WATERPRENEURS

WHITE PAPER
March 2018

IMPACT INVESTING FOR WATER

INNOVATIVE FINANCE FOR SCALING-UP "WATER, SANITATION AND HYGIENE" (WASH) MARKET-BASED SOLUTIONS

A review of the needs and opportunities

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INTRODUCTION

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DEFINITION:

WASH (water, sanitation, and hygiene) entrepreneurs, in the context of this report, are formal organisations delivering market-based activities in the WASH and related areas (irrigation, hydro-electricity, etc.). These activities can include (but are not limited to) the provision of WASH operations services (collection, treatment, distribution, etc.), the construction of small infrastructure (drilling, mini-grid, treatment plants, sanitation facilities, etc.), or the development and sale of products (filters, pumps, etc.). These organisations can be socially-driven businesses or NGOs with trading revenue.

This report aims at being a tool for:

- **Impact investors** who want to improve their understanding of the current state of the WASH sector,
- **Market-based entrepreneurs** in the WASH sector who would like to gain visibility in the impact investing community
- **Any stakeholder** willing to get an overview of the WASH sector, its needs, and examples of possibilities for accelerating change.

It is widely recognised that water is central to sustainable development, and is linked with socio-economic development, healthy ecosystems, but also human survival (no water, no life). In terms of sustainable development, improving access to WASH leads to an improvement of health, welfare but also productivity of populations. Children can go to school, and get educated. Climate change is affected by water issues (depleting ecosystems leading to aridity), and water issues are affected by climate change (floods, hurricanes, droughts, etc.). Finally, water and sanitation are touching social and political issues, and insufficient water management can lead to major risks such as political instability (e.g. water wars), inequalities, epidemics, migrations, famines, etc.

WASH issues are getting more importance on the global agenda. It is unfortunately commonly known: numbers are huge. The United Nations estimates that 4.5 billion people lack safely managed sanitation service and 1.8 billion people drink contaminated water (WHO, UNICEF, 2015). Over the past decades, numerous organisations were involved on this issue, coming from all sectors (Non-governmental Organisations (NGOs), public sector, private sector). It has been, too often, observed that they operate in a silo approach, with poor cooperation and coordination, due to a complex ecosystem, on a transversal issue (the “water-nutrition-food nexus”). The financing of projects has come, mainly, from public funding, whether subsidies or charity. This led to great progress, but often implies recurrent shortcomings such as lack of maintenance, short-term programmes, lack of appropriation of the solutions by local communities, and more generally lack of sustainability.

Picture 1 - A water entrepreneur in Cambodia (1001fontaines)

Established local WASH entrepreneurs, provide sustainable solutions in the field, often in a decentralized way. These entrepreneurs could/should be considered as being part of the solution to bring sustainable access to safe water and sanitation to all, *leaving no one behind*. The question remains about their sustainability and their potential to scale-up their activities.

New trends in the financing include a gradual shift from donations to socially-responsible investments, and/or "impact investing", meaning investors with the intention to generate social and environmental impact alongside a financial return. Major financial institutional players (banks, insurances, pensions funds etc.) are looking at impact investing, and are starting to innovate in this field. Large corporations are also looking at new innovative investments because of their concerns for communities living in the vicinity of their local operations. Indeed, these populations often lack access to safe water and sanitation, which could give rise to instability and thus jeopardize their supply chains.

Finally, there is a recognition that collaboration between the public sector, the private sector, and civil society is key to the promotion of local entrepreneurship, which is expected to significantly contribute to the realisation of the Sustainable Development Goals, in particular in the WASH sector.

Now is action time:

- For mutual visibility between entrepreneurs and investors;
- For de-risking of entrepreneurial projects;
- For integrated approaches accelerating the financing of the sector ;
- To allow impactful entrepreneurs to scale-up their activities.

With this report, we invite you to a learning experience which we hope will encourage you to join us on an amazing action journey for the common good. We wish you a good reading and look forward to hearing from you soon.

The *Waterpreneurs* team

Acknowledgment: This report was authored by Brieux Michoud, Franck Barroso, and Nicolas Lorne with the support of Nicolas Pelletier, Michele Masetti, Caroline Poulet-Mathis, Marc Belenfant and Niels Delore. This report builds on the existing knowledge and research of many WASH experts and development professionals. The findings would not have been possible without the inputs of over 300 expert organizations and entrepreneurs who shared data, insights, and perspectives. The market study (in annexes) was sponsored by Symbiotics SA.

Literature review: All data and information about the global market and the major trends have been sourced and selected from recognized literature (see relevant bibliography in annexes).

1. GLOBAL OVERVIEW

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1.1 Water and sanitation: at the core of sustainable development

1.1.1 A water-secure world is crucial for peace

It is widely recognised that water is central to sustainable development, and is linked with socio-economic development, healthy ecosystems, but also human survival (no water, no life). It terms of sustainable development, improving access to water and sanitation leads to an improvement of health, welfare but also productivity of populations. Children can go to school, get educated. Climate change is also affected by water issues (depleting ecosystems leading to aridity), and water issues are also affected by climate change (floods, hurricanes, droughts, etc.).

Water and sanitation touch social and political issues and insufficient water management can lead to major risks such as political instability (e.g. water wars), inequalities, epidemics, migrations, famines, etc. Conversely, cooperation over managing scarce water resources can be a stepping stone to solve more complex political issues. As for an example, we like to highlight the approach adopted by **EcoPeace Middle East**, a regional hybrid organization (not-for-profit/for-profit) operating in Jordan, Israel, and Palestine with the aim of promoting sustainable regional development and the creation of necessary condition for lasting peace in the Middle East.

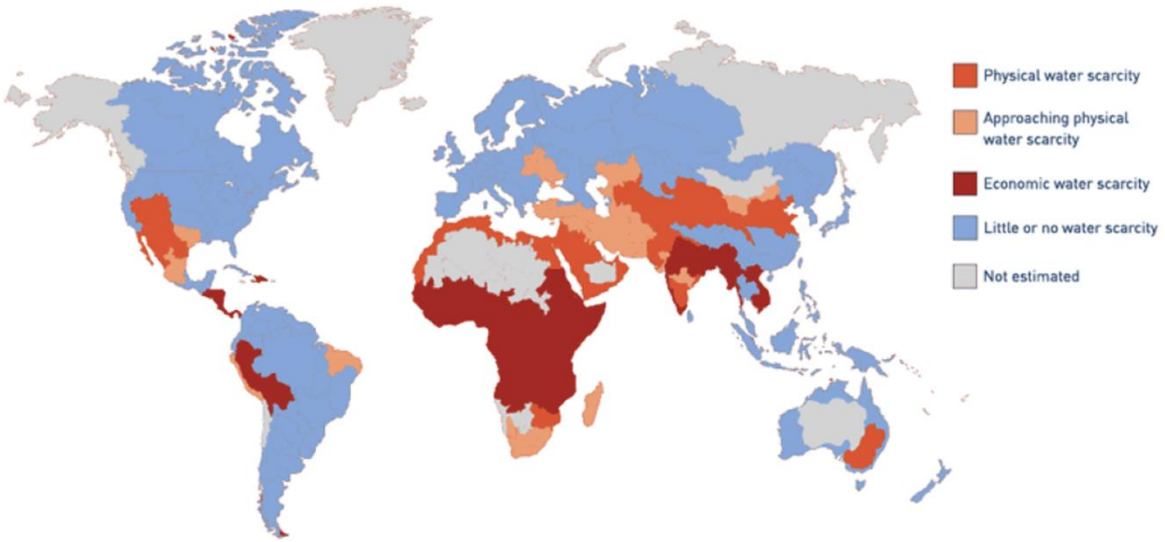

Figure 1 - Water: a global issue – Areas of physical and economic water scarcity

Source: FEW Resources

As highlighted by Johan Gely (head of the global programme water initiative of the **Swiss Agency for Development and Cooperation**): "*A water-secure world is crucial for sustainable development. […] In 2017, the* Blue Peace Movement *has shown its strength and brought the topic of water and peace onto the international agenda by linking favorably the peace and sustainable development agendas. […] Our collaboration with key global water platforms, the*

private sector, think tanks and the Water Young People Networks *bears the potential of shaping -in 2018 and following years- a blue sustainable infrastructure investment agenda as well as innovative forms of financing for water cooperation in local, national, regional and transboundary contexts. The provision of adequate funding for the promotion of collaborative schemes in transboundary water infrastructure, for instance, will be instrumental to realize this big opportunity. The redirection of capital is crucial to accelerating the transition to a new, sustainable and value driven economy*".

Finally, under the secretariat of the **Geneva Water Hub**, the **Global High-Level Panel on Water and Peace** was launched in 2015 in Geneva with the task of developing a set of proposals aimed at strengthening the global framework to prevent and resolve water-related conflicts, and facilitate the use of water as an important factor of building peace and enhancing the relevance of water issues in national and global policy making. The issue of "Water and Peace" has many facets. The Panel was asked to focus on four main themes, one of them is to identify legal, economic, financial and institutional mechanisms to incentivize multi-sectoral and transboundary water cooperation.

1.1.2 Key numbers to frame the global water and sanitation crisis

- 4.5 billion people lack safely managed sanitation services (WHO/UNICEF 2015)
- 2.1 billion people lack access to safely managed drinking water services (WHO/UNICEF 2015)
- 1.8 billion people use a source of drinking water contaminated with faeces, putting them at risk of contracting cholera, dysentery, typhoid, and polio. (WHO/UNICEF 2015)
- 892 million people worldwide still practise open defecation. (WHO/UNICEF 2017)
- 263 million people spent over 30 minutes per round trip to collect water from an improved source. (WHO/UNICEF 2017)
- 159 million people still use surface water, and two thirds live in sub-Saharan Africa (WHO/UNICEF 2015)
- 842,000 people die every year from diseases caused by unsafe water, inadequate sanitation, and hygiene. (WHO 2012)
- More than 340 000 children under five die annually from diarrhoeal diseases due to poor sanitation, poor hygiene, or unsafe drinking water. (WHO/UNICEF 2015)
- Loss of productivity to water- and sanitation-related diseases costs many countries up to 5% of GDP. (WHO 2012)
- Universal access to safe drinking water and adequate sanitation and hygiene would reduce the global disease burden by 10%. (WHO 2012)
- For every $1 invested in water and sanitation, an average of at least $4 is returned in increased productivity. (Sanitation returns $5.50 from $1 and water returns $2 from $1). (WHO 2012)

Picture 2 - Drinking water in a village in Nepal

1.1.3 WASH issues: scoping and definitions

It is recognised by the United Nations that there is a strong link between access to drinking water and improved sanitation as also good hygiene practices. This relation is visible on the overall health of populations and relates to wider socio-economic impacts, particularly for women and girls (in Africa, 90% of the work of collecting water is done by women and girls).

This white paper focuses on water and sanitation, but the importance of hygiene shall be emphasised in its role in reducing the spread of diseases.

1.1.3.1 Access to safe water

Improved drinking water – for example from a protected borehole well or municipal piped supply - is defined as being of sufficient quality for human consumption without risk of diseases. Many people still rely on unprotected (and possibly contaminated) sources, such as surface water, unprotected wells or informal vendors selling water, whose quality has not been ascertained. Distance from the water source is also an issue, as the work of fetching water can involve specific risks (attacks), but also implies a significant waste of time for underserved populations, especially for women and girls who often carry the burden of water collection and can be thus deprived of working or studying.

1.1.3.2 Access to improved sanitation

Improved sanitation– a facility that safely separates human waste from human contact – is key to avoid the spread of diseases such as cholera, that can originate in situations of inadequate latrines or open defecation. Indeed, the lack of effective waste disposal or sewage systems can result in contamination beyond the community, and contribute to disease pandemics. It is also a gender issue; many cases of abuse or sexual assaults have been reported from women and girls finding a place to go to the toilet outside.

Water is a very local issue. Any water usage in a river basin impacts other users. All water uses are interlinked and interrelated. Sanitation follows the same rule.

Figure 2 - Water: a local issue (source: WaterLex)

1.2 Global trends affecting WASH

In this era of globalisation, in an ever-increasing consuming world, water and sanitation are affected by global trends impacting governments, companies, associations, and communities.

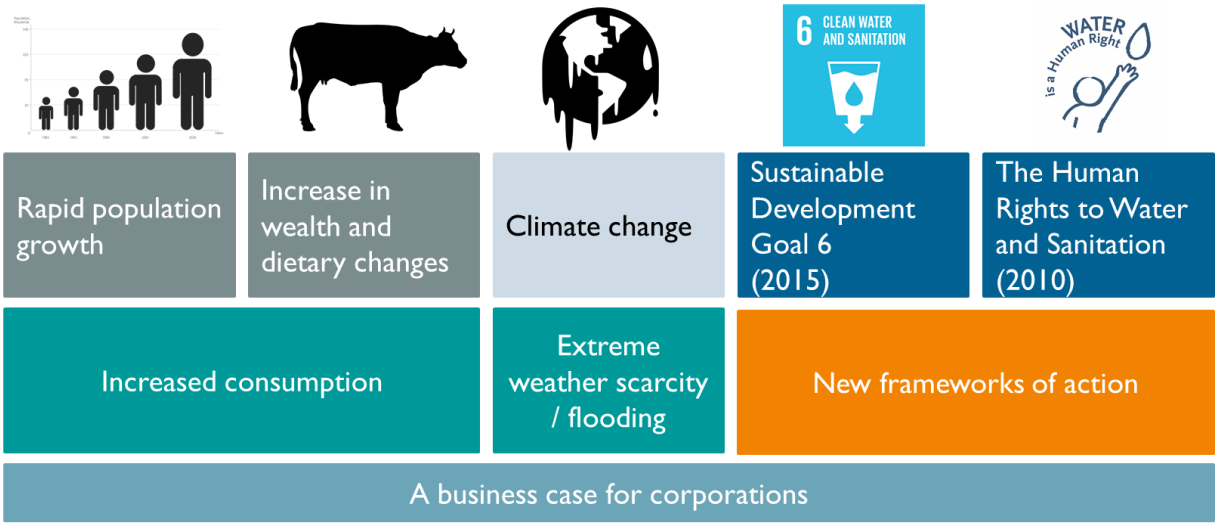

Figure 3 - Global trends affecting water and sanitation

1.2.1 Increased consumption and water demand

Rapid population growth, coupled with an increase in wealth and dietary changes, is increasing the demand for water. Climate change is also expected to have an impact on the availability of water in many regions. In fact, several regions are also depleting their freshwater resources at a very fast pace. Too often, water is badly managed in these places: it is frequently under-priced, subsidized and in some cases given for free, which doesn't help to reduce consumption.

Even in countries without water stress, governments often struggle to reduce the risk of unsafe or limited access to water and sanitation. Providing safe drinking water and sanitation through utility systems is complicated and many governments are either unwilling or unable to do so.

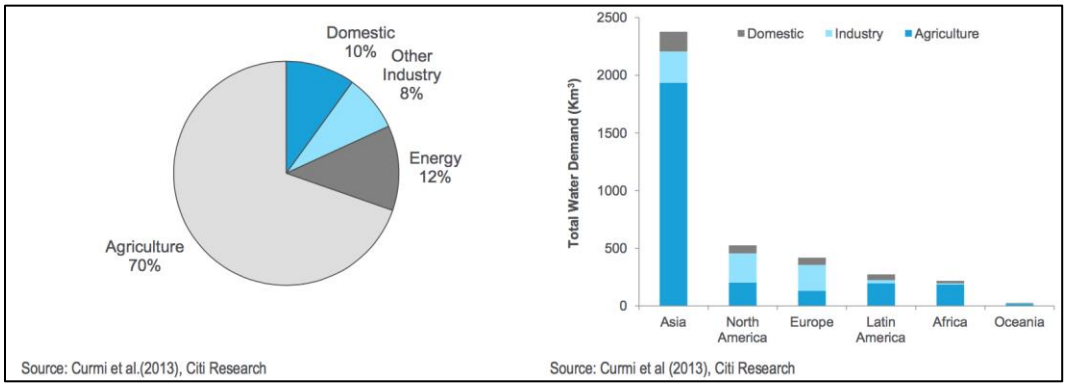

Figure 4 - Global Water Demand

Globally, 70% of fresh water is used today for agricultural purposes, with industry (20%), and domestic use (10%) receiving the remaining volumes. With regard to human consumption, the major source of demand comes from urban communities that require water for drinking, cleaning, and sanitation. Meanwhile, a billion people still do not have access to running water, current estimates foresee that the population will reach 9 billion by 2050. Regarding world energy and electricity demand, needs are expected to increase by 30% and 70% around 2040 (International Energy Agency, 2015), which will greatly increase the water use for energy (Olsson, 2015). Predictions of the resurgence of conflicts over water in the world, access to energy and water have been highlighted as looming security issue by the United Nations.

The ecological dimension is also to be considered: watershed protection, groundwater management, rehabilitation of oases, qanats and wetlands, parsimonious irrigation, livestock separation, distribution models, etc. are key to ensure sustainable use of the resource.

1.2.2 A business case for corporate companies along supply chains

Multinational corporations are greatly exposed to drinking water issues as the continuity of their supply chains depends on the stability of communities living in areas where they source their raw material whether agricultural crops or natural resources. There is, therefore, a strong business case for them to support sustainable access to safe drinking water and improve the living conditions of these communities, to secure the sustainability of their activities. This goes far beyond obvious moral imperatives, as without sustainable access to safe water and sanitation, producers, farmers, and industrial workers are leaving their villages and abandoning the production of raw material.

As an example, agri-business corporations have a vested interest in making sure that places, where they source their raw material (cocoa, coffee, cotton, etc.), are secured. It starts with producers having decent living conditions, including safe water to drink and improved sanitation. Their efforts can be enhanced and supported by NGOs, local authorities or other actors such as trading companies, which are getting increased risk exposure to WASH issues. Organisations such as **Farmstrong Foundation** are working on responsible and sustainable supply chains (an example of cocoa in Côte d'Ivoire and Ghana), and include the water dimension in their analysis. Same situations are faced by extractive industries, where mining companies are increasingly being exposed to water related issues along their value chains, and thereby getting more active to address them.

Most of the major corporations are using the **Alliance for Water Stewardship (AWS)** standard to evaluate their water impact. Specialized nongovernmental organisations and consulting organisations such as **Aquasis Solutions** or **Valuing Nature** are proposing their services to evaluate water impact of companies and assess their water related risks. Their approach is often going beyond water metrics, implementing projects on the ground, aiming to tackle water scarcity problems and climate-related disasters at the watershed level.

On top of being a business case, access to the economical "base of the pyramid" through water and sanitation is a long-term strategic objective for key consumer goods corporations such as **Danone** and **Unilever.** WASH projects are being used as an instrument to penetrate new markets.

- The "Base Of the Pyramid" (BOP) market represents $20 billion potential for water companies ($5 trillion for all sectors, food being predominant with 80% of potential);
- Starting with CSR-orientated initiatives, a more business-centric strategy is now emerging among consumer goods giants (**Danone**, **Coca-Cola**, **PepsiCo**, et al.);

- Yet it is acknowledged that we are still at an emerging / experimental phase of the growth movement.

1.2.3 Water energy food health nexus

In the development sector, water and energy issues are closely intertwined. In many instances, coordinated approaches open up creative opportunities for win-win solutions.

Vital for life, water and energy are critical aspects of any economy. Water and energy are closely interlinked in the sense that the use of one depends on the availability of the other. Yet despite the strong interdependence of the two sectors, they are often managed independently. This nexus is also applicable for food as water is essential for agriculture. Investment opportunities are many as the portfolio of projects can be diversified through different sectors.

It is, even more, the case in the rural or peri-urban area, where the idea of decentralized public services, operated by public or private small-scale players is seen as an opportunity for diversification. The nexus concept can be expended beyond water, energy, food, and health to touch upon all the other SDGs related topics, including education, climate change, marine ecosystems, land ecosystems, peace and economic growth. Water and sanitation being transversal to all these topics, SDG funders and investors should pay greater attention to WASH funding.

Funders such as **Aga Khan Foundation** are getting interested in making the link between water and health. **Coca Cola**, with a number of partners, has developed a concept of Ekocenter, “a modular community market that is run by a local woman entrepreneur and also provides safe water, solar power, Internet access, and more”. Companies such as **Schneider Electric** are investing and supporting energy entrepreneurs operating in decentralized places. They see the potential for the Base of the Pyramid market for their activities and understand that new innovative business models, in a nexus approach, will enable to reach these populations.

Safe Water Network (SWN) have a strong understanding of the operational and financial proposition of their stations. SWN know that work has been done on similar topics for solar powered utilities but there has not been work on combining the two. SWN believes by modelling revenue streams and integrated operating costs they can develop a financially and operationally strong utility to be field tested. SWN is interested in identifying who has expertise in solar power – financial analysis and operational experience – to help develop a compelling case for a dual utility.

Pharmagen Healthcare Limited (PHL) is a limited liability company and subsidiary of Pharmagen Ltd. (Leading Bulk Drug Supplier) established in 2006. With the help of **Acumen** USA (Recognized Impact Investment Organization and co-investee alongside Pharmagen Ltd), PHL started off water business in 2007 with the aim of providing clean and affordable water to its consumers in marginalized communities. PHL also introduced water ATM kiosks 1st time in Pakistan with the funding of **DFID** (UKaid) and successfully operating through a franchise model.

Since 2010, the **SUN Movement** has inspired a new way of working collaboratively to end malnutrition, in all its forms. With the governments of SUN Countries in the lead, it unites people—from governments, civil society, the United Nations, donors, businesses, and

researchers—in a collective effort to improve nutrition. SUN has made the link between WASH and nutrition and is looking closely at nexus solutions.

The relationship between **SUN** and **Sanitation and Water for All** (SWA) seeks to strengthen WASH-Nutrition linkages at country and global levels, while also sharing experiences in coalition building.

Action Contre la Faim, is working on a nexus approach in emergency situations and is reaching out to companies such as **Nutriset** (a social enterprise developing nutritional products) and **Aquasure** (a company developing water treatment tablets, particularly recognized for their efficiency in cases of disaster relief).

New companies develop solutions around water treatment and nutrition. For example, **Global Empowers** is a new Australian based company, currently developing multi-vitamin water purification tablets.

Untapped is another example of an organisation working on the nexus concept, with water as an entry point. They develop commercial platforms for underserved consumers and develop cost effective last mile distribution of consumer goods and services, such as water, food, energy, etc. but also retailer finance. This model helps them reach financial sustainability and eases attracting partners (especially Fast-Moving Consumer Goods corporations).

WECONNEX is a spin off from Trunz Water Systems. WECONNEX has developed and is promoting the "NEXUS Concept", which shall provide access to basic services such as safe drinking water, sustainable energy, sanitation, communication, etc. for fair prices while generating an economic, social and environmental impact.

Figure 5 - Nexus Center, by WeConnex

The flexibility gained by adopting the nexus approach can also be expanded beyond national boundaries by creating regional solutions in a way that capitalizes on the relative advantages individual countries may possess. **EcoPeace**'s Water Energy Nexus project represents an example of the regional approach. By capitalizing on Jordan's potential to harvest cheap renewable energy, the advanced desalination technology in Israel and the relative proximity of coastal areas in Israel and Palestine to population centres in Jordan, an exchange of renewable energy from Jordan with desalinated water from Israel and Gaza does not only satisfy the future water and energy needs of the region, but also creates a state of interdependence which is necessary to cement peace and prevent future conflicts.

REEEP highlights the fact that water investments could happen more easily when supported by energy investments. Since water investments are often hampered by the fact that water pricing is such a contentious issue, and water activities – purification, waste water treatment etc. – all need energy, congruent energy investment opportunities might be used as 'bridge' finance for improving water infrastructure. The 2.5-year project, "Climate Change, Clean Energy and Urban Water", funded by the EU, with **UNIDO** as implementation partner and REEEP as execution partner, is promoting the market-based deployment of energy efficiency measures and clean energy technologies and services in municipal waterworks, commencing with pilot demonstration projects in South Africa. Moreover, REEEP has been stressing the similarity of water and energy investment challenges: with regards to alternative toilet schemes, it might be interesting to investigate experiences from the energy sector, e.g. cook stoves. In this field, there have been a plethora of mistakes made from which much can be learned. It seems that slowly the cook stoves initiatives create real traction after having learned some aspects the hard way. This may be useful and stimulating for partners such as sanipreneurs.

1.2.4 Social license to operate: new frames of action

The "social license" has been defined as existing when an organisation / a project has the ongoing approval of the local community and other stakeholders, or broad social acceptance.

1.2.4.1 Sustainable Development Goal 6

Sustainable Development Goals (SDGs) adopted in 2015, set the global agenda to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. One goal is, specifically, addressing water and sanitation, and calls on "*ensuring availability and sustainable management of water and sanitation for all*".

Figure 6 - SDG 6 - Clean Water and Sanitation

The shift from MDG 7 (Millennium Development Goal 7) to SDG 6 in 2015 shows that we are moving from a narrow focus on providing access to improved sources of drinking water towards a more global approach of delivering safe and sustainable water and sanitation services. In this process, a collaboration between the public sector, the private sector, and civil society is essential and expected. It also implies a diversification of the sources of financing for water projects.

SDG 6: Ensuring availability and sustainable management of water & sanitation for all	
Sustainable Access to Water	**6.1**: By 2030, achieve universal and equitable access to safe and affordable drinking water for all
Sustainable Access to Sanitation	**6.2**: By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
Quality	**6.3**: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

Use	**6.4**: By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
Management	**6.5**: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
Protection	**6.6**: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes
Co-operation	**6.A**: By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
Community	**6.B**: Support and strengthen the participation of local communities in improving water and sanitation management

SDG 6 is largely within the public domain, offering opportunities for Public Private Partnerships (PPP) based collaboration between public and private parties with a "potential role" for civil society as the third partner. This ecosystem approach is necessary to support, endorse and de-risk entrepreneurs delivering water or sanitation services. This is an opportunity to engage with all organisations that have a vested interest in making sure that access to safe water and sanitation are properly managed (see below figure: A collaborative space for WASH stakeholders).

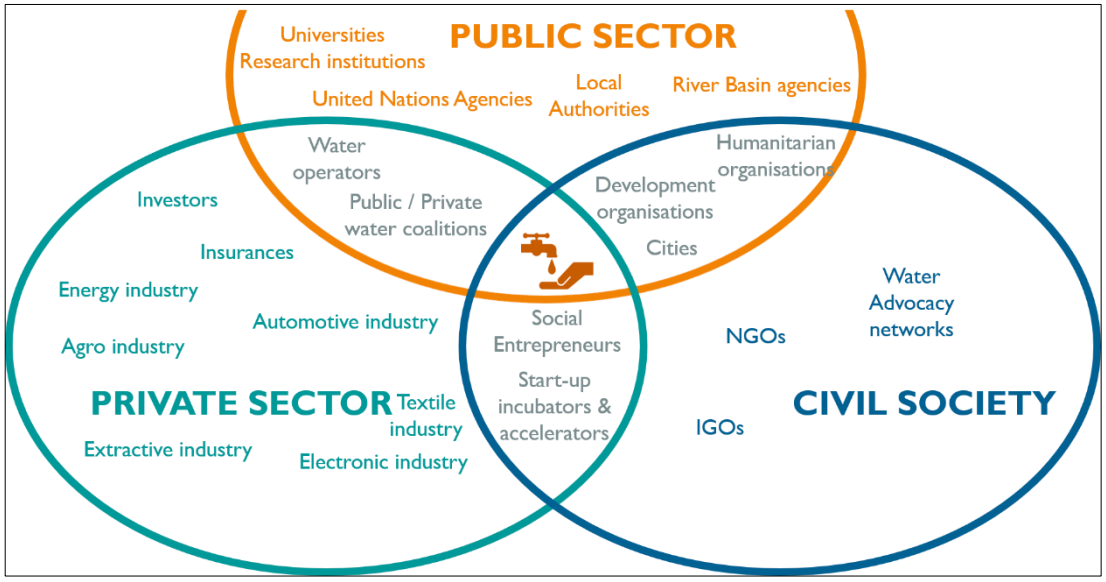

Figure 7 – A collaborative space for water and sanitation stakeholders – source: Waterpreneurs

In the case of WASH market-based organisations, for example, the public authority will delegate part of their duty to provide water to the population to the entrepreneurs. The organisation will, therefore, need to work in close cooperation with local authorities. It is also a good way to make sure that there is sufficient water in the aquifer, for example. A local NGO can support an entrepreneur by providing capacity building, by endorsing the activity, by supporting the social marketing aspect in the communities etc. A local industry can be interested that the entrepreneur operates and provides safe water or sanitation in the places

where they operate, to ensure sustainability in their value chains; and strengthen its WASH4Work commitment.

All these different stakeholders operating with the entrepreneurs, from the public sector, the private sector, and civil society are necessary to ensure the integrity of the business and provide the levers necessary to scale (capacity, finance, etc.).

Initiatives such as the **UN Global Compact** are supporting private sector players in developing their SDGs action. **2030 Water Resource Group** is another example of public-private-civil society partnerships for water security.

Impact of market-based organisations

WASH market-based organisations deliver impact mainly through access to safe water and sanitation (SDG 6) but also generate other positive outcomes. In fact, stabilizing access to safe water and sanitation leads to a direct improvement of health – SDG 3 (especially for vulnerable populations, such as children), and create a virtuous circle of development, with education, livelihood, gender equality (in 90% of the cases in Africa, the work of fetching the water is done by women and girls) etc.

See market study illustration in Annexes p.105

Impact metrics used

To measure their impact, water and sanitation market-based organisations are using several metrics, both quantitative and qualitative, regarding the environmental aspect, the social aspect, and the economic aspect. These metrics are most of the time aligned with requirements from donors or impact investors. Indicators are stronger when aligned with standard grids, such as the SDG indicators, the human right criteria, the WHO water quality indicators, or the GRI (Global Reporting Initiative) criteria for business. There is an expressed need for alignment of the indicators used.

See market study illustration in Annexes p.106

These market-based organisations operating in the WASH sector are aware of the positive impact they generate. Often, they use it as a “marketing” tool to access finance. For example, **Helioz** uses carbon credits: if a family does not have to boil water, they will use less wood and emit less CO_2.

1.2.4.2 The human rights to water and sanitation

> *“The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, personal and domestic hygienic requirements”*
>
> Committee on Economic, Social and Cultural Rights (2002): Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights. General Comment no. 15: The Right to Water.

Following on this General Comment no. 15, on 28 July 2010 the United Nations General Assembly through Resolution A/RES/64/292 declared safe and clean drinking water and

sanitation a human right essential to the full enjoyment of life and all other human rights, clearly defined under ten principles and criteria (availability, quality, affordability, acceptability, accessibility, access to information, non-discrimination, accountability, participation, sustainability).

The consequence for the private sector is that it is now socially accepted that private sector organisations can operate water services, under certain conditions related to these criteria: **respecting the Human Rights to Water and Sanitation has become a "social licence to operate" for Water and Sanitation enterprises**. Governments, NGO's and human rights defenders are extremely sensitive to the respect of the criteria. Any deviation leads to strong and fast public denunciation.

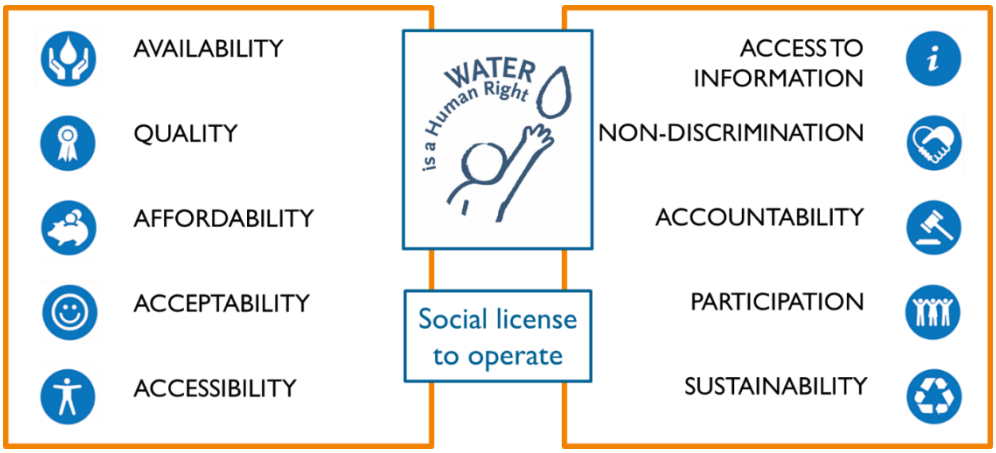

Figure 8 - The human rights to water and sanitation: a "social license to operate"

No productive conversation between the WASH sector and private organisations can take place if it does not start with a recognition of the importance of a human-rights based-approach and its implication for the business. National regulations are expected to provide a framework. In the absence of such framework, operating a business in the WASH sector is extremely risky.

As highlighted by **UNCTAD** (United Nations Conference on Trade and Development) 2015), a human rights lens is intrinsic to achieving universal access and addressing inequalities, both of which are central to SDG 6 targets. It is therefore important to be clear about whether a proposed form of private sector engagement supports access to and use of water supply, sanitation, and hygiene in general, or for the poorest and most marginalised in particular (Overseas Development Institute, 2015). It is also important to be transparent and objective about the risks of private sector involvement in a basic-needs sector such as WASH, especially around ensuring that services remain affordable and accessible to all, including the poorest members of the society.

To improve accountability, awareness, and action around the human rights to water and sanitation, guidelines are needed. The **CEO Water Mandate** released guidelines for companies, primarily large water users, to help them understand how to apply their responsibilities to respect the human rights to water and sanitation to their ongoing water stewardship activities. Through the Safe Water Project in India in 2016 and 2017, **WaterLex** has developed and tested a checklist to support water and sanitation entrepreneurs and help them assess their ability to comply with the human rights to water and sanitation. This is a self-assessment tool that can be used independently by small and medium-sized companies.

Affordability: the price of water at the centre of the discussions

The price of water is a central topic: in any water or sanitation projects, it is key to defining a balance or an arbitration between the objective of social impact and the economic viability. It is also very sensitive from the point of view of the acceptance of the local populations. **UNDP** (United Nations Development Programme) recommends that expenses on water and sanitation should not exceed 3% of the household income. Respecting this objective is often a challenge for water and sanitation entrepreneurs operating in low-income communities. However, it is part of the social license to operate to make sure that everyone can access safe water and sanitation at affordable prices.

A recent study on Safe Water Enterprises ("SWE-study 2017")[1] estimates that, "*of the ~3.8 billion people* [with non-access to improved water sources] *, 2.16 billion people have the ability to pay for safe water themselves without subsidies, and could be served through Safe Water Enterprises ("SWE") globally in a manner that relies solely on affordable water tariffs and leads to full cost recovery, including fully amortised capital investments, and hence financial sustainability. An additional 1.7 billion people would need partial subsidies, assuming their user fees are capped at 3% of their income. This poorer segment of the population would need partial subsidies totalling $14.4 billion, in order to be served safe water through SWEs, with the subsidies being covered by the government, development agencies, and/or charitable support. This represents about $8.50 of annual subsidy per person for those with only a partial ability to pay*."

A key finding of the study on SWEs is that there's a basic trade-off between keeping the price of water services as low as possible (in order to serve as many people as possible) and achieving financial viability (typically meaning you don't lose money, not that you earn a profit).

EXAMPLE OF SAFE WATER NETWORK

The case of the **Safe Water Network** is also relevant. This organisation works to improve how the sector supplies water to small towns and peri-urban communities. Along with its sector development work, it implements locally-owned and -operated small water enterprises (SWE) that provide access to reliable, affordable and safe drinking water to more than 300 communities in Ghana and India. Achieving a sustainable balance between financial viability of the SWEs and affordability is key to Safe Water Network's mission. Currently, water is affordable to people who live on $1.00 - $2.50/day, and at this low price, the proposition remains fragile. To strengthen the proposition, Safe Water Network systematically improves the model through optimizations, e.g. solar power, ATMs, household connections, to boost revenue and reduce OpEx. As the proposition strengthens, concessional finance can play a role in supporting investible optimizations and/or partial cost recovery (e.g., recovering a TBD% of capital costs within 5 years). Nonetheless, significant challenges remain for investment, especially currency devaluation and high interest rates.

This is a typical case where donor funding can be used to offset risks and attract blended (public/private) finance.

[1] The Untapped Potential of Decentralized Solutions to Provide Safe, Sustainable Drinking Water at Large Scale, The State of the Safe Water Enterprises Market, (Dalberg, 2017) - www.safewaterenterprises.com/

Market penetration is a great obstacle and needs a better understanding of marketing perspectives. In practice, this acceptance of paying for water can be an everyday challenge for WASH entrepreneurs in certain countries and remains a major barrier for entrepreneurs. For instance, **SpringHealth** in India has been incorporating elements of behaviour change (social marketing) in villages where they operate to increase adoption and consumption of paid water. SpringHealth would like to accelerate their penetration to at least 80% of the population where they operate from the current 20% and increase the consumption per household from 5.5 litres per day to 10 litres per day.

1.3 Global financing perspectives for WASH

1.3.1 By 2030, $112 billion required per year

In developed economies, investors are usually willing to lend to water service providers as these are viewed as low risk with reliable, reasonable returns. There are currently many types of water funds (**Pictet**, **Calvert**, **AllianzGI**, **Water Impax Asset Management**, et al.) and they generally invest in listed companies whose main business is in the water sector or that are significantly involved in water-related services or technologies.

In the emerging markets, governments are funnelling large amounts of capital into areas such as water conservation, watershed management, purification, and infrastructure. Over the past decade, water infrastructure spending has grown rapidly in both absolute terms and as a percentage of gross domestic product (GDP) in most emerging markets. They now account for half of all infrastructure spending worldwide. However, private investors tend to view the water sector in emerging markets as not creditworthy, because the actors have been constrained in their ability to increase tariffs to cost-covering levels and are supported by a mix of domestic subsidies and international concessional financing.

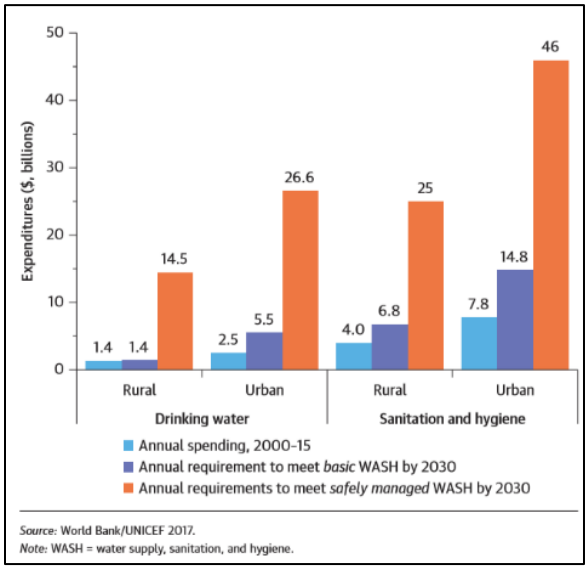

Figure 9 - Costs of extending WASH access under SDGs (2016-30) relative to MDGs (2000-15)

The capital and operating costs for water supply and sanitation service provision needed to meet the SDGs are expected to be much higher than current spending levels.

The World Bank estimates that around $112 billion per year will be required to deliver universal access to safe services under the SDGs. Most of this investment will be needed for sanitation, with 40% for urban sanitation and 20% for rural sanitation (figure beside); 63% of which will be needed in developing countries.

The current sources of funding cover only 16% of the needs for new infrastructure investments. Countries will need to find new sources of finance to meet the growing demand, not just for extended services and larger populations, but also to fund adequate operations and maintenance as well as supervision for more sustainable services.

1.3.2 Financing mechanisms for the water and sanitation sectors

In the water and sanitation sector, CapEx (Capital Expenditure) and OpEx (Operational Expenditure) are currently funded by a mix of public and private sources. Blended finance and PPP are common options. A part of these are expected to be repaid, therefore there is a distinction between non-repayable and repayable financing sources as described below.

1.3.2.1 Non-repayable financing sources

In the water sector there are three main sources of funding, also called the 3Ts:

- Tariffs: paid by households, businesses, and governments;
- Taxes revenues: in the form of government subsidies;
- Transfers: from external donors or philanthropic foundations, in the form of grants.

1.3.2.2 Repayable financing sources

In the water sector it is common to talk about 2 types of financing:

- *Concessional finance* is repayable finance offered by multilateral and regional development banks, bilateral donors, and domestic development banks. It is provided at a lower interest rate with a longer tenor than commercial finance. These "softer" payment terms are made possible, thanks to a grant element wrapped into the interest rate and the grace period of the financing terms. It tends to be available in hard currencies. (source World Bank).
- *Commercial finance* is defined as market-based finance, including debt, equity, and certain kinds of guarantees. It is market-based in the sense that the cost of this type of financing is determined by supply and demand in capital markets rather than by governments or other regulatory bodies. Most forms of market-based finance are repayable to their providers. (source World Bank).

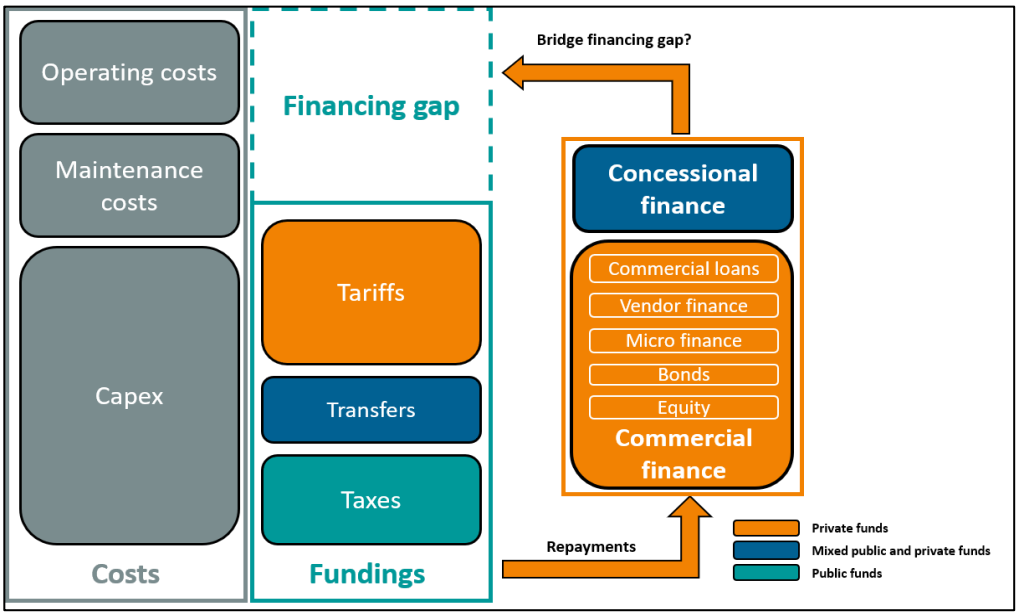

Figure 10 - Traditional Revenue Sources for the Water Sector - Source: Waterpreneurs

Non-repayable finance is usually free of charge. There may be certain contractual requirements in that agreement, but there are no requirements to pay back the capital. It mostly comes from donations made by governments, or philanthropists. Repayable finance, on the

other hand, is an amount of capital or the sum of money provided to an organization with the expectation of a return.

Looking at the investments in water organisations, we will in the following section focus on transfers, concessional finance and commercial finance, and less on tariffs and taxes since they are mainly used for operations and maintenance, even if it is important to note that household expenditure makes up a large part of funding for the sector (GLAAS 2017). Currently, the vast majority of the funds come from domestic and public sources, and bilateral/multilateral funding (in developing countries especially), with private investment representing only a small fraction today.

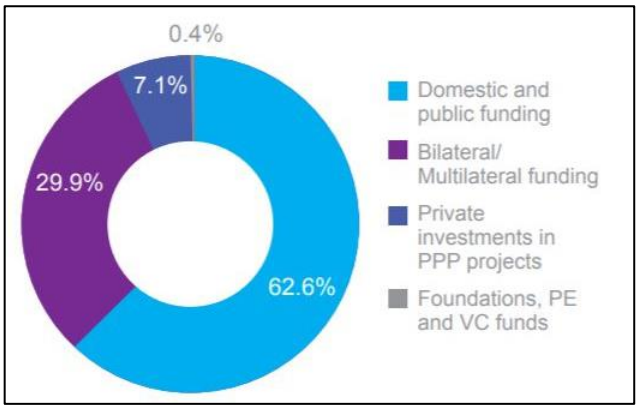

Figure 11 - Supply of financing to the water and sanitation sector by source of investment (IFC, 2015)

Together, this represents more than 90% of the amount provided. The money is used mainly for investment in infrastructure, the water sector is extremely capital intensive, but also for maintenance and operating costs. Private investments in PPP (public private partnerships) projects are often seen as an entry point for private sector participation. It will mainly be the case for utilities investing in the infrastructure that they will operate afterwards. Interesting models are described in the report published by **UNESCAP**, *Development Financing for Tangible Results: A Paradigm Shift to Impact Investing and Outcome Models*, 2013[2].

As highlighted in the figure below, there is a finance gap especially for entrepreneurs perceived as risky (mainly SMEs). These entrepreneurs are often decentralised providers (i.e. market-based solutions).

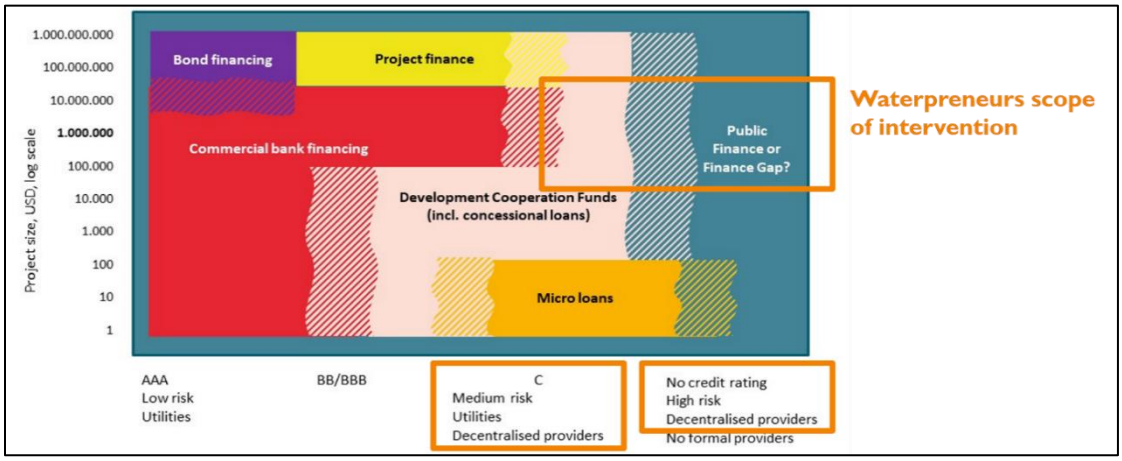

Figure 12 – What we don't know: what financing options available to reach the SDG 6 finance gap? - source: Gietema, van Oppenraaij and Fonseca (2017) Amsterdam International Water Week

2 http://www.unescap.org/sites/default/files/Development%20Financing%20for%20Tangible%20Results-A%20Paradigm%20Shift%20to%20Impact%20Investing%20and%20Outcome%20Models.pdf

Today, it is challenging for funders and investors to design funding mechanisms able to support the scaling up of operations developed by entrepreneurs. In the survey, the large majority of respondents indicated seeking for funding between USD 100k and USD 10 million. Blended finance, with a part of the non-repayable money (subsidies, grants, etc.) covering the OpEx, and a part of the repayable money (debt, equity, etc.) can allow a diversification of the sources of finance and a de-risking of investment projects.

2. THE MARKET PLACE

2. THE MARKET-PLACE

2.1 WASH: From informal to multinationals

The variety of players involved in WASH service delivery is large and diverse, with public and private sector entities. It is recognized that universal WASH access will need the contribution from both, public and private entities since their roles and motivations are distinct. However, respecting the human rights to water and sanitation are core principles that apply to both public and private entities.

In 2015, **ODI** launched a discussion paper on "*Private Sector and water supply, sanitation and hygiene*", commissioned by **UNICEF** and the **UN Foundation**. This document can be considered as a reference when looking at private sector involvement in WASH. The study maps private sector entities working in water and sanitation, and highlights subsectors, scales of businesses, profit orientation and the position they occupy across links in the water supply, sanitation value chains[3].

The organisations targeted by our study are operating market-based WASH-related activities in developing countries. They belong to categories I, II and III, of the ODI segmentation, with a large majority of category II (Medium-sized businesses), and are circled in orange in the figures below.

2.1.1 The private sector in water

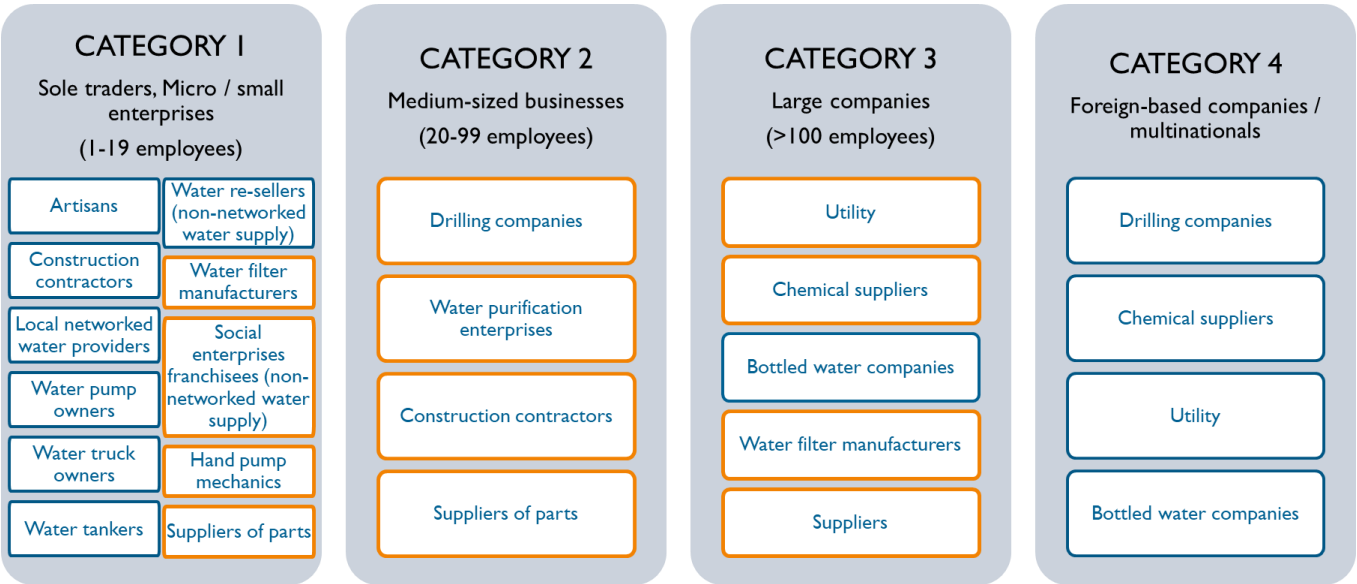

Figure 13 - Mapping private sector in the Water value chain (ODI, 2015)

[3] See full mapping in Annexes

2.1.2 The private sector in sanitation

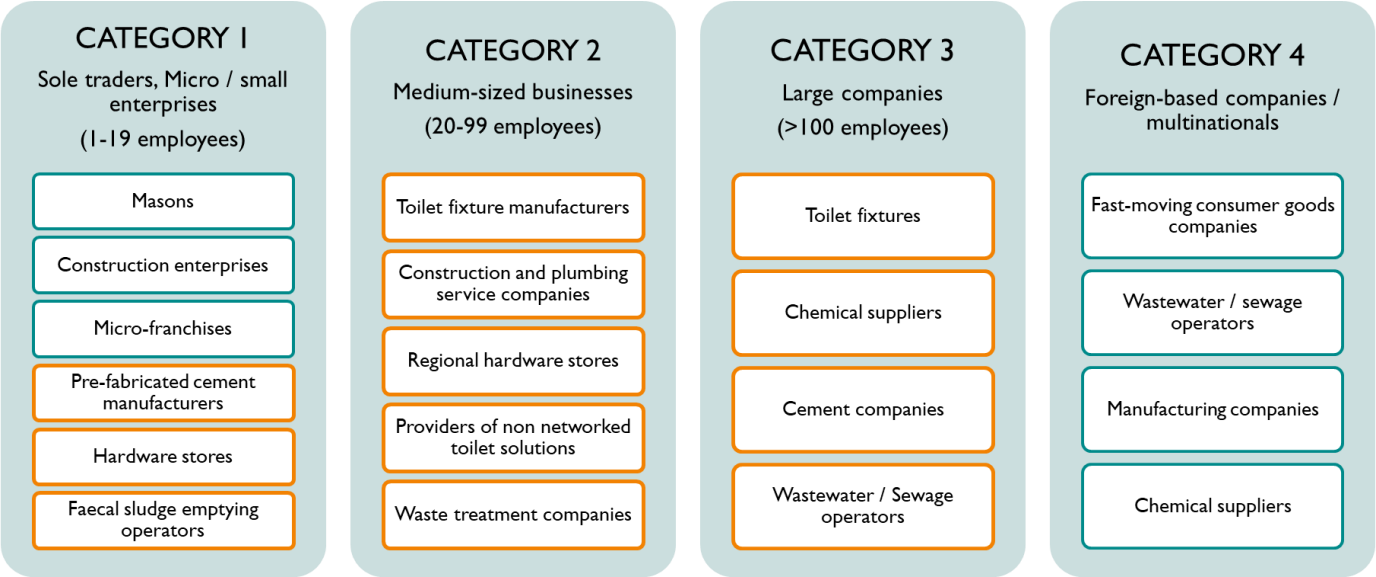

Figure 14 - Mapping private sector in the sanitation value chain (ODI, 2015)

2.1.3 Transition to market-based solutions

Local entrepreneurs that deliver safe water or sanitation services (collection, treatment, distribution, installation of facilities etc.) can contribute significantly in bringing sustainable solutions and ensuring the maintenance of operations. Water and sanitation enterprises can play a key role within a larger national framework for delivering safe, convenient and affordable water and sanitation services to all. This includes providing safe drinking water or sanitation to places that don't have piped water infrastructure (including last-mile delivery), serving low-income communities and providing last mile treatment in places with piped water.

These organisations can be NGOs with trading revenue or socially-driven businesses.

Over the past ten years, hundreds of innovative, safe water or sanitation solutions have gained increasing ground across the world: As highlighted by **Hystra**[4], "*NGOs are setting up enterprises manufacturing and offering low-cost, effective water filters; social entrepreneurs are managing networks of hundreds of mini-treatment plants in villages experiencing heavy water pollution; local entrepreneurs are building networks of low-cost, stand-alone pipe networks in poor suburbs and towns; and both public and private utilities have proven it is possible to expand public water services to the poor peripheries of large cities. Over the past five years, innovative approaches led by social entrepreneurs, NGOs, and corporations have proven that sustainable solutions could provide safe water at the Base of the Pyramid.*"

[4] Access to safe water for the base of the pyramid (Hystra, September 2011)

Figure 15 - emergence of a market for impact investors

See market study illustration in Annexes p.108

The tendency for NGOs to move into social businesses can be illustrated through examples. It is the case for **1001fontaines**. The aim of this NGO is to create sustainable access to drinking water through local entrepreneurship for disadvantaged communities. It selects and trains entrepreneurs in villages to operate water kiosks - micro decentralized water factories - where an entrepreneur treats water and sells it in 20-liter jars to the community. The organization is structured as a franchisor, with a country office at the national level, and regional platforms coordinating the action of individual water kiosks. Their activities have always been based on a hybrid business model – grants funding the initial investment, and revenues from water sales financing the operating and maintenance costs. To achieve their ambition of scaling up globally, the need to accelerate the deployment was strongly felt. In 2017, they decided to partner with **UBERIS Capital**, an impact investing fund, to explore the potential of impact investment to foster the growth and accelerate their impacts. This would mean shifting from a hybrid model to a 100% social business approach, by addressing the upper-poor part of the population, selling the water at a slightly higher price, and thus being able to reimburse the initial investment. In order to test this approach, an opportunity in Vietnam is currently under instruction.

It is also the case for **Antenna Foundation**, launching in 2017 a social business for the marketing and sales activities for their water device, WATA.

2.1.4 The emergence of hybrid business models

The water sector is seeing the emergence of various hybrid models that contribute to solving local problems (in particular accessibility and affordability). These models are often considered the most effective, combining complementary and sometimes unconventional approaches.

There are many innovative technologies and business models to provide safe water or sanitation in remote areas on a paying basis. However, all these operations struggle with barriers such as willingness to pay and overall profitability. This limits their ability to scale-up and replicate. During the event Innovate 4 Water (Geneva, June 2017), several promising avenues were highlighted to solve these barriers: diversify product lines, work on behaviour

change, increase the price, cross-subsidize and alternative payment scheme, or decrease the costs.

This is also the viewpoint of **Danone Communities** who is supporting water kiosks businesses around the world. They recognise the need to optimise solutions to achieve both social and economic objectives. Their recent study[5] shows that water kiosks are credible, modular, complementary providers of safe drinking water to communities in a financially sustainable way. Water kiosks have the potential to serve up to 2 billion people that are lacking access to safe drinking water. To untap this potential and, ensure long term sustainability, water kiosks solutions will have to reach financial viability (OpEx & CapEx) to attract private players, and cease to be dependent on subsidies. In the meantime, creating hybrid models mixing entities and financial solutions (public/private, grants/capital/loans, etc.) is key to enable these companies to increase efficiency and reach critical scale.

Below are listed several options for hybrid business models that represent opportunities for WASH entrepreneurs.

WASH franchise Business Models

1001fontaines, **Naandi**, **Pharmagen Healthcare Limited,** and **Jibu** are examples of water kiosks organisations operating with a franchise model. One of Jibu's innovations is the integration of franchisor and custom banking services for aspiring entrepreneurs. Jibu's model offers entrepreneurs access to both the upfront asset financing needed to launch a business and the ongoing infrastructure support to keep profits aligned with impact. Jibu's social franchise business model provides a structure to ensure that emerging market entrepreneurs channel their efforts within the constraints of a revocable franchise license – one that requires adherence to Jibu's brand standards and charitable goals.

[5] The Untapped Potential of Decentralized Solutions to Provide Safe, Sustainable Drinking Water at Large Scale, The State of the Safe Water Enterprises Market, (Dalberg, 2017) - www.safewaterenterprises.com/

Franchise Business Model
Source: infoDev, 2017[6]

Community Water Points enterprises adopt the franchise model as they see an opportunity to sell a uniform quality of water under their brand name and scale rapidly through local entrepreneurs. Enterprises also see the potential for the franchise model in markets that require intensive demand generation and where it is difficult to provide direct maintenance support. The franchisee makes an initial investment (down payment), with direct or indirect financial support from the CWP enterprise, and operates the unit under a revenue sharing agreement with the enterprise. Sarvajal in India, Jibu in Africa, and WaterHealth with a presence in India, Bangladesh, Ghana, Nigeria, and Liberia are some CWP enterprises that follow this business model.

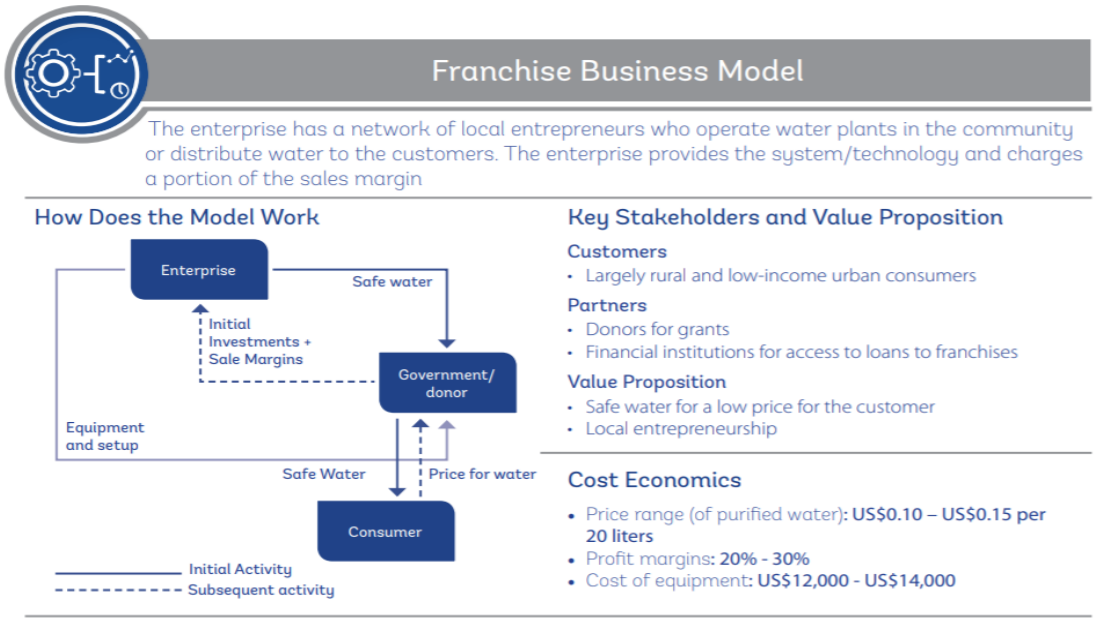

Figure 16 - Franchise Business Model in Community Water Purification Market - Source infoDEV, 2017

[6] https://www.infodev.org/sites/default/files/innovations_for_scaling_green_sectors_-_infodev_-_climate_technology_program_-_2017_-_web.pdf

Sales and Maintenance Business Model

Sales and Maintenance Business Model
Source: infoDev, 2017

Enterprises in the sales and maintenance model usually partner with a capital provider who provides significant upfront funding to cover the initial capital and installation costs. This includes support from the government, CSR sponsorship, and DFI funds. The enterprises operate the Community Water Purification unit and provide sales and maintenance support for a fee, which covers their operating expenditure. The price of the improved water is usually determined by the project sponsor. Grundfos Lifelink and Maji Melele in Kenya; Sarvajal, Drinkwell, Synergy Solar, Waterpoint, and Waterlife in India; and dloHaiti in Haiti are some CWP enterprises that deploy this business model.

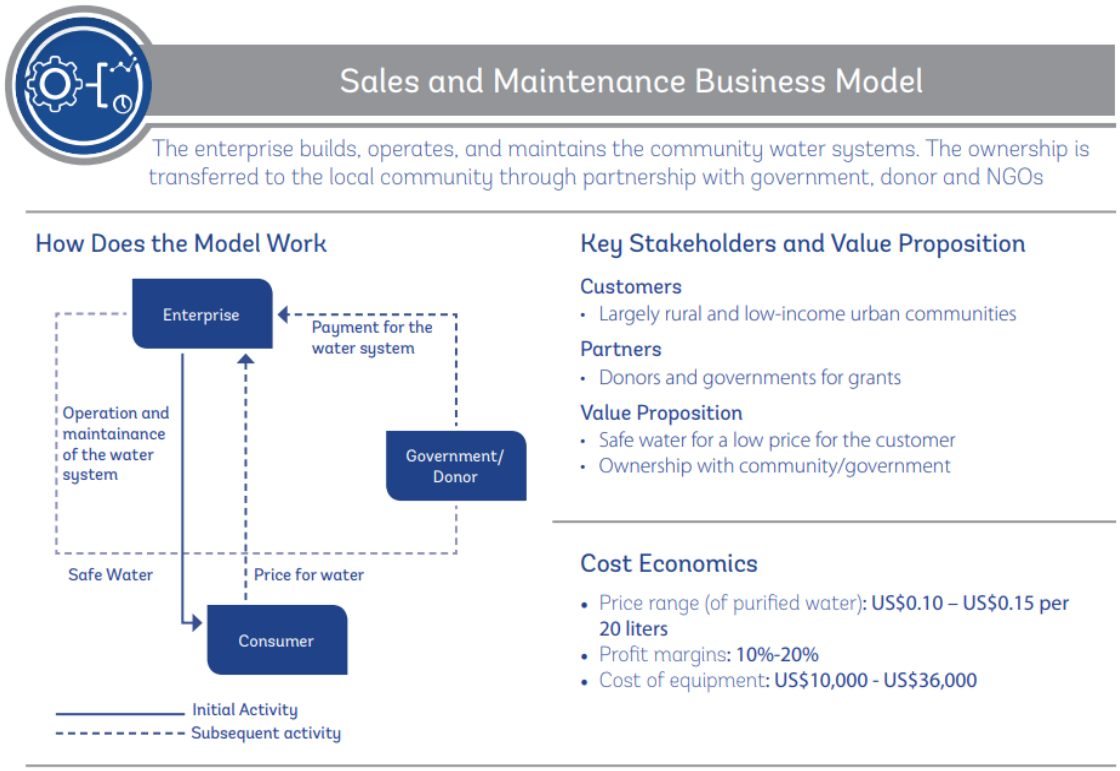

Figure 17 - Sales and Maintenance Business Model in Community Water Purification Market - source: infoDEV, 2017

Linking small businesses with larger corporations or organisations

Utility backed entrepreneurship is one of the recommendations of the ODI report. As for an example, of last mile connection between network and population out of the main network reach is **AfricAqua** (Nairobi) which is currently developing mini-grid solutions in the peri-urban area through alliances with local water utilities. Doing this, AfricAqua is trying to support the extension of infrastructure to difficult-to-reach areas, through delegated management contracts whereby a major utility supplies treated bulk water to a smaller business that runs a local distribution network. Similarly, **Kinetics** in Kenya is also an example of an infrastructure water company looking into partnering with decentralized market-based service delivery entrepreneurs. Alignment of decentral services and piped (utility) services requires an overarching WASH policy.

This is also what the **Toilet Board Coalition** (TBC) is performing with its Toilet Accelerator programme, where international corporations such as **Unilever**, **Firmenich**, **LIXIL Corporation** and **Kimberly-Clark** are supporting cohorts of sanitation entrepreneurs serving low-income markets. TBC connects small and large companies for a one-year mentorship programme, where TBC corporate members work alongside the selected sanitation entrepreneurs (or sanipreneurs) finding solutions to overcome barriers to growth. This, in turn, increases access to proper and affordable sanitation in areas where it is needed and develops the Sanitation Economy, a marketplace of products and services, renewable resource flows, data and information that could transform future cities, communities, and businesses. The Sanitation Economy aims at being sustainable, innovative, cost saving, and revenue generating. It monetises toilet provision, products, and services, biological resources, data and information to provide benefits to the economy and society, unlocking nutrient and resource flows while generating new value to multiple sectors. The TBC is working to standardise and optimise Sanitation Economy systems and resource flows to engage new sectors in the business opportunities.

Furthermore, the role of utilities as a potential anchor for decentralized operations could get to the scale that is needed faster. A point in case is **NSWC** (National Water and Sewerage Corporation - a public utility company 100% owned by the Government of Uganda) that have taken on much more responsibilities for smaller places and trying to work more on sanitation.

Multiservice

Several market-based organisations are developing multiservice approaches to diversify their revenue sources. It is, for example, the case of **WeConnex**, providing water, energy, cold storage, internet, agricultural services, medical services etc. in decentralized places. **Eau et Vie** also provides multiservice solutions, with water, sanitation, firefighting, waste management etc. in slums. These examples inspire others. **Smart Water Solutions**, an organisation selling water at an affordable price to the BoP. The income they generate is just enough to cover operational costs, but they cannot recover the CapEx and international technical assistance. Local government and companies are reluctant towards co-financing. They are looking for other products and services they could offer to make the business more sustainable. In any case, the business model needs public and/or grant financing for the CapEx.

Cross subsidization

In the WASH sector, cross subsidization can be an interesting model, where social enterprises sell products or services in the “Base of the Pyramid” at a low price and compensate with sales in the wealthier area at a higher price. A typical example is the case of **WaterLife India**, with their various business verticals: community solutions (community water systems, contamination removal units) and enterprise solutions (large & medium enterprises, mobile units).

For-profit / Not for profit

Another trend is the emergence of hybrid business models, with a for profit arm and a not for profit arm. To illustrate this model, let’s look at the case of **Swiss Fresh Water** and **Access to Water Foundation**, as explained in the figure below. In this case, the Foundation is managing programmes, and the company is focusing on the production of machines and the maintenance services.

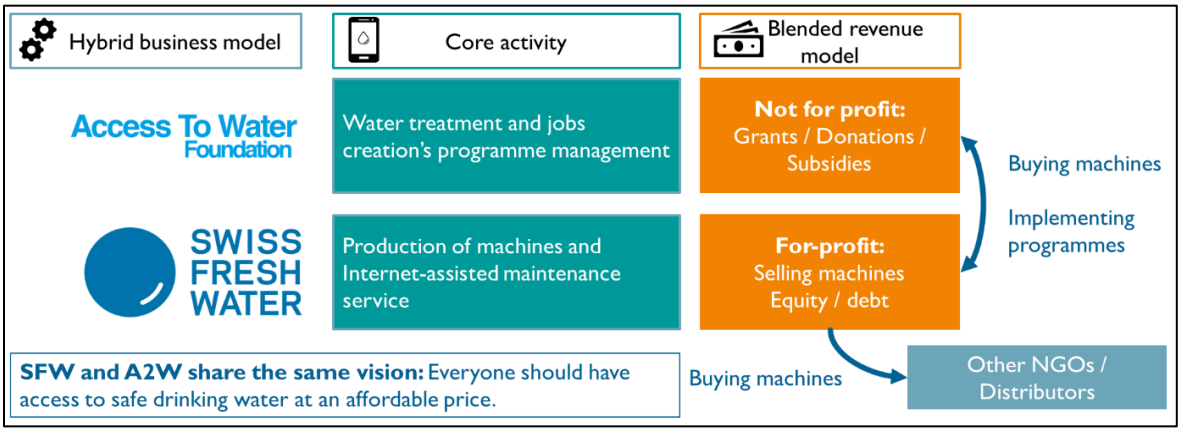

Figure 18 - Hybrid business model - example of Swiss Fresh Water and Access to Water Foundation

Following a similar model, **Eau et Vie**, a French NGO is creating social businesses in the countries where they operate. In the Philippines, the margin structure allows CapEx to be supported. In Côte d’Ivoire, the Ivorian state will invest in networks in precarious neighbourhoods, including a financial component to cover the community mobilization and technical assistance component, with Eau et Vie being a "farmer" to manage them. This initiates a very buoyant economic model, which takes into account the value of "avoided costs" and allows the raising of patient capital. In all cases, in their approach, OpEx must be covered by the margin generated by the different services billed to customers and local authorities to make it sustainable.

The case of **1001fontaines** (presented in section 2.2) is also a relevant example: water kiosks have proven to be an effective solution to provide safe water at an affordable rate in the long run. The remaining challenge is the capacity to scale up this model and create an impact significant enough to contribute to solving the global water crisis. 1001fontaines and **UBERIS Capital** share the conviction that impact investment is a part of the answer to accelerate the deployment of water kiosks. The ability of the model to generate sufficient revenues to recover the capital expenditures, while keeping affordability as a key principle will be the project’s main challenge.

Other examples: **Water for Good** (creation of local private sector water businesses in fragile state context), **ZOA** (combination of NGO's and entrepreneurs), **Splash International, Nepal** (enterprises + NGO WASH), **Untapped** (smart water entrepreneur + capacity building), **Water4** (WASH entrepreneur NGO + business).

2.1.5 Geography spread

Water and sanitation market-based organisations are operating everywhere in the world, but decentralized solutions are mainly operated in places where water resource are scarce or polluted. Many organisations are from "developed countries", in Europe or the USA, and operate in the global "south", in Africa and Asia mainly. Private sector involvement in the water sector is less accepted in South and Central America.

The study on Safe Water Enterprises (SWE-study 2017) has rated countries to highlight those that have a significant potential. They looked at water quality, population size, but also political stability, the local business environment and if these countries were priority markets for investors, and came out with a shortlist of five countries that have a high potential for Safe Water Enterprises: India, Bangladesh, Indonesia, Kenya, Tanzania. All countries listed by the SWE study (2017) also come out in this market study except Indonesia. The fact that 11 respondents (10%) are from India confirms that the country is a "hot spot" for entrepreneurs operating in the WASH Sector.

When it comes to technology, most providers, still, are from developed countries. As shown by a **WaterVent** study, these are often found in countries exposed to water stress (Israel, California, China, Singapore, etc.) where ecosystems including universities, incubators, start-ups are promoted and gradually emerging.

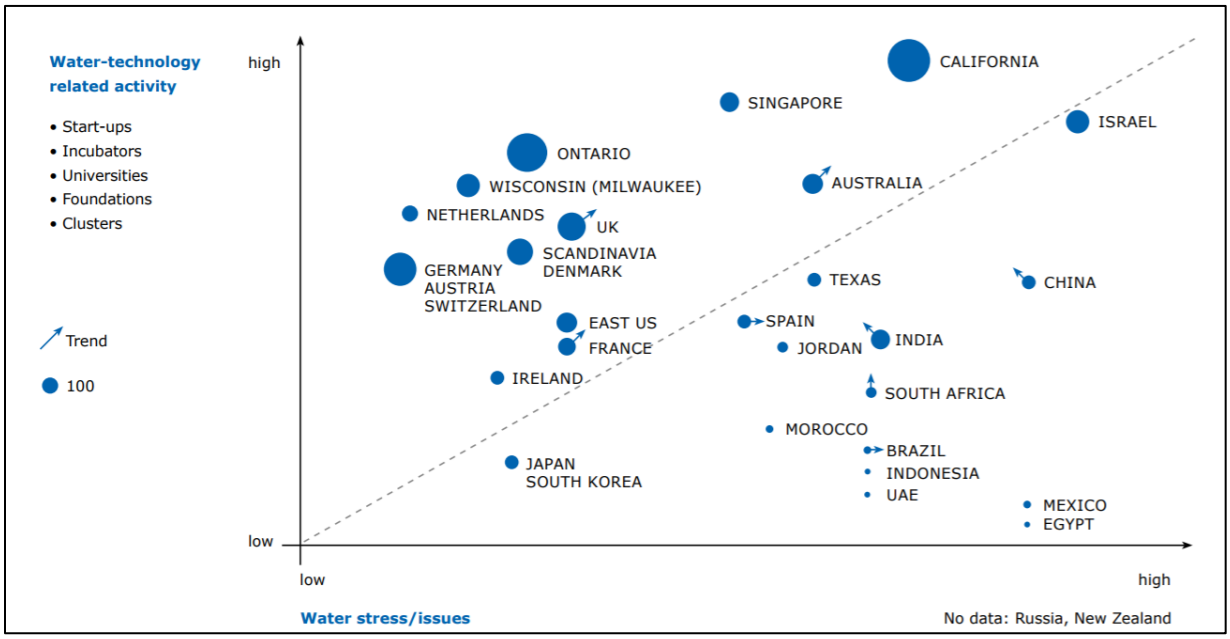

Figure 19 - Water-technology related activity in relation to water stress (source: WaterVent)

BoP water market: US$20 billion across the low-income countries
Source: infoDEV, 2017

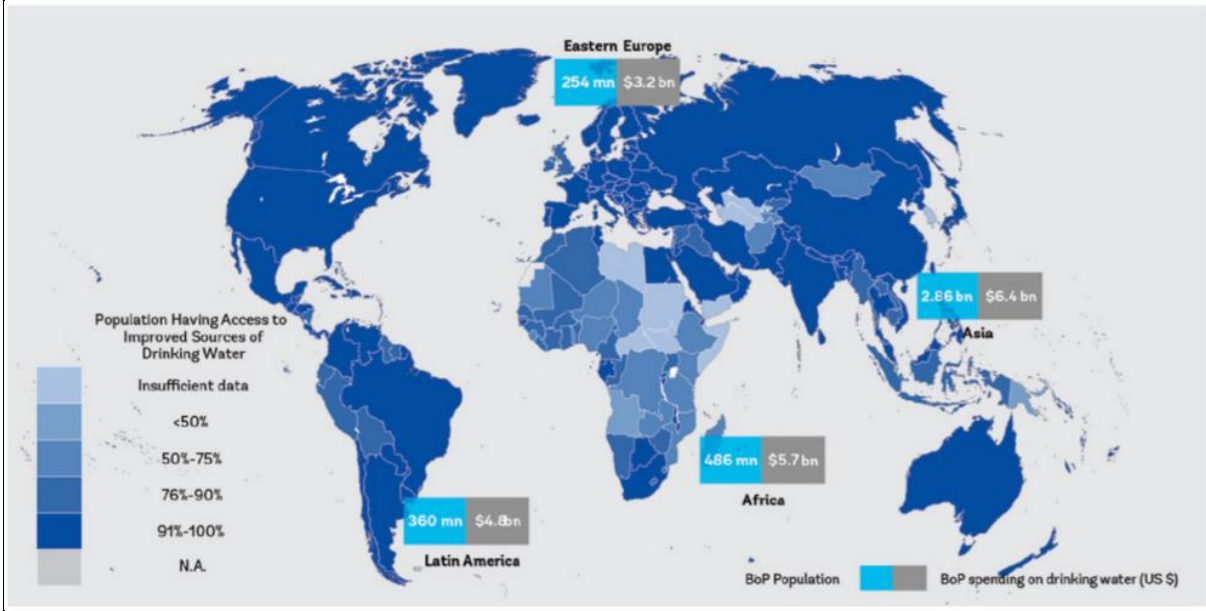

Figure 20 - BoP Population and Spending on Drinking Water – Source:infoDev World Bank

According to the World Resources Institute (WRI), the bottom of the pyramid (BoP) water market is estimated to be US$20 billion across the low-income countries of Africa, Asia, Eastern Europe, and Latin America. It is predominantly urban, with rapid growth observed in peri-urban areas that do not receive municipal water supply and have limited options to obtain affordable, clean drinking water. In contrast, people in rural areas with relatively higher access to water are less motivated to pay for improved drinking water. CWP enterprises are present in South Asia, Africa, and Latin America, with significant enterprise activity in India, Pakistan, Kenya, and Peru. CWP enterprises work with multiple stakeholders in the safe water space, including private sector microenterprises, governments, water utilities, donors, and NGOs. Some of these enterprises plan to scale up in their home country and a few also plan to expand to nearby countries where it is relatively easier for them to find retailers or build franchise networks. East Africa-based Jibu, which sells clean drinking water in urban and semi urban communities in Kenya, Rwanda, and Uganda, for instance, is developing plans to scale-out to nearby Zimbabwe, Zambia, and Tanzania. India-based Sarvajal also plans to expand to other countries through the knowledge transfer route, where it will not directly set up operations in other countries but transfer technology to local franchisees.

2.2 Trends, gaps, and challenges for the private sector in WASH

As a general observation, decentralized services, both in water and sanitation, will require new regulations, accountability rules, and monitoring and control schemes which includes the need of a system change as part of the formalisation. This is a huge scaling barrier (vertical scaling: from pilot to mainstream).

Figure 21 - Key Drivers and Challenges for the Community Water Purification Market – Source: infoDEV, 2017

2.2.1 Water supply: from centralized to decentralized systems

In the water value chain, there is a significant difference between centralized systems and decentralized systems (non-networked water points or small-scale networked systems). Indeed, centralized systems are more capital intensive and will be found in cities or places with higher population density, leaving space in the peri-urban area, slums and rural area for entrepreneurs filling the gaps left by networks operated by utilities. A global trend, especially in developing countries, is the evolution from centralized systems to decentralized systems.

A good example that we can highlight is **Eau et Vie**, a French NGO operating in slums in the Philippines, Bangladesh, and Côte d'Ivoire. With their social business, they build secured running water network in slums, distribution in each house and provide associated services. Eau et Vie has a partnership with the **SUEZ foundation**, and are working together on solutions for the provision of services (water, sanitation, waste management) in the suburbs of cities. Eau et Vie develops business models managed by local communities, which allow them to achieve professional quality services through decentralized solutions where large traditional operators face profitability and management challenges. They are working with other technical and financial partners, including **Veolia** (in particular regarding studies undertaken in France and Bulgaria), as well as public financiers such as **AFD**.

It is important to highlight the fact that there are many informal businesses operating along the water value chain, mainly in the water distribution side in an unregulated way, sometimes leading to very high prices (water mafias) especially in the BoP market. The quality of the water they serve is not tested, and water often comes from unreliable sources.

Challenges: As highlighted by ODI, main challenges for water businesses include:

- High barriers to entry due to capital-intensive nature of the water business;
- Small-scale informal enterprises stepping in when the expansion of the infrastructure is too slow, leading to abuses (price, quality, etc.);
- High registration and licensing costs and bureaucratic complexity inhibit formalisation (regulation frameworks can be inadequate for small companies). Government is thus unable to regulate the service provided or to use cross-subsidies to reduce cost to the consumers, jeopardising the quality of water and affordability. Providers struggle to obtain finance without formal registration.

2.2.2 Sanitation: a fragmented value chain

ODI mapping highlights the fact that there is a wide range of private sector organisations in the sanitation value chain, from micro businesses to multinational corporations. Most organisations operate only in a small segment of the value chain, and only a few are run across.

In India, one of the studied companies, **Banka BioLoo**, is proposing an integrated approach, from sanitation infrastructure to toilet and faecal sludge treatment. Banka BioLoo provides environmentally-friendly and sustainable solutions for sanitation in rural, urban and peri-urban areas. Their bio-toilets (or bioloos) treat human waste using bacterial culture, which eliminates the need for excreta disposal, transport, and treatment. The system obviates the need for external sewage infrastructure.

However, companies such as Banka BioLoo often face challenges when it comes to awareness raising, traditions and taboos that make it difficult to attract rural household clients

and partners, and more generally social marketing or 'demand creation', which is difficult to cover for a private sector entity. Banka BioLoo highlights the fact that age-old traditions and cultural barriers are a major challenge, primarily in developing countries (such as India). For instance, many households believe that "house is like a temple" and anything such as toilet shouldn't be there in/near the house. They're happy to defecate in the open, away from home. For many, the toilet is low on the list of priorities. Cell phone or television, for that matter, is seen as "more important" than a decent toilet. They are also unable to relate health problems to poor sanitary conditions.

Challenges: As highlighted by ODI, main challenges for sanitation businesses (especially operating in the BoP) include:

- Lack of marketing capacity to link product manufacturing and technology uptake by users;
- Informal status of many smaller businesses that are best positioned to interface with BoP customers, which inhibits their security and ability to attract credit;
- The dominance of medium-size social enterprises across 'whole-of-chain' approaches which imply that these types of businesses are still struggling to scale.

2.2.3 An opportunity: water and sanitation in the circular economy

Water overuse is a major cause of water stress and human rights breaches. Water reuse and recycling is an opportunity to mitigate the risks faced by large water users and to improve access to water and sanitation for all through innovative technological and entrepreneurial models. Agricultural and health aspects play an important role and various facets of the nexus are at the centre of the discussion.

Definition: The Circular Economy replaces our current linear model of taking, making and disposing of, with a system that keeps products, components, and materials at their highest utility and value at all times. Substituting the circular model involves a redesign of products, supply chains, and business models.

"*Large companies can help to drive change for Sanitation in the Circular Economy by providing industrial organic "waste" into the system, and becoming buyers of the value adding products that come out*" - Jonathan Hague, VP Open Innovation & Operations, Unilever

The question of Circular Economy can be applied to corporate supply chains. While the **World Business Council for Sustainable Development (WBCSD)** advocates that circular water management is a great way to increase efficiency, save costs, meet corporate water targets and address shared water availability and quality risks, it also recognises that there are however still many barriers to its adoption at scale, among which: regulation, resources, lack of awareness and dialogue. Therefore, the WBCSD is looking at what are the best strategies to increase awareness at all levels that 'waste' water is a valuable resource worth investing into.

Most recent pilots and full-scale applications indicate that the future of wastewater can and will be radically different. The change is not only happening in large cities in industrialized countries. Local examples of resource recovery from the waste in villages and towns in developing and emerging economies based on new business models and entrepreneurship show that also there, new opportunities for turning wastewater into a resource for energy and fertilizers exist.

Similarly, the sanitation sector is changing with technical innovations, community-led approaches, and new business models. These need to be combined into inclusive, coherent, long-term strategies, action plans, financing schemes, i.e. public policies. The challenge is to integrate them into comprehensive and sustainable scenarios, to gather public support for sanitation services. Public interest foundations such as **IDDRI** (Institute for Sustainable Development and International Relations – a policy research institute based in Paris) are looking at how local decision-makers can be convinced that sanitation services and policies are feasible and transformative.

The **Toilet Board Coalition** views[7] toilet resources as a major part of the biocycle: "*Yet they are almost always handled separately from other resources. This is, mainly, for historical reasons, because sanitation has been addressed primarily as a health issue. We have found that toilets provide a range of valuable resources that offer multiple circular flows – for materials, energy, and water. A more holistic approach to the biocycle would include toilet resources being blended with food and farm "waste" (which is considered a resource), plus compostable items, such as packaging. This could enable manufacturers to favour biological materials for many applications. By taking this path, low-income countries could fundamentally alter the balance of resources: it would tilt in the direction of biological versus technical, which would minimise growing issues including plastic waste"*.

Enterprises such as **Sanergy**, **the BioCycle™**, **Samagra**, **Sanivation**, **Safi Sana**, **Loowatt**, **Svadha**, **Banka BioLoo**, **SOIL** or **Piipee** are reinventing the business of sanitation and adding circular economy components into it, transforming human "waste" into resources: biofuel, biochar, energy, proteins, etc. As an example, **Sanergy** is collecting toilet sludge from slums by installing toilets and putting in place collection mechanisms. The waste collected is transformed into agricultural inputs - fertilizers and animal feed and sold to farmers and agricultural firms.

Another example is **Banka BioLoo -** a social enterprise, working on women led sanitation solution provider using biotechnology for onsite human waste treatment and building sustainable sanitation infrastructure using innovative precast technology for toilet shelters. They create working bio-toilets for places where toilets are rare, and facilities are bare. This company is a success story, and its co-founder, Namita Banka, has received many awards internationally. This case also shows the impulsion of countries such as India, where new business models are being successfully tested and implemented. Today, Banka BioLoo is preparing its introduction in the stock exchange, in order to diversify its funding sources and scale its business.

[7] http://www.toiletboard.org/media/17-Sanitation_in_the_Circular_Economy.pdf

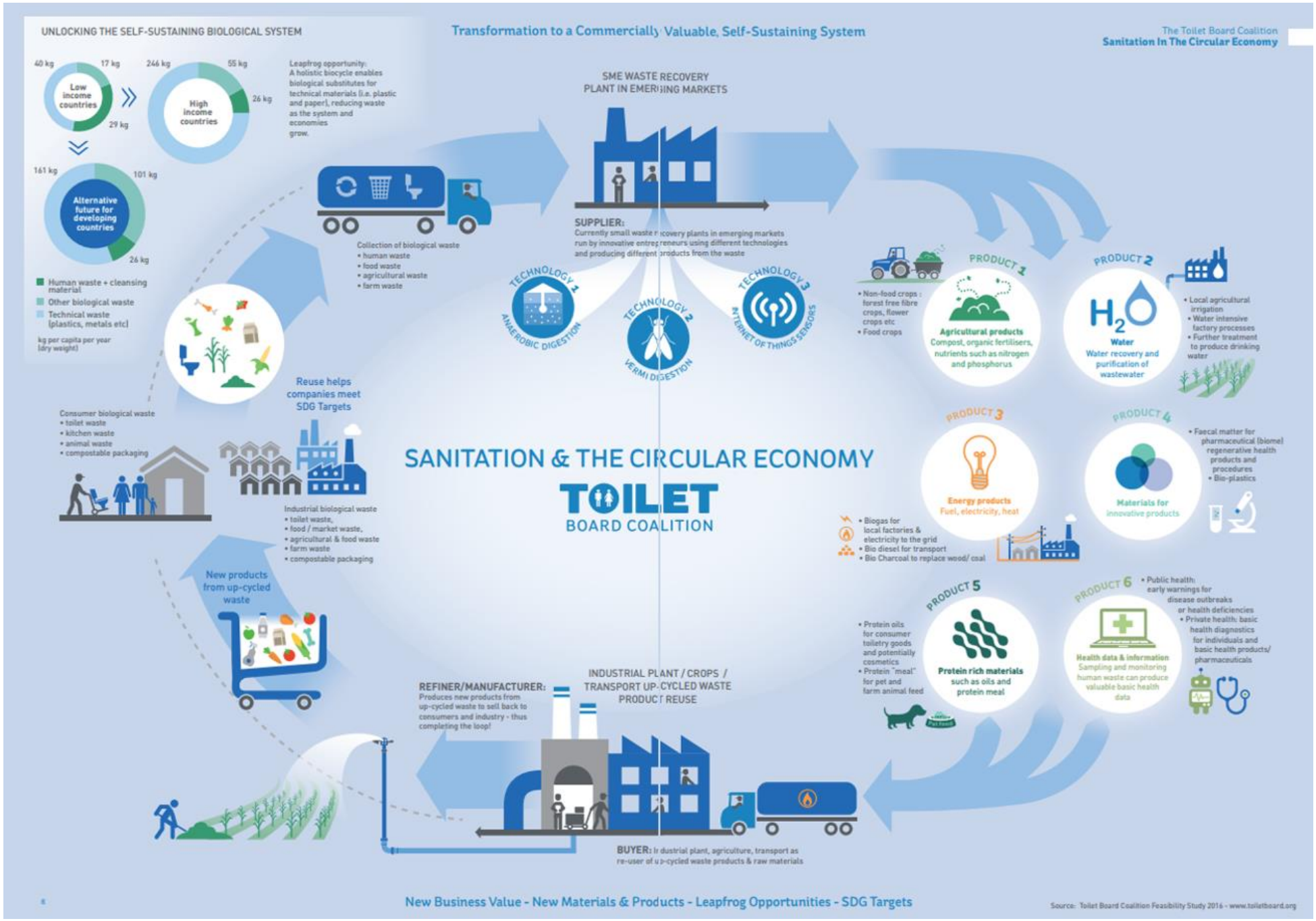

Figure 22 - Sanitation & the circular economy - source: the Toilet Board Coalition, 2016

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2.3 Technologies used by WASH market-based organisations

2.3.1 Safe drinking water technologies

From a technical standpoint, four key clusters of solutions address the issue of safe water, from water collection to treatment and distribution.

Water technologies – source: Hystra (2011)

Pumping & harvesting	Installation to pump underground water or collect rainwater (e.g. protected wells with pumps, rainwater harvesting cisterns)	Most effective in areas where raw water is basically clean and where population density is low. These solutions are promoted largely by government, donors, and NGOs.
Devices, flasks & tabs	Consumable disinfectant products, mostly chlorine-based, distributed in liquid or tablet forms	Appropriate and cost-effective solutions for populations in small villages, where water does not require complex treatment. They are promoted by both NGOs and commercial players, in areas with limited or not reliable public water services
Plants & kiosks	Mini-water-treatment stations: collective installations for more heavily polluted and/or brackish water, suitable for small towns and villages	Most cost-effective in areas where water is brackish/heavily polluted (rural or urban). These solutions are promoted and operated by [social entrepreneurs], often in collaboration with local or regional authorities.
Pipes & taps	Piped distribution networks: collective networks used to transport treated water to homes or public stand posts. This includes: 1/ mainstream utility operators (public or private operators mandated or contracted to serve large urban networks); 2/ 'Mini-utilities': small, stand-alone piped networks reaching a few hundred or thousand families	Most effective in areas with high population density. • Achieve significant economies of scale both in terms of treatment and distribution operations • Sustainable and affordable in areas where water requires limited treatment (e.g. chlorination and filtration). While very small installations can be managed by informal entrepreneurs, larger operations are often mandated by local authorities

For example, in regard to water treatment, different ranges of technologies are available and have proven effective (reverse osmosis, UV treatment, liquid chlorine and nature-based solutions) depending on local quality. Yet technology is not the only factor which matters to ensure the impact on health. There is also a need to ensure as well appropriate production process, quality control, container disinfection, etc.

A pressing need is also expressed by corporations to reduce the quantities of fresh water they use. As an example, **AngloAmerican** is looking for technological solutions to monitor the quality of recycled water in real time and develop low cost, robust treatment systems.

EXAMPLES OF TECHNOLOGIES FOR WATER COLLECTION / TREATMENT / DISTRIBUTION / IRRIGATION	
Treatment tablets	**Aquasure** is a leader in water treatment tablets, for clarification and disinfection **Madidrop** has developed a small ceramic tablet for daily water disinfection and safe water storage
Pumps	**Fapel** in Guinea is a small enterprise developing innovative pumps **Vergnet Hydro** is the leader in pump manufacturing.
Filters / Membrane filtration	**Fonto de Vivo** developing innovative filters for humanitarian relief and development The "**Institut Européen des Membranes**" (IEM), is a reference laboratory at the international level in the field of membrane materials and processes with research objectives based on a multidisciplinary approach and multi-scale.
Household water treatment systems	**Antenna Foundation** is a swiss based organisation developing solutions to meet the basic needs of marginalized populations in developing countries, including water **Helioz** is an Austrian social enterprise that developed WADI, a solar disinfection tool (SODIS) **Solvatten**: a combined portable water treatment and water heater system that has been designed for off-grid household use in the developing world
Water from air	**Common Element** in Mexico has developed a solution to extract water from air for the shortage of drinking and clean water for the families, industry, and irrigation
Smart irrigation	**Climate Smart Irrigation**, a specialized organisation providing tools for the efficient use of water in irrigation **Tech-Innov**: Tele-Irrigation is a smart urban and rural irrigation system which allows farmers to manage water distribution remotely by phone and solar
Desalination	**Osmosun:** reverse osmosis desalination technology coupled with photovoltaic solar energy **Saros:** a wave-powered desalination system which uses the energy in waves to access the nearly limitless supply of water found in our oceans

Universities such as **EPFL** and **UNIGE** are supporting the development of new technologies. **Antenna Foundation** is helping other NGOs in the development of their business and technologies. **UNCTAD** is also supportive of technologies that can help achieve quality, reliable, sustainable and resilient infrastructure. This includes regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all. Research organisation such as **IRD** (Institut de Recherche pour le Développement - France) often face discontinuity in what should be the chain of R&D and technology transfer: they develop technologies, but often lack access to entrepreneurs or projects leaders. Organisations such as **CVT Valorisation Sud** in France are working on this issue by promoting and transferring technologies of socioeconomic interest developed by French public research laboratories to markets in the “Global South”.

2.3.2 Sanitation technologies

For sanitation, the case is different as the value chain is more complex, from manufacturing, storage, and distribution, facility cleaning, collection, disposal, treatment, resource recovery, etc.

Eawag is proposing a complete mapping of sanitation technologies[8]:

- The user interface (from the dry toilet to urine diverting flush toilets)
- Collection and storage/treatment (from urine storage tank to biogas reactor)
- Conveyance (from jerrycan to transfer station)
- (Semi-) Centralized Treatment (from pre-treatment technologies to tertiary filtration and disinfection)
- Use and/or disposal (fill and cover to biogas combustion)

Different technologies are used to create a circular economy around wastewater reuse. When it comes to processing (resource recovery to process and refine the collected waste to produce safe valuable products), several technologies have been listed by the **Toilet Board Coalition**: anaerobic digestion, windrows, greenhouse, drying, dewatering, electric engine generator, vermi-digestion, etc. These techniques allow the creation of energy products (fuel, electricity, heat through biogas, biodiesel, bio charcoal), water recovery and purification of wastewater, compost, organic fertilizers, protein rich materials, material for innovative products, etc. However, as highlighted by the Toilet Board Coalition, to create that system, several barriers need to be overcome, starting with health and safety standards, as well as perception, which can affect decisions at every level.

2.3.3 Digital in the water and sanitation sector

New technologies in the water sector can facilitate and accelerate the deployment of successful solutions and the monitoring of activities and their impact. They offer new distribution channels, payment systems, real-time monitoring, capacity building etc.

Smart water technology is a call for digital disruption all along the value chain of the water economy. It is the case for monitoring (with smart sensors, smart meters, blockchain for cost effective due diligence, etc.), payment (mobile money, prepaid cards), training of entrepreneurs. From a perspective of a better governance to people education and how to bridge cultural gaps, going through spreading technology for usage optimization and productivity improvement or thinking new compensation mechanisms on negative impacts.
It is important to distinguish information acquisition from data monitoring for management, for accountability (to users and funders), for promotion and learning, for fundraising and outcome monitoring. Furthermore, emphasis should be put on access to finance (mobile banking, IT-services, payment services, MFI access), and also on forecasting (GPS) linked to efficient water use (water productivity). Last but not least, smart technologies from outside WASH sector such as solar, rainwater aquifer storage, risk mitigation/statistics, awareness/media should be considered.

The contribution of digital systems in the water sector sometimes seems less obvious than it is in the energy sector. However, it is mainly because it is changing uses and improving the

[8] http://ecompendium.sswm.info/sanitation-technologies

sharing of knowledge that digital can become a lever for development in the field of access to water and sanitation. It facilitates the coordination of projects, for example by making it possible to reconstruct network plans when the administration is absent or remote (especially in rural areas). It also serves to improve knowledge of the resource: mobile applications provide information on the quality and flow of water points, connected sensors are used to measure the contamination of water by pathogens. All these applications make it possible to improve and secure the day-to-day management of the resource, especially since most users themselves can seize these new tools after a quick training.

Digital also connect users and suppliers. For Africa, **GSMA**[9] estimates unique subscribers' penetration to ~49% (2017) (this is an estimate of the population % with a mobile subscription based on multiple SIM cards ownership). The technology is mature and now opens wide perspectives for the development of uses. Applications that improve the user experience of water and sanitation services are becoming more and more numerous, particularly through the linking of users and service providers. Thus, **Next Drop** in India set up a system of information on the functioning of the water network which has made it possible to reduce waiting times and the number of working days lost to wait for the arrival of water that could reach 20 to 40 hours for a family.

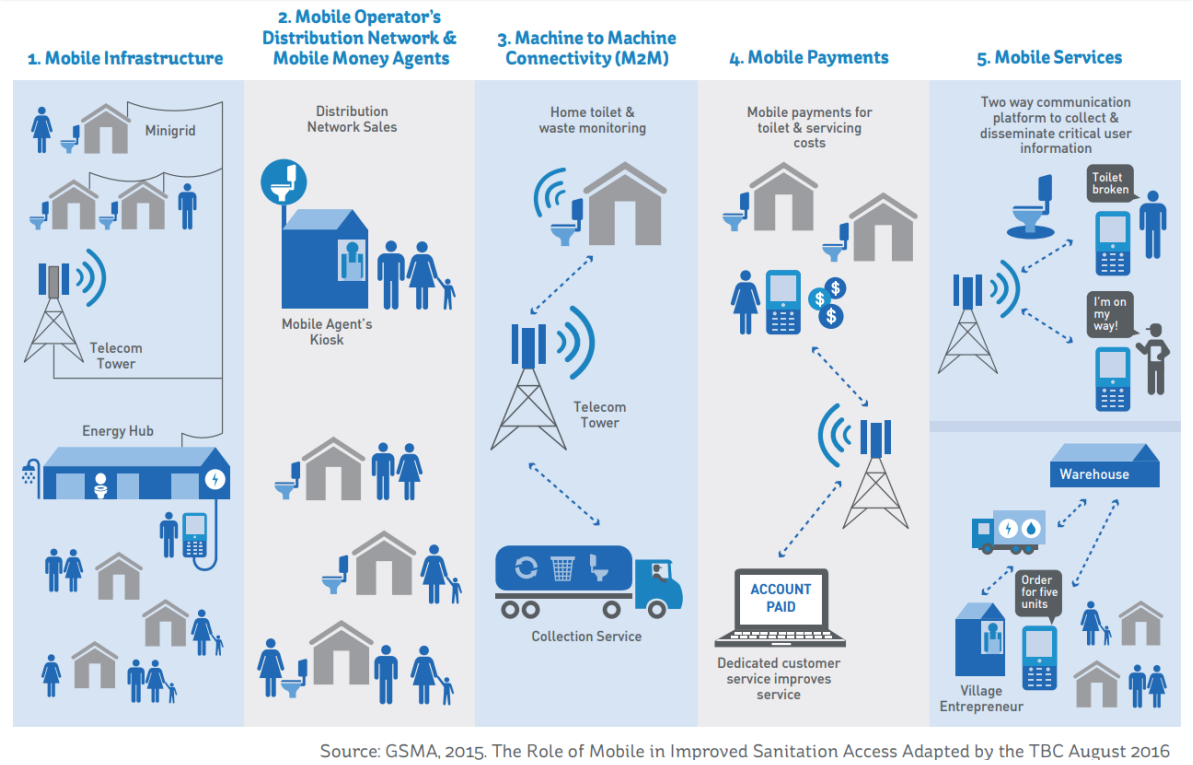

Figure 23 - Mobile Applications for Sanitation

[9] https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/06/M4D-Utilities-Improving-water-service-delivery-through-mobile-data-collection.pdf
https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/10/The-role-of-mobile-for-improved-water.pdf

TECHNOLOGIES	EXAMPLES OF PROVIDERS
MONITORING / ACCOUNTABILITY	
Smart sensors	**SweetSense Inc**. designs and deploys Internet of Things sensors for water infrastructure. They have installed cellular and satellite connected sensors in 15 countries, on applications including community water pumps, large scale borehole schemes, household water filters, and portable water test kits.
Smart meters	**CityTaps** is a social business whose vision is to bring running water to every urban home with an Internet of Things (IoT) and mobile money solution. They develop prepaid and smart water meters as a service.
Water data mapping tools	**World Resources Institute**'s global water risk mapping tool (Aqueduct) helps companies, investors, governments, and other users understand where and how water risks and opportunities are emerging worldwide. **mWater** is dedicated to creating world changing technologies for water and health. Over 13,000 free mWater users in 130 countries map and monitor water and sanitation sites, conduct mobile surveys, and collaborate with local governments in real time data views. **Akvo** is a not-for-profit foundation based in the Netherlands that creates an open source, internet and mobile software and sensors to improve the management of water, sanitation, agriculture, health, energy, education and the environment. **Contracts11** has developed Tupix, a tool to map and manage water ecosystems **Microsoft** is creating tools and services to help address the world's water challenges, including scarcity, pollution and ocean health. The Water Risk Monetizer tool, built on Microsoft Azure cloud, is helping companies assess water risk to make better decisions on current and future water needs.
DIGITAL FINANCE SERVICE PROVIDERS	
Mobile money	**Orange Money, Vodacom or Safaricom M-Pesa, Tigo Pesa, MTN Mobile Money, BKash Limited** are a few examples among many mobile money service providers. In Africa and Asia, it is a common practice to pay water with mobile money.
Prepaid cards	**Grundfos AQ Tap** is an intelligent water ATM that addresses some of the main challenges of providing reliable and sustainable water supply in the developing world. Through an integrated platform for revenue collection and online management of water kiosks, Grundfos AQtap supports the financial viability and accountability of water service operations. **Susteq** helps organizations with the installation of prepaid water meters in rural and urban communities. Their products include a system of dashboard and alerts to support smart delivery of service; API, money transfer, tags and shop hub contributing to easy payment. **eWaterPay** is a pre-payment smart tap that ensures all revenue is tracked and accountable and transparently used by private organisations or governments to pay for maintenance of systems.

In Kenya, the **Majivoice** platform, set up with the support of the World Bank, allows users to inform water companies about the problems they encounter and to follow the status of their claim in real time. Mobile payments are becoming widespread in Africa and represent a significant opportunity for the water sector. Also in Kenya, **Kiamumbi Water** started using **M-Pesa** as a payment system. By offering subscribers the ability to pay their water bills from their mobile phone, this system saves substantial time and provides security in financial transactions. Each system, in its own way, gives back power to the user. Putting the user community at the heart of the innovation process is, therefore, a key issue when designing projects.

The application of digital in the water sector improves the level of service and private sector interest in going to peri-urban and rural areas. For example, in Mozambique, **Collins** is piloting the use of mobile smart metering, and they can already see huge advantages both for the consumer and provider.

Interestingly, according to **GSMA** the aspect of data collection and data management by pay-as-you-go start-ups has been key to unlock capital for the solar sector. Investors can quickly track their portfolio performance by being able to visualise data in real time (or almost) on how units function and are being paid for.

Companies such as **Orange** have been investing since a few years in incubators in Africa, to support entrepreneurs and start-ups in their innovation process. Water is a central question and smart water technology is a call for digital disruption all along the value chain of the water economy. From a perspective of a better governance to people education and how to bridge cultural gaps, going through spreading technology for usage optimization and productivity improvement or thinking new compensation mechanisms on negative impacts. The Orange Fab network is one of the biggest global corporate Start-up accelerator network, present in 14 countries with three in sub-Saharan Africa. The aim of these accelerators is to connect start-up with business units to co-create value and innovative services for customers. For example, **CityTaps** the smart pre-paid water meters company is being accelerated by Orange Fab France, *Saison 7* to build a common offer targeting water distribution companies in Africa.

Similarly, the **GSMA** Mobile for “Development Utilities” programme is also supporting start-ups in the development of digital technology and data management by providing grants from their Innovation Fund, supported by the UK government and Scaling Off-Grid Energy. Emerging market mobile operators and local start-ups can complement each other. Partnerships are put in place between mobile operators and start-ups in order to leverage their respective strengths and find common ground. In the water and sanitation sectors, smart sensors and mobile money are important tools that help make water provision financially and operationally sustainable. From large utilities collecting e-payments through mobile wallets to smaller organisations moving from paper-based reporting to digital monitoring, we are seeing more evidence of the impact of mobile across urban and rural water models. However, to fully digitize the sector and see the true impact of mobile, more capital is needed to support the emergence of new models. The **GSMA** is looking at how to further unlock early-stage capital to pilot more mobile-enabled water models and support such data-oriented organisations in their growth.

The means for monitoring water ecosystems and the behaviour of their users, processing and analysing gathered data and effectuating compensation of impacts are often inefficient, not enabling sustainability projects, and investments therein, to reach their (environmental) targets. TUPIX, as a ‘sensor-to-wallet’ solution developed by **Contracts11,** allows for the

secure and transparent optimization of projects with performance based environmental targets, maximizing results whilst reducing costs

Safe Water Network (SWN) is integrating digital finance and mobile money into small water enterprise operations to reduce reliance on cash transactions. SWN project that digital finance will substantially improve the financial viability of their water stations and facilitate health and ease of transactions for their consumers. However, consumers require education to be able to accept and adapt, so that these digital improvements can get widespread use and acceptance. It is a challenge to effectively address consumer knowledge gaps to increase adoption and realize the full benefits of digital finance. In addition, SWN has developed web-based training modules for operators and have tablet-based reporting and management tools that are actively used by all stations in their portfolio.

3. FINANCING SOLUTIONS

3. FINANCING SOLUTIONS

3.1 Current situation

3.1.1 Mainly grants and development aid

A significant proportion of WASH market-based entrepreneurs are financed through development project money, grants and development aid (public money from Development Finance Institutions (DFIs) / development agencies).

As a general preliminary principle, the key issues of sustainability and scalability need to be considered in deciding whether to fund any type of WASH effort.

Over the last 20 years, water and sanitation have taken increasing importance on the international agenda. A study of OECD in 2015[10] highlights the fact that the yearly average for the period 2012-2013, international aid is the key funding source for WASH-implementing organisations (NGOs, social enterprises, comprising market-based organisations), with approximately USD 10,5 billion spent each year on WASH (9% of total need estimated by the World Bank, including infrastructure). Water alone represents ~30-50% of this aid. Three-fourth comes from bilateral aid with 5 key players: Japan (1.7bn$), Germany (1.3bn$), France (0.6bn$), USA (0.6bn$), Netherlands (0.4bn$) and one-fourth from multilateral aid: International Development Association (1.5bn$), EU (1bn$) Asian Development Bank and African Development Fund (0.3bn$). These donors have a strong focus on NGO field implementation projects (80%) and on infrastructure (60%), less on entrepreneur basic systems (40%).

Total official finance flows to water and sanitation to developing countries have increased in the last decade, reaching USD 14.3 billion in commitments on average per year in 2014-15 (OECD, 2017[11]).

There are several international NGOs active in the WASH sector in developing countries, mainly financed by international aid: **WaterAid**, **International Federation of Red Cross and Red Crescent Societies (IFRC)**, **CARE**, **Oxfam, ACF**, **World Vision**, **Water.org, Water for People** et al.

They concentrate large amounts of the funds spent on development aid, but also foundations. In a study of **Accenture** for **1001fontaines** in 2014, it was shown that the portion of financing of the WASH sector corresponding to Foundations, private equity or VC funds remains very low. Many private foundations are active, however 4 big players only are spending more than $10 million yearly on WASH projects: **Bill and Melinda Gates Foundation** (~$100M, ~50% for research & development, 100% is pure sanitation), **Charity:Water** (~$18M), **Conrad N. Hilton Foundation** (~$ 12M) and **Stone Family Foundation** (~$5-10 M).

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[10] Reference: https://www.oecd.org/dac/stats/documentupload/Aid%20to%20Water%20and%20Sanitation%20data.pdf

[11] Reference: https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/Financing%20water%20and%20sanitation%20in%20developing%20countries%20-%20key%20trends%20and%20figures.pdf

There are high expectations that this portion increases. These additional resources could be used primarily for technical assistance to prepare organisations for implementing loans, project preparation, and guarantees that can serve as a bridge to private finance: this is one of the blended finance options.

The involvement of local financing mechanisms in current WASH business: formal (banks, micro-finance, NGOs, grants etc) and informal (family, friends, local money lenders etc) is to be considered.

3.1.2 From grants and subsidies to loans, equity, and bonds

There is a particular effort from some funders to provide equity and/or grants in projects (**WaterEquity** by **Water.org**, **Danone Communities**, **Acumen**, **Investisseurs & Partenaire**). Their motivation is mostly to deliver high sustainable impact. Only a few of these funders expect a financial return from their investees. As an example, **Aqua for All** provides a mix of equity and grants to co-finance projects and programs, supporting their initiation or expansion.

If we look on the innovation side of the water sector, we can see in below chart from **WaterVent** that the income sources also evolve depending on the pressure for and the acceptance of water-technology innovation.

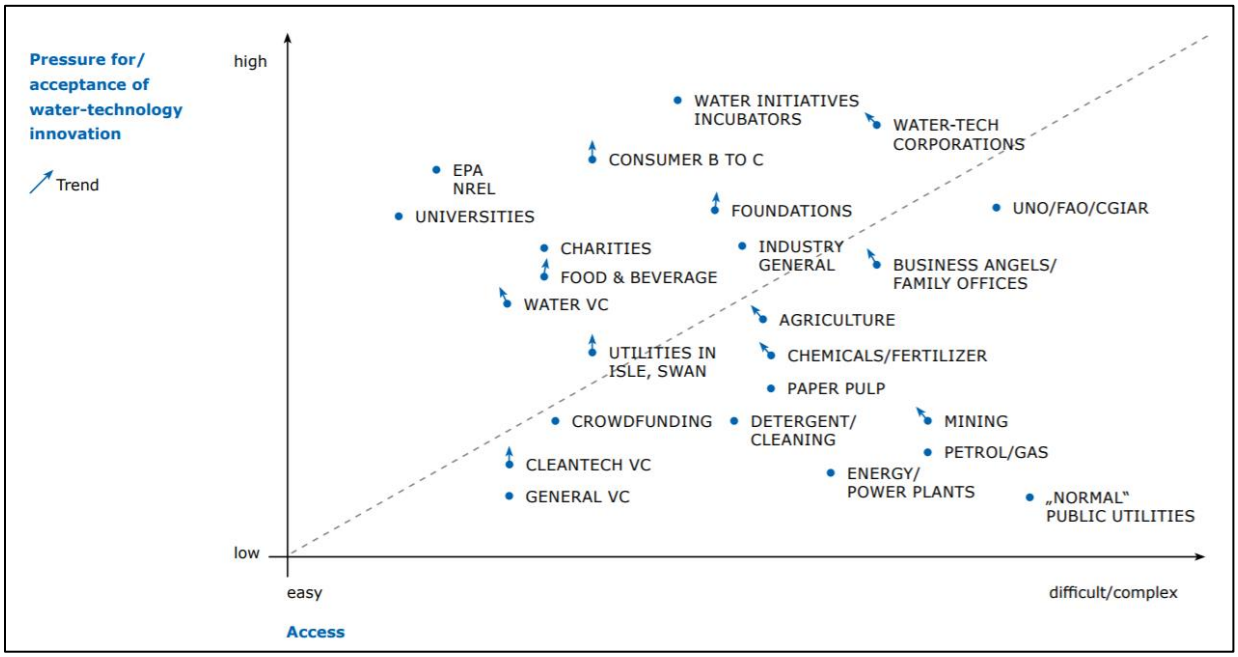

Figure 24 - Funding, grant and income sources for water-technology innovation (source: WaterVent)

Specialized fund managers such as **Investisseurs et Partenaires** are investing in small-scale infrastructure, including some ventures in the WASH sector (e.g. IPDEV1 Fund).

In a recent study, the **European Venture for Philanthropy Association (EVPA)** has been looking at the evolution of the financing of social purpose organisations (SPO) and has defined a theory based on the existence of a market for the organisation.

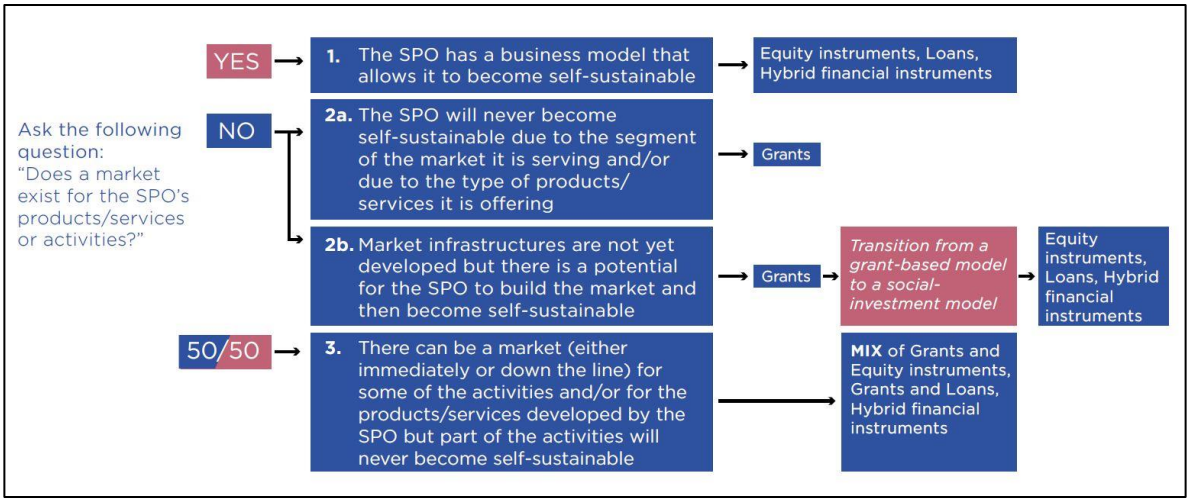

Figure 25 - Path for the Social Purpose Organisations (SPO) - Assess the SPO's financial needs (source: EVPA)

See market study illustration in Annexes p.112

Within this framework, we can position most of the WASH organisations that we have been studying in the 50/50 section, financed by a mix of grants and equity instruments or grants and loans.

There is a growing understanding of the limitations of grant funding. Unfortunately, it is often a "beauty contest"; generally, it largely consumes transition costs for proposal writing without result; too often, it seduces the business to re-write the optimal business plan to meet the grantor's requirements; most of the time, grant exit strategies are not in place; last but not least, financiers are usually reluctant to engage with grant funded entrepreneurs.

See market study illustration in Annexes p.113

A significant number of WASH organisations are transitioning from a grant-based model to a social-investment model (debt and/or equity). The common grant-based model is a financing gap model, subsidising CapEx and/or OpEx deficit, working capital or R&D. The new social investment model is also often a grant-based model but providing an instalment based on the delivered outcome, could be an output based aid, could be a carbon credit-payment, could be a local government subsidy per result, could be an SDG oriented foundation providing a grant or a soft loan based on the outcome. So, the social investment model does not exclude grants.

Sustained universal coverage will require more than capital for infrastructure. For a service to be not only sustained but also expanded and improved to meet demand, other costs must be assessed, including the cost of operations and maintenance, cost of capital, rehabilitation, taxes, and the costs of essential functions such as policy and planning, regulation, monitoring, and capacity building. Responding organisations expressed both, need for CapEx and OpEx.

3.1.3 Main barriers to access to finance for WASH market-based

Most barriers described below are not specific to access to finance but to sector development and include inadequate regulatory framework, lack of infrastructure, lack of political support, inadequate funding structure limiting flexibility, with access to finance being one of the barriers.

Through our discussions with **REEEP**[12], we understood how similar the detailed hurdles for enterprises are when comparing the WASH sector to the energy/renewables and efficiency sector, as well as to energy access.

De-risking and gaining visibility on projects for more integrated approaches (impact funds consolidating projects) is needed. As what has been observed in off-grid solar energy, the WASH sector needs to reach sufficient scale, and achieve a robust proof of concept to attract private finance. This is where blended finance can play a role, to reinforce business models, and give them sturdiness.

The reasons why water and sanitation entrepreneurs struggle to access funding can be spread in three categories: economic barriers, political/institutional barriers, and ideological barriers.

3.1.3.1 Economic barriers

When looking for funds, WASH market-based organisations are often seen as too small or scattered and lack visibility.

- **Low cash-flows**: Water and sanitation market-based organisations can only access commercial finance if they are generating sufficient cash flows that can be used to repay the commercial financing. Public finance or grants are most of the time needed to cover the CapEx. The sector has been traditionally using public and donor funds to invest in infrastructure, but the level of services remained relatively low, just securing that basic WASH requirement. Fortunately, the sector has many opportunities for generating efficiency gains, diversify sources of revenues that will help to increase operating cash flows and thus allow a diversification of the sources of investment.
- **Tariff constraints:** The link between WASH businesses and their current financial models should be carefully considered, as this is where the crux of the matter is. For example, low tariffs will make it difficult for an SME operator producing energy from wastewater, who will need a high energy price to make it worth investing in.
- **A risky business:** businesses' ability to develop economies of scale is really limited due to the high cost of investment, and uncertainty about businesses' profitability. As a result, many business models are considered as too risky, too early stage. Commercial banks tend to limit their lending because of the inability of water and sanitation enterprises to prove their sustainability. (ODI, 2015) Most ventures have a positive gross operating margin, but when overheads and depreciation are included, many water and sanitation enterprises are loss making and therefore mainly rely on philanthropic support (SWE-study 2017). The risk profile of the company is different from the market-risk profile (business ecosystem) and different from the stage of the

[12] REEEP invests in clean energy markets in developing countries to lower CO2 emissions and build prosperity. Investments are based on a strategic portfolio of high impact project.

product-service development and its proven technology / acceptance / robustness / ability to scale. Risk management in contracts is different from risk management in public-private-partnerships (PPPs): risk perception-mitigation-allocation is key in PPPs.

- **Lack of infrastructure**: The lack of resilient infrastructures such as reliable electricity, roads, and telecommunications, has hindered investment. It also increases dependency on diesel fuel, which makes running costs higher (ODI, 2015).
- **Capacity constraints**: the weakness of enterprises in demonstrating their own trustworthiness. For example, businesses lack market intelligence and ability to conduct R&D, which limits their competitiveness.

3.1.3.2 Political barriers

- **Policy/institutional barriers**: Institutional frameworks in many developing countries make it difficult for private firms to be profitable, especially concerning licensing, registering, pricing, regulating, etc. There is a lack of capacity of the public sector in designing appropriately scaled networks and suitable tendering for firms to operate these networks. Moreover, the legal framework on urban and semi-urban water supply is often very patchy, and challenges associated with acquiring land also dampen investment.
- **Corruption:** corrupt environments have a negative impact on business models and creditworthiness
- **Lack of incentives to promote private sector entry into the market**: On the supply side, governments often fail to promote the entry of enterprises that are able to undertake transformative R&D on new technologies and materials. On the demand side, governments also struggle to address market imperfections related to households' understanding of the benefits of improved sanitation and the nature of on-site solutions, by not prioritising national plans for sanitation service delivery to the poor (ODI, 2015).
- **Regulatory risks**: Very often, SWEs operate in an uncertain regulatory climate where they were not recognized as part of the broader water provision ecosystem. Therefore, they face threats from centralized networks, local service providers (which may not be selling safe water), and free water from natural sources. This leads to sudden risks of operations closing or becoming untenable. Additionally, in most developing countries, there is a lack or too cloudy regulation to motivate and organize the participation of private sector. This increases the blind spot in the sector, essentially when private investment is to be contracted.
- **Operational independence**: structures funded by donors or government agencies are being imposed strong conditions of location, technology, and pricing. This severely limits management flexibility (ODI, 2015).

3.1.3.3 Ideological barriers

When looking for funds, WASH market-based organisations are often perceived as risky (the nature of private sector involvement in the water sector has been controversial before the official recognition of the Human Rights to Water and Sanitation in 2010).

- There is a long and polarised debate about **the role of the private sector in delivering and supporting water supply**, **sanitation, and hygiene services**, as those services are often seen as services that should be delivered for free.

- **The diversity of private sector organisations** has made it difficult to have a specific and actionable conversation about what is meant by 'private sector engagement'. (ODI)
- **Strategic and ideological positioning**: SWEs operate in an environment where the sometimes-competing goals of financial sustainability and the "public good" of providing clean drinking water at an affordable price are interpreted differently by different stakeholders and funders. (SWE-study 2017)

The rural water sector is traditionally 100% financed by public funds through competitive bidding, leading to low quality of the pumps, numerous breakdowns and donors fatigue towards the rural water sector. The **Uduma** concept (developed by **ODIAL Solutions**), which is one answer to this problem, is facing a huge challenge as it requires a blending of donors' and private funds. ODIAL Solutions is looking at innovative ways of attracting public funding in this venture, taking into account that it should take place out of the usual competitive bidding.

Opportunities: What Can Be Done to Reach Scale?
Source: infoDEV, 2017

The challenges that impede scaling of green sectors also offer numerous opportunities for green enterprises to improve market penetration in existing areas of operation (scale up), develop products to suit specific customer segments, and expand to other geographic regions (scale out). The study highlighted opportunities ranging from less expensive business model innovations and strategic partnerships to more expensive, but rapid scale solutions such as developing technology platforms, and market building and de-risking mechanisms:

1. **Business model innovations**. Across the seven case studies, business model innovations emerged as a better source of competitive advantage and were comparatively less expensive and time consuming than technology or product design innovations. They also marked a positive tipping point in the growth of green sectors. The pay-as-you-go (PAYG) model is one such business model innovation that has been a game changer for the SHS subsector. Companies such as M-Kopa and Mobisol have been in the forefront, using payment systems such as M-PESA, Airtel, and MTN mobile money. This combination of solar and mobile technology is bringing affordable solar technologies to off-grid villages.
2. **Enabling technology platforms**. Almost as important as new business models to the success of green sectors are enabling technology platforms that provide new opportunities and lower the scaling cost for enterprises across an entire green subsector. Safaricom's M-PESA is the leading technology platform behind the mobile money revolution in Kenya. For unbanked Kenyans and many other countries where mobile money has expanded, M-PESA has become far more than a way to send money home. It has revolutionized off-grid markets in East Africa by enabling PAYG customers to make their periodic payments for SHS easily and securely.
3. **Market creation and de-risking mechanisms**. The case studies also highlighted how creating and de-risking markets remains necessary to scale green sectors despite the existing policies and donor initiatives that target green sectors. Certification programs such as Lighting Africa and Lighting Global, by establishing quality standards and best practices, have provided the much needed clarity in the marketplace for consumers and ensured that poor quality products do not spoil the market for green products.

Trade and industry associations such as the Global Off Grid Lighting Association (GOGLA), the Alliance for Rural Electrification, the Association of Water Technologies, and the e-Waste Association of South Africa have played an important role in building the nascent green market in developing countries.

4. **Specialty financing instruments for green businesses**. New specialty financial instruments will be equally important to the success of other green sectors. Since green enterprises do not generally follow the growth trajectory needed to attract VC and PE investors, concessional and blended finance will be needed to meet the high initial investments and long payback periods required in many green sectors. Three innovative green financing instruments particularly stood out from the case study research: (i) the World Bank Group's climate venture facilities (CVFs) that specifically target early-stage green enterprises with patient financing and investments below US$1 million, (ii) growth-stage debt and working capital facilities that are being developed to provide green enterprises with lower-cost operating and expansion capital, and (iii) new instruments that are being developed to provide mitigation of local currency and interest rate risk for green enterprises.
5. **Technology and business model transfer**. New and specific efforts to transfer technology or business models from one country to another represent another emerging approach to enabling scale. While this approach is showing promise, it is too early to judge whether technology or business model transfer will succeed in helping to scale green sectors. The World Bank Group's Climate Technology Program and Factor(E), co-created by the Shell Foundation and Colorado State University's Energy Institute, bring international investors and established technology and business models together with entrepreneurs in developing countries to help the latter access these known approaches.
6. **Strategic partnerships**. While perhaps not novel, one of the most effective ways that green sectors have achieved scale has been through building strategic partnerships. These partnerships were seen across multiple areas in the case studies, ranging from assistance in customer outreach (distribution strategy), improving customer awareness, to customer financing and innovation in product development. Off grid solar enterprise Nova Lumos's partnership with MTN, Nigeria's largest telecommunications provider, has enabled the former to gain access to all MTN customers who can now subscribe to alternative electricity on demand using their mobile phone.

3.2 De-risking WASH investments through sustainable ecosystems

Entrepreneurs often require support from partners in the various phases of their growth. The variety of stakeholders each with their specializations involved sometimes makes continuity difficult.

The requests for de-risking from investors often cover political and currency risks. De-risking could be improved by reinforcing/introducing impact specifications within agencies that already provide guarantees to traditional investors (e.g. **Proparco** and most export credit agencies).

Who is supporting the WASH market-based entrepreneur within the public sector, private sector, and civil society?

- How strong is the entrepreneur's network? What can be done to improve the current entrepreneur's enabling and de-risking ecosystem?
- Who from the public sector is ready to share the entrepreneur's financing risks with potential private investors, and vice-versa?

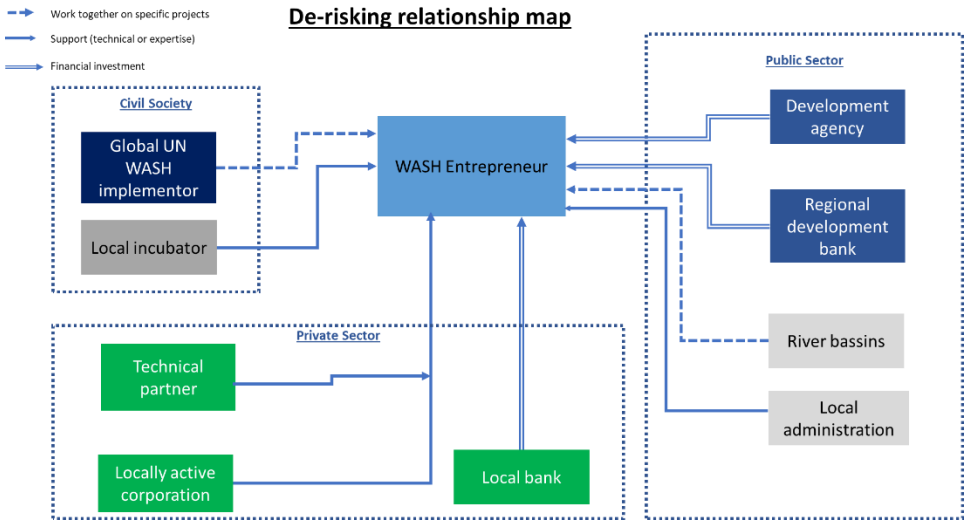

Figure 26 - example of de-risking relationship map: "peer-to-peer due diligence" – Source: Waterpreneurs

3.2.1 Policy enablers supporting social entrepreneurs

Today, there is a huge gap between the desire of governments to supply safe drinking water to all people, the budget for doing this, and the regulatory controls for utilising the private sector, which is currently neither well recognised nor not well regulated. **WaterLex** (a global centre of expertise based in Geneva and focusing on the human rights to water and sanitation) recognises that the private sector could be a fast-track option for providing these services, provided it meets human rights criteria. To activate these opportunities, WaterLex advocates that there should be a framework in place to safeguard people's human rights, particularly for vulnerable people, and what they can afford to pay, how it is offered (to avoid discrimination) and the quality/safety of the water.

OECD has established the Roundtable on Financing Water, jointly with the **WWC** and the **government of Netherlands**, to provide a public-private platform to scale up financing that contributes to water security and sustainable growth. The OECD Water Governance Principles provide 12 must-do for governments to design and implement effective, efficient, and inclusive water policies in a shared responsibility with the broader range of stakeholders. They were developed using a multi-stakeholder approach within the OECD Water Governance Initiative.

Sanitation and Water for All (SWA) is looking into accelerating the engagement with the private sector. SWA identified a set of four collaborative behaviours, that if adopted, can improve the way governments and partners work together to improve the long-term sector performance needed to deliver sanitation, hygiene, and water for all.

FANSA (Freshwater Action Network in South Asia) is organising a focused workshop on the human right to water and sanitation for water entrepreneurs.

Assisting SMEs from developing countries to better access water technologies and solutions is considered by **International Trade Center (ITC)** as a sustainable way for those SMEs to meet the products quantity and quality requirements of targeted markets work with small and medium-sized enterprises in developing countries. Access to new water technologies and awareness of solutions and best practices are seen as a key challenge to most local entrepreneurs trying to be more competitive, efficient and productive and expand to new markets.

The **Global Water Partnership (GWP)** based in Stockholm is also getting involved in the design of financing schemes including decentralized market-based solutions.

3.2.2 Reinforcement of capacity

A number of organisations (incubators, accelerators, development agencies, etc) support water entrepreneurs in different ways in the various phases of their growth (idea-seed-scale-up-growth-maturity). These phases and their specificities can be confusing and laborious for entrepreneurs looking for help. These supporting organisations are now starting to join forces in order to unlock silos to achieve a more transversal approach to support impactful entrepreneurs, fully respecting human rights.

3.2.2.1 Incubators and accelerators

For example, since past few years, business incubators in Africa have been emerging. These incubators are organising themselves in the cross-boundary network to work together in order to share best practices but also to help entrepreneurs to expand their business in multiple markets. Corporations such as **Orange** in the telecom industry actively take into consideration this new entrepreneurship wave in their projects to foster the local business creation in Africa. Other corporations (e.g. **Grundfos** in Denmark and **Krones** in Germany) are looking at entrepreneurs in the WASH sector as an inspiration for their own innovation.

Veolia (leading water operator) and **MakeSense** (social entrepreneurship accelerator) have partnered to create **Agua Urbana** (an incubator in Mexico specialized on supporting water related businesses). **Ashoka** (largest network of social entrepreneurs) was also involved in the process. There is also **Imagine H20** a US-based organisation (San Francisco) accelerating water innovation. Its mission is to empower people to deploy and develop innovation to solve water challenges globally. The **Toilet Board Coalition** – a Switzerland-based organisation – founded by **Unilever, LIXIL Group, Kimberly-Clark, and Firmenich**, is indeed another good example of the accelerator, in the sanitation sector.

Other incubators around the world are organised in networks and support entrepreneurs in the water and sanitation sectors (e.g. **Africinnov** – a network of incubators in Africa, hosted by **BondInnov** and supported by **Agence Française du Développement**); or **Africa 21**, promoting incubations from diasporas) and developing focused expertise/specialities (targeting specific thematic linked to the Sustainable Development Goals – SDG's, e.g. **Impact Hub** in San Francisco hosting Water.org).

3.2.2.2 Non-Governmental Organisations

NGOs are not always perceived as a crucial partner needed for developing successful business cases. This is a missed opportunity, as NGOs can play a vital role in 'going beyond regular sales' and play a crucial role in sustainable business ecosystems. For example, **SIMAVI**, based in the Netherlands, is promoting the potential of NGOs to create meaningful and successful partnerships with the corporate sector. In a growing number of areas, improved sanitation has been achieved at the household level, but no service exists for transport and safe disposal of faecal wastes. In the absence of large municipal wastewater treatment systems to provide these services, there is a need for economically-viable, decentralized models to provide these critical services. NGO's such as **OXFAM** are looking into a way of how do we develop viable business models for small and medium enterprises, which are profitable and offer sustainability for future growth without external subsidies.

There is an understanding that to achieve SDG's and deliver sustainable WASH by 2030 we need systems, not just more holes in the ground. Technical solutions alone aren't enough. We need joint action and harmonised approaches to support national systems change, learning and knowledge share along with capital maintenance expenditure investment. NGO's such as **IRC WASH** are working on how to effectively engage with stakeholders – government, engineers and other NGO's to promote the necessity of systems thinking and help donors see beyond binary 'numbers reached' as sole success indicators. Large NGO's such as **BRAC**, **WaterAid**, **Helvetas**, are supporting the emergence of entrepreneurial business models in the WASH sector. Other major organisation such as **Rotary** also has a strategic focus on WASH issues.

The **CEO Water Mandate** has a specific work stream focusing on engaging their corporate members on WASH and human rights issues extending into the companies' value chains. In addition, "WASH4Work", a collaboration involving 15 organizations from the public and private sector, is looking to mobilize business action on WASH by developing a clear business case for investments on WASH as well as identifying the various actions that companies can take to implement WASH actions across their business and value chains.

CDP (formerly the Carbon Disclosure Project) annually driving and monitoring the uptake of WASH provision amongst more than two thousand of the world's largest corporations, etc.

Other specialized organisations coming from the water and sanitation sectors are supporting the emergence of business models in the sector. **Antenna Foundation**, based in Switzerland, is supporting business models for household water treatment systems; or **CAWST**, a Canada-based organisation is providing training, education, and technical consulting services in water and sanitation, especially for early stage entrepreneurs. **SMART Center Group** is a network organisation with its secretariat in the Netherlands, working on the promotion of and training in simple, low-cost technologies for WASH services. **cewas** is Swiss-based water and sanitation-specific incubator and is supporting water and sanitation start-ups since 2010. Their main focus is early-stage start-up support (training, business development support, technical assistance) to make start-ups investment-ready. They run water & sanitation specific start-up programmes in Switzerland, the Middle East, Southern and Eastern Africa, India and South America. **Young Water Solutions** – based in Belgium - is another initiative supporting young entrepreneurs in the development of their activities. Entrepreneurs require support to get access to capital but not only, they need support in capacity-building and understand all aspect of running a business, (branding, customer engagement, offer a new range of products, multi-stakeholder partnerships, data monitoring etc.) This is what organizations such as **VIA Water**

(The Netherlands), **Borda** (Germany) are providing. The required investment in the sanitation sector is too substantial, to be raised by traditional ODA (Official Development Assistance) money. Entrepreneurs require support in an enabling environment, access to affordable finance as well as technical and managerial capabilities training. Borda is working on developing appropriate partnerships to collaboratively ensure that entrepreneurs are enabled to develop the sanitation sector. In particular, Borda is advocating the following 2 points:

1. Technical skills or "state of the art" know-how about technologies or operating procedures are missing quite often. Therefore it is often required to give technical assistance/capacity building, too.
2. There are generally a lot of finances in the partner countries. The challenges for entrepreneurs in the (fairly unknown) sanitation sector are A) getting access and B) getting affordable conditions. Often loans are handed out at about 25% interest or more and have a repayment period of three years or less. This makes it near to impossible to develop a viable business model on a debt basis. Therefore "affordable" finance is the key.

WASTE build sustainable sanitation and solid waste systems in developing countries. To achieve this, they connect relevant (local) stakeholders along the entire waste and sanitation chain. This allows WASTE to build profitable markets and change the entire system from within. Their job is done, when the systems are sustained and can scale up on their own. This is how an ideal system looks: people want sanitation service and are willing to pay for it (demand), there are businesses who can supply the service (supply), both household and businesses have access to finance (financiers) and the government has developed policies and is able to monitor them.

3.2.2.3 National / International Governmental Organisations

The **Climate Technology Centre and Network (CTCN)** is the operational arm of the UNFCCC Technology Mechanism, hosted by the UN Environment Programme and the UN Industrial Development Organization (UNIDO). The Centre promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. They provide technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries in the following sectors: 1/ Agriculture and forestry, 2/ Coastal zones, 3/ Early warning and Environmental assessment, 4/ Mother and child, 5/ Human health, 6/ Infrastructure and Transport, 7/ Infrastructure and Urban planning, 8/ Marine and Fisheries and 9/ Water.

infoDev is a program of the **World Bank**, supporting entrepreneurs in developing countries through research and innovation hubs for climate tech, agribusiness and digital.

WASH-FIN, a programme of **USAid Development Agency**, seeks to mobilize private capital and market finance by promoting sustainable business models and proven commercial approaches, advocating for and tracking increased public investment and replicating success through knowledge sharing. As part of this report, WASHFIN graciously offered to draft a hypothetical/model financial application (available on Waterpreneurs website) so that we can very explicitly present the business case for an impact investor to run through. Something like this, even if slightly fictionalized, can show the opportunities for people (investors) who think in numerical terms. It has been decided to present both a water and a sanitation scenario, as both are highly different and the tariffs/user fees that a user might pay, and their willingness to pay, will differ significantly.

3.2.2.4 Consulting firms

Consulting firms are developing entrepreneurial ecosystems with a growing interest in the WASH sector. In recent years, **EY** has a non-profit programme that supports social enterprises at 'low bono' rates. The programme team has worked with dozens of WASH entrepreneurs to help them develop and operationalise scalable business models. The insights they've developed are extended to other entrepreneurs and investors on subsequent projects, and also published in white papers.
Accenture has developed a Social Entrepreneur Academy (SEA) and has reached over 900 entrepreneurs. SEA is based on a model where trainer's training and material customization has been done by Accenture volunteers. As Accenture wants to reach wider audiences, they have analysed the social enterprise ecosystems and identified a large pool of players with potential interest to join the SEA partnership. Similarly, auditing firms such as **Mazars** are developing global water practices including accelerating innovation, where they support and advise new ventures (start-ups, SMEs, and larger corporations) so they can concentrate their energy on innovation itself.

3.2.3 Matchmaking platforms / Alliances / Clusters

In the growing market of matchmaking platforms, we are highlighting a few examples which cover water and sanitation.

UN WIPO GREEN matchmaking platform between green technologies providers and seekers focuses on innovation serving climate change. UN WIPO GREEN consists of an online database and network that brings together a wide range of players in the green technology innovation value chain and connects owners of new technologies with individuals or companies who might be looking to commercialize, license or otherwise distribute a green technology. In this way, they help not only to accelerate innovation and diffusion of green technologies but also contribute to the efforts of developing countries in addressing climate change.

The World Alliance for Efficient Solutions, established by the **Solar Impulse Foundation**, brings together main actors involved in developing, financing or promoting products, services, processes and technologies around 5 SDGs (including SDG 6) that protect the environment in a profitable way. To this end, they will assess the solutions submitted by their members, with the help of independent technical and financial experts, and select 1000 of the most promising ones. They will be labelled as Efficient Solutions and presented to governments, businesses, and institutions at COP 24 to encourage them to adopt more ambitious environmental targets and energy policies.

The **Inclusive Business Accelerator (IBA Ventures)** facilitates the acceleration of impactful entrepreneurship in BoP markets. IBA Ventures does this by building a structure that supports the delivery of substantial numbers of investment-ready inclusive business plans that improve the wellbeing of people at the Base of the Pyramid, with thematic approaches which include WASH.

As an example of what is happening in the other sectors, such as energy, waste management, green infrastructure, we can highlight two initiatives: **R20 – Regions of Climate Action** and **REEEP**.

R20 is a not-for-profit international organization founded in 2011 by the former Governor of California, Arnold Schwarzenegger, in cooperation with a number of leading Regions, the

United Nations, Development Banks, Clean-Tech companies, Academia and a number of NGO's, to support sub-national governments around the world to develop and finance green infrastructure projects. R20 is implementing a technical and financial ecosystem to cover the whole value chain of project identification, structuring, development, financing, and implementation. Sub-national authorities around the world can benefit from this unique one stop shop to improve the sustainability of their regions.

REEEP is an international multilateral partnership that works to accelerate market-based deployment of renewable energy and energy efficient systems in developing countries. REEEP invests in clean energy markets in developing countries to reduce CO2 emissions and build prosperity. Based on a strategic portfolio of high impact projects, REEEP works to generate energy access, improve lives and economic opportunities, build sustainable markets, and combat climate change.

3.2.4 The rise of regional ecosystems

3.2.4.1 Example of Switzerland

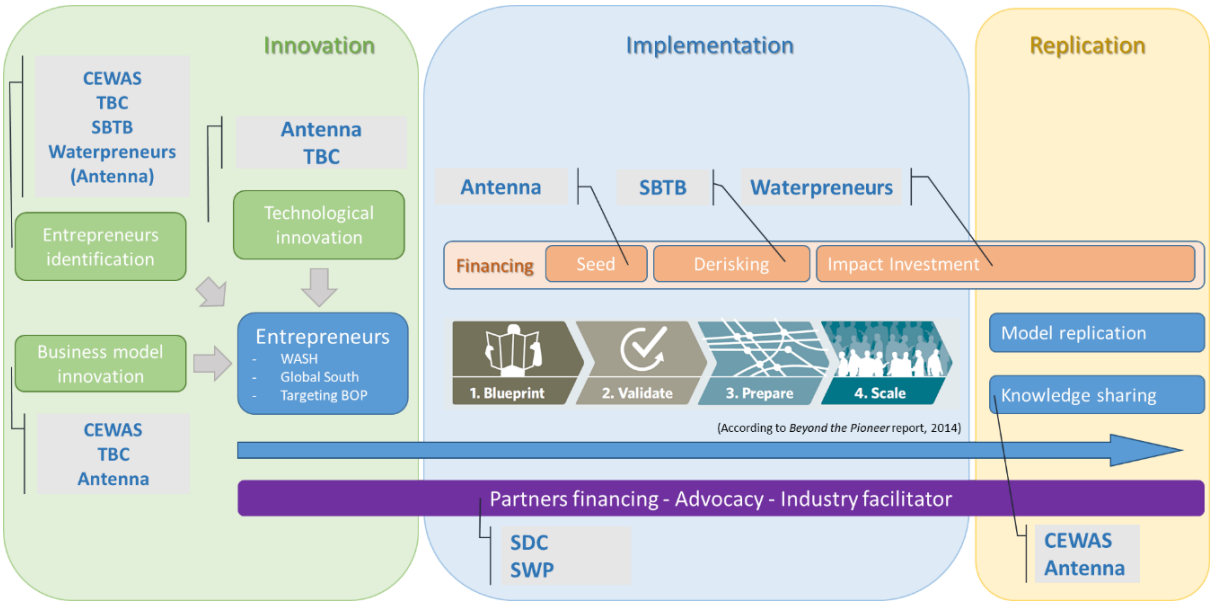

Figure 27 - The Swiss Water and Sanitation Entrepreneurship Ecosystem – source: SWEP / Antenna Foundation

In early 2017 discussions were initiated by a small group of organizations based in Switzerland (**Cewas, Swiss Bluetec Bridge (SBTB), Antenna Foundation, the Toilet Board Coalition (TBC), Waterpreneurs** and the **Swiss Water Partnership**). The objective is to collaborate to overcome silos and achieve better outcomes. Discussions so far have been around joint communication, certification, and financing.

Cewas is incubating early-stage start-ups with a strong focus on developing countries. Cewas is working on issues such as leveraging funds/ unlocking risk capital to support early stage entrepreneurs in the incubation phase.

The **Swiss Bluetec Bridge** (SBTB) is designed to put innovative water technologies owned by Swiss start-ups, social entrepreneurs and SMEs at the service of low-income ("base of the

pyramid") customers in developing and emerging countries. Through a competitive process, the projects with the highest potential receive co-financing in the form of interest-free loans to deploy their project. The initiative is funded by the **Swiss Agency for Development and Cooperation** (SDC).

Water and sanitation social entrepreneurs operate in the South under many external constraints and often without any framework of collaboration with the host government, though they offer complementary solutions to centralized water systems. **SDC** is looking into what type of collective action and under which collaborative framework can create a market for safe water with Social Enterprises.

It is interesting to note specific initiatives between universities (with their R&D capacities) and large NGO's. The example of the Ecole Polytechnique Fédérale de Lausanne (EPFL) with their Humanitarian Tech Hub (one of their focused areas is WASH), working in partnership with **International Committee of the Red Cross (ICRC)** and managed by the **Cooperation & Development Center (CODEV)**. The Humanitarian Tech Hub has been designed for humanitarian actors, researchers and other players willing to mobilize cutting edge research to address today's humanitarian challenges. The Hub aims to build upon the approaches already adopted while developing and deploying innovative and appropriate solutions for humanitarian action.

For the last 2 years, the **Swiss Federal Institute of Aquatic Science and Technology** (Eawag) has been organizing frequent workshops called "discovery days", focusing on water kiosks. These 2 days' workshops bring together entrepreneurs, NGOs, foundations, and experts such as **DLO Haiti, Springhealth, Swiss Fresh Water, WaterHealth, Water Mission, Aqua for All, Siemens Stiftung, Antenna, SKAT**, etc. There is a strong transparency and willingness to share experiences and best practices to help the sector consolidate and duplicate faster successful projects or reach scale.

From an integrated ecosystem approach, it is of utmost interest to zoom-in the **Canton of Geneva** which has a high density of key-players such as: + 200 start-ups, + 1500 multinational enterprises, + 40 international organizations, + 300 NGOs, + 180 foreign permanent missions, many world class research, R&D centres and high ranked universities. Geneva is precisely where, in 2018, **The Innovation Bridge** will be launched by the **Nomads Foundation** as a place designed to promote the sharing of know-how between companies of all sizes, start-ups, and technology transfer centres, in addition to equally renowned external experts in order to innovate, co-create and anticipate tomorrow's education. Their aim is to accommodate, in a building with a minimum surface area of 20'000m2, thematic hubs linked to the SDGs, as well as to integrate into this model an ethical dimension, which is essential for innovation and dual vocational training that is specific to the Swiss model. One of the focused thematics is on water, for which, the ambition is to act as a regional hub, connecting with other specialized water hubs around the world (some of which water hubs are exemplified below).

3.2.4.2 Example of the Netherlands

The **Amsterdam International Water Week** (AIWW) is a platform bringing together leaders from government, the private sector, academics, and society all over the world; AIWW explores sustainable development goals that represent a global process of resiliency, optimal resource efficiency and transition to circular economies. The AIWW offers a combination of events: the AIWW conference, the Aquatech Trade Exhibition, excursions to the 'living lab' the Netherlands, the Sarphati Sanitation Awards, and Young Water Professionals Programme.

The AIWW is built on centuries of Dutch experience with water, and is based in the capital of the Netherlands, also called by the Dutch people the “Water Valley of Europe”.

Evidently, the Dutch ecosystem for WASH entrepreneurs is extremely active with numerous prominent organisations, to name a few, **Aqua for All** (mission: maximising impact and value of WASH initiatives by selecting and supporting programs that are crucial for reaching SDG6), **WASTE** (working in sanitation and waste management in urban and peri-urban areas around the world), **Akvo** (increasing transparency in the water sector), **Aquanet** (contributing to the improvement of access to adequate drinking water services in developing countries and emerging economies). Interestingly, UNESCO through its **IHE-Delft** (supporting ecosystems of WASH entrepreneurs) and their initiative **Via Water,** are looking at what could be needed to enhance the capacities of innovators to help them go beyond piloting and into lasting solutions that are not (or less) donor driven. Similarly, **The SMART Centre Group** is looking at how to increase the acceptance of simple, low-cost technologies and convince governments, NGOs and other actors to recognize and thus invest in these low-cost, simple technologies and the concept of self-supply as valid means to reach SDG6.

Examples of WASTE: FINISH programme and @Scale

The FINISH programme of **WASTE** shows that systems can be changed and scaled. FINISH stands for Financial INclusion Improves Sanitation and Health. FINISH aims for sanitation for all through an integrated model that addresses both the demand and supply side of the sanitation challenge in India. The programme works with a multistakeholder approach which involves the entire value chain. By mobilising the supply side of sanitation while integrating financial resources into the value chain, it raises awareness on and creates a demand for sanitation services amongst end-users. This includes improving quality and safety of sanitation services, reducing the price of these services and ensuring proper disposal of the waste produced. The programme aspires to deliver improved sanitation systems for 500,000 households in various Indian states. FINISH is a joint venture of TATA–AIG, SNS-REAAL, UNU-MERIT, and WASTE.
The FINISH programme in India started with EUR 6 million subsidies, on 1 EUR subsidy EUR 20 was generated locally, a toilet is built every 4 minutes (for 24 hours per day / 365 days per year) 75% sanitation density is reached in 717 villages, 10 tons humans waste is converted in compost. WASTE and partners are now applying the FINISH principles in other countries in Asia and Africa under the name FINISH Mondial.

WASTE together with **Aqua for All** and some other partners are now developing **@Scale**. It will be an organisation gathering and developing mechanisms allowing for scaling in WASH. That involves: creating awareness (marketing), government (legislation), supply (business) and financing.

3.2.4.3 Example of Sweden

World Water Week (WWW)**,** organized by **Stockholm International Water Institute** (SIWI), is the annual focal point for the globe’s water issues. Leaders and experts from the world’s scientific, business, government and civic communities convene in Stockholm to exchange views, experiences and shape joint solutions to global water challenges. The latest edition of World Water Week attracted over 3,300 participants and 370 convening organizations from 135 countries all over the world. Functioning as an open and dynamic platform, the World Water Week enables participants to build capacity, form partnerships and review

implementation, thereby advancing the world's water, environment, health, livelihood and poverty reduction agendas. In 2017, the thematic of market-based solutions and the role of private sector strongly emerged (e.g. launch of the SWE study, USAID WASH-FIN workshop on "Tapping capital markets to finance WASH investments", WBCSD session etc.).

The **Global Water Partnership** (GWP) is a global action network with over 3,000 Partner organisations in 183 countries. The network has 86 Country Water Partnerships and 13 Regional Water Partnerships. The network is open to all organisations involved in water resources management: developed and developing country government institutions, agencies of the United Nations, bi- and multi-lateral development banks, professional associations, research institutions, non-governmental organisations, and the private sector. GWP's action network provides knowledge and builds capacity to improve water management at all levels: global, regional, national and local. GWP networking approach provides a mechanism for coordinated action and adds value to the work of many other key development partners. GWP is an 'on-the-ground' network that mobilises government, civil society, and the commercial sector to engage with each other to solve water problems.

The **European Commission** is working with **SIDA** (Swedish International Development Cooperation Agency) and **SIWI** (Stockholm International Water Institute) on a project to explore ways to unlock financing for investment in water infrastructure.

3.2.4.4 Example of Kenya

Water Sector Trust Fund (WSTF) is a Kenyan State Corporation that is mandated to finance water and sanitation services for the poor and underserved communities in rural and urban areas. Its mandate includes the provision of conditional and unconditional grants to the counties, and to assist in financing the development of and management of water services in the marginalised and underserved areas, including:

a. Community-level initiatives for the sustainable management of water resources
b. Development of water services in rural areas considered not to be commercially viable for the provision of water services by licensees
c. Development of water services in the under-served poor urban areas.

Important to mention that WSTF's implementing partners are Water Services Providers (WSPs). The WSTF does not have the capacity to directly finance the beneficiaries (households), instead, it works through the WSPs, which are mandated to provide water supply and sanitation services by the County Governments.

Blue Ribbon Concepts is an investment advisory firm, committed to providing innovative solutions to the challenges of development in Kenya and the wider East African Region. The firm focuses on the key growth sector particularly water, agriculture, tourism and small and medium enterprises (SMEs). Blue Ribbon Concepts spearheaded the 'Maji ni Ustawi' a private sector led initiative, implemented in partnership with public sector agencies, to advocate for an enhanced private framework supporting the acceleration of private investment in the water sector.

Kenya Climate Innovation Center (K-CIC) provides holistic, country-driven support to accelerate the development, deployment, and transfer of locally relevant climate and clean energy technologies. The KCIC provides incubation, capacity building services, and financing to Kenyan entrepreneurs and new ventures that are developing innovative solutions in energy,

water, and agribusiness to address climate change challenges. The Kenya CIC is an initiative supported by the World Bank's infoDev and is the first in a global network of CICs being launched by infoDev's Climate Technology Program (CTP). The Kenya CIC is funded by the United Kingdom's UKaid and the Danish Ministry of Foreign Affairs.

Quercus Group is a niche strategic and hands-on advisory firm specialized in sustainable development through project and partnerships development, strategic consulting and capacity building. Quercus Group works with clients and supports them in forming partnerships and developing business cases and collaborative platforms that help them realize their green growth and agribusiness potential. The company is one of the few consulting firms who not only provide analysis and advice but also act as partners in the practical implementation of projects and internationalization activities within cleantech, sustainable water solutions, agribusiness and smart cities. Quercus Group has offices in Kenya, Denmark & India, and has worked with private companies, membership organizations, regional governments, public institutions, and knowledge institutions in more than 25 countries.

3.2.4.5 Example of Singapore

The **Singapore International Water Week** (SIWW) is a global platform to share and co-create innovative water solutions. The biennial event gathers stakeholders from the global water industry to share best practices, showcase the latest technologies and tap business opportunities. SIWW is part of the strategic programme of the Singapore Government to grow the water industry and develop water technologies.

PUB (Public Utilities Board) is the national water agency that manages Singapore's water supply, water catchment and used water in an integrated way. They actively support a comprehensive ecosystem of water entrepreneurs.

The **Asia P3 Hub** – supported by **World Vision** - is a multi-sector Partnership Incubator to tackle poverty issues in Asia Pacific Region. Taking a combinatorial innovation approach, the Hub convenes governments, companies, NGOs, and academia to work together to address poverty, starting first with water, sanitation, and hygiene (WASH).

3.2.4.6 Example of France

Aqua-Valley is a French Competitiveness Water Cluster, based in Montpellier and funded by the French government and regional authorities. Aqua-Valley is promoting partnerships through collaborative projects between businesses and academics to support innovation and international development in the water sector. Other partners may be part of this network such as public authorities and firms providing business services. Since 2013, Aqua-Valley has been focusing on the development of an international partnership named France Water Team. Along with other international water clusters, Aqua-Valley is building a worldwide network with water stakeholders to help French companies improve their economic performances through partnerships in a dynamic and growing international environment. Currently, France Water Team gathers 6 French Water Clusters totalizing 650 water companies and academics.

The **French Ministry of Europe and Foreign Affairs** is leading a working group called "Innovating together", that gathers key players working on social entrepreneurship: among others, **Cerise Microfinance** (reference for social performance management assessment, and the development of tools and measurement frameworks such as the *Social Business Scorecard*, for social businesses, impact investors and mission-driven financial service

providers, also applicable to water entrepreneurs), **AFD** (who is developing a Social and Inclusive Business strategy, but also financing water related projects).

Other French organisations are working in supporting entrepreneurs: **Convergences** (multi-actor platform supporting social entrepreneurs and their financing), **Entrepreneurs du Monde** (incubator for social businesses in the field of microfinance and access to energy), **Organisation Internationale de la Francophonie** (supporting francophone networks of entrepreneurs), **IRD** (a French public research institution supporting research in partnership with developing countries, knowledge sharing and capacity building with the specific purpose of contributing to the achievement of the SDG's), but also water specialists such as **Suez** or **Veolia**, etc.

3.2.4.7 Example of Mozambique

In Mozambique currently, there are very few private entities dealing with water sector, but according to **Collins**, the market is there and is turning into a good business. The water investment regulation is one of the hiccups. The water stakeholders are currently organizing some changes through the recently created Mozambican Water Platform, a place where the water private sector "talks" on the same level to the government.

3.2.4.8 Example of Canada

WaterTAP is Ontario's water technology champion. They bring private sector experience to the challenge of helping water technology entrepreneurs, utilities, and investors make the connections and find the resources they need to keep the water sector prospering. More than 900 companies are part of Ontario's water. **CAWST** provides technical and project implementation capacity development services to early-stage entrepreneurs to help them start, scale-up or improve their WASH projects.

3.2.4.9 Example of Australia

In September 2016, the Water Innovation Engine, a pioneering partnership led by the Australian Government's Department of Foreign Affairs and Trade (DFAT) to stimulate bold new ideas and approaches in the water sector, has launched the global "Water Data Challenge" and the global "Urban Sanitation Challenge" with the announcement of a multi-million-dollar investment in five projects in Africa, Asia and South America.

3.2.4.10 Example of South Africa

GreenCape's Water Sector Market Intelligence Report highlights business opportunities for water in the green economy in the Western Cape. It targets investors and entrepreneurs interested in the business of water and seeks to promote the Western Cape as the leading place to do business in the green economy.

3.3 Innovative finance for WASH market-based solutions

Investing in the water sector is often perceived as risky and complex. To de-risk and make the sector more attractive for public and private investments, innovative finance mechanisms are needed. Many are currently being developed and tested.

Finance offers a wide range of investment approaches from traditional investment to grants. Investors should define clear strategies on what they expect in term of financial return but also

for the social and environmental return. Impact investing propose an interesting alternative when investors seek a weighted financial, social and environmental impact.

The impact investing space has grown to multi-billion figures. From private banks to pension funds, including private individual, governments, and corporations, interest is there to put capital at work into SDGs 2030, including into water and sanitation, yet little money is flowing to projects today. A major question: How can we build a life cycle investment infrastructure for "water enterprises", from venture capital to mature growth financing?

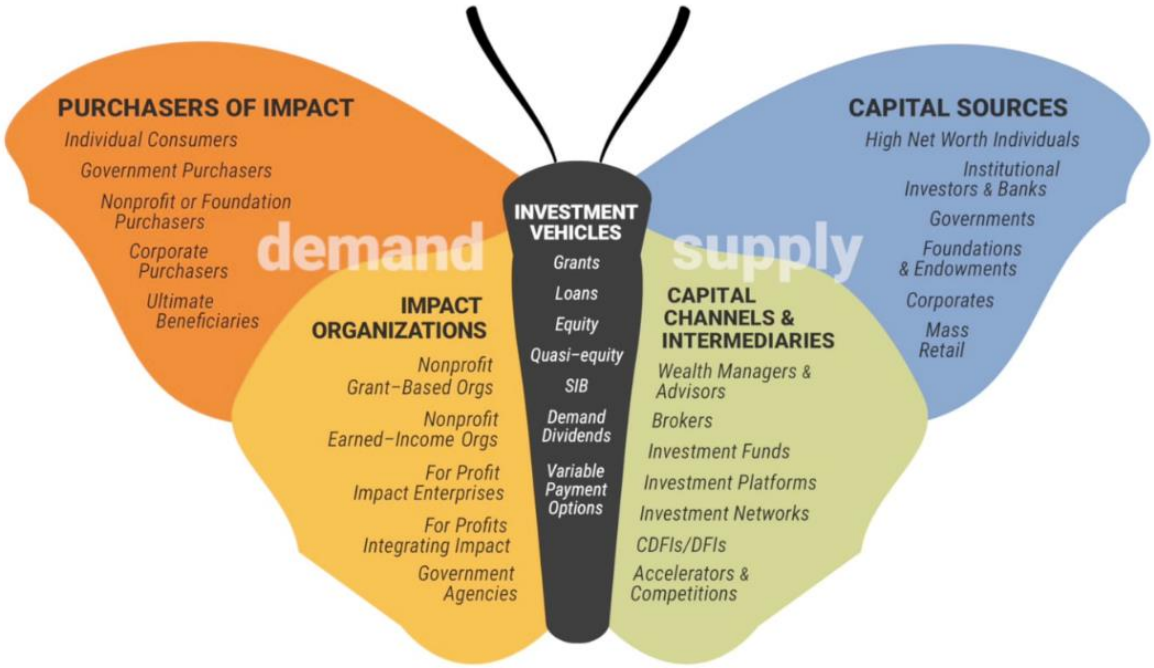

Figure 28 – Impact Capital Market - Source: CASE Smart Impact Capital, Duke University 2016

3.3.1 Blended finance: Unlocking commercial finance for SDG's

To meet the 2030 SDG goals, it is imperative to develop novel financial instruments and investment strategies to scale up best-in-class impact solutions (technological, financial and/or business models), or alternatively shift investors' and consumers' investment/consumption behaviour, to meet those goals by 2030. There is a pressing need to identify best-in-class impact solutions to scale up: financial instruments or investment strategies, new technologies and public-private collaborations, i.e. blended finance.

The fundamentals of a WASH business model (not an NGO model subsidized by grants) entails defining some principles, the potential sources of revenue and covering the cost of capital and cost of operations. This is a key element for understanding the opportunity of involving private debt or equity, and this is very well addressed by blended finance approaches.

In 2015 and 2016, the **OECD** and **WEF** jointly published series of papers "ReDesigning Development Finance Initiative"

- "Blended Finance Vol. 1: A Primer for Development Finance and Philanthropic Funders (September 2015): An overview of the strategic use of development finance and philanthropic funds to mobilize private capital for development"[13]
- "A How-To Guide for Blended Finance (September 2015): A practical guide for Development Finance and Philanthropic Funders to integrate Blended Finance best practices into their organizations."[14]
- "Insights from Blended Finance Investment Vehicles & Facilities (January 2016)[15]": This paper synthesis the findings of a survey which was an initial attempt to start building the evidence base on the role of Blended Finance in contributing to development outcomes in emerging and frontier markets and the ability of this approach to catalyse private capital.

In July 2017, a working paper (report) - The State of Blended Finance[16] - has been jointly produced by the Blended Finance Breakthrough Taskforce (BFBT) convened by the **Business & Sustainable Development Commission**, and **Convergence**. The State of Blended Finance aims to expand the evidence-base around the potential of blended finance to help close the SDG funding gap by summarizing blended finance deal trends and identifying ongoing blended finance-related efforts of key actors in the space.

In January 2018, OECD highlighted 5 key "Blended Finance principles for Unlocking Commercial Finance for the Sustainable Development Goals"[17]

Also to be mentioned:

- Convergence in Toronto who runs an operational Blended Finance platform. Their blog elaborates on the above OECD 5 Principles[18]
- The High-Level Panel on Water (HLPW) and their "Initiative for Valuing and Financing Water"[19]
- Another useful blog is the World Bank Water Blog. See their post "Achieving universal access to water and sanitation by 2030 – how can blended finance help?"[20]
- 9 case studies on how blended finance has been used in facilitating access to water in developing countries[21]

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[13] http://www3.weforum.org/docs/WEF_Blended_Finance_A_Primer_Development_Finance_Philanthropic_Funders_report_2015.pdf
[14] http://www3.weforum.org/docs/WEF_Blended_Finance_How_To_Guide.pdf
[15] http://www3.weforum.org/docs/WEF_Blended_Finance_Insights_Investments_Vehicles_Facilities_report_2016.pdf
[16] http://s3.amazonaws.com/aws-bsdc/BSDC_and_Convergence__The_State_of_Blended_Finance__July_2017.pdf
[17] http://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/OECD-Blendend-Finance-Principles.pdf
[18] https://convergence.finance/news-detail/1s5PMT5WmsYCmua8KEgOOS
[19] http://sdg.iisd.org/news/agencies-launch-initiatives-for-valuing-and-financing-water/
[20] http://blogs.worldbank.org/water/achieving-universal-access-water-and-sanitation-2030-how-can-blended-finance-help
[21] http://wsp.org/sites/wsp.org/files/publications/WSS-9-Case-Studies-Blended-Finance.pdf

BLENDED FINANCE FOR WASH: AN ALTERNATIVE SOURCE?

GLAAS report 2017 by UN-Water[22]

"While improving the use of existing financial resources is a key element for funding the SDGs, governments and development partners may also consider alternative sources of finance for the increasing costs of meeting the SDGs.

One alternative source is blended finance, which is the strategic use of public taxes, development grants and concessional loans to mobilize private capital flows to emerging and frontier markets, and it offers opportunities to increase the role of commercial financing for the WASH sector.

Blended finance measures can come in many forms, but include grants, concessional loans, and credit enhancements such as guarantees to help "crowd in" private investment. For example, grants can be offered to provide technical assistance or to support capacity building activities. Concessional loans can be combined with commercial finance to soften lending agreements and to provide liquidity to lenders. Public finance can also be used to provide partial guarantees to commercial lenders.

Blended finance in practice is likely to be combined with other innovative measures. Output-Based Aid is a form of aid where funds are only released after a service is delivered. This mechanism provides an incentive for the recipient to deliver the expected service, although it does not overcome the need for initial investments. Smart subsidies can be used to target specific objectives, such as help to finance water connections to poorer households, or to expand microfinance initiatives. Grouped financing measures can be used to pool risk and lower borrowing costs.

Blended finance and other forms of innovative financing have shown benefits and should be scaled up. This will require collaboration between governments, donors, and water service providers, to help raise awareness of the benefits, to improve transparency, to develop policies that support efficient and effective services, and to work to catalyze private finance.

Commercial financing may also be an alternative financing source; however, it has thus far played a limited role in the WASH sector. There are several reasons for this. First, water service suppliers must be considered creditworthy to access commercial funds. Due to the inefficiencies already described (such as low cost recovery), utilities often do not have the financial surplus required to cover repayments. Gaps in capacity may mean some utilities are unable to provide audited financial statements that lenders require. Second, investment returns in the water sector are relatively low, but in developed countries, these returns are often reliable and low-risk and are attractive for long-term investors. However, in developing countries, these risks are higher, reducing their appeal to commercial lenders. Private finance for small utilities or rural communities can be hampered by their relatively small size. Finally, the water sector typically requires long-term investments that can be at odds with the short to medium term nature of commercial bank lending.

Increasing the role of private and commercial finance in the WASH sector is expected to result in improved technical, operational and management efficiencies, which increases credit worthiness, and therefore access to commercial finance, producing a virtuous cycle. Enhancing commercial finance in the WASH sector requires innovative financing measures, such as blended finance."

[22] UN-Water global analysis and assessment of sanitation and drinking-water (GLAAS) 2017 report: financing universal water, sanitation and hygiene under the sustainable development goals. Geneva: World Health Organization; 2017 – p.56

3.3.2 Individual transactions

These transactions can be as diverse as equity, loans, convertible notes, grants etc.

Over the last 15 years, a few impact investors have developed experience in investing in the WASH sector. To name a few: **Acumen** (USA), **Finance in Motion** (Germany), **Phitrust Partenaires** and **Demeter** (France), **Aqua for All** (the Netherlands), **Nexus for Development** (Cambodia).

In the last 10 years, **Danone Communities** has been investing in equity in a few Social Water Enterprises such as **Jibu**, **DLO Haiti**, **Naandi Water**, **EcoAlberto**, **1001fontaines**, with the aim to accelerate and scale the impact by water kiosks. They provide capital but also expertise, network and access to competencies from teams within **Danone**.

Economic history shows that increasing a country's infrastructure in a financially sustainable manner is a chicken-and-egg challenge: Financially sustainable infrastructure requires creditworthy users, enterprises, and individuals, which only exist once the operational and affordable infrastructure is in place. Providing early equity and expertise to develop small-scale private or PPP infrastructure in Africa, **Investisseurs et Partenaires** Africa Infrastructure (IPAI) objective is to contribute to faster, more inclusive, and sustainable African growth. IPAI's ambition is to address the missing link between grant-funded very small projects and the large, nation-wide infrastructure programmes on which Development Finance Institutions (DFIs) and purely commercial investment funds focus through direct participation.

3.3.3 Funds

3.3.3.1 Trust funds

In Kenya, the **Water Sector Trust Fund** provides support to finance water and sanitation services for the poor and underserved communities in rural and urban areas. It also includes the provision of conditional and unconditional grants to the counties, and to assist in financing the development of and management of water services in the marginalised and underserved areas.

Safe Water Network (SWN) is developing a Trust to raise $112M of capital to scale small water enterprises and address the safe water access gap in Ghana sustainably. To achieve this target, they need to reduce sector reliance on donors and attract a more diverse group of funders to ensure sustainability of funding. To be investible, small water enterprises must balance affordability to consumers with providing a financial return. SWN is currently looking at the design of investment products that will attract the right mix of funders and investors to ensure sustainable finance.

EXAMPLE: **FundiFix model – maintaining rural water services**

Initiators: UNICEF, REACH - improving water security for the poor, University of Oxford

The FundiFix model is one response to Africa's rural water challenge. It focuses exclusively on the maintenance of existing water infrastructure for communities, schools, clinics and other rural facilities. Led by local entrepreneurs and powered by Africa's mobile network, the FundiFix model offers a performance based approach working with government, communities, and investors to keep water flowing.

The FundiFix model has four connected dimensions:

- Professional Services – user payments and investor finance are contingent on service delivery. The FundiFix model guarantees a rapid service with offices staffed by local entrepreneurs and qualified technicians, with contracts contingent on high quality service delivery;
- Sustainable Finance – stable and adequate flows of finance from the government, users and investors are required to maintain water infrastructure across a diverse portfolio of water points serving everyone, every day;
- Smart Monitoring – regular data flows from mobile technologies with data analytics support a rapid repair service and inform sector monitoring, regulation and resource management;
- Institutional Coordination – government leadership in the separation of policy, regulation, and delivery is critical to ensure sector partners have clear roles and responsibilities.

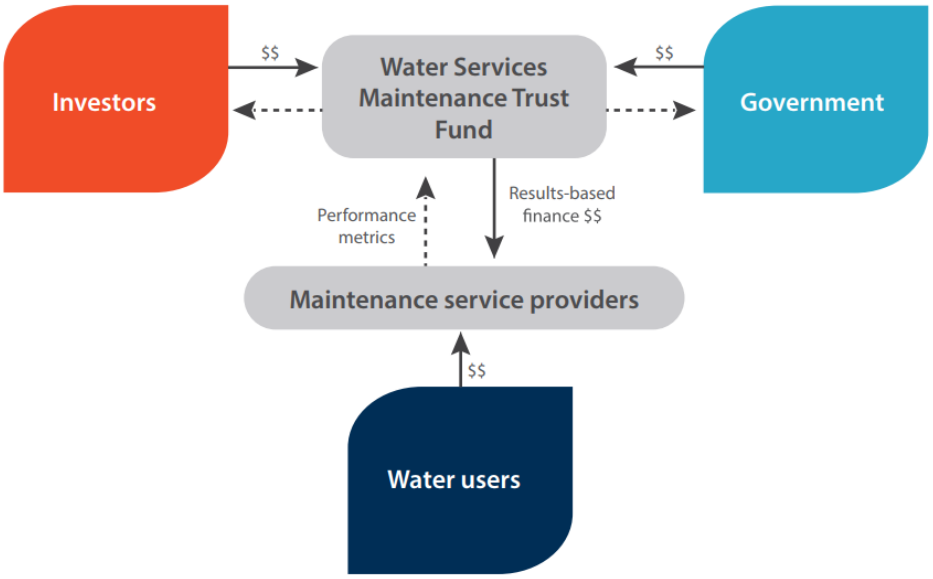

Figure 29 - FundiFix model – maintaining rural water services

3.3.3.2 Impact funds

WaterEquity, an innovation of **Water.org**, launched WaterCredit Investment Fund 3 (WCIF3) in the first quarter of 2017. A social impact investment Fund with downside protection, WCIF3 offer investors a target pre-tax financial return of 3.5%. The target fund size is US$50 million, providing affordable debt capital to enterprises — currently mainly to microfinance institutions

— that expand access to household water supply and sanitation solutions at the BOP in India, Indonesia, Cambodia and the Philippines. The Fund will target investments in enterprises that have significant capacity for scale, a strong financial track record, and a deep reach into the BOP. Reporting will include social impact measures recommended by IRIS, the catalogue of performance metrics managed by the Global Impact Investment Network (GIIN).

Take-a-Stake is a new Impact Investment Fund which aims to provide investments and capacity building to Small and Growing Businesses (SGBs) in the sectors of water & sanitation, health (WASH) and related sectors like renewable energy, waste (re-use) and agriculture. The targeted businesses are the missing middle between the segment of non-formal micro-entrepreneurial activities and the medium and large enterprises. The traditional banks and microfinance institutions tend to direct their attention to other sectors than these small businesses. This makes it very difficult for the entrepreneurs of small businesses to attract finance to develop their production or their services. Take-a-Stake explicitly targets the SGBs, this "missing middle", in developing countries and emerging markets which build sustainable local economies and create values for their stakeholders, in balance with financial, social and environmental returns. Take-a-Stake aims to mobilise investments to help to close the enormous funding gap for the SGBs and also to reach the Sustainable Development Goals. Take-a-Stake provides capital investments and capacity building to SGBs which:

- The growth model is based on the principles of a circular economy;
- Generate goods and services with a value addition for local communities;
- Contribute to the sustainability of the value chain of basic needs solutions, like water, sanitation, waste (re-use), agriculture, renewable energy, and health, with strong attention to impact the livelihood of low-income communities;
- Create jobs, generate income and take a stake in the communities in which they operate.

A partnership with the bottled water sector to end water poverty

Global Investment Fund for Water (GIFFW), developed by the **One Foundation**

By capturing a tiny fraction of bottled water revenues, the Global Investment Fund for Water (GIFFW), developed by the **One Foundation**, aims to generate a significant, sustained source of funds for targeted, catalytic investments to provide sustainable water and sanitation services to end water poverty and tackle the sanitation challenge.

Bottlers, retailers, distributors, and consumers are already engaged in a wide range of water-related CSR and sustainable development activities and are looking for further ways to engage with the new UN Sustainable Development Goals, particularly SDG 6.

GIFFW is proposing a way for the entire bottled water sector to engage collectively in the achievement of the Sustainable Development Goals. It answers a need for a catalytic investment vehicle for water and sanitation projects that engages the private sector, governments, civil society and other stakeholders, and provides plans on how such funds could be deployed.

GIFFW aims at raising $100-200 million per year in a 'pioneer' phase by working with a select group of companies that are already indicating their willingness to participate.

Over 10-15 years, GIFFW aims to raise even greater sums for investment and to become an integral part of the sector. GIFFW's ambition is to be an independent and widely recognised indicator of industry best practice, an effective means for collaboration and, most importantly, to make a substantial contribution to the delivery of sustainable water and sanitation services where they are needed most.

EXAMPLE: The WASH sector could take the example the **eco.business fund** initiated by KfW, Conservation International and Finance in Motion with Finance in Motion acting as the fund manager. Its tiered structure allows for tailored risk/return profiles.

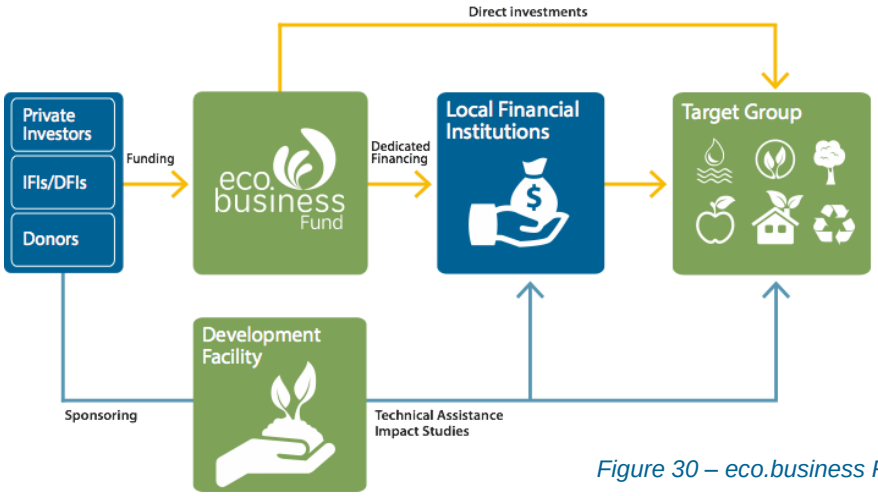

Figure 30 – eco.business Fund

The eco.business Fund is a joint initiative of investors' intent on supporting the promotion of business and consumption practices that contribute to biodiversity conservation, the sustainable use of natural resources, climate change mitigation, and adaptation to its impacts. In providing financing to the fund's target group for investing in activities that conserve nature and foster biodiversity, the eco.business Fund seeks investments that yield both financial and environmental returns. The financing can be provided directly or through local financial institutions with the capacity to reach the eco.business Fund's target group, i.e. local enterprises engaged in or intending to engage in business activities related to the fund's environmental goals.

The eco.business Fund concentrates on the following four types of sustainable activities: agriculture and agri-processing, fishery and aquaculture, forestry, and tourism.

In addition, final beneficiaries and local lending institutions can count on high impact technical assistance provided by the eco.business Development Facility. The eco.business Fund is structured as a public-private partnership (PPP) and based on an innovative multiple tier capital structure, with the participation of public investors, multilateral organizations, development finance institutions, NGOs, foundations and private institutional investors.

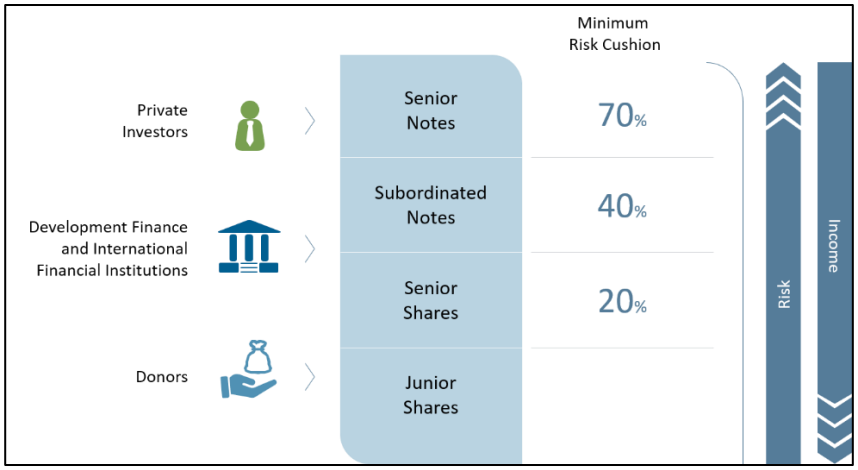

Figure 31 – Innovative multiple tier capital structure

Futures contracts could enable offers and demands of treated wastewater to be bought and sold prior related deliveries to fund efficient wastewater valorisation infrastructures and sanitation.

Interview with Valérie Issumo, co-founder of Prana Sustainable Water and Designer of the WasteWater Reuse Exchange, W_2AREX® ©:

"Investments (e.g. by pension funds) in commodities backed by futures contracts are attracting funds because of transparency, liquidity, and safety. Oil, copper, wheat, cotton... are traded prior their productions, why not treated wastewater? Water is indeed the most traded good in the world (embodied in products and services)! Prana Sustainable Water's commoditization solution has been designed to reduce massively the +/- 85% of wastewater untreated today, to increase access to sanitation, to address water deficits and unreliable supplies and markets. Deliveries of commoditized treated wastewater can be embedded as water footprints of products or services or near the decentralized wastewater recycling plant.

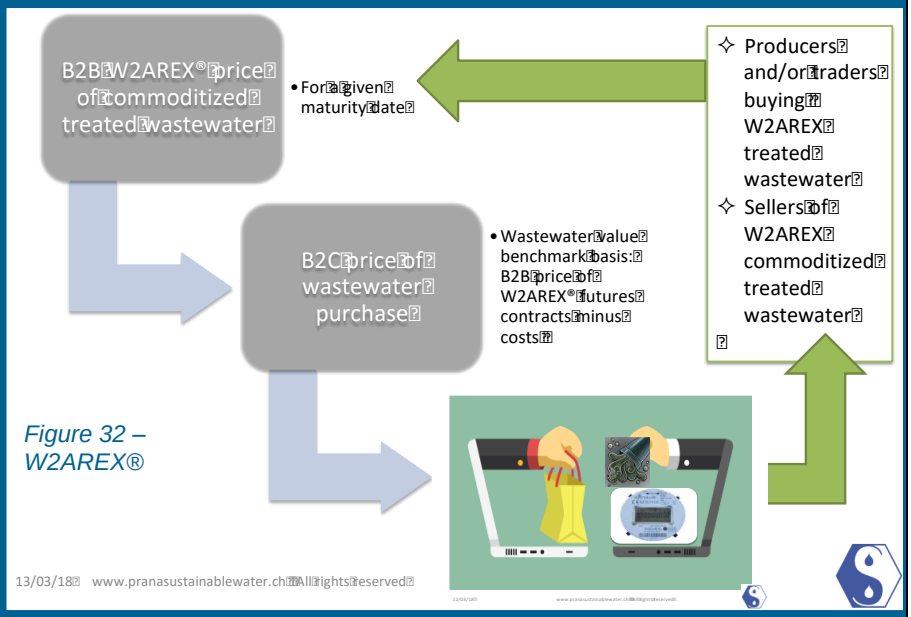

Figure 32 – W2AREX®

The main advantages with W2AREX® Futures Contracts of treated wastewater are 1/ Water and market security: Selling treated wastewater in advance - thanks to its W2AREX® commoditization - can allow the wastewater recycling facilities to get visibility and fix prices of their future deliveries and therefore obtain funding. This resolves gaps to finance water infrastructures. Buying W2AREX® Futures Contracts of commoditized treated wastewater in advance can allow to secure water required for later delivery, save costs and reduce risks, brand reputation (people judge by impact, not by intentions) and secure markets; 2/ Digitalize & Monetize wastewater: Wastewater can have a higher value than clean water when recycled e.g. into energy, fertilizers, bio-cements, etc and/or when recovered products are valorized. This means that some goods or services could be paid or exchanged with the value of wastewater resources. This can create a circular economy enabling communities or industries supplying wastewater to get benefits, products and/or incomes. This can bring new markets of more than 2bn consumers (via poverty alleviation thanks to accessing to sanitation and to wastewater supplies), organize food/productions security and boost responsible products adding or easing the valorization of wastewater.

The suppliers of wastewater benefit the advantages of the agreed price and volume at the B2B level of W2AREX® futures minus some costs. This supplier of "raw materials" could get for example reverse credits e.g. to equip his house for (improved) access to sanitation. More generally it reverses the architecture of the supply chain: some productions planned according to the requests of end consumers via their valued wastewater resources to produce what, where and how it makes sense (ie. reusing wastewater); some productions designed to add value to wastewater (e.g. personal hygiene products to be added to wastewater biogas after use).

3.3.4 Bonds

3.3.4.1 Social impact bonds

Definition: a social impact bond (SIB) is a contract with the public sector or governing authority, whereby it pays for better social outcomes in certain areas and passes on part of the savings achieved to investors. A social impact bond is not a bond, per se, since repayment and return on investment are contingent upon the achievement of desired social outcomes; if the objectives are not achieved, investors receive neither a return nor repayment of principal. SIBs derive their name from the fact that their investors are typically those who are interested in not just the financial return on their investment, but also in its social impact.

To date, we are not aware of any social impact bonds addressing the issue of water. Similarly to the *Humanitarian Impact Bond* developed by **KOIS INVEST** for the **International Committee of the Red Cross**, which raises new sources of funds to finance rehabilitation centres in Africa, engaging social investors to tackle humanitarian issues, why not developing a *WASH Development Impact Bond* supporting market-based entrepreneurial solutions?

3.3.4.2 Green bonds

Definition: Green bonds are innovative financial instruments where the proceeds are invested exclusively (either by specifying the use of the proceeds, direct project exposure, or securitization) in green projects that generate climate or other environmental benefits, for example in renewable energy, energy efficiency, sustainable waste management, sustainable land use (forestry and agriculture), biodiversity, clean transportation and clean water.

Green bonds are usually best suited to large-scale projects such as low carbon transportation, sustainable water management, and renewable energy, which generate cash flows over a long investment horizon. 3 examples of green bonds dedicated to water: in July 2014, **DC Water** issued a green bond to finance a portion of the DC Clean Rivers Project. This $350 million issuance represented DC Water's inaugural green bond issue and the first "certified" green bond in the US debt capital markets with an independent second party sustainability opinion. In July 2017, UK-based water **Anglian Water** issued a 250 million pound ($335 million) green bond, which was also the first public utility green bond issued in sterling. Proceeds from the bond will finance or refinance new and existing environmentally-friendly projects such as water recycling and drought and flood resilience schemes. In September 2017, **China Development Bank** announced that it would issue green bonds to raise funds for water resource protection along the Yangtze River Economic Belt. Funds raised from the bond issuance will primarily be spent on three water protection and treatment projects in central China's Hubei Province.

The Water Criteria – Climate Bonds Standard
Water-related investments account for an enormous part of the capital assets of developed countries and are a huge part of investments being undertaken in developing economies. A recent **Intergovernmental Panel on Climate Change** report shows that substantial climate adaptation infrastructure will be required to ensure future clean and secure water supplies. A clear understanding of what sorts of investments are consistent with improving the climate resilience of water assets will help bond investors quickly determine the environmental credentials of water-related green bonds. The Water Criteria lay out the requirements that water infrastructure assets and/or projects must meet to be eligible for inclusion in a Certified Climate Bond. Water Criteria development has been led by a consortium consisting of the **Climate Bonds Initiative**, **Ceres**, **World Resources Institute**, **CDP** and the **Alliance for Global Water Adaptation** which is supported by **Stockholm International Water Institute**.

3.3.5 Incentives

3.3.5.1 Carbon credits

Definition: A carbon credit is a financial instrument that allows the holder, usually an energy company, to emit one ton of carbon dioxide. Credits are awarded to countries or groups that have reduced their greenhouse gases below their emission quota. Carbon credits can be legally traded in the international market at their current market price. Typically, household water treatment solutions sold by market-based entrepreneurs can generate carbon offsets by reducing the amount of wood used by the local communities to boil water.

LifeStraw® Carbon for Water™
Source: UNFCCC - United Nations Framework Convention on Climate Change

Access to clean drinking water is a problem in many parts of Africa, and its purification is a problem for the environment. Dirty water often must be boiled to purify it, requiring fuel from unsustainable and costly sources, like wood or kerosene. In 2011, Vestergaard Frandsen launched a breakthrough initiative called LifeStraw® Carbon For Water™.

LifeStraw® Carbon for Water™ is easy to set up and maintain water purification system that uses no fuel. Each filter can produce at least 18,000 liters of -quality drinking water over a 10-year life span. The Kenyans who received the family filter no longer need to treat water by boiling it using wood fuel – a traditional necessity that releases greenhouse gasses. It uses carbon financing to sustainably provide 4.5 million people in Kenya with the ability to treat water in their homes for the next ten years.

It doesn't cost the government or aid donors anything and is designed to be replicated in other appropriate settings. Close to 880,000 LifeStraw® Family water filters were delivered to 91 percent of all households without access to safe municipal water in Kenya's Western Province. The innovative Carbon For Water financing model can make a significant contribution to global health by demonstrating that novel approaches can overcome traditional financial limitations.

Additionally, the activity links profit intrinsically to performance—a relatively new concept in the aid and public health sectors.

LifeStraw® Carbon For Water is also unique as the first activity to directly link carbon credits with safe drinking water.

It moves beyond a pure focus on CO2 reductions to include measured sustainable development. It also emphasizes emission reductions that go beyond single point sources.

LifeStraw® Carbon For Water makes an important correction to the imbalance that exists in the global carbon market. While Africa is considered among the most at-risk areas for climate change, it has historically been on the margins of the climate markets, with less than five per cent of carbon projects having been implemented there.

3.3.5.2 Water Benefit Certificates

Following the same principle of carbon credits, a *Water Benefit Certificate*, as defined by **Gold Standard**, represents a volume of water sustainably supplied, purified, or conserved by a company. Once issued, *Water Benefit Certificates* can be sold to earn income that supports further water project activity.

Corporates are encouraged to responsibly manage and reduce their own water footprint wherever possible. But recognizing that most organizations cannot reduce to zero, Water Benefit Certificates are a way to invest in water security. It is important to consider that water is inherently a local resource, such that a cubic metre of water from a project in Canada is qualitatively vastly different from a cubic metre of water from a project in the Sahel. Further, water has value on multiple levels, ranging from economic to social and cultural. Therefore, in order to make purchases of WBCs credible, it is important that they are used as one component of a larger, comprehensive water stewardship strategy, and that the desired outcomes from purchasing WBCs are communicated appropriately and effectively.

3.3.5.3 Water credits: incentives for MFIs to develop WASH loans portfolios

Under the standard WaterCredit model, Water.org provides capacity-building grants, or "smart subsidies", to MFIs and water and sanitation actors for market assessments, product development, staff training, marketing and loan tracking. These grants are "smart" because they are targeted expressly at specific activities that enable MFIs to launch, expand and scale sustainable portfolios of water and sanitation-specific loans. They enable partner organizations to design high-quality financial products that are in demand by clients, without subsidizing costs at the client level. As the MFI gets more familiar with the water and sanitation sector and builds internal capacity to grow its WaterCredit portfolio, the smart subsidy support phases out. This careful structuring creates sustainable and scalable WaterCredit portfolios over time.

Water.org reaches 4.5 million people through WaterCredit.
WaterCredit leverages local financial institutions by building their capacity and confidence to deliver contextually-relevant loans for toilet construction or water supply connection. Up-front access to credit is a challenge encountered by many low-income households. Since 2003, Water.org partners have disbursed one million WaterCredit loans. Ninety-three per cent of those borrowers are women and 74% of those borrowers live in rural areas. Sixty-two per cent of borrowers earn US$ 2 or less per day. Moreover, the WaterCredit approach mobilizes consumer resources: an investment of US $15.7 million in philanthropic subsidies leveraged by partners has resulted in US$ 220 million in commercial and social capital disbursed in the form of water and sanitation services loans – a return of roughly 14 times the investment.

3.3.5.4 Outcome payments - Social impact incentives

Project 1800, funded by the **Swiss Agency for Development and Cooperation** (SDC), is an initiative conducted by **Artha Network**, **Sphaera**, **Strategos** and **Total Impact Capital** which is currently scoping a collaborative, open architecture framework covering the whole social value chain of water, sanitation, and hygiene (WASH). Project 1800 has as its goal to provide a framework to:

1. Increase scaling and collaboration on a common, cost effective architecture;
2. To do so on an open platform that reflects the requirements of all stakeholders; and
3. To validate the concept of Social Equity whose objective is to make tradable the negative social externalities, which in WASH are estimated to be in excess of $300bn annually, making it the second largest negative economic and social externality after climate change.

Project 1800 does this by providing a standardised facilitative infrastructure that integrates and pools contemporary technical, legal and financial innovations as well as other private sector tools and approaches. Applying an open, distributed, and modular framework using 'best in class' software and process solutions, Project 1800 moves from funding and structuring projects by silos to an issue-focused process of aggregating donors, implementers, and workflow (i.e., the sequence of steps required for achieving outcomes on the ground). By putting incentives and structures in place that foster and capture collaboration, scale-up, and private sector engagement, Project 1800 expects to achieve greater efficiency and impact of current and future investments by the Development Finance Institution (DFI) and other stakeholders.

Similarly, **Roots of Impact** and the **Swiss Agency for Development and Cooperation** co-developed Social Impact Incentives (SIINC) - a new blended finance model enabling high-impact social enterprises to improve profitability and reach scale by paying for proven results. With SIINC, social enterprises are rewarded for real impact achieved. They earn additional revenue by monetizing positive externalities. Thus, social enterprises enjoy a boost in their profitability once the impact performance is achieved. This profitability boost, in turn, attracts investors to provide the necessary capital for scaling.

EXAMPLE: How SIINC could be applied to a WASH enterprise - fictive example: SOIL Haiti

Source: Roots of Impact

Sustainable Organic Integrated Livelihoods (SOIL) operate in Haiti and seek to promote dignity, health, and sustainable livelihoods through the transformation of wastes into resources. They generate two lines of revenues through toilet rental to low-income households and selling on of compost produced from the waste. SOIL is still striving to achieve break-even with both of these processes.

SOIL would like to attract investment to scale their operations. They are convinced that through scaling and securing public service contracts they will achieve profitability, but they are aware that the perceived risk for investors is quite high. After discussions with one of their larger donors, SOIL decides to test a SIINC structure.

A set of relevant outcome metrics (e.g. no. of new households serviced/amount of compost produced) are jointly developed between SOIL and the outcome funder (donor). The local government is invited as an observer in this process but does not have to make any commitments at this stage. The outcome funder agrees to thus pay SOIL for the positive impact that they generate. These premium payments are triggered by reported outcomes and supplement the projected earnings from SOIL's activities, greatly improving SOIL's financial projections. With these improved projections, SOIL is able to secure the investment they need to scale their operation.

After three years, SOIL's toilet rental business has reached a level of scale whereby it is now financially self-sustaining. Their waste-treatment activity remains loss-making, but based on the track-record established through the SIINC intervention, the local authorities are willing to continue paying incentives to SOIL to treat the waste. SOIL no longer need donations, are able to service the investment they secured, and are now growing organically.

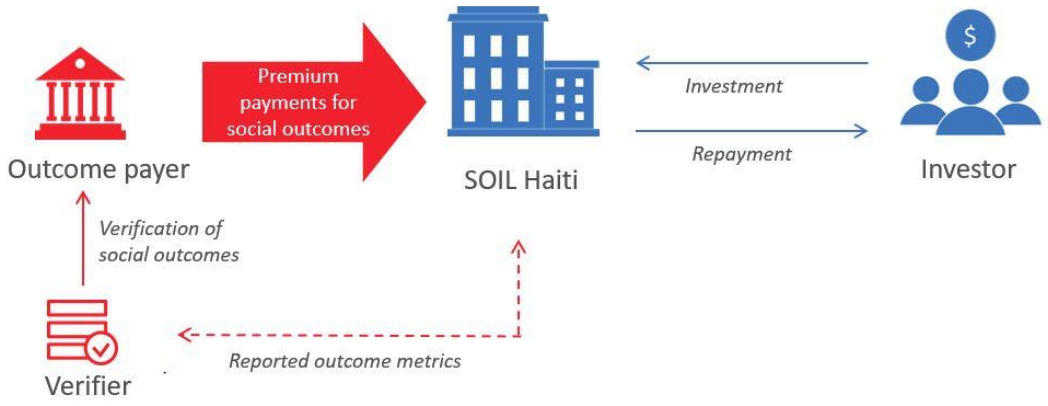

Figure 33 - Fictive SIINC example with SOIL Haiti

3.3.5.5 Banks and insurance incentives

Commercial banks (and, to a lesser extend insurances) are in early stage considerations of the problem caused by water. They do not seem (yet) to measure or even know their exposure to the water risk. Political risks in the markets, fragmented financing needs, little awards expected, a list of various reasons restrain commercial banks from being more involved. Ambika Jindal, vice president at **ING**: "*By not proactively contributing to water solutions, banks themselves are missing out on the opportunity to make their portfolios future-proof to the water crisis. They are also failing to tap into the surge of potential opportunities emerging as water continues to find itself on top of government and corporate priorities."* She also advices commercial banks to start *1/ Revise their perception* and realize that the dialogue and financial awareness in the water sector have matured; *2/ Recognize the risk*, water challenges go hand in hand with climate adaptation; *3/ Focus on opportunities*, by keeping pace with developments and customising financial solutions to drive these solutions, first-mover banks could excel in a sector in which competition is scarce and opportunities are growing; *4/ Address water with clients*, commercial banks should invest in understanding the water challenges faced by their clients; *5/ Go beyond traditional banking*, join the discussions, get around the table from the start, and contribute towards making solutions bankable in the future.

3.3.6 Finance facilities

The investments to meet Africa's water infrastructure needs are huge. Hence the role of the **African Water Facility** hosted by AfDB to catalyse investments through project preparation and investment promotion activities.

A Dutch initiative started in 2017 in Kenya, the **Water Finance Facility (WFF)** mobilises large-scale private investment from domestic institutional investors, such as pension funds, insurance companies and other qualified investors, by issuing local currency bonds in the capital market in support of their own country's national priority actions on water and sanitation service delivery. The aim is to develop several country level water financing facilities, which can issue a bond in their capital markets to provide long-term loans to public or private water utilities that have little or no access to commercial finance or that have access at unfavourable terms, such as short tenors. Through the pooling of credit worthy water projects, the bonds will have a lower risk. This risk can be further reduced, if reserve funds, guarantees, soft loans or grants for blended finance can be incorporated into the capital market structures.

KIFFWA (Kenya Innovative Finance Facility for Water) is a co-developer of water initiatives in Kenya. It provides early stage capital and finance expertise to support the creation of viable water investment opportunities and attract (private) providers of finance. KIFFWA is currently being set up as a local organization in Kenya by the **Netherlands Water Partnership** with funding of the Embassy of the Kingdom of the Netherlands in Nairobi.

In 2017, the **Swiss Water Partnership** (SWP) has been exploring opportunities for impact investing and blended finance to create an additional market for the SWP members (e.g. by creating opportunities for cross-sector projects and to diversify the SWP financing channels to implement such projects). So far, a preliminary study has been done and SWP is now exploring the possibility/feasibility of launching an SWP Financing Facility.

3.3.7 Matchmaking and crowdfunding

To increase visibility between entrepreneurs and investors, a number of dedicated platforms are emerging. These matching platforms are diverse and can range from microcredit

crowdfunding to impact investing. For example, the **Ground_Up Project** acts as a deal-sourcing platform for sustainability, a financial technology company for impact ventures under USD 20M. They source and screen sustainable ventures through strategic partnerships, user-generated content and digital channels. Water and sanitation are among the focus investment themes. Proprietary tools match investor requirements and enable deal flow selection and benchmarking of risk. A new program of investment-readiness helps entrepreneurs formulate their funding needs to the standards investors expect to see when originating impact deals.

Artha Platform also connects entrepreneurs with impact investors**.** They specialize in due diligence coordination in India and Latin America. With their partners at **Sphaera.world,** they are focusing on solutions framing, working on integrated pipelines and data sharing to enhance collaboration in what is an extremely fragmented ecosystem of funders and enterprises.

CauseDirect is a collaborative platform that creates a direct link between charitable projects and organizations such as businesses, international organizations and higher education institutions. It provides a solution to those who want to integrate CSR into their decisions and activities while giving their employees a reason to get involved. This is achieved via a customizable Internet portal empowering the employee to express their social engagement by creating and funding impact projects online and getting support from their company. Besides bringing purpose at work, CauseDirect aim is to accelerate the implementation of the UN SDG's throughout its network of corporations, international organizations and business networks.

Solylend is an example of a participatory loan financing platform for impact project in emerging countries. Their projects include WASH and energy.

Crowdequity platforms allow investing online (from €100) in companies seeking social, environmental or other positive impacts. As an example, **LITA.co** has raised more than 445 000€ for a water conservation project.

3.3.8 Multi-stakeholders financing alliances

Philanthropists play a vital role in unlocking the potential of inclusive business models. And they can do this in ways that traditional investors cannot. But to unfold the catalytic power of their activities, the most effective use has to be made of the resources. More effective solutions are therefore key: They open the doors to exploit this promising path while at the same time acknowledging the realities of the market.

An alliance of 5 water funders (foundations and investment fund) – **Aqua For All**, **The Osprey Foundation**, **The Stone Family Foundation**, **The Conrad N. Hilton Foundation**, **Danone Communities** – commissioned a global study to assess SWEs as an effective and sustainable channel for providing safe water to communities, especially low-income communities, at scale. The study (SWE-study 2017) provided recommendations such as the creation of a global alliance for safe drinking water or the development of a contractual framework for Government and social enterprises. All those organizations have been active for many years now in the sector by either providing funding but also business development, knowledge sharing.

Organisations such as **Untapped**, a US-based last-mile distribution platform for rapidly urbanizing regions in developing countries, is looking at how to engage water utilities and public policy makers to integrate market-based models into long-term planning in developing

countries. A more robust ecosystem of funders and service providers is needed to catalyse the growth of this model.

In 2017, the **Toilet Board Coalition** (TBC) has developed the Investment Review Sub-Committee, a group of investors convened by the TBC with a joint interest of driving commercial investment in the sanitation sector. The group comprises a wide range of funding organisations and meets on a quarterly basis to review opportunities.

3.3.8.1 Finance for climate: WASH as an entry point

All the States of the world are committed to achieving very ambitious objectives in 2030 with the 17 SDG's. Official Development Assistance (ODA) of developed countries is an important source of funding for projects in developing countries. Climate change requires many investments over the next few years, with priority being given to adaptation. The developed countries committed through the Paris COP21 to bring them 100 billion US dollars each year from 2020.

A leading voice in this matter, the **French Water Partnership,** advocates that given the very significant funding that developing countries will have to incur as soon as possible to meet these two challenges, new innovative financing methods will have to be implemented combining public and private funding.

The **Global Alliances for Water and Climate** was launched during the COP 22 in Marrakesh, to bridge the topics of climate and water. It is structured around the four following Alliances:

1. The "Paris Pact" Alliance on water and Climate adaptation in the basins of rivers, lakes, and aquifers
2. The Business Alliance for Water and Climate change (BAFWAC)
3. The Alliance of Megacities for Water and Climate Change
4. The Global Clean Water Desalination Alliance

These alliances have the capacity to mobilize institutions and climate finance and orientate it to water projects, all over the world, within the frameworks of the Paris Agreement.

Traditional valuation methodologies often provide a less convincing business case for sustainable assets than for conventional infrastructure, due to higher upfront capital costs and prominent technology risks. The problem lies in the inadequate identification and pricing of risks leading to inaccurate asset valuation and feasibility assessments. **IISD** is advocating for a better understanding of the financial impact of climate and other ESG risks make sustainable (WASH) infrastructure more attractive.

3.3.9 Blockchain and crypto-currency

A key element for WASH market-based solutions in developing countries is the involvement of local financing mechanisms; formal (banks, micro-finance, NGOs, grants, etc) and informal (family, friends, local money lenders, etc) in current WASH business operations and their role in future operations.

For example, in Africa, many transactions are based on peer-to-peer trust, which can now easily be transposed into the digital world via the blockchain, a logical evolution that gains in security and fluidity; By nature the blockchain is not controlled by anyone; it is perfectly distributed and transparent, making it a transactional tool that breaks with all conventional

monetary systems with a centralized and pyramidal management structure, introducing dissymmetrical relationships between the players in the economy. With blockchain, investors and individuals have the opportunity to invest without entry barriers, in accelerating local economic, social and technological development.

For example, through local incubators which are a perfect intermediary who masters the relationship to entrepreneurs, investment is made in a value that itself has a value of use in the real economy and which targets the development of the new economy of the southern countries. In such projects, reputation and trust are already established through incubators working closely with their investment target. The cryptocurrency becomes the accelerators, they provide investors and entrepreneurs access to the development of the local beneficiary economies from home and from their smartphone.

Blockchain technology can be used perfectly in developing countries, even if the material needed to develop it is not physically present locally. The users need only a mobile phone capable of transmitting data. A solution taking advantage of this technology could perfectly be developed and hosted anywhere in the world, is accessible from the local beneficiary communities.

Blockchain example - 1bank4all

1bank4all aims to be a social, ethical and ecological bank: *"A bank which thanks to today's technology, is open 24/7 and 365 days in a year. As a Fintech bank, people will be able to transact from anywhere in the world, with access to internet connectivity. Empowering people at the speed of light: We aim to help solve social problems such as poverty and unemployment. By providing accessible and fair loans among other financial services, 1bank4all will play an important role in creating jobs, empowering entrepreneurs and providing endless opportunities for communities. Value-Added Services: 1bank4all will offer international money transfers at low prices, with no hidden fees. Members of 1bank4all shall also have access to over 50 different currencies. Our goal is to facilitate access to financial services for all kinds of businesses and individuals."*

CONCLUSION

CONCLUSION

Currently, the financing of WASH enterprises depends essentially on public funding, subsidies or charity. However, it is proven that it will not be sufficient and that it will not bring the sustainability that is needed. Delivering universal access to safe services under SDG 6 could only be achieved if the sector attracts more private finance, which traditionally perceives the market as too risky.

Despite the fact that the achievement of the SDG6 relies on the commitment of the private sector, as recognised by the SDG 17 concept of “global partnership”, many WASH enterprises are small and scattered, and most of them still need public finance or grants to finance their CAPEX. Moreover, the amount of impact investment capital is too small to meet the needs of the WASH sector in developing and emerging countries, and there is a lack of investable companies for pure private investors. However, the emergence of new business models in these fields can, with an appropriate enabling environment, deliver major impact.

By reducing the share of grants and subsidies by a sound mix of grants/equity (blended finance), water/sanitation enterprises could become attractive to investors. Indeed, new hybrid business models are emerging, opening-up for more innovation in funding sources. Blended finance opens up for new structures of investments: public funds, development banks, foundations, corporations, and impact investors. Once market-based organisations are de-risked through adapted financing vehicles, they turn into a profitable venture for private finance to invest “impact money”.

Adding to these new perspectives brought by investment vehicles (as thematic impact funds, in blended finance), circular economy approaches, integrated water resources management such as the water-energy-food-health nexus, and new technologies are unleashing new opportunities for small WASH businesses.

It is recognised that new technologies will contribute significantly to the realisation of the Sustainable Development Goals (SDGs) of the United Nations. Indeed, new technologies in the WASH sector facilitate and accelerate the deployment of successful solutions, as well as the monitoring of activities and their impact.

Concomitantly, the WASH sector is moving into a more transversal approach to support impactful entrepreneurs, with the emergence of regional business incubators, accelerators that help WASH enterprises become attractive and reach new and innovative sources of finance.

In this report, 6 different types of market-based activities have been studied, with innovative business models and technologies. Some activities such as “decentralized solutions” or “development and sales of products” are attesting that a wide range of solutions exists for rural but also peri-urban areas. Ultimately, the driving principle of delivering impact is above all finding the “right solution” that works for local communities.

Picture 3 – Water entrepreneur (1001fontaines)

Finally, the definition of the human rights to water and sanitation have given the social license to operate to entrepreneurs and the amounts needed have been identified for projects to be sourced globally. Obviously, it is now time for finance to step-in.

With this report, we invited you to a learning experience which we hope will encourage you to join us on an amazing action journey for the common good. We hope you a had good reading. We leave it to you to draw your own conclusion. It all depends on your perspective. And for sure, we will be happy to discuss it with you.

The WASH sector is an amazing entry point to contributing to resolving the key issues that our planet is facing. The WASH community of passionate experts around the world is on a journey to play its part.

What we know is that it is time for implementation and for scaling-up solutions for good.

Innovative finance is a powerful mean to serve these solutions.

The *Waterpreneurs* Team

ANNEXES

Legal disclaimer

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Definitions

Water/sanitation entrepreneurs, *in the context of this study, are formal organisations delivering market-based activities in the water, sanitation, hygiene sectors and related areas (irrigation, hydro-electricity, etc.).*

These activities can include (but are not limited to) the provision of water / sanitation operations services (collection, treatment, distribution, etc.), the construction of small infrastructure (drilling, mini-grid, treatment plants, sanitation facilities, etc.), or the development and sale of products (filters, pumps, etc.).

These organisations can be socially-driven businesses or NGOs with trading revenue.

- Waterpreneurs

Basic systems: Simple drinking-water and sanitation systems. For drinking-water, they include rural water supply schemes using handpumps, spring catchments, gravity-fed systems, rainwater collection, storage tanks, and small distribution systems. For sanitation, they include latrines, on-site disposal, and alternative sanitation systems. (See also large drinking-water and sanitation systems).

Blended finance is defined as the strategic use of development finance for the mobilisation of additional finance towards the SDGs in developing countries. This means the use of public and philanthropic sources of funding to remove obstacles and incentivize private sources of funding.

Bonds: A bond is a fixed income investment in which an investor loans money to an entity (typically corporate or governmental) which borrows the funds for a defined period of time at a variable or fixed interest rate. Bonds are used by companies, municipalities, states and sovereign governments to raise money and finance a variety of projects and activities. Owners of bonds are debtholders, or creditors, of the issuer.

Bottom of the Pyramid (BOP): The bottom of the pyramid, bottom of the wealth pyramid or the bottom of the income pyramid is the largest, but the poorest socio-economic group. In global terms, this is the 2.7 billion people who live on less than $2.50 a day.

Capital expenditure (CapEx): Capital expenditure includes fixed assets such as buildings, treatment structures, pumps, pipes, and latrines, including the cost of installation/construction.

Collaborative Behaviours: A set of four behaviours, identified by Sanitation and Water for All, that if adopted, can improve the way governments and partners work together to improve the long-term sector performance needed to deliver sanitation, hygiene, and water for all.

Commercial financing: Finance provided by private sector financiers at market rates.

Commitment: A firm obligation expressed in writing and backed by the necessary funds, undertaken by an official donor to provide specified assistance to a recipient country.

Concessional loans: Concessional loans are extended on terms substantially more generous than market loans. The concessions are achieved either through interest rates below those

available on the market or by grace periods, or a combination of these. Concessional loans typically have long grace periods.

Development partners: Donors, international organizations, and NGOs that contribute to a country's development.

Enabling environment: The set of interrelated conditions such as legal, governance and monitoring frameworks, politics, financing and human capital that are able to promote the delivery of WASH services.

External support agencies: Defined as bilateral donors, multilateral organizations, foundations, financing institutions, NGOs and external agencies that support countries' work in the attainment of achieving sanitation and water for all.

Formal service providers: Entities recognized by authorities, complying with a minimum of service levels. Formal service providers include government and private sector utilities. For water supply, this includes large networked systems, but this can also include smaller scale set-ups such as water-kiosks managed by utilities. For sanitation, this includes piped sewer systems and septic tanks if maintained by a service provider regulated by authorities.

Impact investments: Investments made into companies, organizations, and funds with the intention to generate social and environmental impact alongside a financial return.

Large drinking-water and sanitation systems: Large systems include potable water treatment plants, intake works, storage, water supply pumping stations, large-scale transmission/conveyance and distribution systems, large-scale sewerage including truck sewers and sewage pumping stations and domestic and industrial water treatment plants.

Microfinance: Microfinance is the provision of financial services to low income clients, including consumers and the self-employed, who traditionally lack access to banking and related services.

Millennium Development Goals: Eight goals that all 189 UN Member States agreed to try to achieve by the year 2015. These goals aimed to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women.

Nongovernmental organizations (NGO): Generally non-profit organizations that operate independently of the government and sometimes provide services to people.

Non-revenue water: Non-revenue water represents water that has been produced and is "lost" before it reaches the customer (either through leaks, through theft, or through legal usage for which no payment is made).

Official development assistance (ODA): Flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25% (using a fixed 10% rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries (bilateral ODA) and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions. Lending by export credit agencies—with the pure purpose of export promotion—is excluded.

Operations and maintenance (O&M): Includes activities necessary to keep services running. Operating costs are recurrent (regular, ongoing) spending to provide WASH goods and

services: labour, fuel, chemicals, materials, and purchases of any bulk water. Basic maintenance costs are the routine expenditures needed to keep systems running at design performance, but does not include major repairs or renewals.

Operating expense (OpEx): Expense a business incurs through its normal business operations.

Public-private partnership (PPP): A long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance.

Repayable finance: Concessional or private/commercial finance that must be repaid.

Self-supply by individual households: Funding and infrastructure provided by households themselves for WASH services. For water supply, this includes private protected wells, collection from protected springs or rainwater harvesting. For sanitation, this includes latrines that are built and emptied by household members.

Social entrepreneurs: Entrepreneurs who share qualities traditionally associated with leading business entrepreneurs —vision, innovation, determination, and long-term commitment—but are committed to systemic social change in their fields, leading by including all actors in society and changing the systems and patterns of society.

Sustainable Development Goals (SDGs): A collection of 17 goals with 169 targets agreed as part of the 2030 Agenda for Sustainable Development that builds upon the Millennium Development Goals. These cover areas such as poverty reduction, access to education, gender equality, and water and sanitation for all.

Tariffs: Payments made by users to service providers for getting access to and for using the service.

Tax: Revenues from domestic taxes levied by local and central governments and provided as grants or subsidies.

Transfer: Support from external sources such as international donors, foundations, nongovernmental organizations or remittances.

WASH: stands for "Water, Sanitation and Hygiene" - several interrelated public health issues that are of particular interest to international development programs. Affordable access to WASH is a key public health issue, especially in developing countries.

Capital spectrum and definitions

CAPITAL DEPLOYMENT RANGES FROM TRADITIONAL INVESTMENT TO GRANTS. BETWEEN THESE TWO ENDS, MRI SPANS RESPONSIBLE, SUSTAINABLE AND IMPACT INVESTMENT STRATEGIES.

	INVESTMENT				PHILANTHROPY*	
	TRADITIONAL INVESTMENT	MISSION-RELATED INVESTMENT (MRI)			PROGRAM-RELATED INVESTMENT (PRI)	GRANTS
FOUNDATION APPROACHES	Seek competitive financial returns regardless of, or with little consideration for, ESG factors.	Investments from a foundation's endowment that seek to achieve specific goals to advance mission. Generally seek competitive financial returns.			Part of a foundation's annual payout, PRIs seek to advance the foundation's mission, with financial return a secondary consideration. Often below-market rate.	Focus on generating specific social or environmental impacts with no expectation of financial return.
		RESPONSIBLE**	SUSTAINABLE**	IMPACT**		
		ESG risk management	ESG opportunities	Target social and environmental impact		
STRATEGIES		Screen investments for ESG risk factors, excluding those investments with material exposure to those risks. Generally seek competitive financial returns.	Focus on ESG opportunities through active investment selection, portfolio management, and shareholder advocacy. Generally seek competitive returns and alpha generation driven by ESG factors.	Intend to generate specific measurable social and environmental impact alongside a financial return. Financial return expectations may range from below-market to market-rate depending on strategy and specific investment context.		

*Counts as charitable distribution towards 5% payout.
**Note US SIF now uses the acronym "SRI" to indicate sustainable, responsible, and impact investment (as opposed to its previous definition as socially responsible investment) reflecting the continued evolution of usage and interchangeability of these terms.

Figure 34 - Capital spectrum and definitions - source: Rockefeller

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Mapping private sector in water

Value-added links in the WATER chain

Increasing scale

	Broad Business type	Example of business	How do these businesses add value?	Bulk Inputs	Treatment	Distribution & Delivery
National /Regional/Local Level	CATEGORY I Sole traders/ Micro/ small enterprises (1-19 employees)	Artisans	Building water facilities			
		Construction Contractors				
		Local networked water providers	Entrepreneurs capturing, storing and distributing water through their own water networks			
		Water Pump Owners	Extract water directly from water sources and sell it to water truck owners			
		Water Truck Owners	Collect water from pumps and sell it to water tankers			
		Water tankers	Resell water sold by water tankers to neighbours/people within the immediacy			
		Water re-sellers (non-networked water supply)	Businesses reselling water from local service providers or the utility, to neighbours/ people within the vicinity			
		Water Filter Manufacturers	Manufacturing water filtration components and systems			
		Social enterprises franchisees (non-networked water supply)	Local micro entrepreneurs employed by social enterprises that man filtration plants and sell water			
		Hand pump mechanics	Fix water pumps			
		Suppliers of parts	Sell water system components (e.g. pumps, generators, pipes, meters)			
	CATEGORY II Medium-sized Businesses (20-99 employees)	Drilling Companies	Drill boreholes and build water infrastructure			
		Water Purification enterprises	Companies leasing water purification technology/equipment to local entrepreneurs (e.g. SARVAJAL - India, WaterHealth International - USA, Naandi Community Water Services Ltd. - India)			
		Construction contractors	Building water facilities			
		Suppliers of parts	Sell water system components (e.g. pumps, generators, pipes, meters)			
	CATEGORY III Large Companies (>100 employees)	Utility	Companies providing an integrated water system (e.g. Manila Water Company Inc. - Philippines, Sénégalaise des Eaux - Senegal)			
		Chemical suppliers	Manufacturer and suppliers of water treatment chemicals			
		Bottled water companies	Producers of bottled water (e.g. SMAAT - India)			
		Water filter manufacturers	Manufacturing water filtration components and systems			
		Suppliers	Sell water system components (e.g. pumps, generators, pipes, meters)			
International	CATEGORY IV Foreign-based companies/multinationals	Drilling companies	Drill boreholes and build water infrastructure			
		Chemical suppliers	Manufacturer and suppliers of water treatment chemicals			
		Utility	Companies providing an integrated water system (e.g. Suez)			
		Bottled water companies	Producers of bottled water (e.g. One Water – UK, People Water - USA, Nestlé)			

Figure 35 - Mapping private sector in water – Source: ODI (2015)

- i. social enterprises that run as a business, charging for products and services, but supplement revenue with grant-based finance
- ii. social enterprises that are entirely reliant on sale of products and services but operate on a not-for profit basis
- iii. for-profit commercial enterprises with some net income reinvested to social purposes
- iv. for profit commercial enterprises with all net income redirected to business growth or shareholder return
- v. for profit commercial enterprises with all net income redirected to business growth but not legally constituted (informal business)

Legend for the mappings - profit orientation

Mapping private sector in sanitation

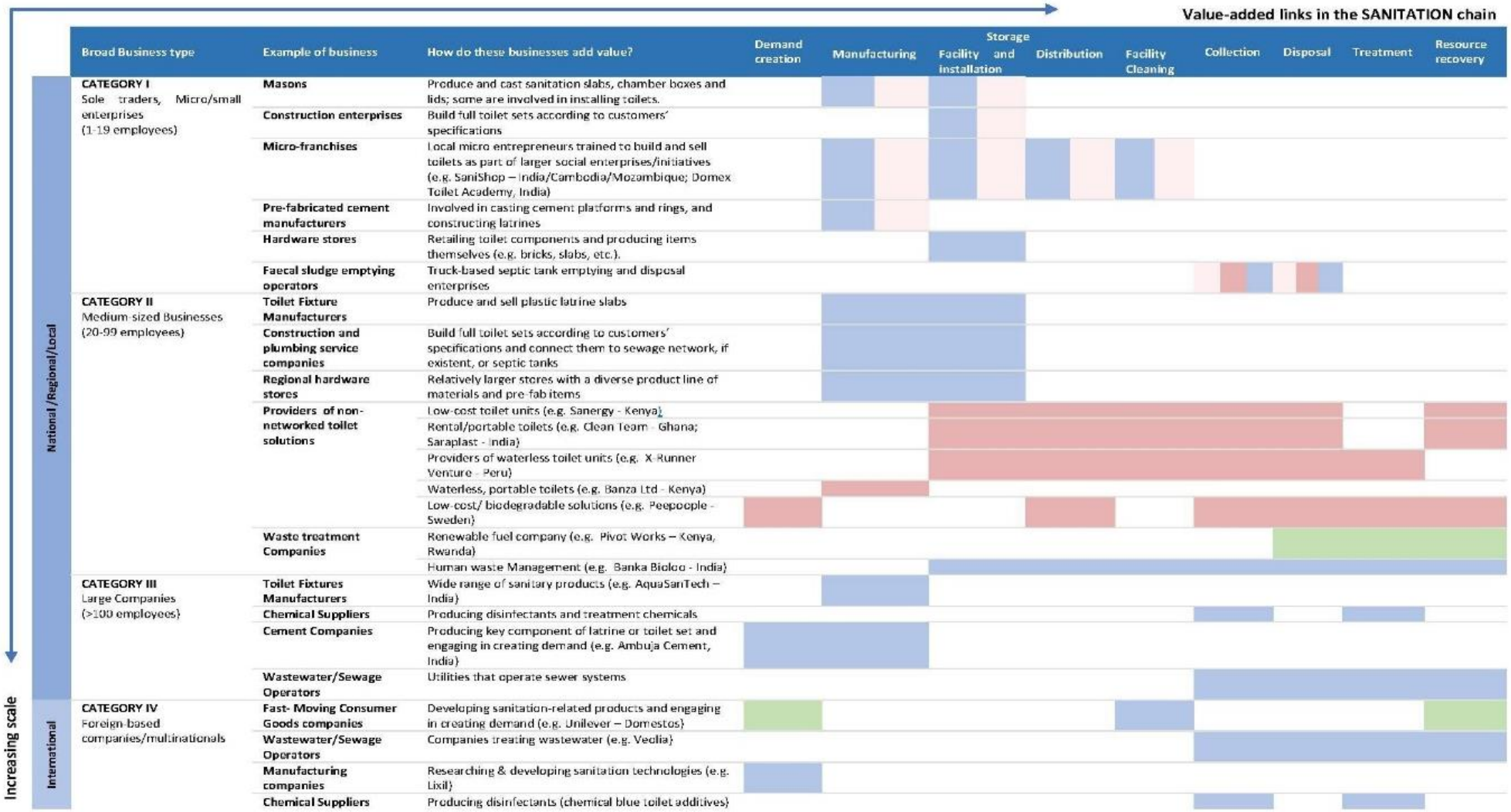
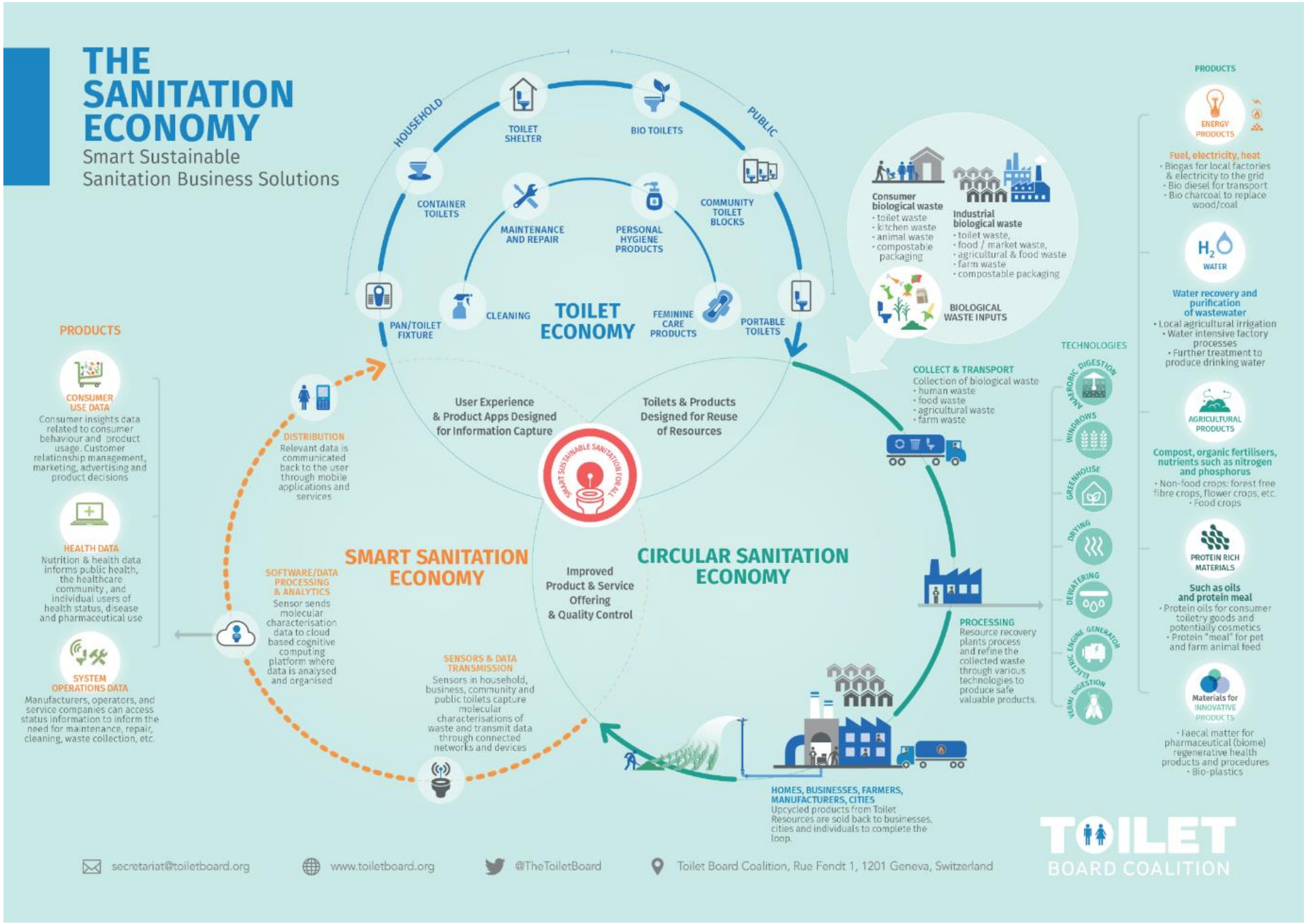


Figure 36 - Mapping private sector in sanitation – Source: ODI (2015)

The sanitation economy

Figure 37 - The sanitation economy (source - Toilet Board Coalition, 2017)



WATERPRENEURS SURVEY

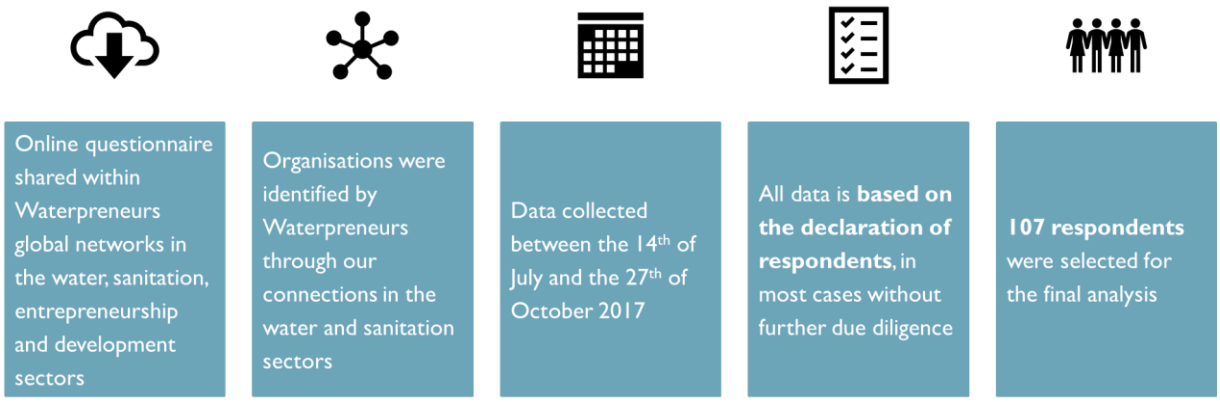
Survey methodology

The focus of the survey

The objective of the survey is to increase the visibility of water and sanitation entrepreneurs to the impact investing community by collecting data on organisations active in emerging and frontier markets. The challenges faced by water and sanitation entrepreneurs are multi-fold (appropriate policy, difficulty to access finance, need for human capacity, innovation). The emphasis is on the financing of water and sanitation organisations, and more specifically on safe water and sanitation organisations seeking growth capital. The geographical scope of the study is global and does not aim at focusing on one specific region.

Similarly, this survey is looking broadly at the various technologies that can be used for the different activities providing safe water or sanitation (collection, treatment, distribution, installation of facilities, development of metering, piping and IT tools).

Market survey - data sources



Methods of data collection

All data were collected between August and October 2017 through an online questionnaire. The questionnaire has been developed by Waterpreneurs and shared within Waterpreneurs global networks in the water, sanitation, entrepreneurship and development sectors. Recipients were identified by Waterpreneurs through its connections in the water and sanitation sectors (direct connection with the organisations or through global intermediaries in contact with water/sanitation projects in the field).

All the data collected are **based on the declaration of respondents, in most cases without further due diligence**.

A few answers to the questionnaire could not be included in the result of this study as a matter of uniformity: 107 respondents were selected for the final analysis.

The questionnaire can be accessed at this link: https://goo.gl/forms/6HZG3qqWvgYq2t8g2

All the data collected are the property of Waterpreneurs.

Survey detailed findings

Market study: contribution to SDGs by survey respondents

The majority of survey respondents indicated having a stated social purpose.

These organisations deliver impact mainly through access to safe water and sanitation, but also generate other positive outcomes. In fact, stabilizing access to safe water and sanitation leads to a direct improvement of health (especially for vulnerable populations, such as children), and create a virtuous circle of development, with education, livelihood, gender equality (in 90% of the cases in Africa, the work of fetching the water is done by women and girls) etc.

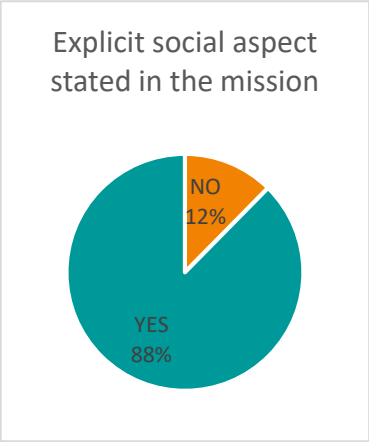


Figure 38 - Explicit social aspect stated in the mission of respondents

SDGs impacted

Respondents were asked to highlight the 3 SDGs on which they have the most impact. Interestingly, and due to the transversal nature of water, all SDGs were covered. With no surprise, SDG 6 is the most impacted, followed by SDG 3 (good health and well-being), highlighting the link between water, sanitation and health; and SDG 11 (sustainable cities and communities), highlighting the community dimension of water. Education, gender equality too, follow suit. It is also interesting to see that "access to energy", as also "no hunger"is highlighted, reflecting the nexus approach of water and its links with energy and food.

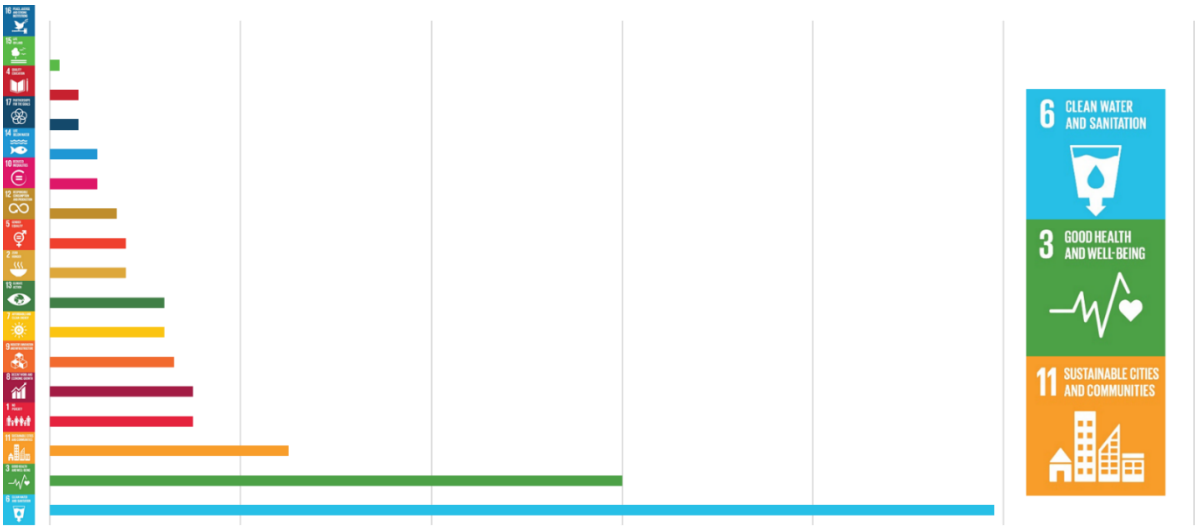


Figure 39 - SDGs impacted by respondents

This graph can be confronted with the global risk report WEF 2017, in which the top 4 global risks are all water related[23].

[23] http://reports.weforum.org/global-risks-2017/global-risks-landscape-2017/

Impact metrics used by respondents

To measure their impact, water and sanitation market-based organisations are using several metrics, both quantitative and qualitative, regarding the environmental aspect, the social aspect, and the economic aspect. These metrics are most of the time aligned with requirements from donors or impact investors. Indicators are stronger when aligned with standard grids, such as the SDG indicators, the human right criteria, the WHO water quality indicators, or the GRI (Global Reporting Initiative) criteria for business. There is an expressed need for alignment of the indicators used.

Environment

QUANTITATIVE
- Chemical use
- CO2 emissions avoided/reduced
- Kg of firewood saved

QUALITATIVE
- Water quality parameters
- Nutrient recovery
- Water footprint
- Pollutants reduction
- Number of sites producing water at a quality compliant with the WHO standards

Social

QUANTITATIVE
- Litres of water consumed / person / day
- # of cases of cholera
- # of beneficiaries
- # of households access to water and sanitation services
- # of people with access to toilets
- Volume of safe drinking water dispensed
- # of business created

QUALITATIVE
- Appreciation of services
- Time saved collecting water
- # of trainings and awareness campaigns
- School absenteeism
- Health impact
- Drop out of kids from schools
- Local Capacity built at community level to manage their drinking water solutions
- Success stories
- # of people trained

Economic

QUANTITATIVE
- # of devices sold
- Litres / money saved
- # of loan clients
- # of operating kiosks
- Volume of water sold
- Turnover at kiosk level
- Average monthly income/entrepreneur
- # of customers
- Penetration rate
- % of regular customers (consuming at least 2 liters/day/person)
- Water/Energy savings
- Yield improvement

Figure 40 – Example of impact metrics used by respondents

These market-based organisations operating in the WASH sector are aware of the positive impact they generate. Often, they use it as a “marketing” tool to access finance. For example, **Helioz** uses carbon credits: if a family does not have to boil water, they will use less wood and emit less CO_2.

Description of the 107 responding organisations

- 6 different types of activities
- Decentralized solutions in Africa is by far the most important segment
- Half of the respondents come from Europe or America
- Most respondents operate in developing countries (Africa & Asia)
- Most respondents operate in rural or peri-urban area
- A majority of growing but not yet profitable organisations

Figure 41 - Description of the 107 responding organisations

Types of activities of respondents

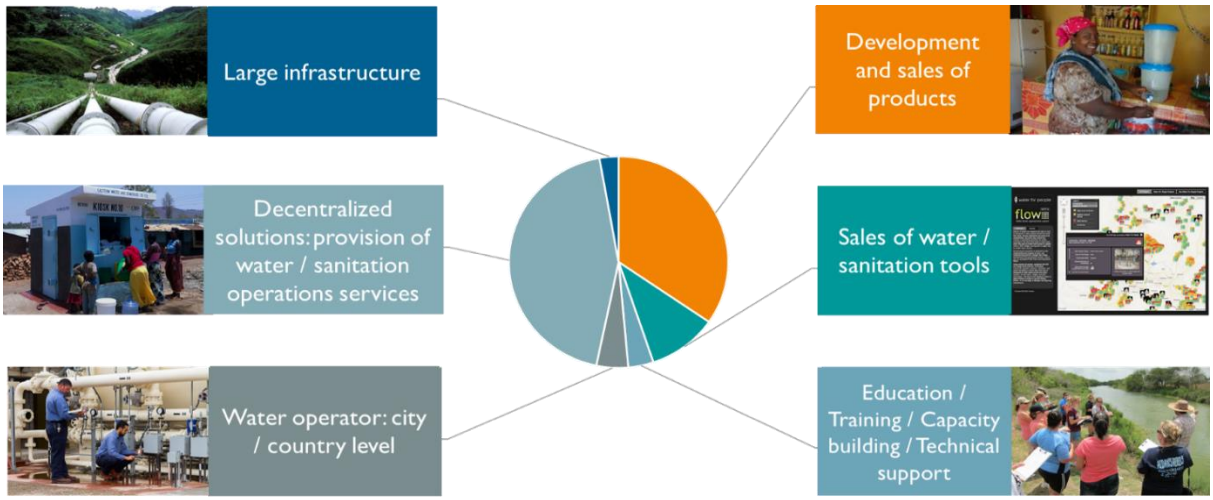


Figure 42 - Types of activities of respondents

Among the respondents, we had a mix of different activities, that we decided to divide into 6 categories (above).

1. **Decentralized solutions: provision of water/sanitation operations services** corresponds to social enterprises providing services at community level. It can be about water (or waste-water) collection, treatment, distribution, community water shops, community latrines, rainwater harvesting, etc. An example could be an organisation such as **Naandi Water** in India, providing water kiosks at a community level, or **SOIL** in Haiti, providing household toilets and waste collection services for a monthly fee; waste treatment and sales of resulting compost.
2. **Development and sales of products** helping to solve water and sanitations issues correspond to organisations such as **Folia Water**, an American organisation designing innovative paper water filters, **Fapel**, developing and selling innovative water pumps from Guinea, or **Piipee**, a Brazilian social enterprise working on innovative waterless toilets.
3. **Sales of water/sanitation** management tools and IT systems that improve water/sanitation services: it is the case for **eWater Pay**, a water supply pre-payment technology, low-cost, robust enough for rural villages, peri-urban or urban water supply.
4. **Water operator at city/country level** operates water/sanitation services (collection, treatment, distribution) in a network approach, at a large scale. An example is **COLLINS Sistemas de Água, Lda** in Mozambique (Management and operation of public water supply systems and investment in water treatment facilities).
5. **Education / Training / Capacity building / Technical support**: this category corresponds to organisations such as **Watura**, a French organisation providing professional training devoted to water sector professions.
6. **Large infrastructure** corresponds to the construction of infrastructure, or the manufacturing of equipment for infrastructure, such as contractors responsible for building the infrastructure (e.g. **Indusa Americas Group**), subcontractors building a portion of the infrastructure (e.g. pipes providers such as **Kinetics**). An example is **Via Marina**, a French organisation working on water transportation in large quantities and over long distances by an underwater flexible pipe.

Size and development stage of respondents: A majority of growing but not yet profitable organisations

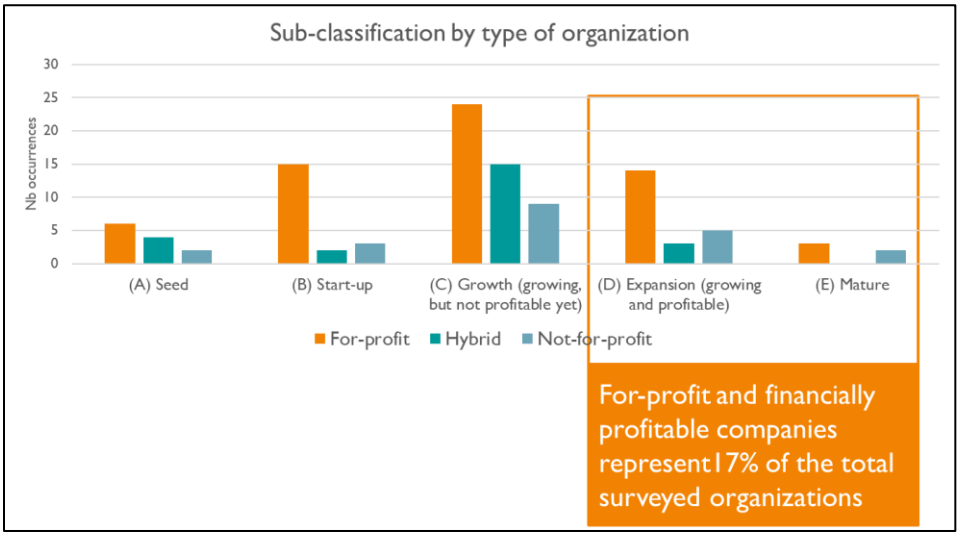


Figure 43 – Size and development stage of respondents

When we look at the types of organisations among respondents, we can see that a majority of them are growing but not yet profitable. However, for-profit and financially-profitable companies represent only 17% of the total surveyed organisations.

Dates of creations of responding organisations

When we look at the 107 responding organisations, most of them are relatively recent, and the majority has been formed after 2010.

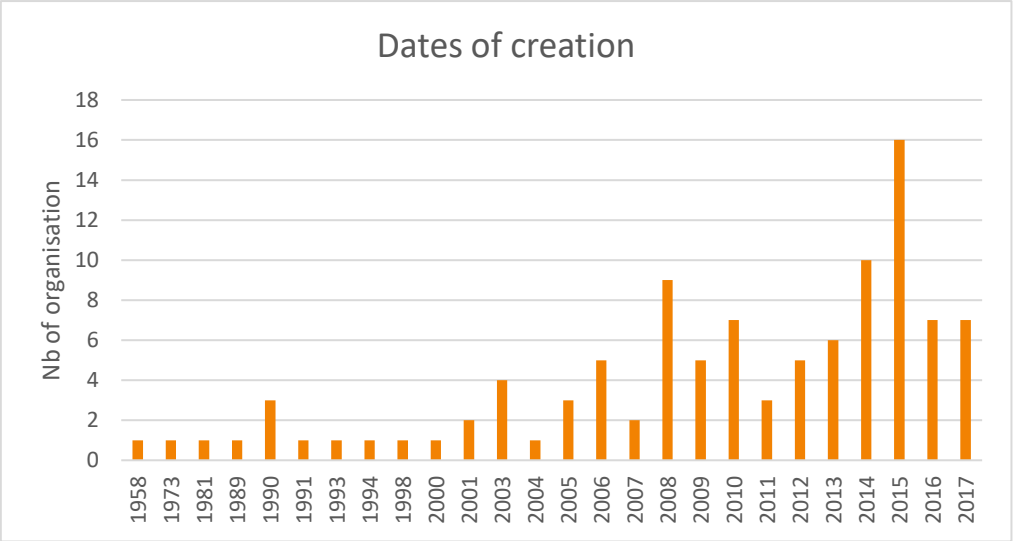


Figure 44 - Dates of creation of responding organisations

Types of respondents: for-profit / not-for-profit

The clear majority of studied projects were for-profit organisations, or have hybrid structures with a for-profit and a not-for-profit structure.
Non-profit operating market-based activities also exist, and are often involved in the development of local entrepreneurs.

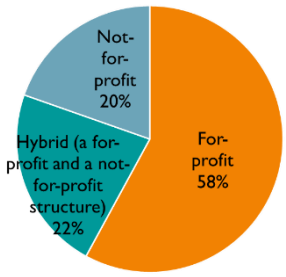


Figure 45 - Type of responding organisations

Geography of respondents

Countries of origin of respondents

If we look at the countries of origins of respondents, half of them have their head office based in Europe or America: in other words, 50% are managed from developing / 50% from developed countries.

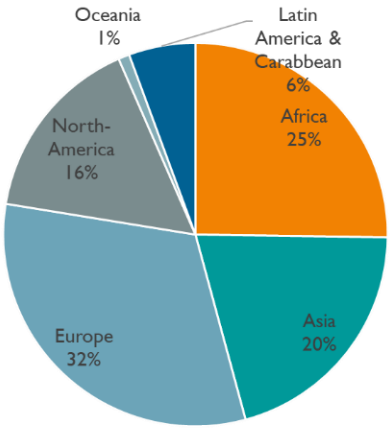


Figure 46 - Countries of origin of respondents

In Africa, the spread is between Eastern Africa (35%), Southern Africa (15%), and Western Africa (40%). Business hubs such as Kenya or Côte d'Ivoire appear to be more represented among respondents.
We can also comment on the fact that China was missing, despite a huge potential. Most probably, results were influenced by Waterpreneurs networks, which are mainly in Europe, US, Sub-Saharan Africa and South-East Asia.

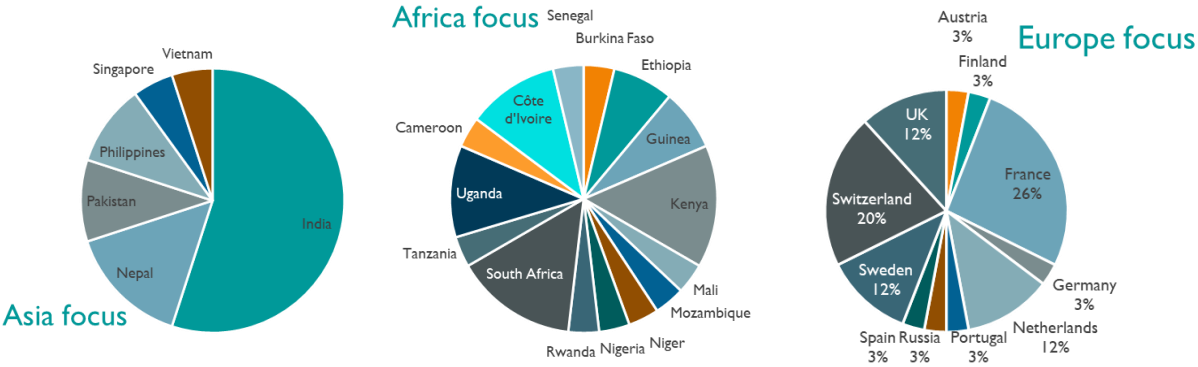


Figure 47 - Countries of origin, Asia, Africa and Europe focus

Countries of deployment - Most respondents operate in developing countries (Africa and Asia)

When we look at countries of operations, among the 107 respondents, almost 90% of the businesses are run in developing countries, with a majority in Africa and Asia. This was clearly the target group for Waterpreneurs, but it also coincides with the places where centralized water system are lacking or are inefficient, and where the issues of water scarcity, pollution of water or issues such as open defecation affect the life of the populations. The social aspect of the mission of the entrepreneurs is reflected in these zones of operations.

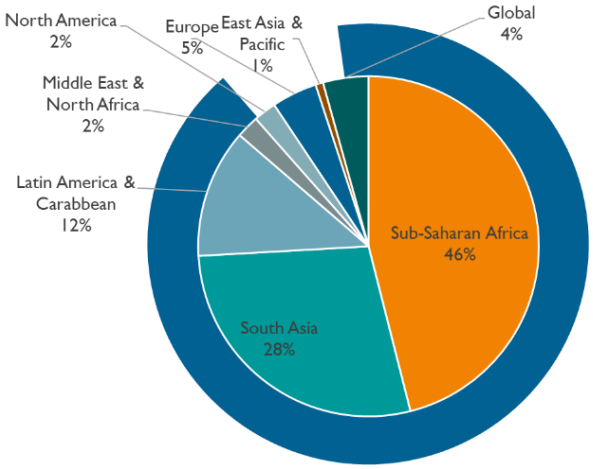


Figure 48 - Regions of deployment of respondents

When we look further into details, we can see that among the respondents, decentralized solutions are mainly operated in Sub-Saharan Africa, followed by South Asia. This spread coincides with the water needs in the rural area.

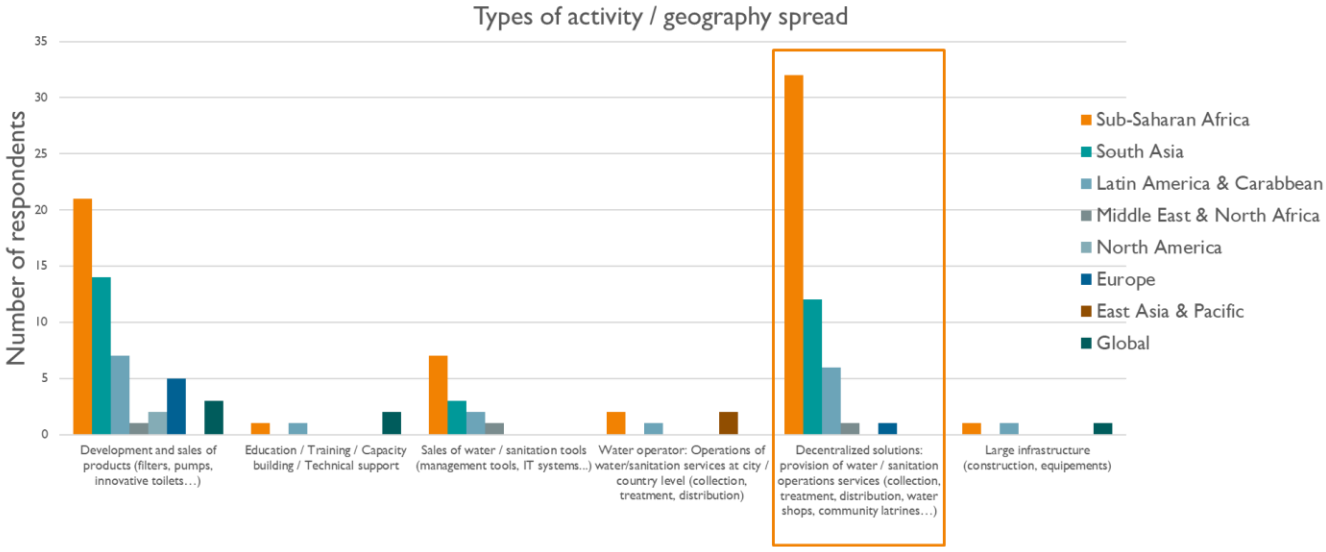


Figure 49 - Types of activities of respondents, spread by geography

Operation in urban or rural area

Most respondents operate in rural or peri-urban areas, and this tendency is similar in Asia and in Africa. Responding market-based organisations have developed business models (and impact models) that correspond to places where centralized systems are not in place or not fully operational. We observe a number of household water treatment systems or decentralized systems in the rural and peri-urban area. Urban areas are mainly served by operators.

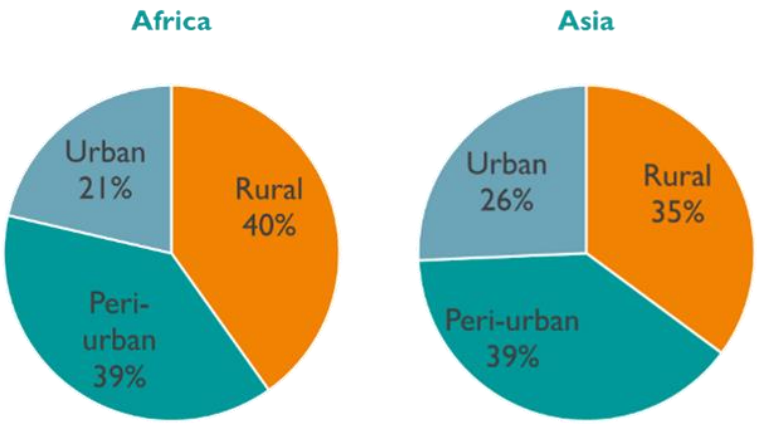


Figure 50 - Operations in urban or rural area of responding organisations

Risks identified by respondents

When we look at the key risks associated with activities of surveyed respondents, without surprise, political and economic risks are often emphasised.

- Political: instability, bureaucracy, corruption, lack of administrative support;
- Competition: on prices such as informal vendors, new technologies or innovative products;
- Market: demand maturity, awareness, acceptability;
- Performance of technology: products used/sold;
- Lack of access to finance: due to low profitability or weak financial structure.

Looking more into the details of the answers, on the studied sample, there is no significant correlation between the difference in activities and the risks. At any stage, the political risk remains the most important. As expected, mature organisations have low financial risks but high competition risks.

Barriers to access finance

Many constraints have so far limited the participation from private financing to the water sector in developing and emerging countries. Respondents indicate that the main difficulties they face are:

- Lack of interest or knowledge in the industry or the market by investors (especially a lack of understanding of the need for blended finance to cover the CapEx)
- The company or the model is perceived as too risky (too early stage, not enough sales)
- There is a lack of fundraising capability and access to investors
- Lack of affordable funding solutions (high rate, equity stake)
- Small margins generate long payback period / long tenors

Other interesting and important feedback provided by the respondents are:

- Non-revenue water/perception that water should be free from the government,
- Not targeting the middle: most efforts focus on the bottom humanitarian where subsidies are required, or on the top wealthier. Few efforts focus on the middle.
- If we zoom on technology providers and start-ups, there is very little technology investment: most investment is in utilities or distributors or other systems that utilize existing technology. Very little financing for new technologies rather than new businesses.
- 'Water' is not a vertical: it crosses verticals. So, the business model, differentiation, and revenue sources for companies will be completely and entirely different. This is outside the expertise that is possible under one roof.
- Entrepreneurs often find it challenging to articulate their business plans and ideas in a way that is understandable to the financial sector, particularly when it involves technology that is innovative and/or un-traditional.

Among respondents to the market study, 15% declared being accompanied by incubators or accelerators, and the vast majority is being supported and reinforced by donors, development agencies, INGOs or corporations.

Current funding of responding organisations: mostly grant & founder's equity

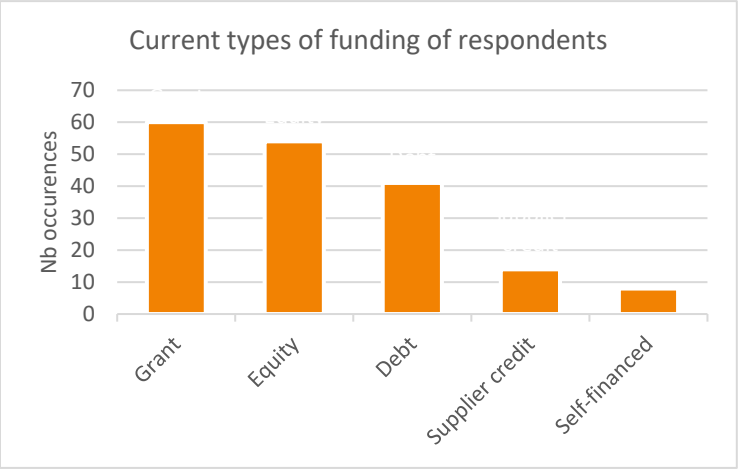


Figure 51 - Current types of funding of responding organisations

When we study the responding market-based organisations, which represent a fraction of the amounts shared above, surveyed organisations declare being currently mainly funded by grants and founder's equity.

There is an important number of organisations that also declare receiving loans, but we don't have the split between soft loans and debts at market rates.

Preferred funding types of respondents

When asked, what is their preferred type of funding, respondents often declare that they are looking for grants. This can be understood by the fact that grant is seen as easier, less engaging and cheaper (non-repayable finance). In the answers to the questionnaire, several organisations highlight the fact that for them, grant financing is a way to work on a proof-of-concept to prove that the business model can be profitable and later attract private investors for scaling.

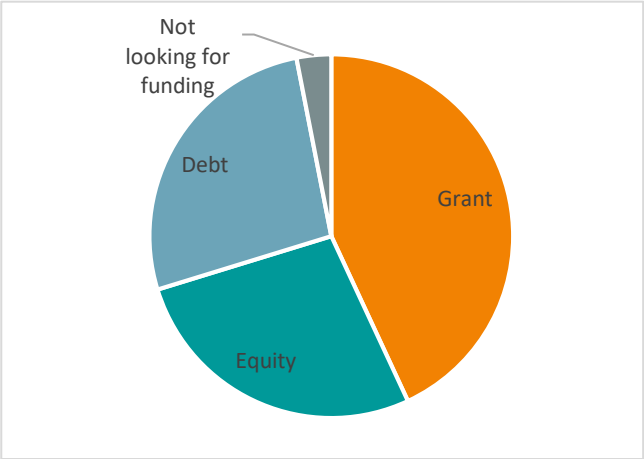


Figure 52 - Preferred type of funding of respondents

There is a growing understanding of the limitations of grant funding. Unfortunately, it is often a “beauty contest”; generally, it largely consumes transition costs for proposal writing without result; too often, it seduces the business to re-write the optimal business plan to meet the grantor’s requirements; most of the time, grant exit strategies are not in place; last but not least, financiers are usually reluctant to engage with grant funded entrepreneurs.

12 respondents that are currently purely funded by grants are now also interested in debt (or equity)

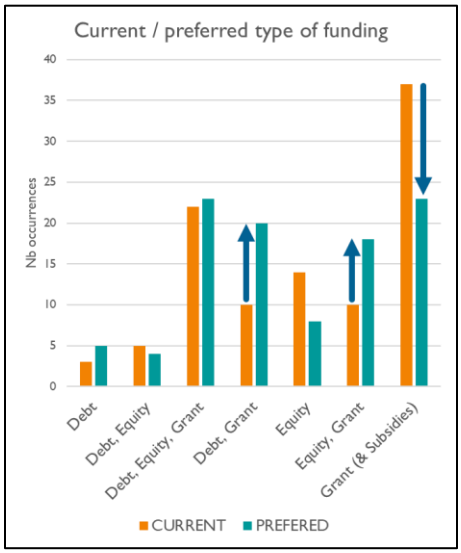


Figure 53 - Evolution between current and preferred type of funding of respondents

Several organisations are transitioning from a grant-based model to a social-investment model. What can be interpreted as a positive message is that a number of respondents currently funded through grants are now looking for debt and equity.

The common grant based model is a financing gap model, subsidising CapEx and/or OpEx deficit, working capital or R&D. The new social investment model is also often a grant based model but providing an instalment based on the delivered outcome, could be an output based aid, could be a carbon credit-payment, could be a local government subsidy per result, could be a SDG oriented foundation providing a grant or a soft loan based on the outcome. So, the social investment model does not exclude grants.

Funding-needs expressed by the respondents: grants still preferred

In this study, 5 respondents are larger organisations with important funding needs, revenue, and profit. They impact strongly aggregated numbers.

Financial profiles of respondents

Global numbers impacted by 5 respondents	94 are currently funded by grant & equity	17 respondents declare above 100 K USD in revenues	28 respondents declare they are profitable	Profit comes mainly from 2 water operators

Figure 54 – Financial profiles of respondents

Opportunities for impact investors

Total funding needs expressed by 107 respondents: USD 222 million	41 respondents express a need of more than USD 1 million	Debt & equity are seen as a new options for grant funded respondents	Pure debt is mostly requested by decentralized solutions

Figure 55 - Opportunities for impact investors

Total funding-needs expressed by respondents: USD 222 million

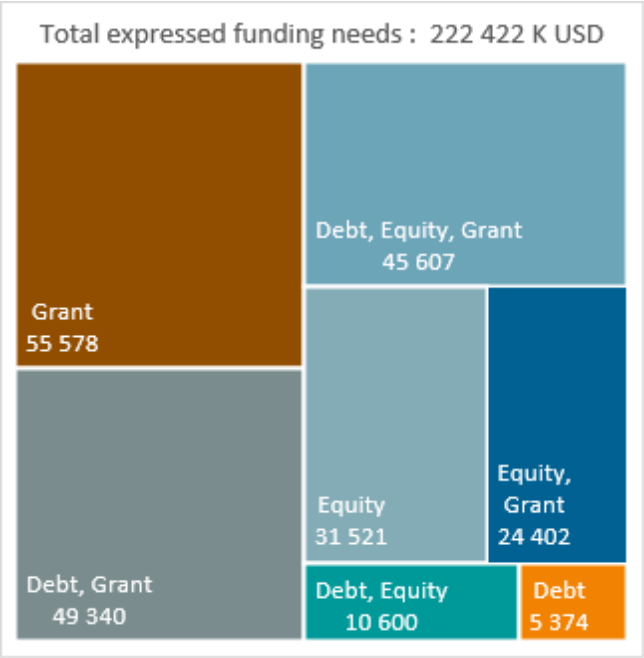


Figure 56 - Total expressed funding needs by respondents

Respondents to our survey expressed a total funding need of more than USD 222 Million, in various types of financing. Grants are still the preferred option, but respondents are open to other possibilities (debt or equity).

During our 3 months analysis, we identified more than 250 entrepreneurs, of which only 107 answered. These expressed funding needs are only a fraction of the investment need in the WASH market-based sector. Moreover, our survey has not reached several regions and countries, in particular, China and South-America.

Funding-needs, revenue, and profit generated by responding organisations

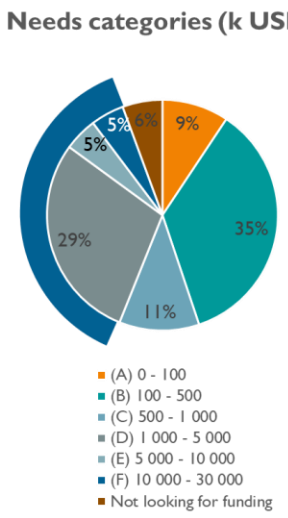


Figure 57 – Funding-needs categories of respondents

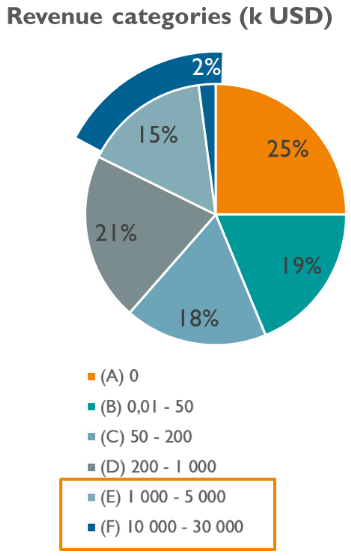


Figure 58 - Revenue categories of respondents

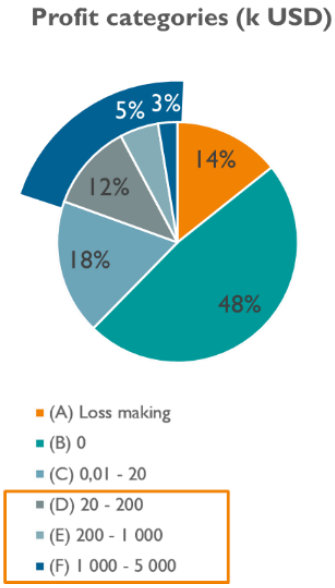


Figure 59 - Profit categories of respondents

Size of the needs expressed by respondents

When we look at the size of the needs, among 107 respondents, 41 express a need of more than USD 1 million. The possible market is fragmented between small players, asking for less than USD 500 K (44%) and larger players with more ambitious development plans, seeking larger amounts. At first sight, without performing detailed financial due diligence, the amount sought seems relevant to business models, activities, and geographies.

Revenue of responding companies

When it comes to revenues, again the market is fragmented. Among respondents of our study, 17 organisations declared above USD 1 million in revenues.

Profitability of responding companies

Among the responding organisations, 28 declared they are profitable. Among these, 50% declared more than USD 20 k in profit and 2 water operators have profits that are significantly higher than the other profitable organisations.

The intended use of funds by respondents

Sustained universal coverage will require more than capital for infrastructure. For a service to be not only sustained but also expanded and improved to meet demand, other costs must be assessed, including the cost of operations and maintenance, cost of capital, rehabilitation, taxes, and the costs of essential functions such as policy and planning, regulation, monitoring, and capacity building. Responding organisations expressed both, need for CapEx and OpEx.

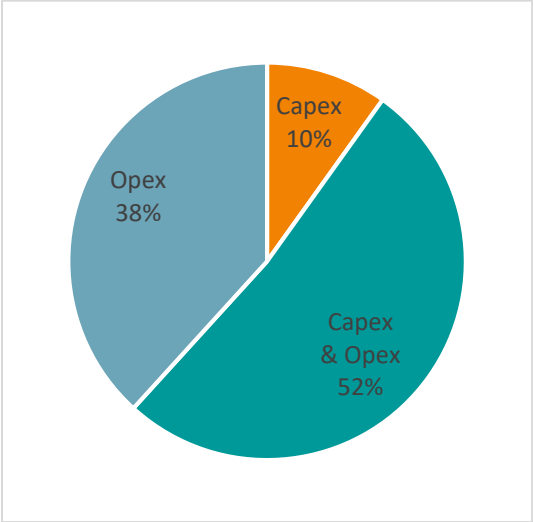


Figure 60 - Intended use of funds requested by respondents

ABOUT WATERPRENEURS

Waterpreneurs

Safe investments for safe water


Photo credit: Luis Barreto

MISSION

Waterpreneurs aims to help solve the problems raised by the 17 Sustainable Development Goals (SDG) with a focus on Water, Sanitation and Hygiene -WASH (SDG No.6)

Waterpreneurs works on a dialogue and provides multi-stakeholder solutions (private, public, civil society...) around issues of human rights, security and peace in the world, through the development of entrepreneurs who provide basic services to the most vulnerable populations, in particular through access to drinking water.

Waterpreneurs | Impact Hub Geneva | 1 rue Fendt | 1201 Geneva | Switzerland
www.waterpreneurs.net

WATERPRENEURS

UNIQUE VALUE PROPOSITION (1/2)

Waterpreneurs is a global “for-impact organisation”, supporting the scaling-up of impact investments financing the growth of WASH ("Water, Sanitation and Hygiene") enterprises operating in developing countries, and respecting human rights.

OUR VISION

- Access to safe affordable water and improved sanitation for all;
- Local “social” entrepreneurs at the heart of sustainable development;
- Impact investing as a part of the solution to solve global problems.

OUR VALUES

- Transparency
- Neutrality
- Respect
- Dialogue
- Inclusiveness

OUR GOVERNANCE

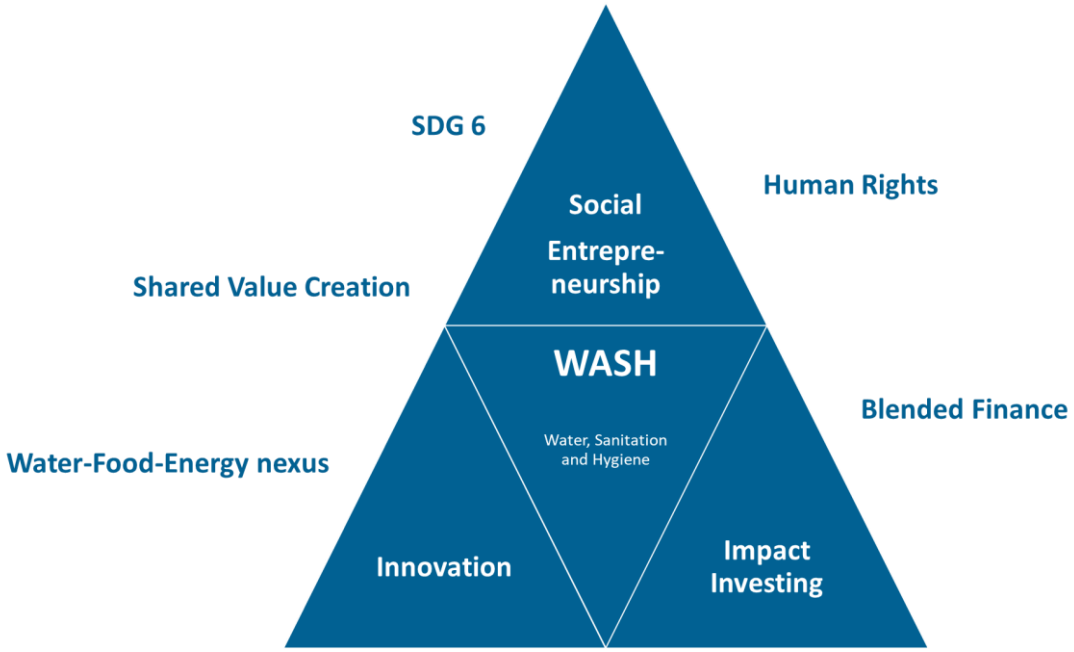
Waterpreneurs operates with a hybrid governance based in Switzerland with:

- A for-profit **LLC** serving the private sector;
- A social purpose **Association** serving the public/not-for-profit sector.

All profits generated by the LLC are reinvested in social purpose projects through the Association.

UNIQUE VALUE PROPOSITION (2/2)

OUR EXPERTISE



The combination of these expertise allows us to help our clients, partners, and friends develop impactful global and local action plans. Our activities and services are systemic and create local **peer-to-peer due diligence mechanisms** for global impact.

Waterpreneurs expertise is implemented through 4 lines of service:

1. **IMPACT INVESTING**
2. **INNOVATE 4 WATER**
3. **CONSULTING**

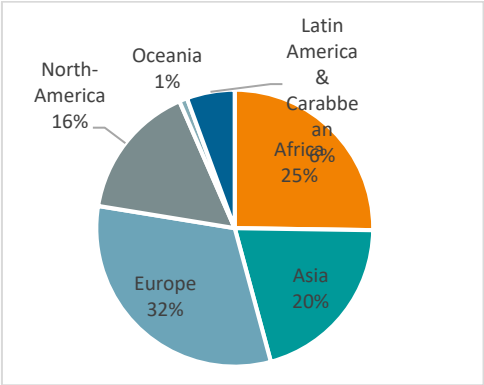
IMPACT INVESTING (1/2)

Based on practices of shared value creation, collaborative economy and social entrepreneurship, Waterpreneurs connects **local entrepreneurs** that have sustainable solutions for access to safe water (and sanitation) with **impact investors**, who can finance the scaling-up of their activities.

1. We identify established and mature market-based WASH entrepreneurs and projects, all over the world: 300+ SMEs;
2. We perform a preliminary due diligence (financials, risk analysis, social impact, integrity, compliance);
3. We support the most promising entrepreneurial projects to access capital through blended finance combining debt, equity and soft loans from public funds and private impact investing funds.

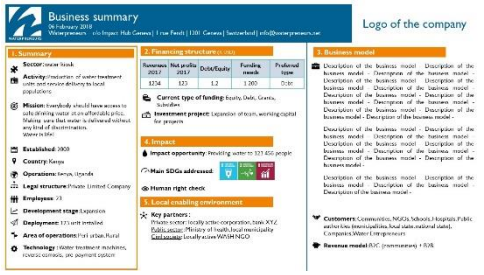
SOURCING QUALITY DEALS GLOBALLY

- Sourcing through global WASH expert networks.



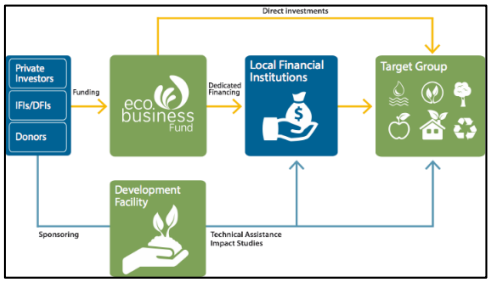
UNDERSTANDING BUSINESS MODELS

- Ability to evaluate the strength of business models;
- Social license to operate: respect the human rights to water and sanitation.



SETTING UP INNOVATIVE FINANCIAL VEHICLES

- Access to strategic players in the design of innovative financial vehicles.



Eco-business fund from Finance in Motion

WATERPRENEURS

IMPACT INVESTING (2/2)

WHITE PAPER: "INNOVATIVE FINANCE FOR SCALING UP "WATER, SANITATION AND HYGIENE" (WASH) MARKET-BASED SOLUTIONS"

This white paper aims at being a tool for:

1/ Impact investors who want to improve their understanding of the current state of the sector,

2/ Market-based entrepreneurs in the water and sanitation sector to gain visibility in the impact investing community, and

3/ any stakeholder willing to get an overview of the sector, its needs, and examples of possibilities for accelerating change.


WHITE PAPER
March 2018

IMPACT INVESTING FOR WATER

INNOVATIVE FINANCE FOR SCALING-UP "WATER, SANITATION AND HYGIENE" (WASH) MARKET-BASED SOLUTIONS

A review of the needs and opportunities

1. GLOBAL OVERVIEW
   - 1.1 Water and sanitation: at the core of sustainable development
   - 1.2 Global trends affecting WASH
   - 1.3 Global financing perspectives for WASH

2. THE MARKET-PLACE
   - 2.1 WASH: From informal to multinationals
   - 2.2 Trends, gaps and challenges for the private sector in WASH
   - 2.3 Technologies used by WASH market-based organisations

3. FINANCING SOLUTIONS
   - 3.1 Current situation
   - 3.2 De-risking WASH investments through sustainable ecosystems
   - 3.3 Innovative finance for WASH market-based solutions

INNOVATE 4 WATER MATCHMAKING FORUM

INNOVATE 4 WATER - Geneva, June 2017

In June of 2017, in Geneva – Switzerland, Waterpreneurs co-organised "Innovate 4 water: A matchmaking forum for Sustainable Development" with WaterVent and the United Nations World Intellectual Property Organisation's "WIPO GREEN" ("The Marketplace for Sustainable Technology").

The event brought together from all continents 350+ water & sanitation stakeholders over the course of two days (entrepreneurs, investors, large and small companies, non-governmental organisations, UN agencies, incubators) who are contributing to achieving the United Nations Sustainable Development Goal number 6. For further insight, check the 60+ challenges shared during the forum.

INNOVATE 4 WATER – Nairobi, April 2018

Building on the lessons learnt from the Geneva matchmaking forum, Waterpreneurs is co-organising "Innovate 4 water" in Kenya on 26-27 April 2018. The forum proposed for Nairobi is following many of the same principles that were introduced at the inaugural forum in Switzerland.

INNOVATE 4 WATER – Series

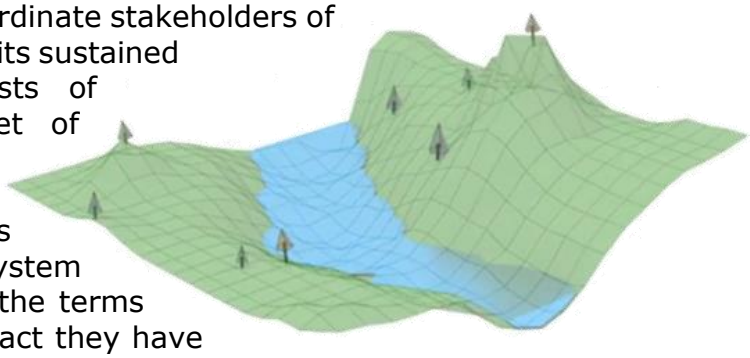
We are planning the organisation of similar forum in various leading cities (Cape Town, Lagos, Dakar, Abidjan, Casablanca, Tel-Aviv, Shanghai, Singapore, Delhi, Manila, Sydney, Toronto, San Francisco, Mexico, Budapest, Stockholm, London, Amsterdam, Paris, Geneva), and we are initiating conversations with local stakeholders to coordinate these forums locally.

CONSULTING (1/4)

TECHNOLOGY PLATFORM FOR SMART AND SUSTAINABLE ECOSYSTEMS:

Co-development of an efficient and ground-breaking solution that employs cutting-edge technologies to make ecosystems smart, making their restoration and self-governance possible at a low cost.

The system that uses technology to coordinate stakeholders of any given ecosystem in order to ensure its sustained health. The system enabling consists of specific applications of IoT (Internet of Things), which open the possibility to build a Smart Sensor Grid that measures environmental impacts as they occur. Stakeholders acting in the system then come to an agreement, defining the terms in which they will make up for the impact they have caused.



The technology platform consists of the following integrated components:

1. IoT sensor grid deployed in the river and other surface water;
2. An embedded operating system that can interface with learning algorithms required for the process of assigning certificates and obligations to the actors;
3. IoT gateways and dedicated secure protocols;
4. System kernel of learning algorithms for: a) reviewing and calibrating data, b) integration with external datasets and sensing networks, c) executing contracts and facilitate contract-based system actuation;
5. Distributed database for block chain applications vertical in the system architecture;
6. Settlement platform.

CONSULTING (2/4)

MONITORING IMPACT AND HUMAN RIGHT TO WATER:

MONITORING IMPACT

- Monitoring and reporting, aligned on SDGs and GRI

Example of a mission for a public organisation:

Helped design an improved framework of key performance indicators (KPIs) to enhance the current performance of the organisation and drive up its evolution to its next level of maturity and impact.

- Analysed current situation taking into consideration key strategic documents and current resources;
- Organised brainstorming workshops to better evaluate current needs and to help define key objectives;
- Analysed options and made recommendations.

CONSULTING (3/4)

Waterpreneurs fosters interactions between global players from the private sector, the public sector and from civil society **to direct finance toward impact projects in the communities**.

WATER HUB ACCELERATORS

In relation to leading cities around the world, we are contributing to the strengthening of enabling environments that support and channel investments into impactful WASH entrepreneurial projects in the field.

Creation/acceleration of **innovation "reactors"** ("Go To Market Places" as glocal catalysts), potentially (but not necessarily) in the form of **physical/virtual platforms** that connect WASH stakeholders from different sectors in order to contribute to the achievements of the SDG6.

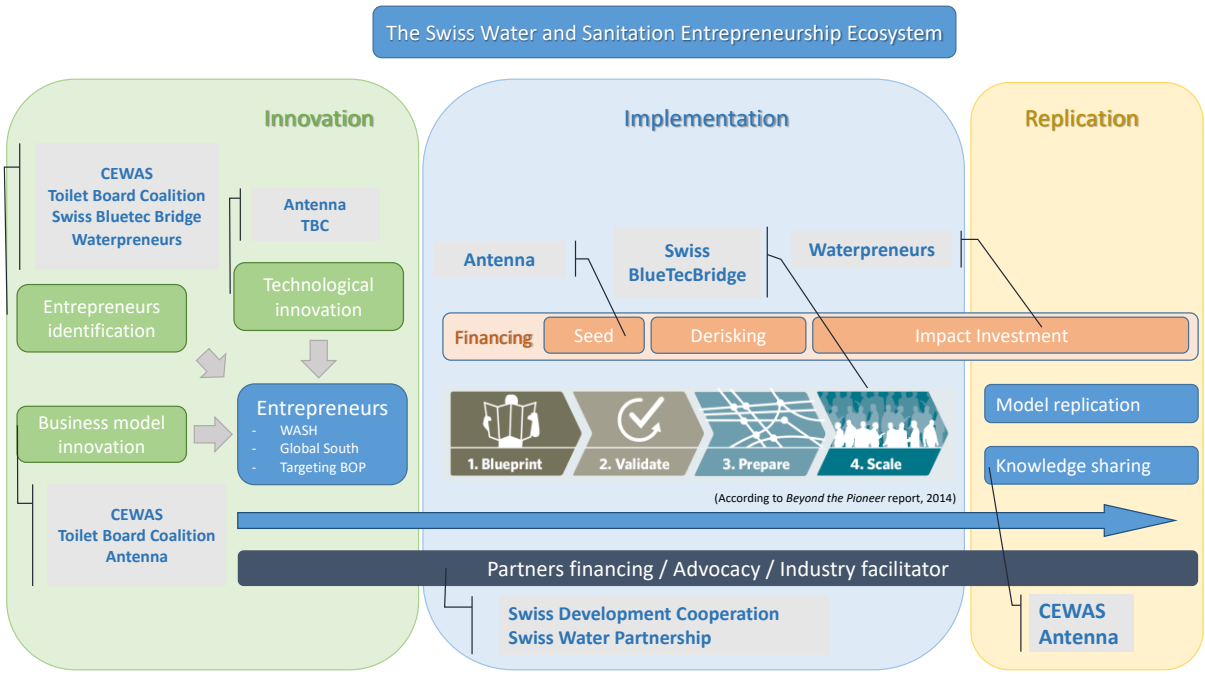
We are currently reaching-out to strategic potential interested WASH stakeholders in the fields of **1/ Innovation 2/ Entrepreneurship 3/Finance 4/ Corporate Supply Chains 5/ Smart IT Technologies 6/ WASH regional Expert Hubs**

Waterpreneurs has already developed trust relationships with key stakeholders interested in the sector, looking for entrepreneurial projects, and that has an interest in making sure these entrepreneurs can grow. It does reflect well our work specifically on water, connecting water specialised hubs and accelerating innovations and social enterprises contributing to the realisation of SDG6. In fact, these activities are put in perspective of the current wider conversation that we are having with global impact funds and investors, national authorities, United Nations agencies and key global stakeholders active in the fields of water and sanitation, business, human rights and impact investing.

CONSULTING (4/4)

SWISS WATER ENTREPRENEURSHIP PACT (SWEP)

The SWEP aims at enhancing the collaborative power of Swiss-based expertise in water entrepreneurship in order to increase the impact of innovative WASH solutions by Swiss and international entrepreneurs.



The long-term goal is to contribute towards realising SDG 6 through enhancing entrepreneurship in water and sanitation.

- ✓ Engage Swiss-based organisations that support WASH entrepreneurs through training, capacity building, mentorship, investment, etc.
- ✓ Develop a joint structure of the Swiss ecosystem for WASH entrepreneurs
- ✓ Leverage the people and resources in the ecosystem
- ✓ Promote this ecosystem for WASH entrepreneurs
- ✓ Foster partnerships (including PPP - public private partnerships)

WATERPRENEURS

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