs interested in providing WASH financing to those who need it most.

Purpose

FIs can provide low-income households with much needed liquidity to meet their investment needs. As mentioned previously, one key barrier to household WASH investments is a lack of cash to pay up-front costs.

Outreach

Microfinance providers, including MFIs, reach geographic areas and population segments that have traditionally been beyond the reach of the formal banking system—for example, populations in remote rural areas and urban slums. Relationships between microfinance providers and underserved communities can be leveraged to facilitate increased access to improved WASH services amongst previously hard-to-reach households.

Processes

Microfinance providers have pioneered a range of innovative lending practices, such as social-collateral-based lending and doorstep service delivery. The introduction of such practices has removed some of the structural barriers of access to finance among poor populations.

Strong understanding of low-income populations

Microfinance providers develop a keen understanding of their target clients' socio-economic backgrounds, including investment needs, challenges, and household cash flows. Due to their close relationships with clients, MFIs are well positioned to assess, monitor, and finance client WASH investments.

Experience as educators

Lending is just one aspect of microfinance; another is client education. Microfinance providers often train their clients in financial management, accounting, and other topics. Depending on the community, successful WASH lending may require a strong client-education component, not only related to financial literacy but also to hygiene practices and relevant water and sanitation technologies. Because of prior client training experiences, microfinance providers are usually well prepared to deliver WASH-related education.

Access to capital

Many FIs are able to secure commercial and/or social capital from investors and deploy that capital to low-income households. Commercial capital is essential to financing the enormous shortfall in WASH infrastructure investment.

Case Study of a WASH Microfinance Institution: GUARDIAN

Gramalaya Urban and Rural Development Initiatives and Network (GUARDIAN) is an MFI based in Tiruchirappalli, Tamil Nadu, India. GUARDIAN was established by the NGO, Gramalaya, which has more than two decades of experience in the WASH sector. Gramalaya provided loan capital to self-help group members to invest in household WASH infrastructure, and, seeing the demand, later provided more than 2,000 loans for household WASH investments in urban slums and rural areas. The success of the pilot sufficiently demonstrated that there was demand for WASH microfinance in both urban and rural areas. The pilot also highlighted the need for community awareness and hygiene sensitization programs, which Gramalaya carried out, in order to generate demand for sanitation. As Gramalaya was entirely a charitable organization, its leadership decided to form a new not-for-profit organization to extend WASH loans. The new entity, GUARDIAN, was set up in 2007 with initial grant support from Water.org. GUARDIAN was able to mobilize commercial bank funding from a local public-sector bank (the Indian Overseas Bank) and also attracted social investors such as the Acumen Fund and Milaap.



Number of borrowers	15,701
Cumulative loans disbursed	US\$5.5 million
Gross portfolio outstanding	US\$1.33 million
Portfolio at risk after 30 days	2.4 %
Women borrowers	100%
Operational self sufficiency	107.88%

Figure 8: GUARDIAN snapshot.
Source: MIX Market, 2013

An overview of GUARDIAN's operation:

- GUARDIAN is the only MFI in India that focuses solely on WASH finance. The products offered include credit for water connections, toilet construction, renovation of water or toilet facilities, rainwater harvesting and water purifiers.
- GUARDIAN believes that there is significant unmet demand for WASH microfinance in India. Since its inception, GUARDIAN has disbursed US\$5.5 million in just one district of the state of Tamil Nadu, demonstrating the potential of the model. Nonetheless, GUARDIAN recognizes that demand for WASH financing is not always immediately evident, due to lack of awareness of proper WASH practices among the general population. As the CEO of GUARDIAN notes: “We assess the data available on WASH coverage; if we have the data that only 40% households have toilets, we consider that there is a demand from 60% of the households. The demand could be latent but can be turned into active demand with an awareness campaign.”
- GUARDIAN identifies villages or slums that require interventions, then uses joint liability groups or self-help groups to promote WASH financing. In a given area, GUARDIAN may coordinate with Panchayat² presidents to activate latent demand. GUARDIAN has observed social changes through a ripple effect caused by its WASH financing program—villagers come forward requesting loans for WASH facilities once they've seen how loans have improved their neighbors' WASH access.
- GUARDIAN has received global recognition for its work. In September 2011, the organization was honored with an award for Best Product Innovation from the European Microfinance Network. Several MFIs and WASH stakeholders have visited GUARDIAN's projects to learn from its experience.

What are the benefits to financial institutions offering WASH financing?

High demand

Globally, an estimated 768 million people still lack any access to safe water and 2.5 billion people—more than one in every three people—lack access to improved sanitation. Water collection and health problems related to poor sanitation impose significant time and productivity costs. Client financial service needs extend well beyond business loans, and products for financing investments in basic needs, like improved water and sanitation, are well received by low-income customers.

2 Panchayat is the village government; its members are elected by the village itself.

Increased outreach

Provision of WASH financial products can enable FIs to reach new market segments. For example, Bank Syariah Mandiri, an Indonesian commercial bank with retail microfinance operations, began offering loans for water connections and reached 2,000 new households in the first year. The Bill and Melinda Gates Foundation estimates that in India alone, 54.2 million households need financial assistance for the construction of individual toilets, and 88.2 million households need financing for piped water connections.³

Deepening engagement with existing clients

Offering new products to existing clients is a cost-effective option for increasing revenues. WASH financing provides FIs with opportunities to deepen their engagement with existing clients and establish long-term relationships. Grameen Koota and Evangelical Social Action Forum (ESAF), two mid-sized microfinance institutions in India, report that their WASH financial products have helped them retain clients, while two Kenyan MFIs—ECLOF Kenya and Small and Micro Enterprise Program (SMEP) DTM—credit their WASH financial products with improving overall customer loyalty, and clients' living standards.

Low risk

When WASH products are well designed, they are no riskier than the typical microenterprise loan. Water.org partners have a cumulative WASH loan repayment rate exceeding 98% since 2007. Furthermore, by offering additional loan products to serve multiple needs of their clients, FIs can reduce the chance of loan misuse, like building a toilet with a loan intended for a business, which is one of the foremost drivers of loan-default risk.

Profitability

WASH loan products do not require subsidized interest rates. The world's poor pay on average five to ten times more for water than their middle-class neighbors and spend significant time obtaining and transporting water.⁴ Many pay to use sanitation facilities or spend earnings to cover health expenses resulting from poor sanitation. When WASH improvements reduce these cost and time burdens, existing household revenues are freed up to cover the cost of loan repayment. Consequently, FIs are able to offer WASH products at market-based rates and generate additional operating income.

3 Microfinance India – State of the sector report 2012

4 United Nations Development Programme. *Human Development Report 2006, Beyond Scarcity: Power, poverty, and the global water crisis.*

Improved client health

Poor WASH access is likely to lead to more frequent illness and higher medical expenditures. Because poor health can negatively impact the ability of the borrower to repay their loan, improving a household's access to WASH is clearly in the best interest of a financial institution.

Contribution to FIs' social missions

WASH finance helps FIs improve their social performance in several ways:

- Offering needs-based products – access to safe WASH is a fundamental need of every household
- Better targeting of the poor
- Health and social impact on clients – providing access to WASH improves client hygiene, women's dignity and safety, and the social health of the community at large

Opportunity to expand into housing finance

The housing finance market for low-income populations is largely untapped by formal financial institutions. FIs that offer loans for WASH can leverage this experience into housing and home improvement financing more broadly. For instance, Water.org partner FIs in Kenya are planning to collaborate with local construction firms to install low-cost toilets. Loans requested by these clients will be disbursed directly to the construction firms. For FIs, such arrangements can provide multiple benefits:

- Reduced opportunity for loan misuse
- Reduced construction risk – FIs can evaluate and select construction firms
- Reduced costs for clients – FIs can negotiate bulk discounts with construction firms

Opportunity to work with government

FIs offering WASH financing can build strong relationships with local and national governments, and simultaneously leverage government programs and resources to strengthen their WASH financing efforts. For example, Water.org partner FIs in India and Kenya receive WASH marketing materials from their government counterparts and are able to take part in capacity-building and training programs conducted by governmental WASH experts.

Summary of Chapter 2

- A study sponsored by the Bill and Melinda Gates Foundation estimated global demand for microfinance for water and sanitation at over \$12 billion from 2004–2015.
- Microfinance providers have highly relevant goals, experience, processes and outreach to play a key role in increasing access to WASH facilities and the poor lack the up-front capital to make lump sum investments necessary for WASH improvements. When FIs and the poor work together, WASH improvements can become a reality.
- Strengths of microfinance providers that can be leveraged for WASH financing include: existing outreach efforts, processes, a strong understanding of low-income populations, experience as educators, and access to capital.
- The benefits to FIs offering WASH financing include a high demand for the products, increased outreach to new market segments, deepening engagement with existing clients, low risk, profitability, improved client health, improvements to the FIs' social performance, and opportunities for expansion to new product offerings and partnerships.

3

Introduction to Water and Sanitation Systems

This chapter briefly presents the features of common WASH technologies in use across the developing world. The chapter does not delve into detailed technical design or construction aspects, but provides an overview of basic concepts and the strengths and weaknesses of different water and sanitation technologies.

Highlights include context, benefits and drawbacks of:

- » Types of Water Systems and Sources
 - » Types of Sanitation Systems:
 - User interfaces
 - On-site and off-site collection and storage components
-

Municipal or public utility drinking water supply system

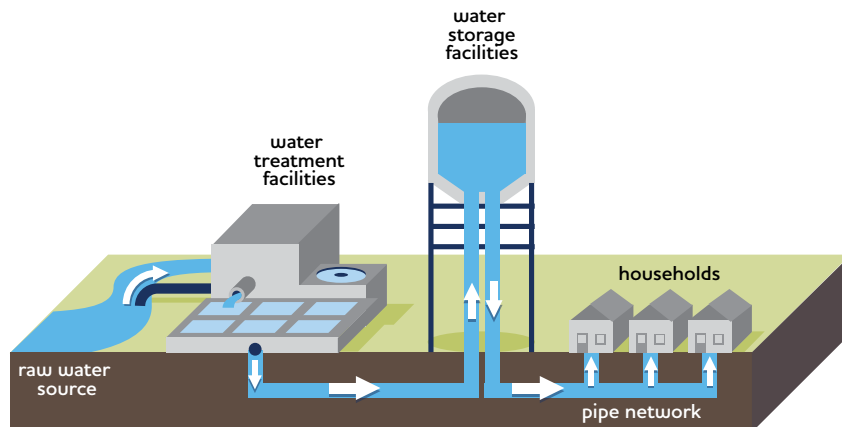


Figure 9: Diagram of basic water supply system components

Most countries have regulations that require municipal or public water utility companies (owned by local governments) to provide water to their residents. A typical municipal water supply system includes the following components:

- **Sources of raw water:** Places where water accumulates either above or below ground. Common raw sources for drinking water include lakes, reservoirs, rivers, springs, and underground aquifers.
- **Water purification and treatment facilities:** Raw water must be treated to make it safe for drinking. Purification and treatment facilities are an intrinsic part of most urban water supply systems but may not be present in rural water supply systems.
- **Water storage and water pressure maintenance facilities:** Water must be stored within the system and released when needed. Water is generally stored in tanks, towers, or pressure vessels. Water pressure needs to be maintained to ensure that water travels throughout the network, overcoming elevation differences and friction within the pipes. In large supply systems, water is pumped to maintain the pressure in the pipe network.
- **Distributed pipe network:** Treated water is delivered to the end user (such as a household's water connection) through a network of pipes, which can be divided into three major types:
 - The primary network consists of large pipes (or water mains) supplying water from the pumping stations and storage facilities to various areas of the city.
 - The secondary network consists of pipes which run between primary network pipes.
 - Tertiary or small distribution networks supply water at the doorstep of the end user, enabling household connections to the network.

Context for use:

- The most advanced public utility drinking water supply systems are located in dense urban areas.
- Relatively higher incomes in urban areas increase potential for revenue generation, allowing for higher upfront infrastructure investment with reduced risk.
- Dense populations, especially in urban areas, provide a significant technical challenge in terms of delivering large quantities of high quality water at peak usage times.
- Typically, a full-fledged system is beyond the scope of WASH microfinance; government and/or commercial financing may be needed to set up and manage such systems. However, there is high potential for financing household connections to municipal networks.

Benefits:

- Convenient access to piped water; 24-hour access in well-run municipalities.
- The presence of water treatment facilities in municipal/public supply systems ensure that water is of a high quality.

Drawbacks:

- High upfront costs for infrastructure installation form a significant barrier in extending systems into thinly populated areas, remote rural areas, and unrecognized or illegal urban settlements.
- Piped water systems run the risk of waste if proper metering and pricing are not used to discourage over-consumption.
- Generally, the piped water supply is a natural monopoly wherein supply is controlled by one provider and therefore may suffer from such problems as inefficiency and poor service quality.
- Effective pricing of water tariffs, especially in municipal systems, can be undermined by politics, as there is a conflict of interest between the utility's incentive to charge enough for reliable provision of quality water and government officials' incentive to lower tariffs to garner public support and remain in office.



Taking Water Home: Household Connections to Piped Water Networks in India

During a survey conducted by MicroSave in 2013, representatives of the Dharwar Municipal Corporation in the state of Karnataka, India, estimated the cost of installing a piped water connection to a house to be between US\$130–300, depending on the quality of the pipe materials purchased and the distance of the house from the water network. The cost breakdown is roughly \$65 in connection fees, \$16 for the water meter, \$40 for the minimum pipe materials (assuming close proximity to a water main) and \$10–180 for additional piping (if needed), installation and labor. Survey respondents noted that households are willing and able to pay this amount but many find it difficult to pay the entire cost in one lump sum.

Above: Water brings happiness. A woman in Assam shows us her new water point.

Community-managed water supply systems

In many developing countries, peri-urban and rural areas do not have access to piped water from municipal or public water utilities. In these areas, community-managed water initiatives frequently evolve and range from managing a small water supply source (such as a publicly shared “communal” water tap or well) to managing a piped water supply system with individual household connections. The funds required to develop community-managed water supply infrastructure tend to come from a variety of sources, including community funds, individual households, government programs, donor agencies, and NGOs. The ongoing operational and maintenance costs are generally borne by members of the community.

Context for use:

Since the scale is typically smaller than a municipal piped water system (typically a few hundred or a few thousand households versus an entire city which could be as large as millions of households), the level of technical complexity in managing the procurement, storage, and distribution of water is generally lower. The capital investment costs are also lower, relative to large municipal systems, implying that the necessary financing may require micro, small or medium-sized loans.

Benefits:

- Piped water supply is available for populations not served by government providers.
- In many cases, costs for initial setup and ongoing maintenance are borne by the community members (at least partially), fostering a stronger sense of ownership and encouraging maintenance.
- These systems may be more independent of political interference than municipal systems owned by local governments.
- Community-managed systems typically have the independence to set tariffs at appropriate levels, ensuring both affordability and cost recovery (and, in turn, financial sustainability).



Figure 10: A community-managed water supply system in Malang, Indonesia

Drawbacks:

- The community’s capacity to manage the technical operations and the business aspects of the water supply system may be weak.
- Community-managed systems are susceptible to influence of tight-knit family networks that can lead to lax enforcement of payments by family members and friends.
- In many countries, there are no clear legal guidelines for registering community-based organizations. This lack of legal clarity can prevent such organizations from accessing financing to make the capital investments necessary to expand operations.

Government-managed community taps

Community taps (or public taps) are installed by municipal and local governments to draw water from a source such as a piped municipal system or an underground aquifer to serve a group of households. Community taps are commonly seen as a low-cost means of providing water to low-income communities compared to the extension of a piped network. In countries such as India, the water supplied through these taps is often free to users.

Context for use:

Community taps are primarily used where there are impediments to installing tertiary pipe networks to connect poor households to the municipal public drinking water supply system. They are most common in urban slums, where municipal utilities find it difficult to connect households due to unclear land titles.

Benefits:

- Households without piped connections can access safe water.
- Water is available to all; identity cards or proof of address are not required.
- Costs incurred by households are lower than when buying water from private vendors.
- Community taps serve as an effective means to facilitate access to piped water in locations where the extension of tertiary pipe networks is not possible.



Figure 11: A community tap in Jodhpur, India

Drawbacks:

- Users incur time and labor costs in queuing and carrying the water to their homes.
- Disputes over who has priority to access the water may arise in places where the service is intermittent.
- The volume of water available to each user is likely lower than with direct household connections.
- Repairs to malfunctioning community taps may be delayed due to local government inefficiencies.

Small-scale independent providers

Small-scale independent providers (SSIPs) are for-profit entrepreneurs who supply water to areas where municipal or community-managed sources do not fully meet local demand. SSIPs often access a water source and sell water in jerry cans, which are typically five- or ten-liter containers, or through small privately-owned piped water systems. The price levied by SSIPs is often higher than that levied by municipal utilities, but low-income households pay the premium in return for the convenience of water delivery or potentially higher water quality.

Context for use:

- SSIPs evolve in markets where there is inadequate provision of reliable, safe drinking water by public utilities, and where communities lack sufficient cooperation or the resources to provide a community-managed solution.
- SSIPs are most prevalent in urban and peri-urban areas where there is a lack of accessible natural water sources. Households often purchase drinking water from SSIPs while using other sources for bathing, washing, and cleaning.

Benefits:

- Direct delivery of water to homes eliminates time and effort associated with obtaining and transporting water from other locations.
- Households without access to piped water can still obtain minimum amounts of safe water.
- Daily or weekly payments to water vendors may be more manageable for low-income households than the monthly water bills from public utilities.
- Households may enjoy greater flexibility of payment options, as well as the possibility of obtaining service on credit.



Figure 12: Water vendor in Kenya. Source: Affordable Housing Institute

Drawbacks:

- Water quality may not be monitored by any regulatory body.
- Customers typically pay a higher amount per liter of water relative to prices charged by regulated utilities.
- High prices restrict low-income customers to consumption of a few liters per day.
- Governments may be less motivated to invest in publicly-owned water supply infrastructure where SSIPs already serve community demand.

Self-provision

Self-provision is the private investment undertaken by households to provide for their own water needs without the benefit of any public or community-managed water system. The absence or inability of institutional service providers to deliver quality service, especially in rural areas, leads to self-provision. Solutions include dug wells, bore wells, rainwater harvesting structures, or collection of surface water. The utilization of water-purifying equipment is also a form of self-provision, as the water supplied by municipal utilities in many countries is not safe for drinking.

Context for use:

- Some forms of self-provision can occur even in areas with public water supply. It is necessary when the quality, quantity, or price of water is not satisfactory to consumers.
- The cost of many of the common solutions aligns well with microfinance loan sizes.

Benefits:

- Self-provision can complement other, more expensive sources to reduce overall household water expenses (e.g. well water for cleaning and bathing and SSIP water for drinking and cooking).
- Water costs may be lower compared to municipal piped networks or SSIPs.
- High incentive to maintain infrastructure.



Figure 13: An open well in Ghana

Drawbacks:

- Water quality problems may go undetected.
- Seasonal variations in quality and/or quantity (e.g. dry wells during summer months) may reduce supply reliability.
- Potentially high upfront costs to access a water source and install infrastructure.
- In cases where households rely on unimproved sources—like surface water—time, labor and health costs may be high.

Introduction to sanitation systems

Sanitation systems include technologies used for the collection, storage, transportation, and treatment of human feces and urine.

Broadly, a typical sanitation system consists of two components:

- The **USER INTERFACE COMPONENT** is the portion of the sanitation system with which the user interacts.
- The **COLLECTION AND STORAGE COMPONENTS** are the technologies used to move and store human waste away from the home.

User Interface Components

The basic user interfaces are described below and comprise the portion of the toilet/latrine that a user will come into direct contact with.

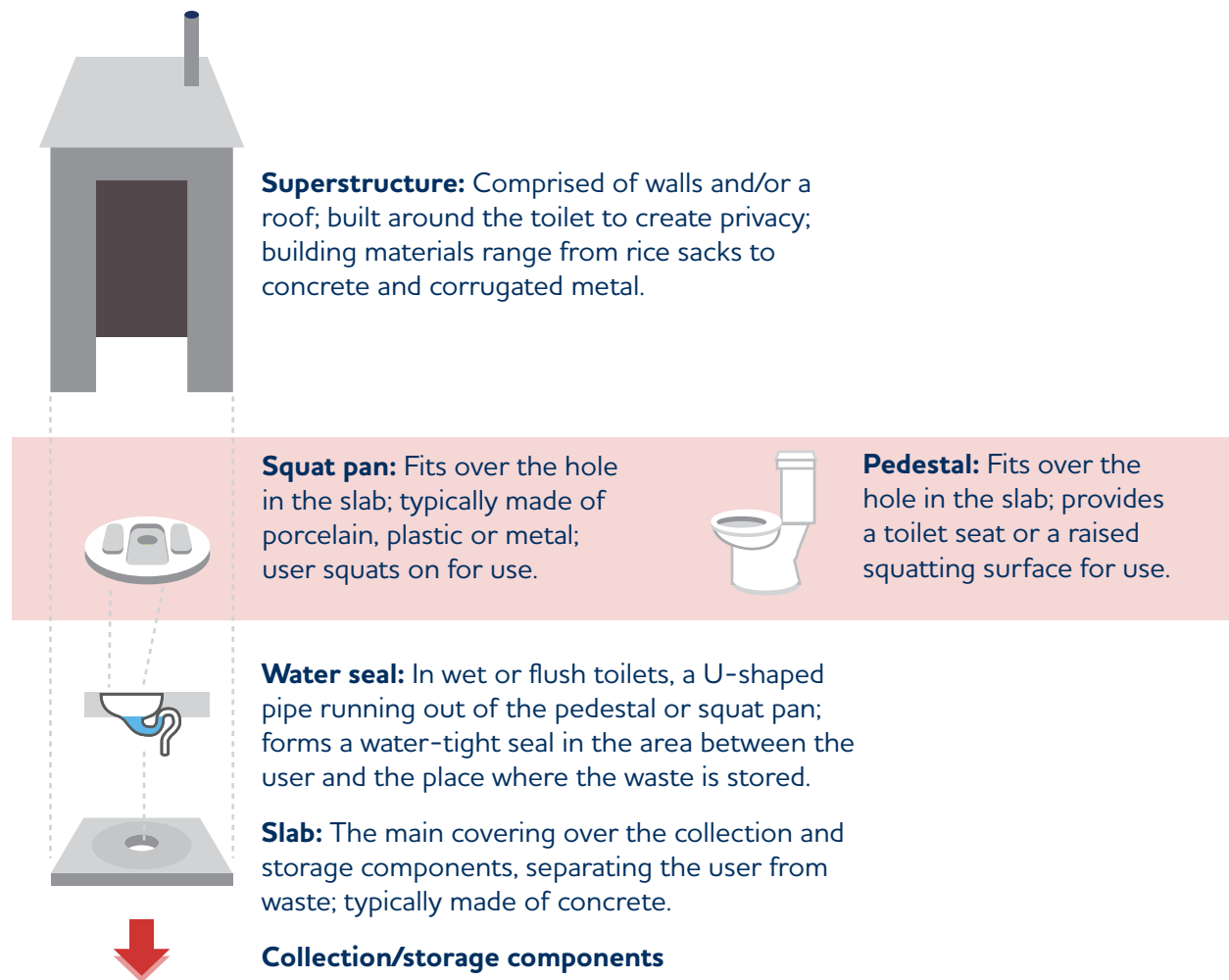


Figure 14: User interface components

Dry versus flush interface

Toilets and latrines are considered to be either dry or flush, based on whether water is involved in flushing waste. The following chart explains the benefits and drawbacks of each option.

Dry		Wet/Flush	
<p>Characteristics: Doesn't require water. With the exception of "Eco-San," dry toilets are typically pit latrines with a concrete slab over one or more pits.</p>		<p>Characteristics: The water seal is the defining characteristic, as it prevents odors and insects from passing between the user interface and the collection/storage area. After defecation, users pour water down the "trap," flushing all excrement into the collection/storage systems and forming a water seal.</p>	
+ Benefits	- Drawbacks	+ Benefits	- Drawbacks
<ul style="list-style-type: none"> No water seal or flush and maintain Simplest form of sanitation systems Easily installed and built with locally available materials Lower cost to build Suitable for arid areas 	<ul style="list-style-type: none"> Due to a lack of a water seal, dry systems may emit foul odors (depending on the ventilation), which can discourage use Dry interfaces are typically over pits that can fill up and require new pits to be built while decomposition takes place; the new pits require space that is often unavailable in urban areas 	<ul style="list-style-type: none"> Users view these types of systems as desirable due to their ease of use and absence of odor Easier to clean, since water can be used 	<ul style="list-style-type: none"> Requires significant amounts of water Materials to build may not be locally available Creates a significant amount of contaminated wastewater, which can pose health and environmental problems if not captured and/or treated properly



Collection and storage components

The rest of this chapter is devoted to the different collection and storage systems. These systems are generally classified as on-site and off-site systems.

ON-SITE SANITATION SYSTEMS are most common within low-income communities in the developing world. A typical on-site sanitation system has a toilet directly connected to a storage unit, like a pit or septic tank. Human waste is collected in the storage unit until it is filled, whereupon it is covered and replaced, or emptied manually or by a vacuum truck.¹

OFF-SITE SANITATION SYSTEMS consist of a toilet connected to an off-site storage or treatment facility through a gravity-based sewer network. If the waste is collected at an off-site storage facility, such as a community septic tank, it must be cleared from the septic tank periodically—either manually or by vacuum trucks—and transported to a treatment facility. Off-site sanitation systems require significant investment for construction and are thus generally provided by governments.

Collection and transportation of waste

The user interface sits atop the different technologies for the collection and removal of waste described in the following section. As noted earlier, these technologies are either on-site or off-site sanitation systems. All systems described are on-site, with the exception of septic tanks, which can be both, and gravity-fed sewer networks, which are off-site only.

1 Vacuum trucks are generally operated by municipal authorities or private companies to empty the septic tanks of household and community toilets.

On-site sanitation systems

Single pit

A single-pit system is comprised of a fully lined or semi-lined pit attached directly to the user interface. The pit is dug below ground, and the lining (typically concrete or bricks along the walls) prevents the pit from collapsing, while also preventing insects from entering the pit through the soil, thus reducing the chances of contamination. The floor of the pit is typically unlined, allowing liquids to drain into the ground, which, coupled with natural degradation of the human waste, delays the filling of the pit.

A well-designed single pit can take many years to fill, depending on the pit depth, the surrounding soil type, and the number of users. Typically, pits are three meters in depth and one meter in diameter; an average pit with those dimensions would take a family of five approximately three years to fill. The drainage of the liquids into the ground does pose a risk of contamination of the groundwater. Consequently, this system is not appropriate for areas with high risk of flooding or a high water table. According to WHO standards, there should be a distance of at least two to three meters between the bottom of the pit and the water table, and the pit should be at least 15 meters away from a ground-water source (such as a well).

Context of use:

Single-pit systems are usually cheaper than other storage and removal systems and are common among low-income populations.

Benefits:

- The single pit is easy to construct with locally available materials.
- If the pit is properly designed, it can take several years to fill.
- The threat of disease transmission is lower than with open defecation, as users are protected from exposure to human waste.



Figure 15: Single pit with pour flush toilet

Drawbacks:

- In densely populated areas, the soil may become saturated with contaminated water due to higher use of the system, posing a risk of groundwater contamination.
- If a new pit cannot be dug, human-managed extraction is required for clearing the waste, which can be prohibitively expensive and expose the pit cleaner to non-degraded human waste.
- Dry pits connected to user interfaces without water seals may smell or pose insect problems. Also, the excreta pile might be visible if the pit is not very deep, rendering the toilet repellent to some users.

Dual pit

The dual-pit collection system consists of two pits connected to a pour flush or dry toilet. Excreta flow into one of the pits at a time; once a pit is full, the connection to the toilet is moved to the second pit, and the first pit is allowed to decompose for approximately two years. At the end of this period, the waste is converted into soil-like compost that can be excavated manually.

Context of use:

Dual pits with unlined floors also drain water into the surrounding soil making them inappropriate in areas prone to frequent flooding or where the water table is high.

Benefits:

- The decomposed fecal matter is easier to remove than the partially decomposed sludge of a single-pit system, and users do not need to hire professionals to remove the decomposed fecal matter.
- The decomposed fecal matter can be used as fertilizer, providing a potential economic gain to users through cost savings and enhanced agricultural productivity.

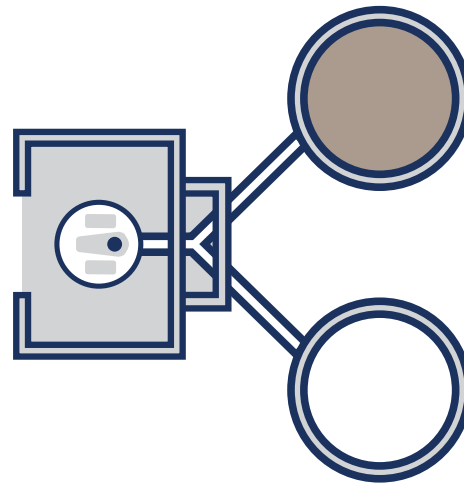


Figure 16: Top-view plan of a dual pit system

Drawbacks:

- The system requires user education for proper installation and maintenance, including instruction on pit construction and placement.
- Requires more space than single pit system.

Ventilated improved pit (VIP)

The VIP is a single pit latrine with several design features to reduce odors and disease transmission by insects. These include the addition of a ventilation tube that protrudes through the slab, as well as netting on the vent pipe to reduce fecal contamination by insects. Well-designed VIP systems offer a clean and cost-effective alternative to dual-pit and septic tank technologies. Continuous airflow through the superstructure and above the vent pipe removes smells from the pit and vents gases out of the facility. The darkened interior in the superstructure prevents attraction of insects from within the pit, instead drawing them toward the daylight source at the top end of the vent pipe. The top of the pipe is blocked with a fly screen to prevent insects from escaping from the structure and transporting pathogens.

Context of use:

VIPs are suitable in all areas where dry systems are suitable, particularly in regions of scarce water supply.

Benefits:

- Odors, flies, and insects are reduced compared to non-ventilated pits.
- VIPs do not require a constant source of water.
- Construction is simpler than for dual pits or septic tanks.



Figure 17: Ventilated improved pit.

Source: <http://helid.digicollection.org>

Drawbacks:

- The excrement in the pit is untreated and requires secondary treatment.
- Manual emptying of the pit will incur costs and expose the pit cleaner to non-degraded human waste.
- VIPs cannot be within the home, as there is a need for continuous airflow through the structure.

Dry-composting/“Eco-San” toilets

Composting and/or “Eco-San” toilets are “dry” latrines that do not require water for flushing and capture fecal matter in a water-tight container for decomposition. Upon full decomposition, the resulting material can be removed from the composting chamber and used as fertilizer, providing additional economic benefit.

Context of use:

- Appropriate in areas with high water table, limited space or lack of sewage network.
- Beneficial in agricultural areas in need of nutrient-rich fertilizer.

Benefits:

- No water required.
- Produces fertilizer material.



Figure 18: Reaping the rewards of a composting toilet

Drawbacks:

- Proper removal of waste matter requires some training.
- Requires more frequent emptying than pit or septic tank.
- Not always culturally appropriate/acceptable to use human waste as fertilizer, even after complete decomposition into soil.

Septic tank

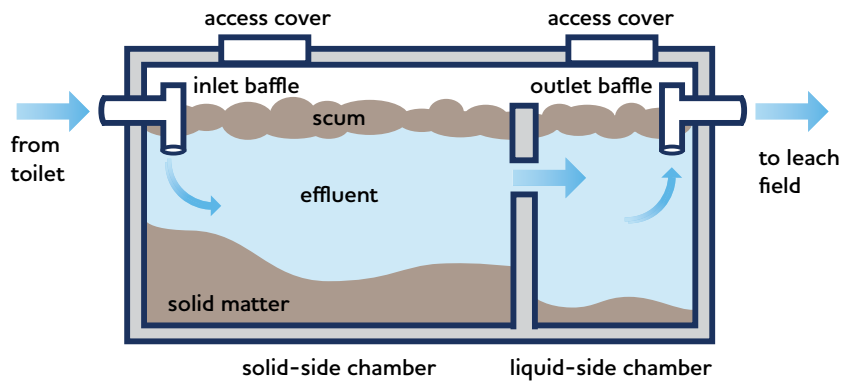


Figure 19: Cutaway diagram of a septic tank

An alternative to single or dual pit systems is a preliminary waste treatment facility called a septic tank. The septic tank is a watertight chamber, usually made of concrete or polyvinyl chloride (PVC), which performs two storage functions and some preliminary treatment of waste by separating solids and liquids. The septic tank typically consists of two chambers, with the solid-side chamber two thirds the length of the whole septic tank.

The user interface is a flush toilet, and the fecal matter enters the first chamber through the inlet baffle, or pipe. The solid matter settles to the bottom of the chamber, while the liquid flows into the liquid-side chamber. From there, the liquid waste flows out of the septic tank through an outlet baffle, or pipe, to a leach field. The septic tank needs to be emptied at periodic intervals (usually every two to five years, depending on the size of the tank and the number of people using the system). Typically, in densely populated areas, septic tanks should be connected to a sewer system so that the effluent does not flow into the ground.

Context of use:

Septic tanks require appropriate technical design and construction, thus elevating costs, but provide the most comprehensive separation of excreta from humans when maintained properly. They require a flush toilet as the user interface, so they are not likely to be appropriate in arid regions.

Benefits:

- Septic tank systems are safe and hygienic, as there is no human exposure to the waste.
- Tanks can typically be cleaned easily using a vacuum system.

Drawbacks:

- Not appropriate in areas that lack water.
- The land needed to install a septic tank is relatively larger than for a pit system.
- The construction and the cleaning of the tank can be costly.

Off-site sanitation systems

Gravity-fed sewer network

In these systems, household toilets are connected to underground sewer pipes, and waste flows to the sewer network by force of gravity. The waste is then transported to a centralized sewage treatment plant, where it is treated before being released into a body of water such as a river or ocean. This technology provides a high degree of hygiene to the user, but households must pay a fee for connections to the sewer network. The maintenance of the network is generally complex and involves specialized professional management. Gravity-fed sewage networks are maintained by municipalities or local governments.

Context of use:

Where offered by the government, this is often the most desired option. More developed nations rely on gravity-fed sewer networks in urban areas.

Benefits:

- Automatic, off-site removal of waste reduces the chance of contamination and the associated health/hygiene problems.



Figure 20: Sewage treatment plant

Drawbacks:

- Initial investment and infrastructure requirements are very high.
- As the networks are managed by municipalities, bureaucratic hassles to secure network access may occur.
- Because waste leaves households in an untreated form to a secondary treatment facility, strict hygiene standards must exist at the facility to ensure that health risks to staff are mitigated.
- Secondary treatment facilities must adequately treat the waste before discharge to avoid concentrated environmental pollution.
- User fees or tariffs are required to cover network maintenance costs.

The following figures are the aggregate costs in US dollars for different combinations of user interfaces and collection technologies in India.

Technology Choices	Collection System			
	Single Pit	Dual Pit	VIP	Septic Tank
Dry	\$90–120	\$100–150	\$100–150	N/A
Pour Flush	\$150–200	\$200–250	\$210–220	\$350–400

Figure 21: Estimated costs for sanitation systems. Source: MicroSave and Water.org research in India

Summary of Chapter 3

- Drinking water supply systems range in size, context and technology. Examples include municipal water supply systems, community-managed water supply systems, government-managed community taps, small-scale independent providers, and self-provision.
- Sanitation systems also range widely in context, cost and technology and typically consist of two components: the user interface (what the user interacts with) and the collection and storage technologies. They are classified as either on-site or off-site sanitation systems, depending on where the waste is stored.
- Toilets and latrines are considered to be either dry or wet/flush, based on whether water is involved in flushing waste.
- The collection and storage of waste from a toilet vary as well and include single pit, ventilated improved pit, dual pit, septic tank, dry composting or “Eco-San” toilets, and a gravity-fed sewer network.
- Different systems are appropriate for use and are selected based on their cost, population density, geology, availability of government services, availability of space, etc.

4

Understanding Client Needs for Water, Sanitation and Hygiene Financing

This section introduces different types of WASH financial products and explores how financial institutions can finance various water and sanitation investments.

This chapter is broken into two primary sections:

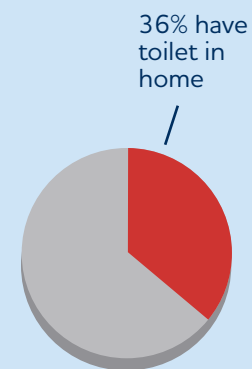
- » Overview of WASH financial products
 - » Features of WASH financial products
-

Overview of WASH financial products

Market assessments and WASH microfinance programs conducted by Water.org in Bangladesh, Bolivia, India, Indonesia, Kenya, Paraguay, Peru and Uganda demonstrate extensive and multi-faceted demand for financing household WASH facilities. The nature and extent of the demand varies according to a number of factors including geographical context, existing infrastructure, and local awareness about proper hygiene and sanitation. Detailed market research can inform FIs of local needs, WASH technologies that might be financed, and appropriate financial product design.

Access to Capital: A Constraint on Access to Improved Sanitation Facilities

A 2011 study conducted by MicroSave in central India (Karnataka, Maharashtra, and Madhya Pradesh) revealed that only 36% of the surveyed respondents had access to in-house toilets. The majority of those without access practice open defecation. In rural and peri-urban areas, respondents cited a lack of funds as the primary reason for not having an in-house toilet. In urban areas, respondents cited a variety of reasons, including limited space in the house, a lack of funds, and a lack of land title.



WASH financial products that FIs offer generally fall into the following categories:

- Microloans for WASH home-improvement investments
- Microloans for WASH-related businesses
- Small and medium enterprise (SME) loans for community-managed or small private service providers

Microloans for WASH home improvement investments

Microloans can potentially finance a variety of household WASH-related investments such as construction/improvement of latrines and toilets, wells, water/sewer connections, and rainwater-harvesting systems. The investment typically required ranges from US\$30 to \$2,000 and falls within loan sizes provided by MFIs.

The demand drivers for these types of loans include:

- **Demand for higher level of service:** as household income rises and/or health and hygiene awareness increases, the demand for improved WASH facilities increases, along with the ability and willingness to invest in facilities.
- **Reduced space for open defecation:** urbanization and population growth reduce space available for open defecation.
- **WASH-awareness building by government and NGO programs:** many developing countries have adopted the Millennium Development Goals as part of their national WASH sector planning. This provides opportunities for microfinance providers to complement government programs focused on improving WASH access among low-income populations. For example, under the Total Sanitation Campaign in India, the government pays a subsidy for every toilet constructed by the rural poor. The subsidy is insufficient to cover 100% of construction costs (usually 10% to 50% of the total costs), and is paid only after construction is completed. Many Indian MFIs are providing toilet-construction loans to cover up-front costs, enabling low-income households to complete the toilet construction, receive the subsidy, and repay the loan over a manageable timeframe.

Household Investment in Water Tanks in Kenya

Peter Muturi is a farmer and trader in Kiambu County, Kenya. Previously, his family obtained water from a neighbor's well, about 500 meters away. Although the distance was not great, the process of queuing and transporting the water took valuable time away from Peter's business. Whenever he was unavailable, Peter would hire someone to carry the water from the well to his home. On average, Peter's family spent more than US\$2.20 per day to purchase and transport five cans of water.

When SMEP DTM, a Water.org partner MFI, introduced loans for water and sanitation facilities, Peter saw an opportunity to purchase a water tank to help his family harvest rainwater from the family's corrugated iron sheet-roofed house. In January 2012, he borrowed US\$457 to purchase a 5,000-liter tank. SMEP DTM disbursed the loan directly to the local hardware shop where Peter purchased the tank.

With the water tank installed, the family now saves \$2.20 and two hours daily – money and time Peter can now invest in his business. Easy access to water has also enabled Peter to grow his brood of chickens. As Peter noted, “The installation of this tank has really helped our family. We now have enough water for ourselves, and my chickens. I have saved money and time.”

Microloans for WASH-related businesses

The WASH value chain consists of small businesses such as toilet masons and suppliers of plumbing hardware. Naturally, these businesses require working capital to meet customer demand for household WASH improvements. For example, in Indonesia, under the World Bank Water and Sanitation Program (WSP) Total Sanitation and Sanitation Marketing program, sanitation entrepreneurs act as one-stop shops, not only providing hardware (such as squat pans and septic tank construction materials), but also constructing toilets for their clients. However, these entrepreneurs are often unable to meet the demand due to inadequate working capital. Several of them have secured working capital financing from local cooperatives to finance business expansion and meet the robust local demand for toilet construction.

Small and medium enterprise loans for WASH

Community-managed WASH facilities and small-scale independent providers often need larger SME-sized loans to finance capital expenditures for community level infrastructure. For example, Bank Perkreditan Rakyat (BPR or rural bank) Sadhyamukti Parama and BPR Pujon Jayamakmur in Malang District, Indonesia, lent US\$28,000 to the community-based organization (CBO) that manages a piped water supply system for 1,200 households in the village of Sumber Maron. The loan helped the CBO expand its water distribution network and set up a micro-hydroelectricity generation plant. The plant reduced the electricity costs related to pumping water in the local water system by 90%. The loans were repaid on time and in full.

It is important to note that SME-sized loans require loan structures and underwriting methodologies that differ from those used for microloans. FIs should ensure that they have adequate expertise in SME lending before they pursue that market. Additionally, a CBO's ability to manage expanded WASH facilities and debt repayment varies widely from organization to organization. The lender must ensure that the CBO is well-prepared, which may require training and capacity building.

Features of WASH financial products

This section provides an overview of various WASH loan products, including the target market, loan purpose, and sample loan terms. The loan terms provided are general guidelines for structuring loan products; actual product features should be designed based on local market research and the individual financial institution's methodology and policies. Characteristics of WASH financial products include:

- **Borrower eligibility** – some financial institutions choose to offer WASH loans to existing clients only while some FIs require a guarantee from all clients which may be difficult and requires innovative approaches when lending to the poor
 - **Loan amount** – WASH loan amounts are often limited to a tight range that aligns with the cost of the WASH improvement for which the loan product has been specifically developed (such as household connections to a water utility network). Some WASH loans can be “added on” to existing loans. For example, a housing loan with a portion of the funds dedicated to constructing a toilet and water point
 - **Lending methodology/guarantee structure** – some MFIs that typically use a group guarantee for microenterprise loans rely on personal guarantors for their WASH home improvement loans
 - **Interest rate** – FIs may offer a slightly lower interest rate on microloans for WASH home improvement compared to loans for income-generating purposes
 - **Loan tenor** – the loan tenors offered on microloans for WASH home improvement may be longer than those offered for business working capital loans
 - **Loan monitoring** – Microfinance providers typically employ stringent loan utilization checks and ongoing construction monitoring for WASH microloans
 - **Credit plus services** – trainings or advisory services provided to WASH loan clients may include health, hygiene and sanitation awareness, and WASH facility construction and maintenance support
-

WASH FINANCIAL PRODUCTS FOR WATER ACCESS

Loan for a household piped water connection

Target segment: individual households that do not have piped water connections but reside in areas where pipe networks of a service provider, such as a public utility, are available. These loans are among the most popular loans provided by Water.org partner MFIs, particularly in India.

Loan purpose: covers upfront connection costs such as connection fees, utility security deposit, and hardware and labor expenses.

Loan amount and structure: the total price of installing a piped water connection typically ranges from US\$60 to \$300,¹ depending on the location of the house, the connection fees, the quality and length of pipes, and service/labor charges.

SAMPLE TERMS for a water connection loan in India

Loan Size	Up to US\$220
Interest Rate	18% effective annual interest
Loan Tenor	Up to \$120: 12 months Above \$120: 12–24 months
Repayment Frequency	Weekly
Collateral	Group guarantee from joint-liability group members
Utilization	Borrower must submit receipt of payment to the public utility or other service provider
Loan Eligibility	Borrower must be an existing client of the MFI and must be the owner of the house



1 Water.org and MicroSave research in India and Indonesia. This range is just an indicative figure; prices will vary across markets.

Loan for a water storage device

Target segment: individual users, communities, or SSIPs in areas where there is intermittent piped water supply or opportunity for rainwater harvesting. Loans for this purpose are among the most popular loans provided by Water.org partner MFIs in Kenya.

Loan purpose: to finance the purchase and installation of household or community water storage tanks or the construction of water storage structures.

Loan amount and structure: the amount should cover the cost and installation of a tank and will vary depending on the type of storage tank and location. FIs can collaborate with tank suppliers to arrange for bulk discounts and direct loan disbursement.

SAMPLE TERMS for water tank loan in Kenya

Loan Purpose	Purchase and installation of a 6,000L water storage tank
Loan Size	Approximately US\$400
Interest Rate	20% per annum
Loan Term	12 months
Repayment Frequency	Monthly
Collateral	Varies
Utilization	Borrower must build the base for the tank and the FI pays the tank manufacturer directly; the tank manufacturer delivers the tank and provides necessary hardware
Loan Eligibility	Borrower must be an existing client of the FI



Loan for construction of well

Target segment: households, community-managed water projects, and SSIPs seeking to access groundwater.

Loan purpose: to finance the costs of digging or drilling the well, constructing the platform, and installing an electric pump or hand pump to draw the water.

Loan amount and structure: loan amounts in Asia range from US\$250–\$3,000 per well, depending on the depth of water table, the type of soil, and the type of well technology/pump technology used.

SAMPLE TERMS for a borewell loan to a SSIP in Indonesia

Loan Purpose	SSIP infrastructure expansion including borewells and pipe network
Loan Size	US\$2,500–\$3,000
Interest Rate	18% per annum
Loan Term	24–36 months
Repayment Frequency	Monthly
Collateral	Land title of SSIP owner
Loan Eligibility	SSIP in business for at least three years; business cash flows in line with the repayment schedule



Loan for a water filter

Target segment: people who use either unimproved water sources—such as surface water, open wells, and unprotected springs—or live in places where the piped water supply is not potable.

Loan purpose: to finance the purchase of a household water filter. While water filters help improve water quality, they often have a relatively short life span and may require regular replacement.

Loan amount and structure: the loan amount should be equal to the cost of the filter—generally between US\$30–\$70. The repayment period is typically 12 months or less due to the small loan amount. FIs often prefer to offer this type of financing as a complimentary (or “top-up”) loan², rather than as a stand-alone loan.

FOR SANITATION ACCESS

Loan to construct a new private toilet

Target segment: households that are practicing open defecation or using an unimproved toilet/latrine.

Loan purpose: to purchase and construct the facility, including user interface, waste collection, and superstructure.

Loan amount and structure: the loan amount covers the entire cost of construction of the toilet system, including materials and labor, which ranges from US\$200–\$500, with cost particularly affected by the type of waste collection technology (single pit, dual pit, or septic tank). The loan term may be longer than an income-generating loan of the same amount. Some financial institutions try to leverage government subsidy programs, where they exist, to ensure that clients secure subsidies to reduce the net investment.

2 A top-up loan is a small loan added on to a larger loan.

SAMPLE TERMS for a private toilet loan in India

Loan Purpose	Construction of a private toilet system, including superstructure, collection and storage, and labor
Loan Size	Maximum of US\$400, based on the technical report of the monitoring team, which recommends a loan based on the household situation and the appropriate toilet technology
Interest Rate	20% per annum
Loan Term	24 months
Repayment Frequency	Monthly
Collateral	No collateral (loans made under the joint-liability methodology)
Loan Eligibility	Existing MFI clients who have completed at least two loan cycles, demonstrating an ability and willingness to repay

**Loan for the renovation of an existing private toilet**

Target segment: households with existing toilet facilities that do not safely collect and store waste, provide adequate privacy, or separate waste from human contact.

Loan purpose: to finance construction/installation of the superstructure, installation of water connection to the toilet, renovation of the septic tank or pit, installation of a new toilet seat or squat pan, or other improvements.

Loan amount and structure: toilet renovation costs typically range from US\$40–\$200, depending on the specific needs; loan terms are similar to those for construction of new private toilet facilities discussed above.

Loan for the construction or renovation of a shared toilet facility

Target segment: communities managing shared toilets or SSIPs operating pay-for-use toilets. SSIPs are typically allowed to operate public toilets by the municipal authority on a lease basis; however, SSIPs on occasion build shared toilets on their own and earn revenue on a pay-for-use basis.

Loan purpose: to finance the construction of new toilets or renovation of existing toilets. Loans disbursed to community groups require careful due diligence and training to ensure that facilities will be maintained and remain operational, and that a revenue-collection system exists for servicing loan payments.

Loan amount and structure: construction or renovation costs vary according to factors such as the size of the facility and the superstructure materials. Costs may exceed US\$1,000 and the loan should be structured to allow for repayment using cash flows generated from usage fees.

Loan for sanitation service provider

Target segment: SSIPs providing sanitation services such as toilet construction, septic tank construction, and pit/septic tank cleaning.

Loan purpose: to support the working capital expenditure requirements of the entrepreneur.

Loan amount and structure: loan sizes vary according to business size and cash flows and can range from micro to SME size. Repayments are structured to align with business cash flows.

FOR HYGIENE ACCESS

Loan for construction of a bathing facility or sink

Target segment: households lacking basic hygiene facilities for bathing, hand washing and cleaning.

Loan purpose: to finance the construction of bathing facilities (such as showers and bathtubs) and sinks, including hardware and labor.

Loan amount and structure: loan sizes are highly dependent on local cost levels and the particular components of the hygiene facility. A basic shower could cost as little as US\$25. The loan term should vary according to the size of the loan and available household cash flow, with adequate tenor to enable repayment of the loan.

Summary of Chapter 4

- WASH financial products generally fall into one of three categories: microloans for WASH home-improvement investments, microloans for WASH-related businesses, or small and medium enterprise loans for community-managed or small private service providers.
- The demand drivers for individuals to access a WASH microfinance loan include a demand for higher level of service, reduced space available for open defecation, and WASH-awareness building by government and NGO programs.
- WASH loans are used for a variety of improvements such as household water connections, water storage devices, water filters, well construction, toilet construction/renovation, and construction of a bathing facility or sink.

5

Water, Sanitation and Hygiene Partnerships

Financial institutions providing WASH financing often engage with other stakeholders to support the successful design and delivery of their financial products and can include a variety of areas including demand creation, borrower construction approvals, loan monitoring, and staff training. This chapter identifies the role of potential partners, benefits they provide, and challenges that may arise.

Potential partners for microfinance providers include:

- Local governments and community leaders
 - National government agencies and ministries
 - Public utility companies/water authorities
 - WASH non-governmental organizations
 - International development funding agencies and investors
 - Manufacturers of WASH products and WASH contractors and masons
-

Benefits from establishing partnerships for WASH financing

Demand for WASH financing, as well as effective investment and repayment of WASH loans, can benefit from the contributions of a variety of stakeholders. For example, obtaining a household connection from a municipal piped water network requires permission from the municipal utility and the services of a local mason/plumber. A partnership with these entities, either formally or informally, can support effective client investment of loan funds, secure lower construction costs for clients, reduce the risk of loan misuse, and lower overall credit risk.

Transform latent demand into effective demand through marketing and awareness

Among low-income populations, there is often a general lack of awareness about the adverse effects of poor sanitation practices or consumption of unsafe drinking water. As a result, while needs exist, the demand for improved sources (and consequently financing to secure those sources) may be latent. WASH education and awareness campaigns are often necessary to build an understanding of the importance of safe water and hygienic sanitation practices in order to activate demand.

Collaborating with organizations that have hygiene promotion and sanitation marketing expertise can ensure that clients gain access to this information, if staff lack the necessary expertise. As a result, clients will not only have a better understanding of practices to improve their overall health, but they will begin to actively seek financing to invest in improved household WASH facilities. Water and sanitation NGOs, community development NGOs, and government WASH programs are ideal partners.

Funding a WASH loan portfolio

Some FIs may find it difficult to fund WASH products/portfolios. In order to ensure the highest level of success, it may be necessary to develop partnerships with “social investors” — those who want to invest while making a return and having a positive impact on the world. Other FIs will have no problems securing loan capital, and will dedicate a portion of their funds to WASH.

Investors that are keen to finance the expansion of WASH loan portfolios can make ideal partners. Improved WASH is a fundamental need of many low-income households but many lack adequate capital to finance their own WASH improvements. Access to WASH financing can impact overall household health, healthcare costs, school attendance, and earning potential which can make financial institutions with WASH loan portfolios attractive to a variety of social investors eager to invest.

Identify appropriate WASH technologies and ensure quality construction

Often, financial institutions face challenges in providing WASH financing due to a lack of expertise in technical aspects of WASH products (such as toilets, septic tanks, water connections, and storage tanks). Major knowledge gaps can include:

- A lack of understanding of the suitable products in each local context.
- A lack of knowledge or ability to ensure proper installation of the infrastructure.
- A lack of expertise in offering technical support to clients for maintenance of the facilities.

FIs may consider partnerships with NGOs, international development agencies and private sector firms with relevant expertise to advise staff and clients regarding selection, construction, and maintenance of WASH facilities.

Facilitate discounted prices for WASH products

Storage tanks, pipes, and other WASH materials may be acquired at lower cost when purchased in bulk. Purchasing WASH products directly from manufacturers, rather than from retailers, can also result in significant cost savings. FIs can collaborate with suppliers to negotiate direct delivery and bulk discounts for clients.

Support clients with obtaining necessary approvals

Municipal utilities may need to approve new connections to water and sewer networks and local government agencies often need to approve construction of WASH facilities, particularly when drilling wells. By collaborating or partnering with these government entities, FIs can help their clients to obtain the necessary approvals and permits.

Potential partners for microfinance providers

This section covers the range of partners and examples of partnerships from around the world.

Local government entities and community leaders

Local elected officials and community leaders may be helpful to microfinance providers in promoting WASH financial products and facilitating the approval and construction of WASH facilities. Facilities, like new wells, may require approvals from local authorities such as environmental agencies. Arrangements between FIs and government agencies can vary from formal to informal. In addition to political representatives, FIs may also benefit from partnering with community leaders like local chiefs, church leaders, and school principals.

Value proposition for microfinance provider

- Promotion of WASH loan products through trusted local representatives
- Enable clients to properly invest their WASH loans
- Reduce the chances of friction between local leaders and FIs over WASH facilities installed and connections funded
- Reduce the chances of financing inappropriate WASH facilities

Value proposition for the partner

- Take an active role in local development and contribute to WASH access
- Meet their own specific WASH access targets at a lower cost by leveraging the financial institution's resources
- Increase local awareness about safe WASH practices and the availability of WASH financing

Key considerations for microfinance providers

- Engage local opinion leaders
 - Avoid getting into financial risk-sharing arrangements, as others may be reluctant to collect bad debts (for risk of damaging relationships)
 - Beware of bias or preferential treatment by leaders and make final decisions independently
-

Partnership Examples

- ECLOF, an MFI in Kenya, collaborates with school principals to increase awareness about WASH practices and WASH financing.
- Indian MFIs, Hand in Hand and Grameen Koota, have established relationships with local government authorities to help work through client issues such as unpaid property taxes and paperwork requirements that can be barriers to household piped water connections.

Collaborating with the local government: the case of Hand in Hand

To support its WASH financial product, Hand in Hand, a leading MFI in Southern India, collaborates with the Panchayati Raj Institutions (PRIs) and Village Health Committees (VHCs). Benefits to Hand in Hand include:

Collaboration with PRIs

Increased awareness of the WASH product: the PRI presidents are elected representatives of their villages. Before entering a village, Hand in Hand explains its program to the president and gets his or her approval. Hand in Hand then uses the communication channels of the PRI to disseminate the details of its program, ensuring wide coverage and gaining the trust of the community.

Understand the potential of the local utility: the PRIs know the capacity of the local water/sewer utility to connect new households, allowing for effective planning by Hand in Hand. Also, working closely with the PRIs helps Hand in Hand's clients obtain approvals for new water and sewer connections.

Collaboration with VHCs

When possible, Hand in Hand facilitates payment of government WASH subsidies to clients through formation of VHCs, which consist of Hand in Hand self-help group members, ward members, opinion leaders, school teachers, and local youth. The committees support individual borrowers through the process of obtaining government toilet-construction subsidies. In addition, the VHCs help Hand in Hand monitor and follow up on the individual WASH



National government ministries and agencies

Microfinance providers can leverage national government programs to complement and promote their WASH financial products. For example, in Kenya, the Ministry of Public Health has several WASH-related initiatives to increase access to WASH facilities. The Ministry considers MFIs as catalysts,

because WASH loans help the Ministry meet its own WASH targets and Millennium Development Goals. The Ministry has developed marketing and technical materials and conducts WASH-awareness campaigns in which MFIs participate and market their WASH products. The Ministry has also developed a team of expert WASH consultants who often train MFI staff in different approaches to enhancing WASH access.

Value proposition for microfinance providers

- Complement government initiatives
- Leverage government investments in WASH
- Enable borrowers to benefit from government subsidies and resources

Value proposition for the partner

- Gain a reliable partner in meeting targets and increasing public welfare
- Gain the ability to leverage household investments to maximize the impact of government investments

Key considerations for microfinance providers

- Coordination can be time-consuming
- Institutionalize coordination procedures and form internal committees to manage the relationship
- Conduct frequent meetings with government officials at different levels (from junior to senior), to provide updates and ensure adherence to program timelines
- Be aware of the government's fluid agenda and avoid pressures to pursue areas which are not the core competency of, or suitable for, the FI

Sample Partnerships

- Bharat Integrated Social Welfare Agency (BISWA) and Sri Kshetra Dharmasthala Rural Development Project (SKDRDP), FIs in India, collaborated with the government to make improvements to a central water supply system.
- Hand in Hand, Evangelical Social Action Forum (ESAF), and Grameen Koota, all in India, coordinate with the Total Sanitation Campaign that provides subsidies to borrowers after they construct toilets.
- In Kenya, ECLOF and KWFT are in talks with the Ministry of Health to utilize government WASH-marketing materials to change sanitation and hygiene behaviors among target clients.

Public utility companies/water authorities

Collaborations with public utilities are beneficial when microfinance clients are seeking to also become clients of the utilities. Utilities can confirm that potential households are candidates for connection, receive loan disbursements directly from FIs, confirm loan utilization and even collect loan payments directly from clients (along with monthly water bills). Utility partnership arrangements follow the models A and B later in this chapter, substituting “product manufacturer” with “utility.”

Value proposition for microfinance providers

- Obtain information on potential clients (based on water utility network area)
- Outsource effective loan utilization checks and collection of repayments to water utilities
- Assist clients with obtaining necessary regulatory approvals for connection

Value proposition for the partner

- Reach more households, contributing to water supply coverage goals
- Leverage capital so the utility doesn't have to provide customer financing and can instead use their available capital to improve service or expand primary network

Key considerations for microfinance providers

- Water authorities can help explain the suitability of potential WASH products in the local context
- Utility representatives understand client approval timelines and can help FIs apply this information to loan product design

Sample Partnerships

Bank Syariah Mandiri, an Indonesian commercial bank with retail microfinance operations, has partnered with Perusahaan Daerah Air Minum (PDAM) Kudus, the state-owned public water utility, to offer loans for household water connections. Under the arrangement, the PDAM provides household connections to low-income clients and the bank provides financing, with loan disbursement directly to the PDAM. The PDAM collects the loan payments on behalf of the bank, as clients make loan payments with their monthly water payments. The scheme was piloted in 2012 and has reached 2,000 clients, as of 2013, with a 99% repayment rate.

WASH Non-Governmental Organizations

A variety of NGOs are leading hygiene promotion campaigns, generating WASH awareness, bringing innovation to WASH technologies (such as “Eco-San” toilets), and/or lobbying national governments to strengthen WASH policies. NGOs have also been involved in setting up WASH systems, especially in communities that have faced major natural disasters. NGOs have often gained trust with communities and can effectively communicate sensitive issues such as WASH. FIs might consider partnerships with broad-spectrum NGOs (which focus on a variety of social and economic development issues, including WASH) and WASH-specific NGOs. They might also consider local NGOs as well as international NGOs.

Value proposition for microfinance providers

- Coordinate with NGOs to establish relationships with communities
- Leverage the marketing and awareness-generation capacities of the WASH NGOs to generate WASH financial-product demand
- Access WASH expertise to educate FI clients and staff about selection, construction and maintenance of locally appropriate WASH technologies

Value proposition for the partner

- Increase impact in target communities by facilitating WASH financing from FIs
- Obtain appropriate WASH designs, budgets, and construction plans for different regions in which the FI operates

Key considerations for microfinance providers

- Partner with NGOs that are well respected and trusted by the target communities
- Avoid collaborations that pull the FI away from core competency areas
- Clarify roles and expectations at the outset
- Paying NGOs for their services out of portfolio revenues or marketing budgets can be a cost-effective approach to generate demand for WASH products

Sample Partnerships

- GUARDIAN, a MFI in India, works closely with its WASH-specialized parent NGO, Gramalaya, to form self-help groups that create social awareness about water and sanitation and also train staff in WASH issues.
- In Cambodia, PATH, a global health NGO, has partnered with the MFI Vision Fund Cambodia to support the marketing of a water-filter loan product.

International development funding agencies and investors

Government development agencies and multilateral development organizations, such as the World Bank (particularly through the WSP), United States Agency for International Development, and UNICEF, are involved in WASH promotion in developing countries. These agencies often work across a variety of sectors and play various roles, including capacity building in government agencies and ministries, WASH utilities, MFIs and banks. Increasingly, international development agencies are including microfinance components in their WASH programs. Similarly, investors such as commercial banks, social investors, philanthropists, and foundations are often eager to invest in MFIs to fund WASH loan portfolios and related activities such as market assessments and product development.

Value proposition for microfinance providers

- Funding for product development expenses, loan capital, staff training and technical assistance
- Lobby regulatory bodies for a regulatory framework that enables WASH microfinance
- Raise awareness of the potential of WASH microfinance
- Facilitate coordination with government agencies/ministries and municipal utilities

Value proposition for the partner

- Leverage investments against those of other investors
- Long-term use and sustainability of WASH facilities obtained through demand-driven programs is higher than those obtained through purely philanthropic models

Key considerations for microfinance providers

- Alignment of interests and timelines, and general coordination of activities, can be challenging
- Donors may have specific conditions which do not align with the FI's business interests, such as promotion of a particular WASH technology or a focus on a particular geography
- To the extent possible, identify funding partners with social and commercial objectives that are well aligned with those of the FI
- Clarify monitoring and reporting obligations up front

Sample Partnerships

- In Indonesia, WSP has provided capacity building to WASH small-scale independent providers and provided loan guarantees to rural banks to provide financing to those SSIPs.
- SMEP DTM in Kenya has partnered with Kiva to obtain funding for its WASH loan portfolio.
- GUARDIAN has obtained debt financing for WASH portfolio expansion from the Acumen Fund, Friends of Women's World Banking (FWWB) India and Milaap.

Manufacturers of WASH products and WASH contractors and masons

Some construction activities related to WASH improvements require skilled or semi-skilled contractors and masons. These activities include installing toilets and water meters, constructing septic tanks and water tanks, and digging/boring of wells.

Manufacturers of WASH products, such as storage tanks and pipes, can be valuable partners by ensuring product quality and access for customers, and potentially offering bulk discounts. They may agree to assume the risk and related cost of breakage or damage to products while in transit to client households.

There are two primary partnership models pursued between microfinance providers and WASH product manufacturers (or contractors):¹

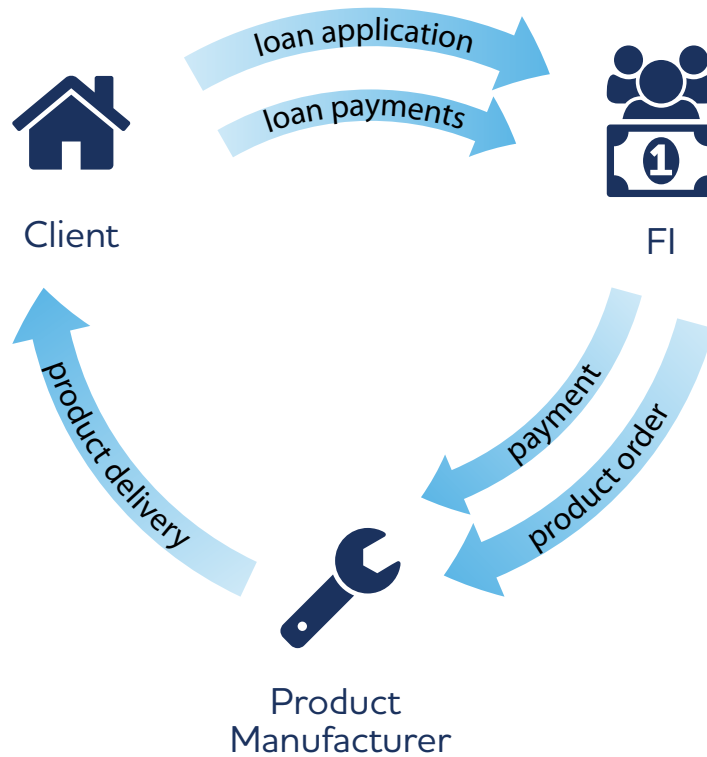


Figure 22:
Partnership model A
diagram

Model A

The client applies to the microfinance provider for a loan. Upon loan approval, the client name, contact information and product order are forwarded to an approved product manufacturer. The manufacturer delivers the product directly to the client’s home and the client signs for receipt. The receiving notice is then sent by the product manufacturer to the microfinance provider verifies the delivery and issues the payment to the manufacturer or contractor (direct loan disbursement). The client repays the loan directly to the microfinance provider.

1 This is one example of how the model can work. Another option is to disperse funds directly to the client who then hire contractors. This is attractive to many clients and gives them the independence to personalize their improvement.

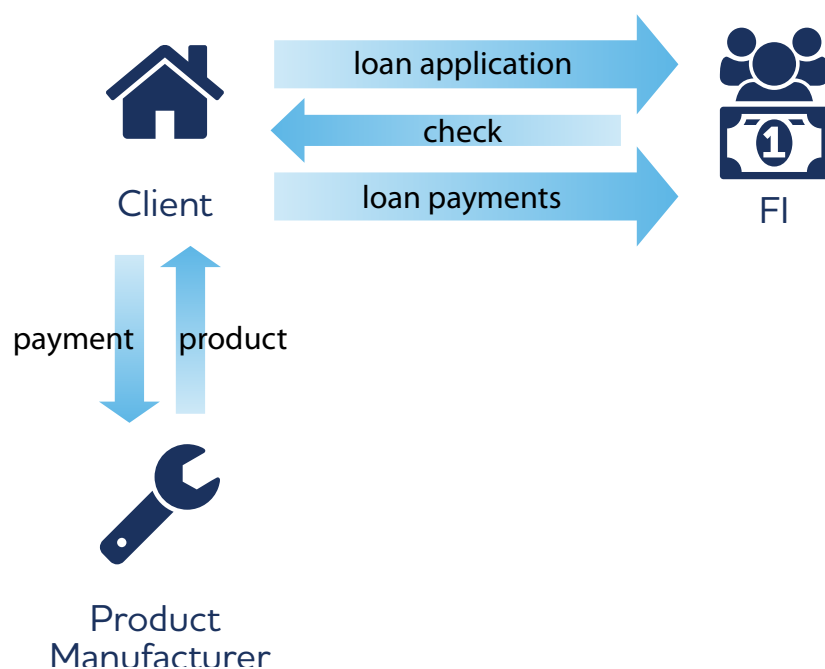


Figure 23:
Partnership model B
diagram

Model B

The client identifies the WASH product supplier (or contractor) and provides a budget to the microfinance provider with their loan application. The microfinance provider conducts the loan appraisal, approves the loan, and issues the client a check for the loan amount in the name of the supplier. The supplier delivers the product directly to the client, or the client may arrange for their own transportation. The microfinance provider verifies the delivery and installation. When necessary, clients can also receive additional loan amounts for transport and installation. The client then repays the loan directly to the microfinance provider.

Value proposition for microfinance providers

- Reduced risk of loan misuse
- Ability to pre-select or vet product suppliers to ensure quality
- Ability to negotiate bulk discounts on WASH product purchases by clients
- Potential marketing of loan product through supplier

Value proposition for the partner

- Marketing through the microfinance provider
- Access to new customers with approved financing

Key considerations for microfinance providers

- Evaluate supplier or contractor product/service quality, experience and reputation before establishing partnerships
- Monitor product/service quality and timeliness on an ongoing basis
- Negotiate bulk discounts for clients
- Negotiate product delivery expectations (cost and time) beforehand
- With Model B, beware of potential collusion with the supplier to inflate prices in order to access a larger loan amount
- Inform contractors of new projects well in advance, and if possible, schedule work with contractors to provide adequate and continuous work
- Arrangements that require borrowers to use specific suppliers may negatively impact product demand

Partnerships in WASH Finance: A Water Tank Supplier in Kenya

Water.org partner MFIs in Kenya—SMEP DTM and KWFT—collaborate with Kentainers Ltd., a leading water tank and sanitation products manufacturer. The MFIs provide financing for clients interested in purchasing and installing water tanks. Clients typically have piped access with intermittent water flow or are interested in capturing and storing rainwater. Kentainers provides the tanks at a discounted price and markets the microfinance loans to other potential clients.

Some of the key successes have included:

- The MFIs worked with Kentainers to arrange for bulk transport of water tanks to rural areas, thus reducing transportation costs.
- The MFIs recruited local retailers to promote and sell water tanks in new areas.
- Kentainers deployed dedicated staff to manage MFI orders and related payment reconciliation.
- The MFIs and Kentainers cross-marketed one another's products and services.
- Kentainers began training local technicians to properly install the tanks.

Kentainers recognizes the value of this partnership and the potential opportunity it represents for the company. Paul Madoc, Special Projects Manager with Kentainers, categorically noted that the future market for tank manufacturers is with MFIs, “The MFIs have both the clients and funds to pay for the products. Working with the MFIs also helps the manufacturer to reduce costs of consolidating small orders and payments.”

Summary of Chapter 5

- Microfinance providers can benefit from partnering with a variety of stakeholders to support the successful design and delivery of their financial products. External expertise can include a variety of areas including demand creation, borrower construction approvals, loan monitoring, and staff training.
- Potential partners for microfinance providers include a wide variety of formal and informal relationships that can lead to better services for clients, mutually beneficial targets (like increased access to WASH) for governments and NGOs, and healthier communities (both physically and fiscally).
- Utilizing loan models that direct the loan disbursement directly to WASH-product manufacturers, or contractors, decreases the risk of loan misuse, can incentivize bulk discounts for product/service, and vets the product/service quality for the client.



*On the cover:
Young woman in India
with her WaterCredit
loan card.*



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