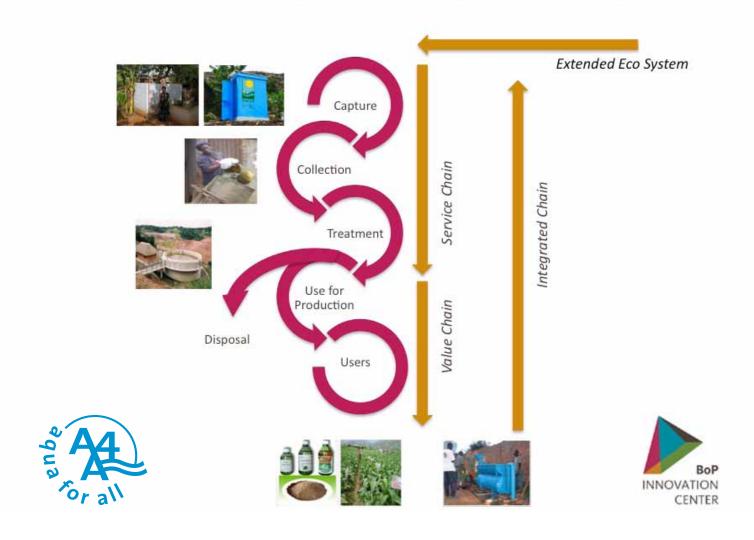
Ready for Funding: Innovative sanitation businesses

Eco System



Sanitation Business Matchmaking Estafetta ('Relay Race') 2014 This document is developed to give insights in promising prospects in the sanitation sector in small towns and peri-urban areas in upcoming economies. The sanitation sector offers long term, slow and stable return on investments and this can be a pearl in your portfolio. Moreover, sanitation services create social benefits which may be of interest for impact investors. The challenge of the sanitation industry is to access to the right blend of financial products. Investors are invited to guide the sanitation industry in creating the conditions needed to realize ventures that prove to be attractive investment opportunities.

For more information:

www.aquaforall.nl
www.bopinc.org
www.sanitationwindow.com







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1. Management Summary

Financing sustainable sanitation is an investment in human development that yields high economic returns. Each dollar invested in improved sanitation in developing countries yields an average of US\$ 9. It increases productivity because people get healthier. Female literacy goes up because teenage girls will more readily attend school if there is proper sanitation

Governments do not have the capacity and means to meet the need for public and basic services, including sanitation. Therefore market-led solutions are essential to service aspirational costumers at the Base of the Pyramid. Most developing countries have a vibrant private sector, pre-dominantly microenterprises, offering services that stretch from selling, installation, and construction of latrines to the provision of emptying services. New innovative pioneers are exploring integrated models to leverage potential of generating revenue from the re-use of (human)-waste for energy, bio fertilizer, and other products.

Case for investors

Throughout the whole sanitation chain, there are promising business opportunities that require business models and businesses designed and setup for scale. This requires innovative financing solutions to address the funding gap to initiate and facilitate these businesses to come to scale. Scaling is the solution! Investors have a crucial role to play in lowering the barriers for these businesses to obtain financing. Investors can be instrumental in accelerating access to sanitation by offering valuable information, perspectives and capabilities. They have experience and knowledge on assessing benefits of investments, building investment portfolio and financing modalities.

Case for intermediaries

Intermediaries are developing a portfolio of services to strengthen domestic private sector and industries to initiate and accelerate sanitation businesses. They play a catalyzing role to make business ventures investment-ready for (impact) investors.

Case for the private sector

The Sanitation Industry does represent a range of demand driven business opportunities. Still this is a key challenge in scaling sanitation, from need driven business development to market driven business development. Deeper and refined insights in people's desires, aspirations and challenges are required for businesses to offer value propositions meeting true demand. People do not always buy what they need, as we often assume. They buy what they want!!

System Integration is key inhibitor

The sanitation chain, or system, can be considered as a chain of interrelated services: a service chain (capture, collection, emptying, transport) and a value chain (re-use with focus on creating value from human waste). To scale sanitation, the different subsystems need to function together as a harmonized system.

Funding

To bring Sanitation to Scale, different businesses and the industry in each country specific context have a range of funding needs. Funders are challenged to realize innovative financing solutions that address the required industry investments, facilitate pioneers and scale 'proven' models.







2.1 Case for Investors

Investors are increasingly interested in achieving both a social return on their investment as well as an environmental impact. However, finding investments that reduce poverty, solve environmental problems, and produce a stable return in sanitation can be extremely challenging¹.

"You have to understand that the business case is not as simple as a normal investment where you would expect a return in five to seven years. This is going to take longer because there is a social impact involved with it so your internal rate of return is going be slightly longer. So any investor in the sanitation business would require to have a little bit of patience before we can hit the break-even point."







¹ Source: Calvert Foundation

2.2 Case for Intermediaries

Intermediaries are developing a portfolio of services to strengthen domestic private sector and industries to initiate and accelerate sanitation businesses. These intermediaries are built upon the recommendations of studies like the Scaling Sanitation into Action and World Bank latest report Tapping into Markets, to initiate, incubate and implement sanitation businesses designed for scale.

The markets are plagued by systemic challenges like low levels of education, inadequate infrastructure, and poorly designed or enforced regulation. These challenges are often too systemic to address through business model innovation alone. Inclusive business models can compensate for some of the gaps in the market environment, or work around them, but only inclusive business ecosystems - spanning a wide range of market players in business, government, and civil society - can actually overcome them.

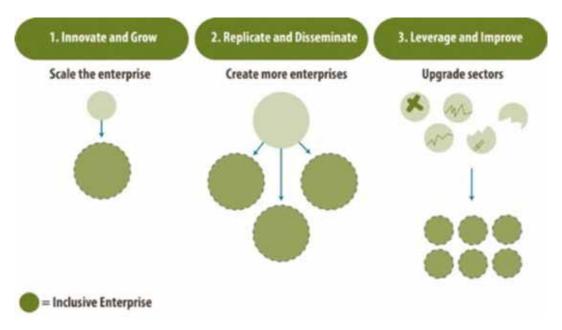


Figure 1: Scaling Strategies

The intermediaries play a catalysing role in making more inclusive business ventures investment-ready for (impact)investors.

- a) Demand articulation/stimulation for IB
- b) Agenda setting and network building
- c) Capacity building of collective impact coalitions
- d) Bring bundled proposals for innovative finance (these bundled proposals often offer a complete solution, and reach minimum thresholds that individual applications might not meet).





² BoP Innovation Center and partners are developing local Inclusive Business Accelerators in Africa and Asia markets combined with online capabilities to accelerate private sector initiatives in inclusive business, including Sanitation.

2.3 Case for the Private Sector

Harnessing the private sector, in close collaboration with governments, to find a solution to providing safe sanitation to the expected 2.7 billion people without it, is a strategy that is widely accepted and adopted as the way forward. Governments do not have the capacity and means to meet the need for public and basic services, including sanitation. In September of 2010, the Human Rights Council recognized the

right to water and sanitation as legally binding under international law. This will help to underscore the responsibility of governments to deliver water and sanitation to their citizens, but it will take time and resources for the public sector to bridge the gap. Therefore market-led solutions to the problem are essential.

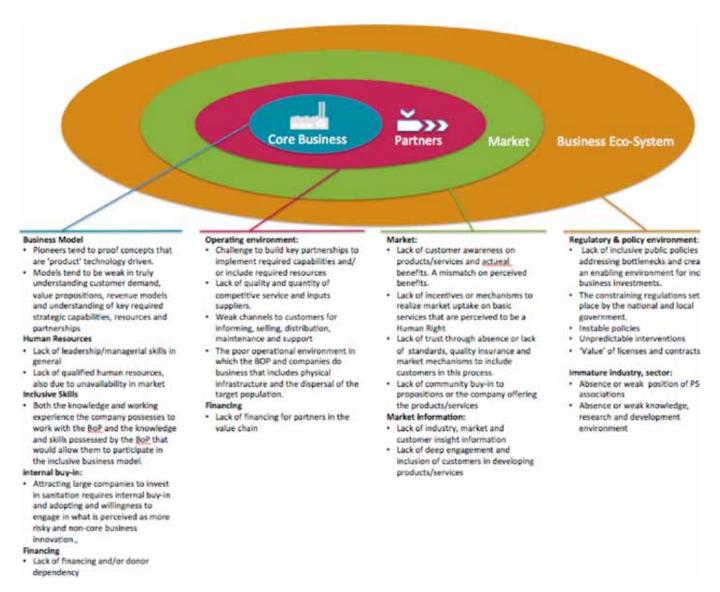


Figure 2: Barriers & challenges for private sector to invest in sanitation







Locally, the private sector has already recognized the potential of the sanitation market, and most developing countries have a vibrant private sector, pre-dominantly micro-enterprises, offering services that stretch from selling, installation, the construction of latrines and the provision of emptying services. New innovative pioneers are exploring integrated models to leverage potential of generating revenue from the re-use of (human)-waste, though most of these initiatives are early stage and dependent on donor-support. The private sector is challenged with meeting the true demand of customers, with overcoming the perceived investment risks for scaling services (ensuring quality, affordability and sustainability), and to address the constraints caused by immaturity of the sanitation industry and adjacent industries like waste & recycling, energy and agricultural inputs in the case of compost or organic fertilizer. There is a lot to do!





3.1 Sanitation Investments require solutions designed for scale

There are just too many customers out there demanding affordable sanitation solutions and services! While the pioneering of innovative new inclusive business models is an ongoing requirement, entrepreneurs will not be able to make a significant difference until they achieve scale. In 2012, we developed recommendations in an internal publication 'Scaling the Access to Sanitation for the

Base of the Pyramid' (most of which were confirmed by the latest World Bank 'Tapping into Markets' with respect to private sector participation in the sanitation market). We engaged in developing and exploring scalable business models addressing factors within the businesses itself to realize growth, but also addressing the barriers within the eco system.

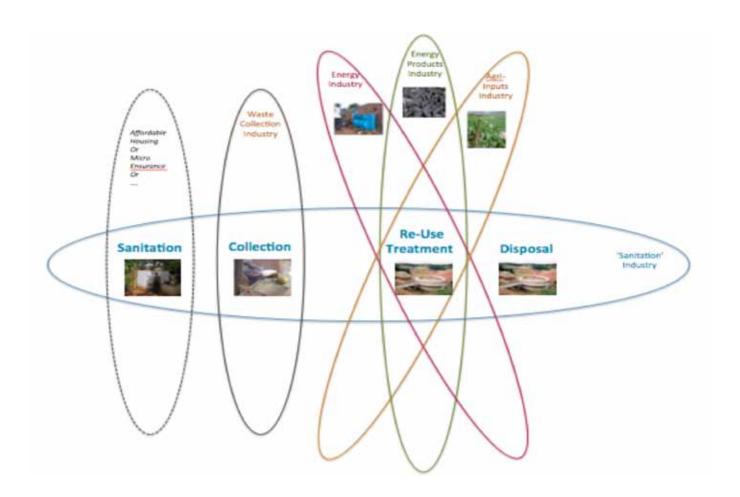


Figure 3: The sanitation chain, a service chain (capture and collection) and a value chain (treatment for safe disposal or re-use)



3.2 Household Sanitation

Key recommendations for scaling

- A key challenge in scaling household sanitation is the ability of the private sector to truly meet customers demand by addressing the desires and aspirations of these low income people. Recent studies show that household demand for products and services is just not being addressed by value propositions that adhere to an actual relevant benefit or package of benefits. 3456 Both entrepreneurs and investors require more qualitative and quantitave insights to design products and services that people truly want. Investing in deep customer understanding can drive design of products/services that adhere to both need and desire.
- Helping the creation of local industries to manufacture, distribute and install products that meet customer demand (offering choice, flexibility, upgrading potential etc).
- · At the same time, innovation of household sanitation business models and solutions should be continuously stimulated.
- Bundling of micro-enterprises and or attract larger companies to be able to invest in new value propositions, reducing costs and developing demand through marketing
- Realize and attract industry actors to facilitate the industry to overcome its barriers. (Industry Facilitation)

Human Centered Design Insights Bangladesh BoP Innovation Center /iDE (2014)

- Consumers don't want cheap looking latrines (only desire tin and cement superstructures)
- Subsidy has reigned for a very long time and consumers are hesitant to purchase latrines
- Latrine producers are isolated and passive
- Consumers' preferences on slab style and pan type is extremely varied
- Consumers are highly interested in packaged latrine; phasing and upgrading of latrine parts; and composting of fecal sludge
- The more rings in a latrine pit—the more prestigious you are
- Micro-financing is desirable, but not directly from MFIs and consumers purchase more sophisticated latrines
- Sanitation is not highest priority

Room for Innovative Business Models

- New insights demonstrate for example that food consumption behavior can be positively changed by developing value propositions for household cooking devices and household food storage/cooling devices. Through our role as innovation intermediary in Bangladesh we are engaging private sector to develop a sanitation proposition as part of a household cooking and cooling proposition using biogas solutions.
- Bundling Sanitation to loyalty programs or as benefits of other value propositions is being explored. Micro-Health Insurance could provide discounts for non-smokers and for household hygiene level (platinum silver, gold)







³ Scaling the Access to Sanitatation for the Base of the Pyramid into Action; internal report from a Dutch Public Private Consortium (Aqua for All, BoPInC, Cordaid, Landustrie, Van Houtum Papier, UvW, VEI, WASTE and Waternet)

⁴ OECD Report: Benefits of investing in Water and Sanitation, an OECD perspective

⁵ Tapping the Markets World Bank

3.2 Public & Communal Sanitation

Key recommendations for scaling

- Establish or scale local businesses to support the dissemination of local shared/communal and school sanitation service operators (through a service package covering training, equipment sourcing, maintenance support, etc.) These companies require scale to be able to recover their investments. They also require scale due to their partial transition over time due to expected uptake of household sanitation.
- Ensure a license to operate. For private sector to develop a profitable business, they need to obtain a license to operate from public authorities or local communities.
- Design for Hygiene and High Quality Standards. Services offered by these companies should adhere to demand and desires. Recent human centered design initiatives indicate that womens' demand for services varied drastically from that of men, and that sanitation services should focus on the benefits gained along with other functionalities (washing etc). Most critical is the willingness of people to use and pay for the services, which increases according to the esthetics, hygiene (clean, fresh, nice smell) and customer service level of the operation.

- Hybrid revenue models or fully market based models are more successful than others that build on expected payment from local communities and governments. This leaves room for smart innovative revenue models through different partnerships.
- There is potential for exploring new smart partnerships in both developing markets and developed markets in which for example corporate cleaning/hygiene companies extend their services. Attracting larger private sector actors to collaborate with pioneers in public & communal sanitation could be stimulated by hybrid financing mechanisms and/or results based financing mechanisms.







3.3 Emptying & Collection Services

Key recommendations for scaling

- Aggregating waste collections services, by organising and coordinating private (manual and) mechanical operators, to realize impact on effective waste management. Recent initiatives demonstrate the potential of larger waste companies exploring collection and recycling of human waste. Alternatively, associations of waste collectors could scale the industry and collectively invest in standardisation and the required innovation in the sector to reduce costs, improve efficiency and develop environmental and hygienic best practices.
- Ensure a license to Operate is essential. Waste Collection often is partially or not formally organized leaving room to micro-enterprises and informal community-led organizations. With respect to human waste this often results in poor quality services, with very high health care risks for people in this business. Waste collection, or integrated waste management vision, is typically a topic that should fall under the mandate of public authorities. A number of different permits are often needed to ensure that the contracts are attractive enough for the company to realize economy of scale. Certainly for waste collection the drive should be best services at the lowest cost possible.
- A focus on only 'human waste' collection would limit the potential of tapping into potential revenue streams, of acting as supplier of inputs for waste up cycling.

Recently WSUP and IDEO have been instrumental in fueling the innovation of this industry by their ideation and business model development initiative. Although this is a true innovation, the potential resides in the replication of the model, or elements of the model. It also can inspire private sector for solution innovations and discovery of new type of partnerships. In Mozambique, WSP is supporting an association of waste collectors to invest and improve in integrated waste collection, exploring potential of including collection of human waste.

Solid Waste Uses (source van Gansewinkel)

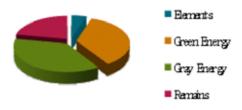


Figure 4: Solid Waste Uses





3.4 Smart Small Sewerage

Key recommendations for scaling

- Small sewerage solutions may be applicable in certain contexts. Imagine combining innovative sewerage and sanitation service solutions within the value proposition of a 'BoP Water & Sanitation Service Company'. This utility is focused on accelerating access to water and sanitation services for poor populations living in small towns or periurban areas, where the mainstream utilities will not be able to expand service in the medium-term. This utility could consist of a cluster of small modular networks. Innovative sewerage solutions and/or innovative waste management and wastewater re-use would be possible as a result of increased availability and consumption of water. The company should include not only the realization of 'small sewerage' but should ensure that it covers the
- entire chain where development of required capabilities could be done in house or through smart partnerships (eq. Public/school sanitation services, treatment & re-use).
- Preferably the private sector should be given the opportunity to design, implement, operate and transfer under contract with responsible authorities. In many countries water and sanitation services in smaller cities/villages is under remit of a dedicated institution, often assigned the role of what is referred to as asset-owner as well. We urge these organizations to fill in those roles as financial lease companies targeting full capital recovery from the service providers that are been contracted for providing water & 'sanitation/sewerage' services.







3.5 Treatment & Re-use

Key recommendations for scaling

The last few years the interest in the potential re-use of human waste has gained immense popularity. Start-Ups like Safisana, Sanergy and Cleanteam are well known and are being supported by different often grant facilitators to build the case and pioneer innovative business models.

Innovative 'sanitation' entrepreneurship, making productive and profitable use of wastewater and fecal sludge shows increasing promise. These businesses use human waste as a primary input into production of a variety of agricultural, energy and other products. These businesses are instrumental to the development of sustainable sanitation chains. There are different modalities for realizing these capabilities into companies or business-units, in a market system or under hybrid public-private partnerships. The potential of using human-waste as input in decentralized or centralized revenue generating capabilities has been piloted in range of applications (urine application in agriculture, composting and

CNG production from biogas and more)
Transforming these innovations into businesses @
scale remains a huge challenge. Through the online
challenge WhattodoWithPoo.com we also found there
are plenty of ideas, though the entrepreneurship and
development of profitable businesses @scale requires
strong support.

organic fertilizer, struvite recovery, Black Soldier Fly

application to produce poultry & fish feed, biogas &

energy generation, biogas production & distribution,

Most of the current companies are in a pioneering stage and are challenged with barriers that come with entering or creation of new industries. Formulating recommendations for these initiatives might be too early, but we have put some considerations from the lessons learned in few of these start-ups.

- Re-use of human waste requires creation of new industries and markets, or entering current industries that may have created barriers for new-entrants. Currently regulation, financial incentives, innovation instruments are lacking, resulting in large barriers to entry. Investing in industry facilitation to lower the barriers for these companies in energy, organic agricultural inputs, fish feeds, biogas etc. without distortion of market systems would be instrumental to scaling sanitation. Stimulating the demand for bio-energy and organic fertilizer would increase the input demand for human-waste, immediately providing the incentives for investments in the sanitation cycle.
- Continued pioneering of new products and services should be facilitated through range of start-up funding facilities and funding of intermediaries to facilitate inclusive innovations to reach the market. A recent example for innovation originates from detailed customer insights in Bangladesh where innovative alternatives for household latrines represent an opportunity for incubating lowcost decentralized treatment solutions. To scale decentralized treatment solutions as part of scaling household and communal/public services, there is a need for innovative treatment methods and new types of piping and sewerage solutions. This will reduce the costs of human waste collection and treatment while aiming for maximizing potential of value creation from human waste in waste-toenergy initiatives and organic fertilizer applications.







4 Exploring Funding Requirements and Mechanisms

4.1 Funding Household Sanitation

Ideally, an industry facilitator and/or intermediary would initially be financed by grant funding originating from donors, CSR money from large corporates in the hygiene industry and (impact) investors that benefit from market and industry insights and market development to strengthen their portfolio. For a country like Ghana, we estimated a cost of USD10-15million for market development, another USD 5-10million for industry facilitation focused on standardization, quality certification. Intermediary services focused on generating market insights, initiating and developing inclusive businesses would be targeting a cost of roughly USD 80k-100k per company or cluster of microenterprises (excluding required start-up and initial seed funding).

4.2 Funding Public & Communal Sanitation

Ideally, an industry facilitator and/or intermediary would initially be financed by grant funding originating from donors, CSR money from large corporates in the hygiene industry and (impact) investors that benefit from market and industry insights and market development to strengthen their portfolio. For a country like Ghana, we estimated a cost of USD10-15million for market development, another USD 5-10million for industry facilitation focused on standardization, quality certification. Intermediary services focused on generating market insights, initiating and developing inclusive

businesses would be targeting a cost of roughly USD 80k-100k per company or cluster of microenterprises (excluding required start-up and initial seed funding).

4.3 Funding Emptying & Collection Services

An industry facilitator could be instrumental in organizing the waste sector and exploring models for stimulating positive behavior regarding waste. Such a facilitator can identify potential collective initiatives and support the industry in policy making and in forming an attractive investment climate. It also could set standards and certification or incentive schemes to facilitate the industry in the adoption of hygienic practices, and in realizing and supporting the establishment of 'labor' organizations. Through partnership with health care organizations such initiatives could help to cover risks of the work force in the industry. Such facilitation could be realized by setting up or strengthening an industry association, and engaging a local intermediary focused on required business development support to the sector. The intermediary could also be instrumental on supporting collective innovation to realize efficient practices across the sector. The facilitator could initially be financed with grants. We did not work out the specific details for the total required funding, but we expect this not to be far off from the funding requirements for facilitation of household sanitation industry (excluding start-up financing and financing of new innovations to improve the sector practices).







4.4 Funding Household Sanitation

Small Water Operators (mini networks) are demonstrating to be viable and able to attract commercial funding from the market if the business has a proven track record. New initiatives based on partnerships between local private sector and international private sector are being established, though they are dependent on small start-up funding to cover for the costs of partnering with capacity -strengthening organizations for engaging and working with local communities and authorities. To expand the business to also take on responsibility for solving the 'waste-water' challenge related to provision of domestic water is an area in which we yet have not found a lot of cases. For the industry to develop and refine these models intermediary support in a local context is strongly required.

4.5 Funding Public & Communal Sanitation

Ongoing development of inclusive business models targeting scale requires strong support to start-ups in both seed funding and availability of intermediary services.

In Ghana, for example, we would envision that supporting around 5 businesses would require around USD 500k focused on realizing energy and composting services with a potential of additional revenue streams for new energy products (eg briquettes). This would not include start-up financing.







5 Business Opportunities

Business opportunity for household sanitation

Extrapolating from case study data and recent published reports, the household market opportunity for a country like Ghana would represent a market of USD 50-80million per year in a conservative forecast. Adhering to the target for improved sanitation set in the country plans market opportunity for household sanitation would drastically increase to around USD 150-200 million.

Business opportunities for Public & Communal Sanitation

• Manufacturers and constructors of public sanitation facilities and/or solutions.

For a country like Ghana, the potential for public services in a conservative model might reach 25,000 service points across urban and 'rural' settings, excluding school sanitation. This would represent a total investment of roughly USD 25-30million. Service Providers could benefit from modular self-sufficient solutions, allowing additional revenue models to be developed or integrated in type of services delivered and by vertically **integrating steps** from the sanitation value chain. (eg Umande Trust with its bio-centers, Sanergy with its decentralized services and centralized treatment and re-use products and services). Solution providers and suppliers, recognizing the potential of this market, should consider smart partnerships to move from functioning purely a transactional supplier to playing a role in further leveraging their

products. We found different promising solutions offered in the market for realizing public services, although the price points could not meet the required Total Cost of Ownership requirements we found from extrapolating some studied cases.

• Service Providers. The scope and boundaries of the business should allow that the return on the overall investment in a 'network' of service points can be recovered by the total income. This implies that the provider allows for certain level of crosssubsidizing. At least the model and pricing strategy should consider offering 'kids' for free, or schools

Based on some extrapolation of studied cases we expect that overall revenue potential from only public services for a country like Ghana would roughly be USD 250million and total O&M costs would be around USD 200million.

In Ghana we found that 100 service providers each servicing 250 service points could serve the countries public sanitation need. Each service provider could theoretically break even in 5-7 years.

An interesting business model for scaling public services in an **urban environment** is the realization of smaller, decentralized shared household facilities combined with wash/bathrooms for additional services and overall sufficient capacity to meet the total demand at peak hour. Extrapolating the payment behavior of the customers in their current business we found that in year 5 the company could generate a net-profit (after tax) of USD 50,000. This more complex business would require a total investment of around USD1.8 million.







5.3 Business Opportunities for Emptying & Collection Services

The business opportunities for waste collection industry exist at different levels.

- Emptying & Collection Solutions
 In Ghana, we estimated that for human waste collection the required equipment alone would represent an investment USD 10-15million
- Emptying & Collection Services
 Human Waste Revenue just from emptying services, though adopting innovative revenue/payment models, in a country such as Ghana represents a market opportunity of around USD 10million annually.

5.4 Business Opportunity for Smart Small Sewerage

The business opportunities for an integrated innovative Water & Sanitation Services for a country like Ghana would include below 10% of the population. This would create an opportunity between 4-6 of these companies.

In the latest developed business plan for Bomba (a start-up water services social enterprise in the Mara-Region of Tanzania), with the ambition to include at least 40 villages (households between 800-5000 per village) we estimate the ability of full capital recovery and break even in year 5. As a social enterprise it will be dependent on the availability of commercial funding to finance its expansion from 4-40 villages. We've explored inclusion of small sewerage and sanitation services, and found that there is a potential ROI of 5-10% in 5-7 years on the additional required services. The challenge, however, is the cost of complexity it adds to a company that already has to overcome its internal and external capability challenges. We truly believe in the business potential of this model, but it would require strong upfront support to develop and explore the model in a local context.

5.5 Business Opportunity for Treatment & Reuse

For a country such as Ghana, the recovery value at 5% is represented in table below.

Reuse				
Ghana market 5% volume recovery	Quantity	Value (2008)		
	t/year	MIn USD/year		
Total N (10-25% recovery)	7,488	1,5		
Total P (10-25% recovery)	817	0,5		
Total K (10-25% recovery)	2,124	0,3		

The business potential exists in maximizing creation of value from the input. In recent engagements we focused on the viability of the business model by adapting to the industry readiness and ability to rapidly generate revenues by reducing the complexity of market entry into complex industries or creating new industries. The business model proves to be viable for distributed biogas and energy generation, feeding into the grid. However, the ROI should not be expected before year 8. For investors, the consideration to invest in these businesses should certainly include an impact and environmental study, to assess whether these investments are comparable to alternative decentralized renewable energy generation investments.

The business model for briquettes from human waste turned out to be much more attractive, offering an ROI of 20-25% in year 4. However, this pioneering idea needs to be vetted to determine whether the market will show an uptake of briquettes from human waste. This is now being piloted in Nakura in collaboration with Nakura Water Company.







6 Concluding remarks

In this document we have summarized findings which we hope can be useful for ongoing mobilization and engagement of the financial sector in scaling sanitation.

We have seen that Private Sector and Investors in the sanitation industry are facing several challenges. Investors can be instrumental in accelerating access to sanitation offering valuable information, perspectives and capabilities through leveraging their experiences and knowledge on assessing benefits of investments, building investment portfolio and financing modalities:

- (Impact) investors should be aware of scaling barriers that investees may not be able to address on their own, and could be instrumental to developing market insights and share their insights facilitating industry to scale. Systematic reviews and insights on benefits (and costs) and better understanding investment drivers would allow improving the quality of decision making.
- (Impact) investors could choose to built a portfolio that demonstrates a vision towards systemic changes balancing investments in harmonized and aligned solutions in the chain, from household sanitation, emptying services to re-use of human waste.
- (Impact) investors could engage with partners to facilitate sanitation industry to drive market readiness, industry readiness and realize attractive investment climate.

• (Impact) investors can be instrumental in developing innovative financing solutions, or 'hybrid' fund structures in close collaboration with grant funders and partners. From this collective initiatives and industry facilitation could be supported in developing the industry and be instrumental to early stage financing. Understandable most (impact) investors tend not to invest in companies that are developing and exploring their business in immature industries. But these inclusive businesses are in need of support both internally and externally. Let's make it happen!







This document highlights the enormous potential awaiting investors in scaling the sanitation industry to the BoP. We've also identified critical factors to take into consideration a search for the keys to unlocking this sector's potential. Yes, investors are confronted with challenges, and no doubt there are more lessons to learn in this emerging market. However by working together, these challenges are surmountable. Investors are much needed to ignite the sanitation industry and bring it to the next level, through

offering useful expertise, market insights, financing and capacity. Together risks can be mitigated, and steady financial and social returns can be harvested.

This publication builds on lessons learned of many practitioners and other public and private partners in the sanitation and related businesses in the Netherlands and abroad.



We publish this document as part of the 'Sanitation Business Matchmaking Estafetta ('Relay Race') 2014. We invite investors to meet early stage entrepreneurs during the yearly BoP World Convention & Expo, this year in Singapore 28th - 30 August 2014. http://bopworldconvention.org

Come to the WORLD BoP Convention & Expo in Singapore on 28th - 30th August 2014



















