Supporting Youth in African Countries to Advance Local Economies and Community Health:
The SDG Lab on Microfinance for Youth and Clean Water

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Abstract

In the sub-Saharan African countries, a large number of young adults enters the labour market each year. Scarcity of regular employment opportunities and the wish to become an entrepreneur lead many young people to start their own business. However, young people are often not able to become regular microloan customers due to both higher risks associated with young age and lack of experience with managing finances. If microfinance products should become accessible to young people, the loans need to be accompanied by non-financial services, i.e., financial advice and mentoring. In order to advance local economies and community health, we see two distinct problems around microfinance products for young adults. First, microfinance products combined with non-financial services are not sustainable, i.e. additional external funds are needed that render these microloan products unprofitable in the long run. Second, if improvements in community water, development, and health are envisaged, then new microfinance products need to be designed to serve the purpose of supporting the SDG goals of clean water and sanitation for all. We used an existing initiative of microfinance for young entrepreneurs and applied the social innovation lab methodology to gather experts in relevant fields. The SDG lab, co-sponsored by Future Earth and Appui au Développement Autonome Microfinance Luxembourg and hosted by the University of Luxembourg, first addressed the problem of sustainability of microfinance products for young entrepreneurs. Second, the SDG lab defined actors, processes, and goals to design microfinance products for young people to support the SDG goals of clean water and sanitation for all.

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The Need for Microfinance Products for Young Entrepreneurs in Sub-Saharan Africa

The African continent has the world's youngest population, and, with about 200 million Africans aged between 15 and 24, there are pressing economic challenges to successfully integrate young people into the local labor markets. Demographic projections even forecast a steep rise in the number of young Africans in the next decades. Despite the extraordinary potential youth has to transform local economies, young people find it difficult to obtain financing in order to grow their micro-enterprises (ADA, 2015; 2016). A microfinance approach, embedded in financial training and advice, could enable young entrepreneurs to start their own business. This could help to reduce poverty and increase health and well-being. Young adults with a steady income can afford housing, healthcare, and a healthier lifestyle of themselves and their families. For the local economies, the microfinance approach could support economic development and the creation of new jobs.

Access to formal banking services is very limited in the continent. People have a low access to credit. Some population strata are even completely excluded from the conventional banking system for instance, only 35‰ of adults borrowed from commercial banks in the region and the number of firms relying on bank to finance investment and working capital is very low (8% in DRC, 13% in Angola and 32 % in Botswana in 2010, and 15% in Ethiopia in 2015, World Bank 2017). Similarly, people have very limited access to deposit accounts where they can safely store their savings. Given that both poor and rich households, small and medium size firms, need both deposit and credit facilities (Rutherford 1999), there is an important demand for financial service in Africa.

Microfinance is advocated to be a powerful tool to meet the unsatisfied demand for financial services. It is said to provide rural dwellers, poor households and small (informal) enterprise with micro-saving, micro lending and, when successful, linkage to formal banking services. It aims at overcoming the very limited access of the (poor) population to formal financial services and the lack of collaterals.

A wave of Microfinance Institutions (MFI) has emerged in most African countries. Some of them use individual savings and credit approach while other rely a community-based approach. Under the community-based approach, the MFI relies on the local community or groups of individuals to collect savings and provide credits facilities. It uses joint savings as security for loans to individual to mitigate default risk. The risk is mitigated because group members exert peer pressure on borrowers to repay their loans. The MFI also secure important costs reduction in collecting deposits as part of the costs are transferred to the group and because of economy of scale. Under the individual approach, some MFI would target small business owner or micro firms. These institutions would also provide services to various production units operating in the hypertrophied informal sector that characterizes most African economies.

The number of MFI has increased in many Africa countries to reach 31 institutions in Senegal or 20 Rwanda in 2011. Over the years, some have bankrupted and the number has started thereof to decrease (Azad *et al.* 2016). The outreach of microfinance in Africa has also fluctuated over time. The number of active borrowers has increased from about 2.5 million in 2005 (Lafourcade *et al.* 2005) to about 4 million in 2013 (Azad *et al.* 2016). The number of savers follows a similar pattern and, as expected, the number of savers is higher than the number of borrowers. There were 6.3 million savers in 2005 compared to 2.5 million borrowers (Lafourcade *et al.* 2005). The average amount borrowed significantly varies by MFI and mostly depend on whether the MFI target the poor on its own profitability. MFI that target the poor would lend smaller amount and would face important transaction costs per dollar lent while

those that target profitability would tend to lend larger amount. The tension between these targets often generate important challenges to the financial sustainability of MFI and its societal impact.

The available evidence of the impact of microfinance on various social outcomes (education, health empowerment, food quality and nutrition, job creation etc.) was collected in a rigorous comprehensive review, leading to a mixed evaluation of the benefits of microfinance products (Rooyen *et al.* 2012). Indeed, in some studies, microfinance products had negative effects with respect to educational attainment, reducing poverty or empowering women. For health, most studies showed a positive effect. The lesson learnt from this review is that a structure where microfinance products are implemented needs to be set up and managed with caution. Further, the local actors and observers need to pay close attention to potential unintended negative consequences.

Although MFI are specifically targeting people excluded from the conventional banking system, young people are usually not among their clients. Young adults are usually excluded from both the conventional banks and MFI services as they are considered as being riskier and costlier: Young adults are geographically more mobile, they have limited or no financial history, guarantees, or work experience, and they don't have existing businesses but need funds to start their business. Those constraints increase the cost of loans for their category. Moreover, the MFI can be reluctant to give a chance to young people who have not yet proven themselves.

Appui au Développement Autonome Microfinance (ADA), a Luxembourg-based NGO, has been working on economic inclusion of young people for the past ten years. Its first experience was with the microfinance institution (MFI) RCPB in Burkina Faso. ADA's technical and financial support allowed RCPB to implement a test on a Youth financial product called *Cred'Art*, which is currently being deployed in three regions of Burkina Faso. Taking into account the lessons learnt from this first experience, ADA is currently running a pilot Young Entrepreneurs initiative in Niger, Togo, and Rwanda. The objective of the project, in collaboration with local MFIs, is to provide microloans to young adults who are qualified in a particular trade, such as hairdressing, carpentry, or hotel and restaurant business.

To allow MFIs to manage these risks and reduce costs linked to youth characteristics, ADA has worked on the development of microfinance products able to target young clientele that satisfies the requirements of MFIs and helps them build up their future clientele. The product requests a low level of guarantees, and finances both the reinforcement and the creation of activities for young people. It is characterized by different conditions: First, the MFI targets young people with a minimum of experience (which reduces the risk) and who have a promising project (in craft activities) that will enable them to generate income. All those young adults have learned a trade (hairdressing, carpentry, hotel and restaurant, etc.) in the relevant sector in which they want to start a business. Second, the MFI jointly offers the microloans and accompanying non-financial services (NFS). Particularly, before receiving the microloan, the young entrepreneur attends training sessions in financial education, entrepreneurship and personal development. Once the credit has been granted, the young entrepreneur is mentored by an external professional in the trade. Third, the internal MFI loan application analysis methodology is strengthened and adapted to youth specificities in order to adequately measure the risks and take the right decision without being too conservative. Fourth, in order to both support the Young Entrepreneur further and increase the incentives for the MFI, a transitional product is proposed to the young entrepreneur once the loan is repaid.

Between 2008 and 2017, ADA has developed youth loan products in different contexts and with different MFIs, *Cred'Art* with RCPB in Burkina, *Youth Espoir* with FUCEC in Togo, *Matassa* with ASUSU in Niger, and the *Artisan youth loan* with UFC in Rwanda. Over 4,250 Youth entrepreneurs were financed and around 6,000 jobs were created in the so-called *Young Entrepreneurs initiative* (ADA, 2017).

The Young Entrepreneurs initiative still needs external funding especially for training and advice (coaching and mentoring), which will be targeted in the proposed SDG lab. The first aim of the lab was thus to come up with creative but pragmatic solutions how to make the initiative sustainable, i.e. not depending on external funding, in the three African countries. The second aim to which we will turn next was to establish whether water and sanitation is an appropriate opportunity for MFI for youth products.

Can Microfinance for Youth Products Be Designed to Improve Community Health?

With the Young Entrepreneurs initiative at hand, we were curious about the potentially even larger societal impact of microfinance products for young people. The Sustainable Development Goals (SDG), adopted in 2015, give clear indications on the necessary achievements to improve the living conditions particularly in the African countries where the Young Entrepreneurs initiative is currently piloted. Of course, microfinance products for young people provide access to improved living conditions, and thus already indirectly improve individual and family health through better nutrition and access to healthcare services. On a larger scale however, one could also think of using microfinance for youth schemes to impact the community. One potential mechanism would be to target access to clean water and sanitation on community level, which could have potential to impact a potentially large number of people in the community or region. Via improved water and health, the newly designed microfinance for youth products could alleviate further pressing societal problems. For instance, fewer waterborne diseases in children would lead to lower rates of stunting, higher rates of school attendance and education, with possible benefits for occupation and earnings of future generations

Opportunities to Improve Community Health by Targeting Clean Water and Sanitation for All

A pressing societal issue in many African countries is the still very high prevalence of communicable diseases. This is largely due to lack of access to clean drinking water and improved sanitation, both of which increase the risk of water- and vector borne diseases. In the three African countries where the Young Entrepreneurs initiative is currently tested, a vast majority of the population has only access to unimproved sanitation facilities (between 45 % in Rwanda and 91 % in Niger), and access to only unimproved drinking water sources (between 35 % in Rwanda and 51 % in Niger, World Factbook 2017).

Water is of highest priority for human development (Frérot 2011), and water scarcity or lack of access to basic water is a threat to health, food security and natural ecosystems (Seckler *et al.* 1999). The availability of clean water directly impacts socio-economic development through high purchasing costs, ill health caused from water borne diseases, and time factor costs spent on water collection. It therefore indirectly impacts education level and economic standing. Usually women and girls are disadvantaged further as they are responsible for water collection, and thus are denied further opportunities.

Goal number 6 of the Sustainable Development Goals is "to ensure availability and sustainable management of water and sanitation for all" to be accomplished between 2015-

2030. The goal is more specified by sub-goals 6.1 and 6.2: By 2030, to achieve universal and equitable access to safe and affordable drinking water for all and achieve access to adequate and equitable sanitation and hygiene for all (UN 2017).

The Challenge to Meet the SDG Goals of Clean Water and Sanitation for All

The challenges of achieving the sixth SDG goal are massive in terms of the needed efforts, but also massive in the necessary financial investments. UNWATER and the WHO (2017) calculated necessary capital investments of US$ 114 billion per year, excluding operations and maintenance (O&M) costs that are essential for sustainability. These figures are far from being met by global nor local commitments. The current investments indeed would need to be tripled if the goal should become a reality according to the World Bank. Apart from the financial investments, to reach the goal of clean water and sanitation for all, we need innovative approaches and concerted efforts from all actors in the water sector.

The 2017 Progress on Drinking Water, Sanitation and Hygiene, joint monitoring report of UNICEF and WHO states that 844 million people, living mostly in developing countries, still lack access to basic drinking water[1] services as termed by the report (UNICEF & WHO 2017). In sub-Saharan Africa, 42% of the population lack basic drinking water services, for which non-basic is specified as people who use either *improved sources* with collection times exceeding 30 minutes or *unimproved sources* such as unprotected springs or wells or directly from open surface water such as lakes, rivers, ponds canals and such. Of those, 28% or 269 million people use unimproved or surface water. With regard to sanitation, 2.3 billion people still lack basic sanitation services. In the African continent, 72% of the population lack basic sanitation, meaning that they either have limited services and share *improved facilities* between multiple households, or have to use *unimproved facilities, such* as pit latrines without a platform, hanging latrines, bucket latrines or open defecation (UNICEF & WHO 2017).

The causes for this dramatic deprivation of water as a basic good are manifold. Roughly they can be attributed to two main factors: issues of *water supply* and *water demand* (Seckler et al., 1998). When speaking of the *supply* factor, we refer to the physical presence of water and its surrounding circumstances such as physical water scarcity, drought, floods, contamination, quality of water and treatment needs or in short, the bio-physical aspects. The *demand* factor describes access to water, water supply services, management, transportation and its contributing factors such as social issues, cultural, historical, political, stakeholders' input, and technical, or the "human" aspect of water (Rijsberman 2006). Both factors are affected by access or insufficient access to financial resources. Thus, the water sector involves many elements and should be addressed as a complex issue that requires innovative approaches and thinking. In addition, it is not the responsibility of one group or entity but must be tackled by different means and interest groups. In the SDG lab, we mainly

[1] Basic drinking water services, is the new distinguishing term used by the UN for grading water. Distinguished as follows: improved water - piped household water, "public taps, or standpipes, tube wells or boreholes, protected dug wells, protected springs, rainwater collection Non-basic is specified as, improved water with collection time exceeding 30 minutes (UNICEF & WHO 2017); unimproved sources: "Surface drinking water sources: River, dam, lake, pond, stream, canal, irrigation channels. Or: Unprotected dug well, unprotected spring, cart with small tank/drum, tanker truck, bottled water (Bottled water is considered 'improved' for drinking only when the household uses an improved source for cooking and personal hygiene)" (UNICEF & WHO 2015, p.50).

addressed water demand issues and the human factor, in which job and business opportunities exist.

Thus, the SDG goals have set a new global agenda in which the macro tasks are very specific: enabling basic water and sanitation and hygiene to all by 2030 and in order to achieve the goal “for all” the marginalized and disadvantaged must be included in all programs. The severity of the lack of access to basic water brings with it opportunity as well. We believe that applying microfinance for youth projects in the water sector can fertilize both fields and potentially create a win-win situation for both elements of development. Applying microfinance for youth to clean water and improved sanitation facilities seem both feasible (moderate investments and manually trained entrepreneurs are required) and most likely to provide large societal benefits in terms of investments into future generations.

The SDG Lab in a Nutshell

The SDG lab, held on 7-8 July 2017 at the university premises in Belval, Luxembourg, was initiated and facilitated by the first author. Host institute was the PEARL Institute for Research on Socio-Economic Inequality at the University of Luxembourg, ADA Microfinance co-hosted the lab. We invited experts in relevant fields of microfinance, youth, clean water, sanitation, and entrepreneurship in sub-Saharan Africa and other developing countries. We ran parts of the SDG lab as web conference, with one expert attending remotely from Senegal and giving a presentation virtually. We had input presentations in the mornings to give more detail on the two identified problems, and breakout groups in the afternoons to address the problems and find solutions. The first day was dedicated to finding solutions to move towards sustainability of microfinance products for young people. The second day we discussed how to design youth microfinance products to serve the purpose of clean water and sanitation for all. For the first day, we anticipated more concrete, pragmatic solutions to fine-tune a business model that is already in the test phase, with a tangible output. For the second day, we were aware that designing new microfinance products would pose a complex problem without existing solutions or business models yet, so we focused on bringing forth new opportunities at earlier stages of the innovation process.

The SDG lab experts at the premises of the University of Luxembourg, Belval

Lessons from Existing Microfinance Products for Young People

With ADA’s 10 years of experience developing microfinance products for young people, there are five main lessons to share:

1. **Commitment:** The MFI management needs to strongly commit to the project on a long-term basis and put young clientele as a priority for the institution.

2. **Sustainability:** Young MFI clients usually need higher time commitments from the MFI client officers, more training and close monitoring, especially for start-up clients. In light of this, it is thus quite difficult to make a youth product profitable. As MFIs can expect young customers to be profitable only after the third or fourth loan cycle, when they request additional MFI products, starting a youth product should always be preceded by a clear idea of how much the product will cost to the organization.

3. **Project scope:** The MFI needs to keep in mind that a pilot product for youth may bring many new elements for an MFI staff in terms of processes, procedures, methodologies and tools, which may need to be quickly adjusted during the pilot to better answer the clients' needs and the MFI's constraints. It is thus imperative to deliberately restrict the project scope in order to ensure proper testing and validation before rolling the product out.

4. **Human resources:** MFIs usually have junior officers deal with young microloan customers. In contrast to this practice, it is advised that more senior, experienced MFI staff deals with young customers, as young entrepreneurs' loan applications are generally more complex to analyze (less records, start-up businesses, less collateral) and thus requires more experience to deal with this complexity efficiently.

5. **Young entrepreneurs' profile:** One important aspect refers to the necessary spirit to become an entrepreneur. Apprentices who technically master a trade may not be able to become independent managers who can manage all aspects linked to commerce, clients, finance and staff. This should be taken in consideration in the client selection. From the MFI's perspective, profile diversification may be healthier to maximize the profits from the scheme: Targeting only young graduates can be dangerous for an MFI as they are not familiar with professional realities. An appropriate mix can be made between young graduates of vocational schools and others who have learned on the job.

Notwithstanding the first successes of the Young Entrepreneurs pilot scheme, there are still several barriers to implement the scheme on a large scale. The main challenges of youth entrepreneur initiatives include different aspects: Most young entrepreneurs who get a microloan use it to hire apprentices and do not necessarily create formal jobs. Young entrepreneurs need continuous financial training and education over the course of their loan. With the exclusion of the agriculture sector, the industry with the highest job creation potential in Africa lacks access to (micro)credit. With regard to profitability, the young entrepreneurs who are approved for a microloan need to be extremely carefully selected. Nonetheless, the MFI needs to plan that for a long time and possibly several years, the scheme does not generate profits.

One particular issue of the Young Entrepreneurs initiative that we targeted in the SDG lab is the current lack of sustainability due to the external financing of the accompanying training and monitoring of the young entrepreneurs, the non-financial services (NFS). Social innovation lab methodology was employed to think of alternative solutions to make the scheme less dependent on external funds. The second motivation, in particular for ADA, to co-host the SDG lab was the challenge of financing youth entrepreneurs in the field of clean water and

sanitation. This was an opportunity to think outside the box by applying its experience to a new strategic field, in collaboration with water and sanitation experts.

Towards Sustainability of Youth Microfinance Products

To make the Young Entrepreneurs Initiative sustainable, the SDG lab identified three changes to processes that could help to overcome the dependence on external funds. In order to facilitate changes to those processes, additional actors should come into play. In addition to current actors involved in the Young Entrepreneurs initiative, young services organizations, donors, Microfinance Institutions (MFIs), NGOs (technical assistance, mentors...), and the government, *volunteers or peers* should become more involved in the microfinance schemes. In doing this, they could facilitate the deployment of the non-financial services (NFS) at low cost. Particularly a peer-to-peer scheme would make sense in order for young entrepreneurs to learn and benefit from the experiences of others in a similar situation.

Following this, several possible improvements on the current processes that could be changed by the MFI were proposed. The current external funding of the non-financial services (NFS), i.e. financial advice and mentoring, should be abolished where possible. Several mechanisms were discussed to replace the external funds. First, a *peer-to-peer approach* could be implemented. The MFI could introduce a general regulation that each young client who received an NFS would provide similar coaching to new young clients. Second, MFIs could introduce a *success fee*. A common investment strategy is to include investors in benefitting from the profits with a small share if the business is generating profits. Similarly, microfinance products could include such a regulation for (very) successful young entrepreneurs. With those benefits, parts or all of the funding required for NFS could be replaced. Third, use the advantages of digitalization and availability of mobile phones to provide digital financial and non-financial services: Use existing and develop new schemes to collect savings and repayment through mobile technology, provide e-learning on financial education, and other e-tools specific to the relevant trade (e.g. sales platforms that also offer support). Lastly, to improve the effect of trainings, propose them on a *regular basis to young entrepreneurs throughout the loan cycle*, with, for instance, a mobile credit agent who provides regular short face-to-face trainings to a pool of young entrepreneurs from the same area.

The workshop participants also identified the need for a *favorable environment* that is able to bring a change in attitude and develop a culture of entrepreneurship amongst young people. To do so, *school programs* should already offer courses on entrepreneurship, financial education, personal development, and share of success stories to encourage young people to start their own business. Moreover, *policy makers* should have a key role in youth initiative by lobbying on self-employment and implementing a specific regulation on youth finance. Finally, the importance of including all relevant actors in the process and creating, where possible, a win-win cooperation for the involved MFIs, public stakeholders, mentors, NGOs, and Digital Finance Service providers would be a factor of success to implement youth entrepreneurs* initiatives.

Towards Youth Microfinance Products with the Purpose of Clean Water and Sanitation for All

On the second day of the SDG lab, the experts focused specifically on the relevance of the MFIs to the water sector, and we made it our mission to look for those innovative approaches within the microfinance sector and to see how microfinance instruments can be involved specifically in the water sector. We steered the discussion by the following guiding questions:

1. Why should microfinancing be involved in water and sanitation - WATSAN service provision? Can it be lucrative? What advantages are in the water business? Can microfinancing instruments be utilized in the water sector?
2. What is the value chain of the water sector, what are the gaps and what is needed for sustainable access to water, from which we can understand what are the opportunities?
3. How can young people be specifically engaged, in water ventures? Should young people be encouraged to open up their own private business or should they first get employee experience, thus receiving on the job training with which they can learn how to manage a business.
4. Lastly, we asked ourselves which WATSAN services can be micro-financed and how that could be done?

The first question, sets the playing field for our discussion and will give us the rational of why this might be a worthy program to pursue. The discussion on this question can be divided into two. The social/development worthiness of such a program and its economic worthiness. The first aspect draws back to the challenges of clean water mentioned above. Water being a vital field for sustainable life is an important reason in itself, but if its additional development implications as stated above are added, this makes it an even more worthy sector for MFIs to investigate and to invest in. Moreover, this is the first time in history where the global community has finally agreed and decided, that we must reach the goal of "Water for all". If indeed the development community wants to reach this goal, we must muster as many resources as possible in order to achieve this goal. This is in accord with the SDGs and the 2016, 'Water Security for Climate Justice,' conference in Rabat, Morocco, in which 22 African ministries reiterated the importance of prioritizing implementation and funding for water initiatives in Africa, called "Water for Africa". In addition, the challenges of the water sector and its complexity opens up a variety of opportunities. Lastly the sector is in great need for finance, making MFIs a relevant platform to address the field's needs. On the economic front, the exact economic and business model for the water sector, is yet to be investigated but from the second author's experience in countries such as Kenya, water services, provision and components is considered a lucrative business, especially in water challenged areas[2]. With that said the economic model will not be much different than other MFIs models of initial investment in a project or business, expecting the business to eventually be profitable and thus be able to payback its loan and later sustain itself.

After establishing the worthiness for MFIs to investigate the clean water field, we proceeded to explore the value chain of the water sector, the identified gaps and, consequently, the opportunities in the sector. This question opens up the issues of *project sustainability*, which is the main gap in water development. Statistics show that at any given moment, between 30-60 percent of water supply systems and projects, be they boreholes, hand pumps or other techniques across rural SSA, are defective or fail after completion and are not sustainable over time (Abebe & Deneke 2008; Brikké & Bredero 2003), sometimes disintegrating within half a year (Amadei 2014). We assert that projects backed by MFIs must consider the sustainability factors.

In order for a water project to work on a long-term basis and provide stable and reliable access to the local population, developers must factor into their projects a range of aspects, which must be dealt with holistically and can be categorized in six main aspects: (i) social aspects: Human behavior, management, cultural norms, political hierarchies and social

[2] Based on interviews done between July 2017-February 2018, in Siaya county, western Kenya.

structures; (ii) economic aspects: Funding, local income generation, fees and pricing; (iii) technology: Availability, appropriateness, operations and maintenance; (iv) environment: Climate change and biophysical factors; (v) stakeholders: Government, local government, policy, institutions and legislation, NGOs, contractors and suppliers; and lastly (vi) planning, on all levels and on all aspects mentioned[3] . Within these categories there can be many options for MFI backed projects. Three main accelerators pending from this for small scale projects are funding, management knowhow and technical personal. These three issues can all be addressed by MFIs, as well.

Funding. While MFIs cannot resolve the large funding gap, they can certainly address some of it, especially in the ad hoc needs of rural and remote areas, partly taking over activities of current NGOs, paving the way for them to do larger projects and leaving the large urban infrastructure to be solved by the international development organizations, banks and governments. The entrance of MFIs into this sector, will enable more and more communities that currently solely rely on the good intentions of NGOs and donors, to solve their own problems. Usually the first hurdle for such a project is the access to funding and when this is not available, which is the case in many situations, the initiation falls apart. MFIs can emancipate communities from the reliance on donors. MFIs can be part of the solution to the vast financial gap that exists in order to reach the SDG goal “Water for all” by 2030, by both bringing in more funds but also liberating other funds for larger projects.

Training. Once funding is established, many projects fall due to management issues, such as fee collection, managing fees, managing operations as well as many other traits needed. Entrepreneurship, for water projects can be taught through well-known methodologies. In addition, as there is a profound lack of technical know-how and services in the continent, providing vocational training for maintenance and technical services can be a major asset.

Young people in the water and sanitation sector. The third question is a more theoretical one. In the workshop we discussed the pros and cons of Youth involvement in the water sector. On the one hand, the Young Entrepreneur segment is important for income security for the population, as many youngsters today, even after higher level studies, face high unemployment rates all over the continent. The water segment specifically offers business and employment opportunities in a field which is ever expanding. In the water sector specifically, young people can be an asset and a catalyst for behavior change for upscaling. This is because they are more open to new approaches and behavior, and more aware of problems and possible solutions, as well as not set in old and obsolete ways. Moreover, involving young people can again create additional clientele for MFIs. On the other hand, we need to again, acknowledge lessons learnt from ADA’s work with young entrepreneurs: Not everyone has the spirit or the skills to become entrepreneur. Young people might be considered by MFIs to be high risks, less reliable, and have too little experience. Current microfinance for youth products have been designed for young people who have already learned a profession. In the water sector, initial professional training necessary is resource-intensive, in need of local trainers and costly. Having said that if proper screening, is done, together with training through consistent, well thought out methodologies it can relieve some of this risk factors. With proper training young people can basically take over NGO operations in relevant fields and have the MFIs act as the funder.

Lastly, we discussed and analyzed how MFIs can be involved in the water sector. This can be divided into three types of income generating offers: First, MFIs could offer *skills training*

[3] The six project sustainability categories or the holistic methodology for sustainable water projects, were devised over a course of several years by Ornit Avidar, through her business and academic research.

for youth, either to become employees in the sector, or to provide first training to develop a business in the field. The training should involve technical skills and managerial skills to reach the skills set of occupations such as water technicians, plumbers, occupations linked to rain harvesting knowhow, building protected springs knowhow, water committee member knowhow, meter technician, fee collection, managing revenue, transparency, human resources and the holistic methodology for sustainable water projects (Avidar, 2018). Second, MFIs could become involved in *business training specific for the water industry*: meter and collection business, technical services business, spare parts services, water supply services – managing a kiosk or water vending station. Water management cannot be separated from business management. Lastly, MFI could *support community projects*. Most communities have limited means for project construction, but once a water scheme has been devised, a charging mechanism can be developed in order to pay operations & management. The process was discussed as follows: After a community has sent in a draft proposal (pro-actively), the organization further assists with the proposal writing or had offered business training mentioned above. The community then receives funding for the specified water project. After the project is financed, implemented and the involved actors have been trained, the projects – if properly administered – can be self-sustaining in operations and management. Matters in need of consideration in order to provide returns to the MFI (or partial funds depending on the funding structure) and sustainability of the project: a fee for water will be charged from the users (there are a variety of methods for this) and that the water be affordable and preferred over the existing alternatives.

These are but a few examples of potential water businesses. A list of potential schemes in the water sector can be found in the Appendix. These schemes include generic components that should be considered wherever deployed but need to be locally adapted in order to suit local conditions and various communities.

These schemes themselves are not new ideas, which are already being done in different places across the African continent, but the innovative aspect is the financial structure. Usually these projects are financed by international donors or governments. But if MFIs proceed into this field, they can provide both mitigation to some of the financial gap to reaching the SDG goals discussed above and substantially empower communities. Another advantage to involve MFIs in the field is the *perception of ownership* of the project. When donors or government finance a project and then transfer it to the community, the community does not feel that it is their project. With this new structure, projects will be considered a community initiative from the very start. In addition, the MFIs role will not cease with financing but will include training for management, operations and maintenance. While all of these can be privately owned, many can be owned by community-based-organizations, thus impacting a wider range of people.

With respect to the designing of microfinance for youth products to the water and sanitation sector, it was important to keep in mind that a complex problem may also need complex solutions. We propose some thoughts on local actors to become potential partners and the nature of projects with probabilities of success.

Who are the partners needed for such a venture? We believe that, on the receiving end, we can work with able and willing local communities together with the local government. These communities should be pro-active, initiating communities, those for example who have initiated a proposal or developed a water project and are reaching out for assistance. Another partner on the receiving end are youth organizations, those organizations that work on empowerment and assisting youth. On the dispatching side, there is a need to identify

MFIs willing and able to include water programs in their work plan. Through alignment of interests for workforce development, the private sector might be harnessed for support in non-financial services. Equipment and component suppliers are also relevant as they might see a potential in distribution of their products in deep rural areas, or to youth groups as potential customers. Lastly, NGOs might also be interested in cooperation because they would be able to find partners for achieving their goals, and they can contribute from the partners' knowhow and experience to the project.

What are the ideal projects for such a venture? We realized early that, although water is a problem for most communities, each community has its own specific needs and difficulties. In some places there is a lack of availability of water, in others distribution is the problem and yet in others projects fail due to management issues. In each country and community in which the new scheme will be tested, the local team will need to identify the specific community issues and cater to them. On the one hand, the program should develop some generic mechanisms, on the other hand, it should be understood that the proposed mechanisms need to be tweaked for each community. Lastly these projects need to be economically substantiated and a financing, returns and reinvestment process has to be installed to make sure they are economically viable. One aspect of this viability is exploring new, appropriate and simple technologies that might be relevant in order to decrease costs and maintenance fees, as well as proper managerial process discussed above and a consistent methodology for training and for the sustainability of the projects.

After the SDG Lab: Going Back to the Field

The SDG lab intended to target two distinct problems, the lack of sustainability of the current microfinance for youth products that are still in need of external funds for financial advice and monitoring, and the possible application of microfinance for youth products to the water and sanitation sector in order to improve community health. Both problems were perceived as quite complex. First, processes would need to be changed substantially in order to overcome the current situation. Further, for both problems, additional actors would need to come into play in order to improve the current situation. The group was unanimous in its conclusion that water is certainly a field which should be considered by MFI and currently that is not the case. And that both the water sector and the MFI sector can benefit, the first because of an influx of funding and training and the second by introducing a new MFI opportunity. We agreed that after the SDG lab, and in accordance with social innovation lab methodology, the next step would be going back to the field, lead discussions with involved actors and test some of the proposed solutions on a small scale. This next step is even more important as there would be no one-size-fits-all solution, and all possible changes would need to be adapted to the local conditions and needs.

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Appendix 1

Attendees of the SDG Lab on Microfinance and Clean Water & Sanitation

Ornit AVIDAR is founder and Managing Director of WaterWays and currently a PhD candidate in Ben-Gurion University, writing her dissertation on “A Regional Analysis of Sustainable Access to Clean Water in Siaya County, Kenya”, supervised by Prof Lynn Schler. Ornit founded WaterWays in light of the growing need for clean water in off grid and rural areas and the understanding that everyone is entitled to clean drinking water. Since then she has promoted the issues of sustainable water projects, the issue of pragmatic low cost innovative solutions for all. Currently she is promoting, the concept of “Water First” bringing to the consciousness of society that providing clean water can impact a variety of development challenging including food security, health, education and gender equality, thus it should be prioritized by the international community. Ornit Avidar is an experienced former diplomat, investor and mediator with over 15 years of experience in developing international strategic partnerships, deal closing, investments, solving delicate business issues involving conflicting interest groups and getting people and technology together to address their needs and common goals. She has extensive experience working with foreign and local government entities and agencies. She is the Vice President of the International Women's Forum, Israel Branch, and a Board member of the Israel-Asia center. She has a BA Cum Laude in Political Science from Hebrew University, Jerusalem, and an MBA from Temple University in Philadelphia, USA.

Eyal BAR-HAIM joined the University of Luxembourg in September 2015 as a postdoc researcher. In 2015, he obtained his Ph.D. from the University of Tel-Aviv (Israel). He is mainly interested in the analysis of mobility, stratification and inequality in comparative perspective. In his ongoing projects, he is applying new methodological frameworks in order to evaluate the effect of structural factors on patterns of inequality and inequality of opportunities. He published articles in peer-reviewed journals and books in English and Hebrew. In parallel with his academic activities, he was also engaged in applying new technologies to promote accessibility for people with disabilities (via the Israeli Center for Educational Technology).

Jérémie CHAPET is a Project Manager at ADA since 2015. With an economical background, he started his experience in microfinance in Mozambique, where he worked during almost three years in a greenfield MFI as a loan department manager. Jérémie is currently working on the Youth economic inclusion through microfinance and providing technical assistance to partner MFIs in Togo, Niger and Rwanda.

Laura FOSCHI is currently Deputy Director at ADA a Luxembourg non-governmental organization that promotes inclusive finance worldwide. She is also Senior Investment Manager and responsible for all investment services to Luxembourg Microfinance Development Fund (LMDF). Prior to this position she has been the general director of the microfinance investment vehicle Consorzio Etimos for 5 years. She has also coordinated and delivered training and technical assistance in microfinance programmes during more than 10 years in Latina America, Africa and Balkans. She has been member of the board of directors of FEBEA (European Federation of Ethical and Alternative Banks). She was lecturer at the University of Parma where she taught the Economics of Microfinance and she was also board member of the Master on Finance for Development. She additionally worked as a consultant for UN agencies such as CEPAL (Comission Economica para America Latina y Caribe) as well as European commission funded programmes. She has written publications

on social banking as well as social capital and microfinance. She speaks fluently Italian, French, English and Spanish. She is member of the Steering Committee of the Responsible Microfinance Facility and of the EIIL (European Impact Investing Luxembourg). Her main areas of interest are impact and inclusive finance, sustainable development and green economy. She currently provides trainings and lectures on inclusive finance at University of Luxembourg, Université de Lorraine, European Microfinance Programme (Libre Université de Bruxelles), and many other training centres in Africa, Latin America and Asia.

Kajetan HETZER has extensive professional experience working in diverse context on sustainability and financing. His experiences cover investment strategies, fundraising and (co)design of (innovative) WASH projects, specialized on upscaling, business development and finance. More than 10 years he worked on areas that include sanitation, waste management, water (resource) management, water-food-energy nexus and sustainable investments across sectors. Additionally he has more than 10 years experiences in the financial sector as an analyst on the sustainability aspects of investments. To date Kajetan works for WASTE, applying his diverse expertise on sustainability aspects along the so-called FIETS principles (Financial, Institutional, Environmental, Technical, Social and Scaling) which are applied as bottom line by WASTE and the Dutch WASH sector. Additionally he is advisor to the program FINISH (Financial Inclusion In Sanitation & Health; www.finishsociety.org). In addition, Kajetan also helps to start the Social Equity Fund, which looks for impact investment in SMEs in developing countries, with focus on sanitation, waste, water and linked basic needs sectors (like health, renewable energy and agriculture). He started his career at SNS Asset Management, in the pioneering phase introduced sustainability aspects for investments and contributed to the launch of various funds. On his own initiative, Kajetan initiated the innovative SNS REAAL Water Fund and was appointed as Fund Manager of this 50 million Euro fund. In this position, he was a co-founder of the program FINISH, together with TATA-AIG and WASTE. Later he started to work as independent consultant for various international organizations (e.g. World Economic Forum, IFC, 2030 WRG, UNDP), NGOs and development agencies. Kajetan is also an adviser to think tanks and several advisory boards related to sustainable development, including for young enterprises and for the business platform of CEWAS (International Centre for Water Management Services) in Switzerland. He is the Chairman of “Goood Foundation” that aims to accelerate the transition to sustainable communities by initiating and supporting design principles based on closing loops (principles of Circular and Blue Economy). Kajetan has a bachelor in Geology (Berlin) and a MSc. in Environmental Sciences (Amsterdam).

Félicité KAMBOU, Director of the Agricultural Service Cooperative Coobsa (COPSA-C) in Burkina Faso. COPSA-C was founded in 2009 and is a farmers’ organization that is specialized in warrantage, an inventory credit system for agricultural produce. The word “Coobsa” is from the Dagaare language and means “growing is best”. An entrepreneur to the core, Ms Kambou has founded several small businesses in Burkina Faso, which is not only one of the poorest countries in Africa, but also a country where women have only a limited access to finance, education and autonomy. Before Ms. Kambou started working for COOPSA in 2009 she has been working in for different NGOs and projects as a local facilitator and grass-root worker since 1992.

Anja LEIST is a tenured researcher at the IRSEI institute since 2014. She holds a PhD in Psychology from the University of Trier, Germany, and received postgraduate training in Social Epidemiology and Population Health at the Erasmus Medical Center in Rotterdam, Netherlands. Anja’s research interests concern social inequalities in health and cognitive function in old age. She has published on the topics of life review, technology and aging, life

course epidemiology of cognitive function and health, with a particular focus on the interplay of individual and contextual influences across the life course on later-life outcomes. Before working at IRSEI, she held a fellowship under the 'Future Leaders of Ageing Research in Europe' programme coordinated by the European Research Area on Ageing (ERA-AGE 2). Anja is member of the Gerontological Society of America and Steering Group member of the World Young Leaders in Dementia Network. In 2014, she received the Richard Kalish Innovative Publication Award. She is married and has two daughters.

Benjamin MACKAY, Unit Manager, ADA. He manages the MSME support unit which focuses on providing technical support to small and growing businesses in developing countries. Also with ADA, Ben has worked in the field of microfinance plus, particularly in the areas of youth entrepreneurship, access to green energy, leasing and remittances. Ben holds an MA in International Relations from the Université du Québec à Montreal and a BA joint honours in French and Politics from the University of Leeds in the United Kingdom.

Josée MUKANDINDA, Operations Manager, Umutanguha Finance Company, Rwanda. Ms. Josée Mukandinda, originally from Rwanda, has over 12 years of experience in the microfinance sector, where she has held several leadership positions. She is currently the Operations Manager at UMUTANGUHA Finance Company (UFC) Ltd, where she is in charge of the everyday management of the loan and savings portfolio of over 180,000 clients, of whom 52% are women. She had previously represented UFC in a number of other leadership positions, including head of the Technical and Marketing Officer and Inspection Monitoring and Development units. Ms. Mukandinda has extensive experience in project management ; she has lead projects relating to the financial inclusion of young people with UFC, including the "Youth Start" project financed by UNCDF ; the "Finance education and saving" project financed by Access to Finance Rwanda (AFR) ; and the project "Young Entrepreneurs Rwanda" financed by ADA. Ms. Mukandinda has a diploma in Social Sciences. She is a professional CGAP-certified trainer of Microfinance, and has led several trainings on the management of loans and savings for the staff of financial institutions. These include trainings on the subject of financial management, governance, the management of loans and cooperative accounting. She also holds a professional certificate in the management of savings and credit cooperatives from ISPEC (Pan African Higher Institute of Cooperative Economy) and DID (Development International Desjardins).

Maria PERDOMO, Youth Finance, Global Specialist at UNCDF. Maria has worked for more than 10 years in financial inclusion in Africa, Asia and the Americas. As Global Youth Finance Specialist at UNCDF, she developed and implemented YouthStart, a programme that more than tripled its initial targets, bringing access to financial services to close to 720,000 youth in eight different countries of sub-Saharan Africa. She is now expanding, through different programmatic arrangements, the best practices and lessons learned of YouthStart to other LDCs. Prior to joining UNCDF, she worked for Reach Global, Freedom from Hunger, Microfinance Opportunities, and Neighborhood Trust Financial Partners, where she developed Financial Education modules, trainings, capacity building tools and business models to enable different types of Financial Services Providers to offer client-centric integrated financial and non-financial services . Maria holds a Master's degree in International Affairs and Economic Development from Columbia University, and a Bachelor's Degree from Externado de Colombia University and l'Institut de Sciences Politiques de Paris (Sciences-Po). She is a native Spanish speaker, and fluent in English and French.

Winfried SCHNEIDER is an independent consultant since 1980. He holds a Doctorate in development economics, Technical University of Stuttgart, a Master in Economics, and a

Certificate of one-year post-graduate course at the Seminar on Rural Development of the Technical University of Berlin. He speaks German, English, French, Spanish, and Portuguese. In the years 1980 to 2012, he was partner of IP Institute for Project Planning GmbH, Stuttgart, with about 120 assignments in the international development cooperation in Latin America, Africa, Asia and Europe, mainly in rural development, water management, food security, management of natural resources, environment, climate change, decentralisation, TVET, SME, technology transfer, and innovation systems. Before that, he was Senior Management Consultant with FRASER Consulting Company (Essen) in the field of organisation and management for clients in Germany and developing countries, and Assistant Professor at the Institute for Socio-Economics of the Technical University of Stuttgart, with specialization on economics of developing countries, project economics, and project management and about 20 short-term research and consulting assignments in Latin America, Asia and Africa.

Kodjovi M. SOGAN is responsible for projects and programs - Youth Product. He is currently in charge of the Coordination of the product YouthEspoir at FUCEC-TOGO. FUCEC is the largest network of Savings and Credit Cooperatives in Togo. Kodjovi has been with Fucec since August 2006 and has served as Junior Auditor, Credit Manager and then Head of Credit Services before being put on on products for young people in 2012, starting with the UNCDF's YouthStart Program then ADA 's partnership, YouthEspoir with ADA.

Linda SZELEST is currently R&D Project Officer in ADA - Appui au Developpement Autonome in Luxembourg. She is in charge of the coordination of ADA Chair - a research partnership with University of Luxembourg on regulation of inclusive finance. She is responsible of knowledge management with a focus on knowledge capitalization and transfer. She manages partnership with international universities and research centers to facilitate innovation and the development of action-research activities on Inclusive Finance. She has 13 years of experience in R&D projects development and management in the field of Human Resources, Vocational Training and Education within Luxembourg Institute of Science and Technology in Luxembourg. She was lead coordinator for the Human Capital Program, a portfolio of research projects and activities in Human Ressources Management field: definition of the program strategy, coordination of scientific and technological projects and activities, development of public and private partnerships for experimentation of new methods, valorisation and transfer of innovative products and services, intermediary between research teams and public and private stakeholders, identification of market needs, and promoting different employment projects to the Luxembourgish Ministry of Labour and Employment. She was also involved as a consultant in the fields of innovative project management and business development for start-up.

Michel TENIKUE is a researcher in the Labour Market Department of the Luxembourg Institute of Socio-Economic Research in Esch-sur-Alzette, Luxembourg. He has extensively published on economic and demographic challenges, in particular the topics of inequality, education, fertility, microfinance, and family in sub-Saharan Africa and other developing countries.

Appendix 2

Water and Sanitation Opportunities for MFIs

Herein a list of opportunities which MFIs might want to further investigate.

a. Training artisans and technical workers – there is a constant need and lack of artisans and technical workers in the water sectors, these are needed for maintenance and refurbishing for all water schemes in all villages.
b. Contacting and maintenance business - training can be done for rain harvesting, bore hole drilling, pipe maintenance, plumbing, natural spring protection, gravitational systems etc. dependent on the needs and schemes in each specific area.
c. Rain harvesting facilities – for example, the Global Women's Water initiative[4] working in East Africa, provides training to women groups to build rain harvesting facilities, with a MFI's backing, the groups can offer financing options to their respective clients, thus facilitating the spread of water facilities.
d. Reselling water - from the local water service provider to remote areas by transporting the water and charging water and transportation fees.
e. Reselling water - from the local water service provider, via a Kiosk, open to the public charging water fees.
f. Where there are no water service providers, a community can construct a water scheme such as a borehole or gravitational system and sell the water to the local community.
g. Supply center, selling spare parts and storage equipment – addressing maintenance, but also availability and appropriateness, suppling people with all the equipment needs for water schemes.
h. Waste recycling contractors - waste collection, cleaning neighborhoods, urine collection and waste treatment for Biogas and compost.
i. Sand filters business.
j. Operating a hygiene and sanitation facility – including laundry, shower, toilet, detergents and hygiene items.
k. Building communal or personal green latrines which do not use water such as dry pit latrines and Eco-san toilets/compost latrines for water-logging, water-starving, coastal regions and rocky areas.

[4] https://www.globalwomenswater.org/