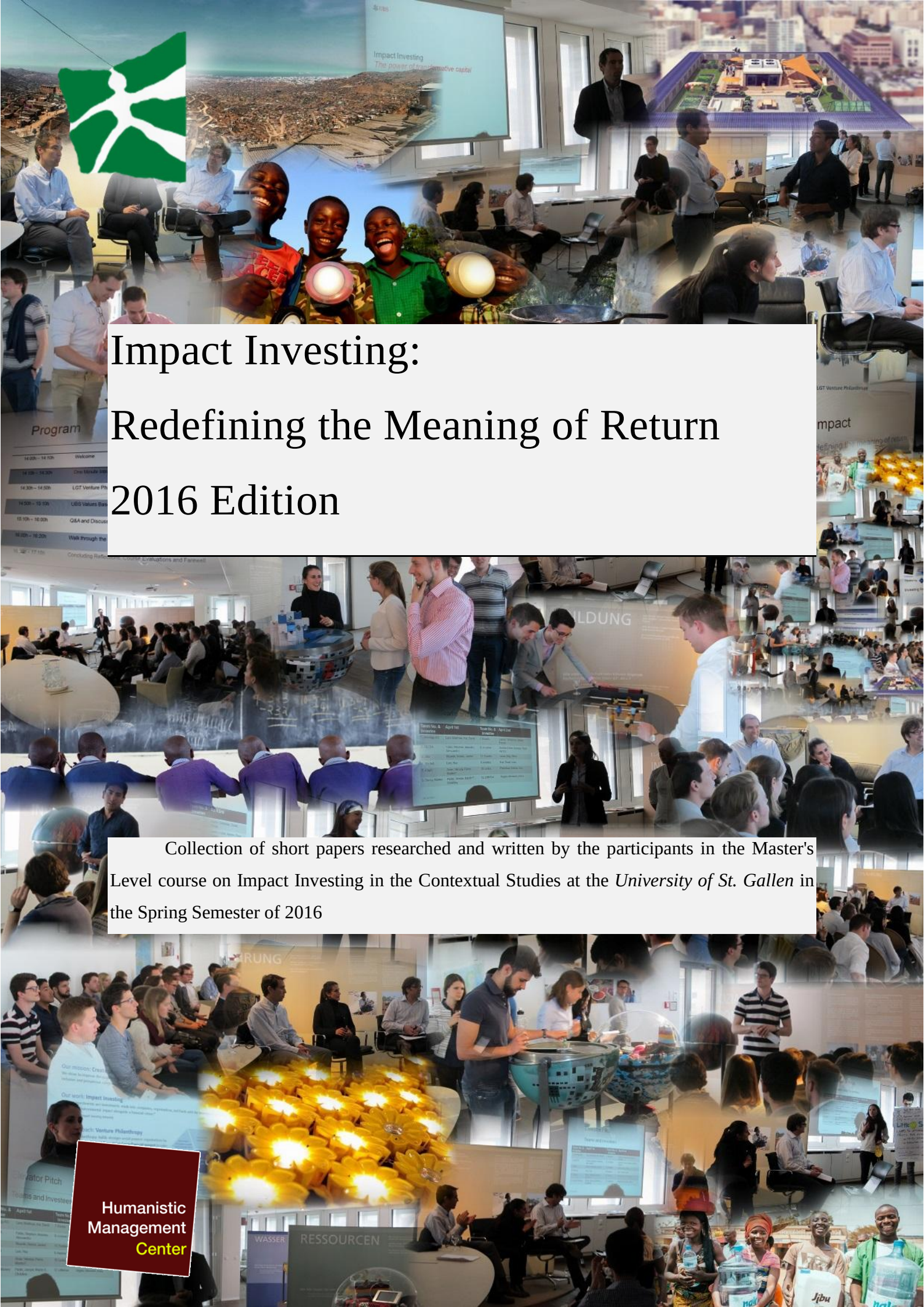

Impact Investing:

Redefining the Meaning of Return

2016 Edition

Collection of short papers researched and written by the participants in the Master's Level course on Impact Investing in the Contextual Studies at the *University of St. Gallen* in the Spring Semester of 2016

2016 Collection of Course Papers from an impact investing course at the University of St. Gallen titled:

Impact Investing - Redefining the Meaning of Return

Researched and Written by the Course Participants as Scenario Cases for Possible Impact Investing Opportunities

Edited by the course faculty:

Ernst von Kimakowitz

This collection of short papers was researched and written by the participants in the Master's Level course on Impact Investing in the Contextual Studies at the *University of St. Gallen* in the Spring Semester of 2016. The cases featured represent investment scenarios and are not actual investments.

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Contents

Background Information on the Course

Ernst von Kimakowitz

This course took place for the second time at the University of St. Gallen, Switzerland at Master's Level in the Spring Semester of 2016. The participating students in this elective course study a variety of subjects including Business Administration, Economics, Law and International Affairs.

Content: The content of this course is both, novel and highly relevant. The currently dominant investment paradigm is based on presuming a universal desire of investors to yield a risk adjusted optimal return i.e. the highest possible financial return within the boundaries of their appetite for risk. Impact investing questions this paradigm and argues that the objective of an investment can be to generate a positive social and / or environmental impact alongside financial returns. This course encouraged and supported critical thinking by integrating both, ethical reflection on, as well as concrete examples for impact investments.

Method: This course was focused on facilitating an environment where participants drive an activity based learning experience. Following the introductory session participants researched an impact investing opportunity and developed a fictitious investment structure for a social enterprise. In addition the opportunity to discuss with impact investing practitioners was provided in this course.

Goals:. The goal of this course was to give an introduction to impact investing. This course provided a broader perspective on finance, as a means to achieve the dual objective of generating positive social and / or environmental impact as well as some financial return. It aimed at enhancing the reflective capacity of participants on one side and on the other side provided a learning opportunity on a niche in finance that has received a lot of attention and has grown substantially over recent years.

The short papers in this document are designed as a briefing for an investment opportunity. Participating course teams acted as if they were investment managers of an

impact investing fund, writing the briefing as preparation for a pitch presentation to the investment board of their fund. While the role of the participants as well as the investment proposals were fictitious, the organizations researched as an investment opportunity are real, operating businesses. All case examples in this document therefore represent scenarios for possible investments but are not describing real investments.

On behalf of all participants I also want to thank Natija Dolic of LGT Venture Philanthropy and Jaume Iglesies of UBS Sustainable Investing for their invaluable contribution to this course.

1. European Renewable Energy Fund Investing in *Anerdgy AG*

Lara Eiligmann, Matthias Lebherz, Kai Sostmann & David Wyss

Investee: Anerdgy AG

Investor: European Renewable Energy Fund

Analysts: Lara Eiligmann, Matthias Lebherz, Kai Sostmann & David Wyss

The European Renewable Energy Fund is a Venture Capital Fund with a size of 30mio CHF dedicated to support renewable energy projects. The Fund invests in renewable energy projects in Western Europe using proven technologies as well as emerging energy technologies, aiming both at a financial return as well as the creation of social and ecological impact. Investments are executed through both equity and debt, however, equity is favored in order to better control the investments. The investment time horizon is between 5 and 12 years depending on the maturity of the technology or ventures.

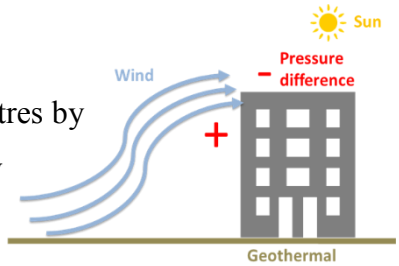
EUROPEAN RENEWABLE ENERGY FUND

ANERDGY

Environmental issues and their harmful implications for earth and humanity are on the rise. According to the UN Office for the Coordination of Humanitarian Affairs (2016) around 70 percent of disasters nowadays are climate related – up from around 50 per cent two decades ago. Recent data confirm that consumption of fossil fuels accounts for the majority of global CO2 emissions (Edenhofer et. al., 2011). They further indicate that increasing the share of **renewable energy** in the energy mix has great potential to mitigate climate change.

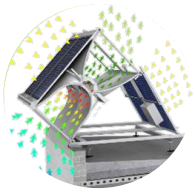
The renewable energy market is the **fastest growing energy segment** in Europe. Technological development and increased economies of scale in the industry have increased the competitiveness of renewable energy compared to other technologies. Legislation trends such as the UN Sustainable Development Goals or the EU Energy Strategy 2020 further foster renewable and clean energy. Renewable energy is an attractive investment opportunity, which will require significant capital investment within the next 5 to 10 years. Our investment analysts identified a venture that is covering renewable energy technologies in a very innovative way. As our fund still has resources available for further investments, we would like to promote **Anerdgy AG as possible investee**.

The Investee – Anerdgy AG



„We imagine building roofs to become sustainability centres by harvesting energy from wind and sun and creating synergy between man, technology and the environment, by providing spaces for urban gardening or fauna habitats.“

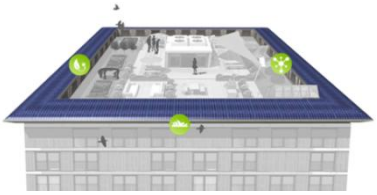
Business Model and Product



Founded in 2012, Anerdgy AG – a Swiss start-up based in Zurich – is one of the pioneers in an emerging niche market that creates sustainable energy through a novel combination of existing technologies. Their innovative system **WindRail®** offers three distinctive aspects no other module provides until today:

- **Energy** – Generation through pressure difference, wind & solar radiation that provides independence from energy suppliers
- **Function** – WindRail® based on a highly modular system, therefore easy

- to maintain and long service life of 40 years, free storage space for the integration additional solutions
- **Design** – Flexible elements to adapt to the building, esthetic appearance at the edge of the roof, further usable space in the middle of the roof



Within the last three years, Anerdgy developed several prototypes (C30, C40, B60) applicable to different roof structures (flat vs. pitched) and types of buildings (residential, office & industrial buildings and hotels). To protect their invention and development, Anerdgy currently holds **nine patents** (five technical patents, two design patents, two trademarks). According to Anerdgy's business model, they offer several services to their customers:

- **Selling & installing** – WindRail® products for newly built, renovated & existing buildings (in the future, most installation will be outsourced to local partners)
- **Consulting services** – Assessing & calculating the suitability and convincing potential customers (more than 100 feasibility studies conducted since 2014)
- **Licencing** – Offering the WindRail® technology to other suppliers

Anerdgy mainly operates with landlords, property owners and housing organizations to spread their invention as well as with energy suppliers, who are needed as electricity operators. Most of the construction and installation will be outsourced to Solar Panel Engineers, who can easily set up the modular WindRail® system. CEO Sven Koehler and his six highly experienced employees have gained high-tech, building technology and wind expertise through their partly more than 20 years of working experience and will, therefore, mainly focus on R&D, supply chain, sales and marketing activities. Manufacturing and assembling is outsourced to local partners. Until 2020, Sven Koehler plans to increase the team to 20 – 30 employees, mainly responsible for R&D and sales. In total, Anerdgy's team already comprises a grand **variety of experts** with different previous experiences which highly likely promises a success in the upcoming years.

Market potential and competitive environment

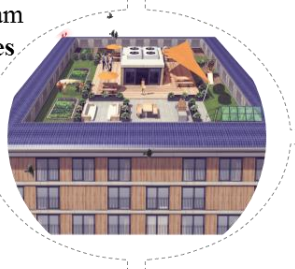
Based on various megatrends, Anerdgy should experience significant growth in the upcoming years. From a regulatory perspective, the **EU 2020 Energy Strategy** has set high targets for greenhouse gas emissions overall and building efficiency specifically. All new buildings are supposed to be nearly zero-energy by 2020 (c.f. Energy Performance of

Buildings Directive), which fits Anerdgy's business model of producing renewable energy on building rooftops very well. Also, urbanization coupled with increasing demand for decentralized energy provides opportunities for Anerdgy. Currently, around 75% of the EU population lives in urban areas and this number is increasing steadily.

According to Oikos Consulting, yearly market revenues are **estimated to EUR 2.2bn** for Windrail® products in the European market from 2020 onwards. Almost 50% of this revenue potential is supposed to be generated in Great Britain and Germany. Anerdgy aims to leverage this market potential through several **pilot projects** in the next year: GEWOBAG Berlin in April 2016 (existing residential buildings), Martigny Hotel in Switzerland in November 2016 (existing hotels) and 2020 RD project "Zero Plus" in England in 2017 (new residential buildings). The pilot projects shall function as a first commercial test for Anerdgy's most developed product (C-30), which is about to be available for commercial purposes in mid-2016, and are supposed to convince potential customers of the multifunctional opportunities. Especially the ongoing pilot project with the GEWOBAG Berlin has large potential to trigger subsequent jobs. If it fulfills the expectations, this project constitutes the start of a continuing collaboration with GEWOBAG, one of the biggest housing associations in Berlin, and the Stadtwerke Berlin. GEWOBAG alone operates almost 60.000 housing complexes.

While Anerdgy's WindRail® technology is quite unique, Anerdgy competes **with established renewable energy sources** – photovoltaics, building integrated photovoltaics and geothermal energy – for building space and share of wallet. **Public awareness** for the WindRail® technology is lacking, whereas solar energy for instance, though having experienced its own challenges in the past years, is often featured in the media and has produced 10'558 thousand TOE (oil equivalent tons) in 2013 alone (Eurostat Europe, 2015). Apart from this disadvantage, however, the WindRail® technology **convinces** through reliable energy production, longer service life and lower energy generation costs of 5-15c€/kWh compared to 12-20c€/kWh for solar energy and 12-25c€/kWh for micro wind turbines. Also, its design elements and functionalities such as minimal noise emission will facilitate market acceptance. Anerdgy offers the right features to blossom in the competitive segment of renewable energy sources. Yet, the current pilot project with GEWOBAG Berlin plays a critical role for market acceptance of the WindRail® technology. Overall, Anerdgy's business model and market potential point to a **high investment readiness** and can be summarized as following:

STRENGTHS	WEAKNESSES
➢ Technology **patents** ➢ Diverse & experienced management team ➢ **Combination of diverse energy sources** in urban areas ➢ **Space-creation**, function & design	➢ High initial costs ➢ Limitations on **house suitability** ➢ Technological dependency ➢ **Proof-of-concept not yet given**
➢ **Legislation** (e.g. EU Energy Strategy 2020) ➢ Megatrend: **Decentral energy supply** ➢ Rising awareness of climate change ➢ Inputs factors likely to get cheaper	➢ **Cost reduction** of alternative solutions ➢ **Risk of delay** through R&D ➢ „Single-sourcing“ risk ➢ Dependent on founders
OPPORTUNITIES	**THREATS**



Impact Case

Anerdgy is committed to yield a financial as well as an ecological and social return to their customers and society.

Economic Impact – A WindRail® module is financially amortized within 7 to 14 years. The typical ROI lies between 4-7 percent which is significantly higher compared to other technologies such as solar (3-5%) or micro wind turbines (1-3%). Due to its low investment costs and long service life, WindRail® is a highly viable investment for its clients.

Ecological Impact – A typical Anerdgy project with 40 WindRail® modules issues around 140 tons of CO2. However, our analysis based on Anerdgy's feasibility studies indicates saving potential of 1'300 tons CO2 over the lifespan of a WindRail® project (40 years). The environmental break-even is at only 3.9 years, which is less than 10% of the durability of the modules.

Social Impact – Anerdgy provides various social benefits along their value chain. First, they put great efforts in local sourcing of parts. Hence, 70% of the purchasing volume comes from Europe. Further, Anerdgy create local jobs since the modular structure of the WindRail® modules makes local assembly possible and easy. Lastly, Anerdgy's products enable urban farming and provides community space because of the freed up space on the roofs.

Our Investment

In their first round of financing in December 2014, Anerdgy received CHF 1 Mio. from an external investor in return for 24% of their shares. The company now raises their second round of financing to satisfy their **financial needs of CHF 2 Mio**. That amount is aimed at supporting three operational components. First of all, Anerdgy needs to finance the commercial launch of the WindRail® C-Type product family. Starting with the pilot project in Berlin, Sven Köhler and his team plan to first roll-out the WindRail® technology in the DACH-region before launching the product in whole Europe. Since Anerdgy operates as hardware manufacturer expansion plans not only include high marketing expenditures but also require a high capital intensity. Besides their strategy for market entry, the company also requires financial means to proceed their research and development activities to further improve their product efficiency, product cost and product portfolio. Thirdly and lastly, in order to keep the company running Anerdgy needs to cover their daily operational costs.

Regarding the **investment structure**, Anerdgy would like to split the total amount of CHF 2 Mio. into two parts – a CHF 1 Mio. equity and a CHF 1 Mio. debt investment. As an active investor we thereby contribute **CHF 1 Mio.** in return for a **12,4% equity stake**, given a Pre-Money-Value of CHF 7 Mio. To reduce the implied risk of an early stage company, the investment includes three different tranches depending on specific milestones, which will be monitored by a monthly management report:

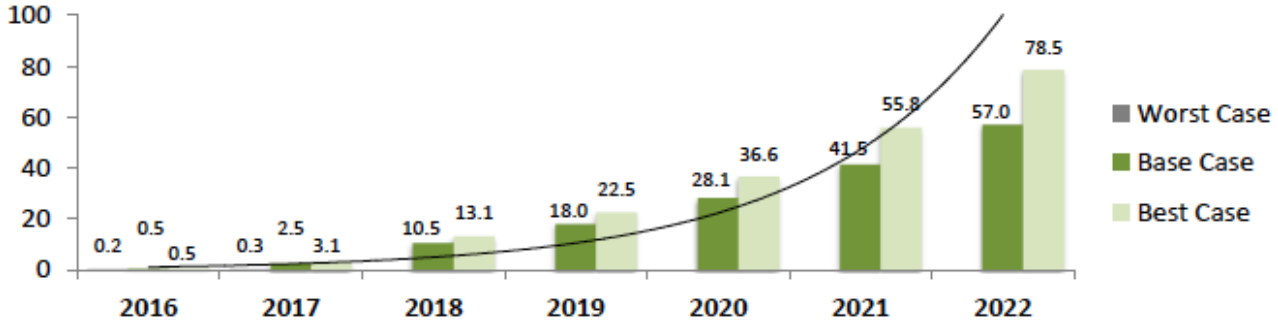
- Immediate investment: CHF 500k
- Milestone 1: Investment of CHF 250k if 80 units are sold
- Milestone 2: Investment of CHF 250k if 480 units are sold

Through our immediate investment, the commercial launch following the pilot project in Berlin is secured. If Anerdgy manages to sell the projected 80 units by the end of 2016 and 480 units by mid 2017, we will provide further CHF 250.000 each time to support a wider rollout.

In the meantime, we will support Anerdgy also on the debt investment side. Through our connections to other investors and our knowledge of the investment space we help them find an appropriate debt investor for the remaining CHF 1 Mio. Generally, a family office would be an attractive investor since they offer comparatively inexpensive loans. However, Anerdgy is already in negotiations with a Techfund based in Zurich, which shows that various solutions are possible.

Both Anerdgy's management and our team view the company – mainly a supplier of hardware – as a case for trade-sale which has certain implications for our **exit strategies**. For

the calculation of potential exit results our scenario analysis includes three different developments – best case, base case and worst case – and considers an investment horizon of seven years, hence an exit in 2022. These three cases lead to the illustrated sales projections below, which except for the worst case – Anerdgy stops their operating activities in 2017 after failing to enter the market – show a positive development of steady growth. In consequence of the strong sales growth, Anerdgy shows an increasing market value – CHF 30 Mio. in the base case and CHF 73 Mio. in the best case. Selling the equity stake to a potential buyer – e.g. Siemens or Gamesa, who both recently made acquisitions in this sector – generates an IRR of 20,6% in the base case and 37,1% in the best case over the total investment horizon.



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2. *HELVEDEM in Côte d'Ivoire:* Impact Investing in Africa

Amédée Saudin, Alessandro Lanfranchi, Fabio Grossmann & Stephen Goldschmidt

Impact Investing in Africa: HELVEDEM in Côte d'Ivoire

Investor - HELVEDEM

- Vision
  - *Promote equitable social and economic development through education investments.*
- Founding Members
  - *Amédée Saudin, Alessandro Lanfranchi*
  - *Fabio Grossmann, Stephen Goldschmidt*

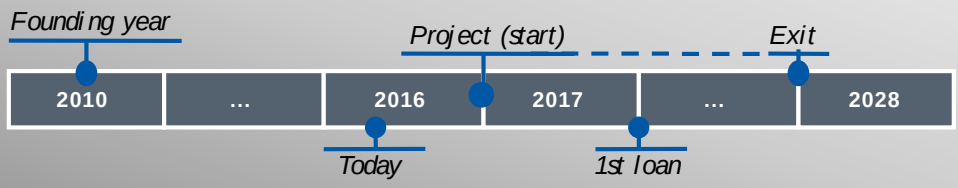
Investee - IAP

IAP

- Required capital: *USD 4m*
- Asset Class: *Equity*
- Impact Investment Focus: *Education - School Financing*
- Geographic Focus: *Côte d'Ivoire*
- Investment Horizon: *10 years*

Indicative Timeline

Impact Investment Program



Source: Own illustration based on internal assumptions

The investor – Helvetic Fund for Education Development in Emerging Markets (HELVEDEM)

Initiated in 2010 by four former financial industry practitioners and supported by the Swiss Agency for Development and Cooperation, the Helvetic Fund for Education Development in Emerging Markets' ("HELVEDEM" or "The company") vision is to promote social and economic development through education investments. It is therefore aiming to increase completion rates of primary and secondary education as well as to improve education quality. Since its foundation, HELVEDEM has set up various education financing schemes in Latin America (2011) as well as South East Asia (2012) and seeks to extend its operations to Côte d'Ivoire. It therefore is looking for financing of CHF4m to finance its Impact Advancement Program (IAP) in collaboration with the Regional Education Finance Fund for Africa (REFFA), who will contribute additional CHF1m conditional on the successful capital raise of HELVEDEM. The IAP will offer loans to private schools to build, expand and renew school infrastructure and incentivize borrowers to adhere to high education standards.

The setup – Challenges hindering education development in Africa

Despite increasing economic growth and transformation, education remains a key challenge for the African continent, particularly due to two major reasons: low public funding and the question as to how costs shall be split amongst different parts of society. Whilst the EU-28 countries spend approximately 5.3% of their GDP on public education, only 4.7% are spent on education in Sub-Saharan Africa (Tradingeconomics, 2016; Eurostat, n.d.). This does not only constitute a problem in relative but also in absolute terms, as African countries see themselves confronted with a very young population, comparatively low GDP per capita and therefore a set of serious consequences, as the Worldbank notes: a gap in public education financing demand and supply combined with inefficient resource allocation has led to low enrollment and completion levels, inequitable access to education, inappropriate curricula and unacceptably low learning achievement levels (2008, p.56).

HELVEDEM intends to address these problems by joining forces with REFFA.

Partnering with REFFA – The Regional Education Finance Fund for Africa

REFFA, incepted in December 2012 with a target size of USD70m, bases its work on three key pillars to address the education financing demand in Africa: student education loans, saving plans for education and school financing – it therefore targets the problem holistically, trying to enable children from various social backgrounds to receive education.

REFFA's funds, being provided by the German Development Bank (KFW) and the Federal Ministry for Economic Cooperation and Development, are managed by BlueOrchard, a Swiss asset manager regulated by the FINMA. Loans, however, are distributed by local partnerships, which do not only create local jobs, but also ensure that loan approval and monitoring activities are adapted to local conditions.

Yet to be solved problems HELVEDEM intends to address

Since its inception, REFFA has already expanded its operations to Cameroon, the Democratic Republic of Congo, Kenya, Senegal and Tanzania. A further expansion of education financing is thus needed.

Furthermore, private school financing has created a set of challenges to society in the past: first, the inequity gap between high- and low-income families, the urban and country population, boys and girls as well as among different social statuses widened. Secondly, education quality has not necessarily been better for private schools, as schools may have been considered profit-maximizing enterprises by their owners with questionable success due to cost optimizing efforts at the expense of education quality. HELVEDEM intends to address these problems with a detailed action plan.

HELVEDEM – Strategy and action plan

The IAP is HELVEDEM's latest endeavour to address the previously highlighted problems. HELVEDEM distinguishes itself from other impact investors with a clear strategy: "Increase completion rates of primary and secondary education – Improve education quality". IAP aims to transform this strategy into action with a dualistic approach. The first measure is to increase the educational reach of the existing REFFA program. Therefore, IAP proposes to enter Côte d'Ivoire where REFFA is not yet present. IAP's second objective is to enhance

education quality. This shall be ensured through an incentive scheme referred to as "Rates Adjustment Plan".

Côte d'Ivoire – A country with need for education and a positive risk outlook

Four main reasons support expansion plans to Côte d'Ivoire. First, compared to other countries in the Sub-Saharan region, it ranks amongst the lowest in youth literacy1. Only 41% of young females and 60% of males are literate (The World Bank, 2016). Second, Côte d'Ivoire is not considered a high risk country based on Euler Hermes's country risk rating. The trade insurance company includes economic, political, business environment, commercial and financing risks for their country risk assessments. Furthermore, Côte d'Ivoire has a positive outlook due to presidential elections deemed fair and free and an expected GDP growth of c. 7% in 2016 and 2017. This led to a recent upgrade of the countrie's risk rating to "C3" in Q4 2015 (Euler Hermes, 2016). The third point in favour of Côte d'Ivoire is the presence of the existing REFFA partner Advans SA (Advans Group, p. 16). Finally, although HELVEDEM does not compete with other social impact projects in the traditional economic sense, a high impact and success is more likely because major education impact investors in Africa have not yet set up structures for school financing in Côte d'Ivoire.

Figure 1: Competitor Analysis

School Financing in Côte d'Ivoire

	ACCION	SHARED INTEREST	SARONA	unicef	
School Financing	x	x	x	(✓)	x
Presence in Côte d'Ivoire	x	x	n.a.	x	x

Source: Own illustration

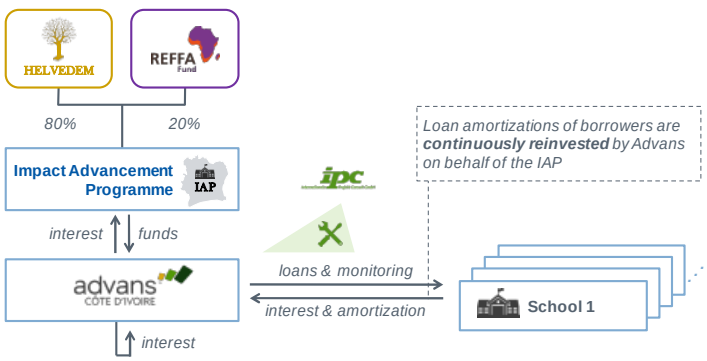
Impact Advancement Program – Set up

IAP is a joint venture between HELVEDEM and REFFA with 80% of funds provided by HELVEDEM and 20% by REFFA. Advans Côte d'Ivoire will be IAP's local partner which will grant loans to schools, collect interest and amortization payments and monitor. REFFA has an existing successful school financing partnership with Advans in Cameroon (IPC, 2015, p. 1). Furthermore, Advans Côte d'Ivoire has built up experience in the loan business with cocoa farmers (Advans Group, p. 16). Know-how on specific credit

[1] Youth literacy rate, population 15-24 years

technologies, marketing tools, loan officer training and assistance with first loan distributions will be provided, if necessary, by IPC Pojekt GmbH. The Frankurt am Main based company focuses on financial services in transition economies and developing countries and has advised REFFA in other countries in the region in the past (Bloomberg, 2016, p. 1; IPC, 2016).

Figure 2: Impact Investment Program
Structure

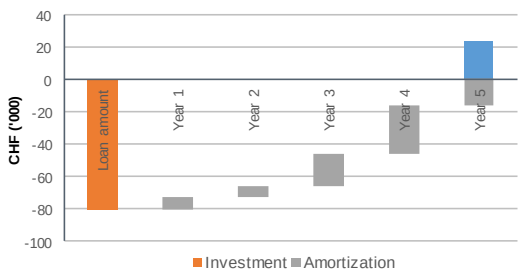


Source: Own illustration

Investment Amount – Targets and assumptions

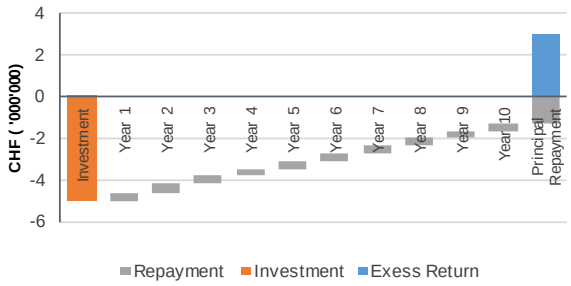
REFFA and its partners were able to reach 65 school owners in Cameroon in 2015. A similar outcome in Côte d'Ivoire is hence assumed. Based on building prices for warehouses (1300m^2) in Côte d'Ivoire, as well as further administrative costs and a surplus for additional infrastructure, an average loan size of CHF 80'000 is expected, based on research of Doing Business (2015). Overall, these assumptions lead to funding needs of c. CHF5m. Moreover, once amortizations are being paid, the received payments will be invested in new projects aiming to increase social as well as economic impact.

Figure 3: Impact Investment Program Structure
Illustrative Loan Repayment Scheme



Source: Own illustration based on internal model

Figure 4: Impact Investment Program Structure
Return projections on portfolio level



Source: Own illustration based on internal model

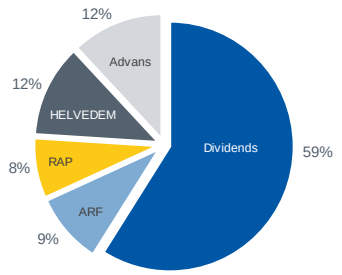
Business model – Local partners as key enablers

The business model of IAP is based on the expertise of its local partners and can thus be best explained bottom up. At the core of its operation is Advans Côte d'Ivoire. Advans

distributes loans to school owners to enable them to set up state-of-the-art learning environments. These loans are financed by HELVEDEM's funds, to which the partner has access to via a shared bank account. Advans is required to constantly monitor borrowers and report to HELVEDEM's management on a monthly basis. An illustrative loan consists of an initial amount of CHF 80'000 and has a duration of 5 years. The repayment of this amount is spread over the five year maturity. In year one and two only interest payments are due and from year three to five the debt is gradually amortized as well. This payment scheme is designed to account for the lifespan of the school building projects, where most of the expenses are due in the beginning.

Distribution of annual revenues – Derivation of dividends

Figure 5: Impact Investment Program
Relative share of annual Profits



Source: Own illustration based on internal model

Annual interest on loans equals a maximum of 9.66%, which compared to a bandwidth of 8 - 15% for comparable loans[2], is at the lower end of rates available in Côte d'Ivoire. In the base case underlying HELVEDEM's model, the adjusted rate is 8.91% and the risk component is 10% of this adjusted rate. The compensation of Advans and the management are both fixed at 12% of annual revenues. The residual profits are distributed to the investors as dividends.

Rates Adjustment Plan – Annual reduction of up to 1.25%

A key aspect of the IAP is the rates adjustment plan. Based on two social outcome-based as well as two financial criteria the annual interest charged can vary between 8.41% and 9.66%. This program intends to align the interests of impact investors with those of school owners by providing a financial incentive to repay debt and foster education quality. To benefit from rate reductions, school owners are required to provide proof of compliance with the targets outlined in the appendix.

[2] Note: Based on an estimation of the Western & Central Africa CFO, Dangote Cement

Risk factors and expected returns

Investors of the IAP can typically expect an annual return of c. 2% p.a.. The model on which this indicative return is based, takes into account both the interest reduction coming from the "Rates Adjustment Plan" and an aggregated risk factor in which default, currency, reinvestment, legal as well as political risks are included. The risk factor assumed is 10% (loss of capital), a conservative assumption when compared to the 1.28% default rate on small loans in Côte d'Ivoire (KIVA, 2016).

Social and economic outcome – A brighter future

By the time of the investment exit, the IAP will have reached 189'145 students, representing 6.55%[3] of the students that should be in school but are not. The program will also yield significant improvements in education quality, as measured by the success rate in final examinations due to the "Rates Adjustment Plan" offered. HELVEDEM believes, success rates of students attending funded schools may be as high as 65% for the Baccalauréat (High School Diploma) – more than 25% higher than the national rate (news.abidjan, 2015).

Exit – A trade-off between upside and impact

At maturity, the 80% stake of the IAP Joint Venture held by HELVEDEM could be sold to one of the following parties:

- *Government of Côte d'Ivoire*: The regional government has signaled interest in providing the public funding required for established schools in the future and IAP could provide an ideal working structure that would optimize this process. This outcome would be the most desirable to HELVEDEM, as it would have the best impact towards a sustainable improvement of Côte d'Ivoire's education system.
- *BlueOrchard/REFFA Investors*: BlueOrchard has also expressed interest in purchasing the stake held by HELVEDEM at the end of the 10-year period for its REFFA operations.

The target price is contingent on both the investment performance and the acquirer. In case of good performance and in order to clearly express HELVEDEM's preference for the government of Côte d'Ivoire, the minimum compensation IAP seeks to achieve will be set at

[3] Note: Data assumption based on Education Policy and Data Center

the principle invested. In case of a buyout by BlueOrchard, an additional premium would be sought. In either case the invested capital paid to the investors is structured as a capital repayment.

IAP – A long-lasting impact[4]

HELVEDEM sees four major long-term impacts IAP will generate. First, human capital will be improved both quantitatively and qualitatively which will enhance productivity and lead to a larger foreign investments in-flow. Second, it will foster innovation as well as the emergence of entrepreneurs which may result in a transformation to a more advanced economy and a better retention of a higher skilled labour force. Third, a more equitable access transformation to a more advanced economy to education is expected to increase prosperity. Last, the IAP could be a role model for the government to draw on to reach an equilibrium between education supply and demand.

Project evaluation and conclusion – A summarizing analysis

Analysing the Impact Advance Program, reveals an attractive business case for impact-first investors, as the IAP offers strong impact potential, strengthening Côte d'Ivoire's education system and offering a role model for other emerging countries.

Figure 6: Conclusion

	Low				High	Comment
Investment readiness	1	2	3	4	5	▪ Expansion to Côte d'Ivoire ▪ Implementation of rate-adjustment plan
Investment horizon	1	2	3	4	5	▪ Long-term investment horizon (10 years) ▪ Option to prolong horizon
Innovative business model	1	2	3	4	5	▪ Various funds operating in Africa ▪ Rate-adjustment plan
Investment risk	1	2	3	4	5	▪ Côte d'Ivoire politically relatively stable ▪ Default probabilities
Impact	1	2	3	4	5	▪ Strong influence on education ▪ Rate-Adjustment Plan
Financial return	1	2	3	4	5	▪ Default probabilities ▪ Target return: 2%

Source: Own illustration

[4] Note: Impact prediction based on research of Hanushek, E. & Woessmann(2009); Campante, F.& Glaeser, E.L. (2009); D. Capital Partners (2013)

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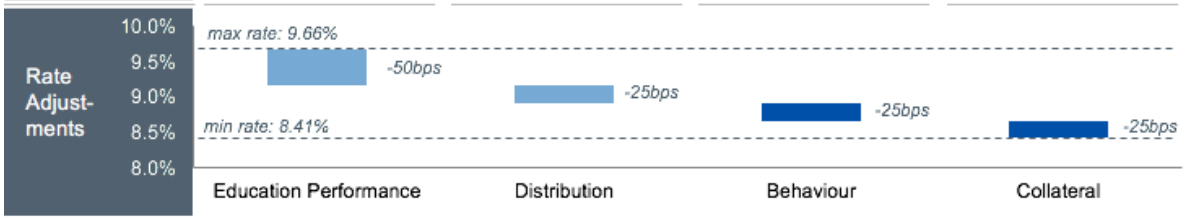
Appendix 1: Details Rates Adjustment Plan[5]

	Education Performance	(In-)Equity	Payment behaviour	Collateral
Rationale	▪ Incentivize **hiring** of **skilled employees** ▪ Increase **education quality** and not only quantity	▪ Incentivize schools to set **variable fees** to **attract pupils from different social status & gender** (avoid scissor effect)	▪ Incentivize **timely repayment**	▪ Newly built **school** as collateral
Measurement	▪ Completion rates and acceptance to next level ▪ SABER-Teacher rating[1], allows cross border comparison	▪ Income information ▪ Number of persons in household ▪ Class lists	▪ Fixed repayment time-span and monitor the timing of cash flows	▪ Monitor progress of the funded project
Criteria	▪ Rating of **24 out of 32** in **SABER report**; (in 2012 Côte d'Ivoire schools achieved 16 / 32)	▪ Target quota: low 5-20%; middle 50-70%; upper 5-20% ▪ Gender Target: 40-60% male; 40-60% female;	▪ Interest payment within 30 days of agreed due date	▪ Degree of Completion



[5] SABER refers to "Systems Approach for Better Education Results", a rating conducted by the Worldbank

3. *Jibu*: Equip African Entrepreneurs to End the Drinking Water Crisis

Noemi Heusler, Janine Hubschmid & Ricardo Garcia

Jibu Corporate

Equip African Entrepreneurs to End the Drinking Water Crisis

Investor

Opportunities in the Developing World Fund (ODWF)

Investee

Jibu Corporate

Authors and Investment Managers

Noemi Heusler

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Investment Briefing on Jibu – Equip Entrepreneurs to End the Water Crisis

Investor

We are a commercial private equity company. We specialize in investing in business models, which benefit the advancement in the developing countries. Our interest lies in investments that are long-term oriented, generate value and create impact first and return second. Having deeply analyzed Jibu as an investment, we are strongly convinced that Jibu matches our values and would be a great addition to our fund.

Water – a decisive factor for social, economic and environmental development

The lacking access to safe drinking water is a severe issue. Based on UNICEF (2015), more than 1.8 billion people lack access to water of good enough quality to be safe for human consumption. Without clean water, children are especially vulnerable to death and illnesses. Every day 1’400 children die due to dirty water. This devastating situation can be improved by investing into water safety. Access to safe drinking water enhances social, economic and environmental development.

Jibu’s twofold approach

This is exactly where Jibu comes into play. Jibu, a fast-growing company, equips African entrepreneurs to sell affordable drinking water through a profitable social franchise system. Thereby, Jibu not only focuses on the drinking water challenge, but also on the opportunity challenge meaning the lack of jobs and business ownership opportunities. Thus, Jibu’s approach is twofold. Jibu believes that solving the opportunity challenge is fundamental to solving the water crisis. Jibu is convinced that the best way to provide safe drinking water to the greatest number of people in need, is to equip local social entrepreneurs to solve the problem in each of their communities.

Jibu today

Jibu's business model

Jibu equips entrepreneurs with a water purification machine, training, and other supporting activities to set-up a fully functioning water store to sell safe drinking water. Jibu Corporation invests around $20K in a franchise. However, each entrepreneur also needs to contribute $1K. This proportionally small investment ensures the entrepreneur's commitment to the project. Apart from franchisees, Jibu provides other roles for entrepreneurs such as the function of regional developers that coordinate several franchises or of micro-franchisees that serve as the franchise's distribution centers.

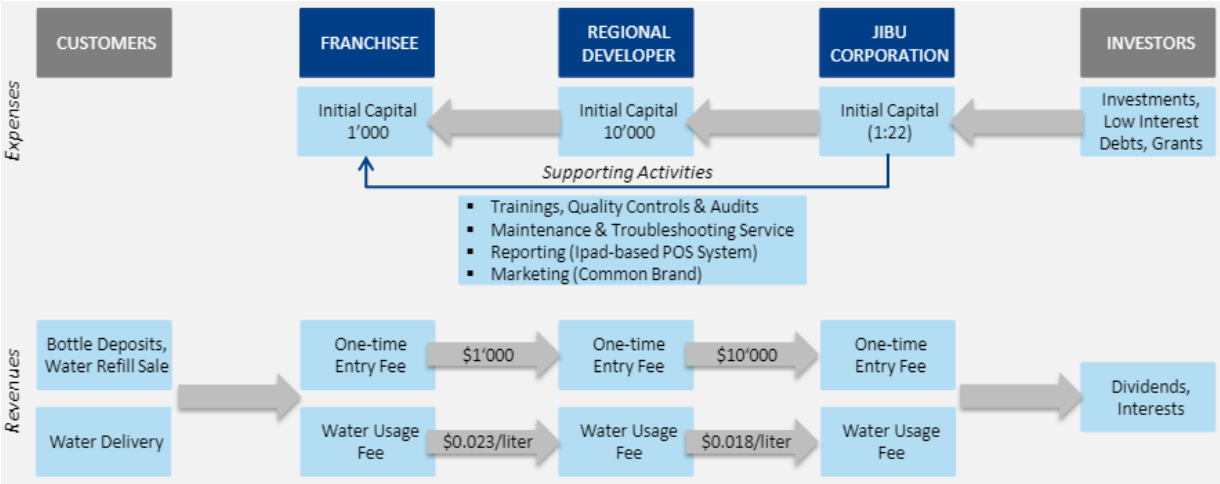


Chart 1: Jibu's franchise system

Jibu's business model convinces with well thought through key characteristics that makes it more likely to succeed. First, Jibu's well-defined franchise process ensures not only sustainability but also profitability, growth and success. This helps the impact creation to be fuelled by profit. Second, Jibu's water filter technology is easy to use, has a high capacity, shows high quality results, is environmentally friendly and works with existing water sources. Third, the product is obviously save, of high quality and tastes good. Fourth, its price is similar to the cost of boiling water (0.04-0.08 Cents per liter, depending on region) and the package is reusable and has a tap. Fifth, the local and decentralized distribution system brings the product conveniently close to the customers.

Jibu's financials

Jibu had an EBITDA of $-149T in 2015 after going live in 2014. In 2014 Jibu entered three countries: Uganda, Rwanda and DR Congo. The activities in the first two countries are successful. However, the project in DR Congo did not work out due to local misapplication of

the franchise system. But Jibu quickly learnt from the DR Congo experience and entered Kenya in 2015. The main revenue drivers 2015 are currently bottle sales (34%) and water usage fees (25%). As Jibu grows, the water usage fees will take up a higher and bottle sales a smaller proportion (bottles are reusable).

Organization history

The organization Jibu was founded by father and son, both experienced in development projects and water projects in Africa. To make sure there is an alignment of impact and profit, the governing board is responsible to check this alignment on a regular basis. The structure of the company itself is focused on the regions. There will be country specific departments and regional developers that make sure the local know-how will flow into the business. Especially beneficial is the large network of well-known partners that work with Jibu.

Chart 2: Jibu's target customers

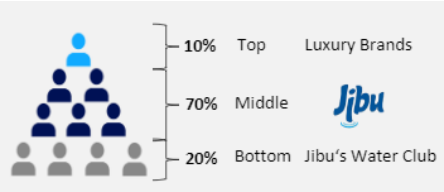
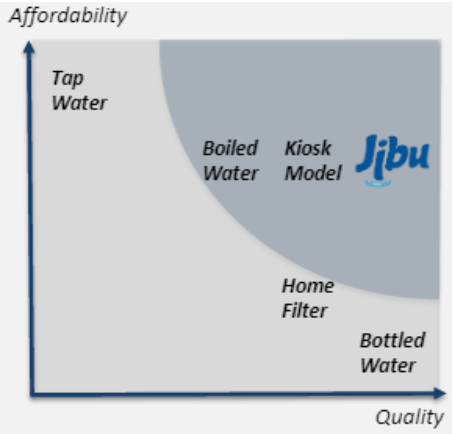


Chart 3: Jibu's competitors



Target customers and competitors

Jibu's target customer is the huge Eastern African middle class in urban areas that currently mainly uses charcoal to boil water. Boiling water is damaging to the environment, can impact health negatively and is not 100% save as a risk of recontamination when filling water into bottles exist. Another alternative to boiling water and Jibu, that costs approximately the same amount, is the kiosk model. Water in kiosks does not put as much focus on taste as Jibu and does not have the same water saving (tab) and reusable packaging.

Jibu's big impact

The output, a proxy for the impact, after only being operationally active for two years, is already big. 169'000 customers bought 4.9 mio. liter of Jibu's drinking water. This saved 12 tons of CO2 (reduction of water boiling) and created 139 jobs in 16 franchises as of January 2016. The impact of Jibu will grow with its growth strategy 2022.

Jibu tomorrow

In order to maximize its impact, Jibu is pursuing a strong growth strategy, Jibu's growth plan 2022.

Jibu's growth plan

By 2022 Jibu's ambition is to operate more than 1'000 franchises, leading to the creation of more than 8'000 jobs, annual sales of more than 450 mio. liters of water and to reach more than 7 mio. people for the provision of safe drinking water. Chart 4 illustrates the logic of the Jibu growth plan.

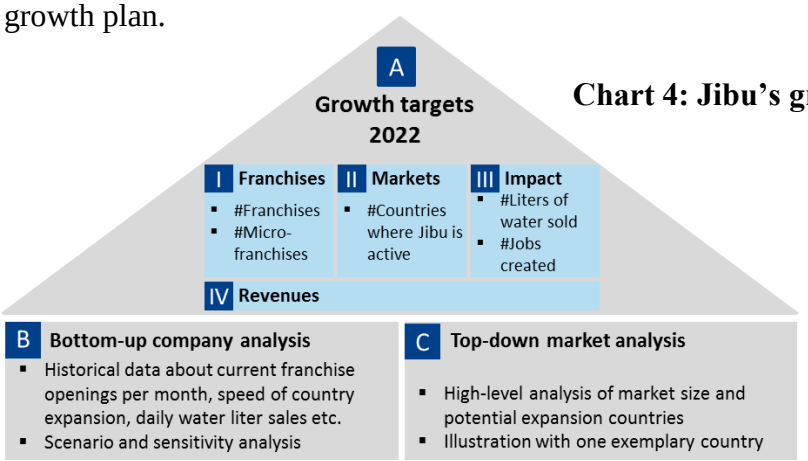


Chart 4: Jibu's growth plan

Jibu's growth plan is based on two assessments: a bottom up-company analysis, based on the speed of the past growth of Jibu since 2014 and a top-down market analysis focusing on analyzing the size of potential expansion markets of Jibu. Based on these two variables, Jibu defines growth targets for numbers of franchises, target markets, impact and revenues. Chart 5 provides an overview about Jibu's specific growth targets in the different variables:

	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Total # of franchises	2	15	40	75	100	150	175	250	250	1057
# of new micro-franchises	0	35	120	225	300	450	525	750	750	3155
Total # of countries	2	3	3	4	5	6	7	8	9	9
Total job creation	17	139	463	1072	1884	3102	4253	6553	8583	8583
Mio. of water liters sold	1	5	31	53	93	155	236	346	471	1385
Jibu Corporate Revenue (in mio. USD)	0.1	0.19	1.01	3.35	6.23	10.23	15.49	23.21	33.06	-

Chart 5: growth targets

The assumptions

Jibu's growth plan might seem very ambitious at first sight, but it is totally in-line with what a comparable franchising system in a comparable market usually grows. Jibu's operations can sustain to launch up to four franchises per month in mature markets. Their business model has already been stress-tested in extreme environments and proven to work and scale quickly. The experiences in the DR Congo have contributed to their understanding of what works and what does not work in a market. Chart 6 summarizes the assumptions of the current growth plan:

Variable	Assumption	Explanation
Franchises	Launch 1 franchise/month until 2017, then increase to 2-3 franchises/month.	Currently, Jibu is launching 1 franchise/month, but up to 4 franchises are operationally feasible in mature markets.
Micro-franchises	Every franchise creates 3 microfranchises.	In 2015, every franchise created 2.2 microfranchises on average; scalability increases this rate to 3.
Countries	Jibu launches in 1 country per year.	In 2013, Jibu launched in three countries simultaneously.
Job creation	Every franchise creates 8 jobs.	Currently, every franchise creates 8.6 jobs on average.
Water sales	Every franchise sells 1750 liters/day.	Most franchises sell more than 2000 liters/day.
Revenues	Jibu earns 0.02 per liter.	Jibu implements a strict pricing policy, leading to stable prices on the long run.

Chart 6: Assumptions of growth targets

Based on the current assumptions, Jibu is expected to break even between 2018 and 2019. One important aspect during the whole growth process is quality control. At no cost does Jibu want to sacrifice the quality of its water for the sake of growth. Therefore, very strict quality control measures are implemented to ensure that quality is maintained.

Expansion markets

Jibu's target market in Africa is focused on the middle class of the urban population with no access to safe drinking water. Currently, it is estimated that more than 500 million people of the urban population have no access to safe drinking water. The middle class of 70 percent therefore amounts to an addressable market of roughly 430 million people in Africa. Obviously, Jibu will not serve 430 million people, but the numbers show the dimensions of the potential market size. Currently, Jibu is planning the expansion into Tanzania, Zambia, South Sudan, Burundi and Ethiopia. Research in Tanzania e.g. shows, that 2.65 million people are unemployed and roughly eight million people in urban areas have no access to safe drinking water, making it a very attractive market for Jibu.

Alternative scenarios

Of course things can develop differently than expected or forecasted. Jibu sees three potential scenarios, a best, reasonable and worst case scenario. The current growth forecasts are based on the reasonable scenario. Chart 7 provides an overview of the three scenarios:

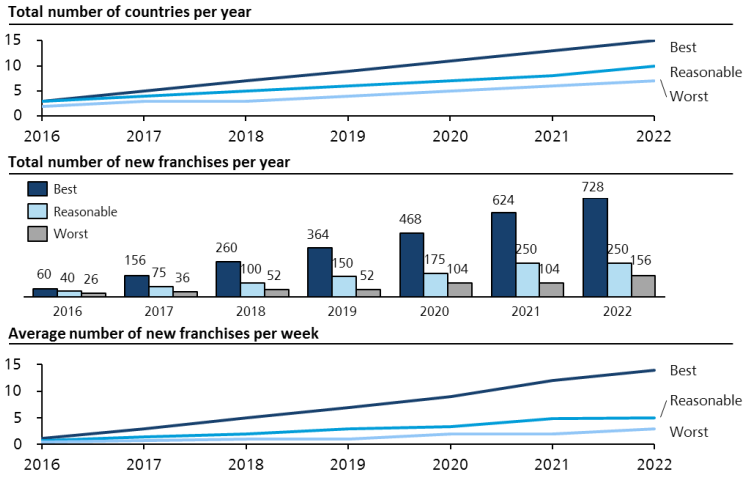


Chart 7: Scenarios

Best Case Scenario: The scenario is based on the assumption that four franchises per month can be launched. The capital required would be roughly $35M.

Reasonable Scenario: The scenario is based on the current growth assumptions. Capital needed is around $6-8M.

Worst Case Scenario: Less than two franchises per month can be opened, because some countries need to be closed again due to risks. Capital needed is ca. $6M.

Impact on business and operating model

Of course the growth plan of Jibu also impacts its business and operations. The impacts arise mainly in four areas:

- **Staffing:** Jibu needs to attract top talent with int. management and franchising experience.
- **Supply chain:** Maintaining a supply chain in emerging markets is a big challenge. Jibu is therefore considering to insource part of its bottle production to decrease dependency on other suppliers.
- **Capital:** The implementation of Jibu's growth targets requires additional capital, especially to finance the expansion costs.
- **Offering:** Jibu is considering to extend its offering in the franchises to other impact products like baby food, ice products, vitamin supplements etc.

Risks associated with growth strategy 2022

Obviously, growth always comes with risks. In general Jibu is well prepared to deal with potential risks associated with its growth strategy 2022. Jibu did not only deeply analyze different risks, but also thought through different solutions. Moreover, Jibu is strong when it comes to quickly adapting to weaknesses and learning from the past's failures (e.g.: pilot in DR Congo). Chart 8 illustrates the most essential risks associated with Jibu's growth strategy 2022:

Risk Type	Description	Jibu Solution
Maintaining quality control	Quality and reputation are key assets Quality breaches in one franchise (e.g. purity) can impact entire brand	Mature QC&A certification training for operators and franchisees Zero tolerance policy for quality issues Traditional QC&A tools: sampling, random audits, refresher trainings etc.
Supply Chain	Supplies cost too much, are unavailable, lost, stolen, slow or low-quality from emerging market vendors	Hired East Africa supply chain expert Develop strong relationships with vendors Insource part of the production when justifiable
Acquisition of new franchisees	If not enough suitable and reliable franchisees, Jibu's growth is at risk	Jibu is confronted with far more applications than they can accept The microfranchise system allows for testing of potential applicants before accepting them
Legal issues	Franchise law immature or non-existent in most emerging markets	Use of attorneys in each country to write strong franchisee contracts that are compliant with local law and enforceable
External & Regulatory Challenges	Emerging markets rapidly change and unknown risks arise - unpredictable exogenous events can hurt business (e.g. corruption)	Maintain 5% cash reserve & 5% risk loss expense Pro-actively build high-level relationships with policy makers

Chart 8: Jibu's risks

Our role and investment

Financing

To finance its growth strategy 2022, Jibu is currently looking to raise $7M. Thereby, $3M shall be raised in equity, with a minimum investment of $250K. Based on Jibu's pre-money valuation of $14M and a price per share of $10, Jibu sells in total 18.55% of its company. Apart from the $3M equity, Jibu targets non-dilutive grants and low-interest debt as funding for the remaining $4M.

Usage and return of funds

The lion's share of the funding (60%) is invested in the set-up of franchises. Other 36% are used for general operating expenses. A small fraction of 4% is used to finance the extensions of Jibu's business model such as the implementation of new impact products (e.g.: baby food).

From the investments, Jibu expects an IRR of more than 30% by 2022. Besides, Jibu anticipates breaking even earliest in 2018 and by then starts paying dividends to investors and shareholders.

Deal structure

As a strategic investor, we are interested in a long-term collaboration and therefore propose to invest in equity. We suggest investing into two blocks of $250K, leading to an investment of $500K, which equals 3.1% of equity in total. Our time horizon should be at least six years until the full implementation of Jibu's Strategy 2022.

Exit options

Jibu provides three different exit options to its investors:

- **Commercial acquisition:** As Jibu's objective has always been to operate the company in a way that it makes an attractive acquisition target, a commercial acquisition is a credible exit option. Potential acquires can be found in the beverage (7-9 multiple of EBITDA), franchising (8-12 multiple of EBITDA), consumer goods (12-14 multiple of EBITDA) or pharma industry (16-20 multiple of EBITDA). Based on Jibu's pro forma EBITDA in 2021 and industry reference data, Jibu's average potential value, when selling to a commercial buyer, is around $120M.
- **Private equity acquisition:** Jibu is a very interesting target for impact focused private equity funds. As parts of Jibu's equity have already been sold to this type of investors, a full take-over represents a realistic scenario.
- **IPO:** Even though an IPO is rather unlikely, it presents a third possible exit option. By building a conglomerate with several other companies focused on the safe water provision, Jibu could gain enough dominance to justify an IPO.

Conclusion

We are strongly convinced of Jibu due to three reasons:

- Jibu follows a twofold approach that does not only help to provide safe drinking water to millions of people in East Africa, but Jibu creates also a significant amount of jobs and thus fights unemployment.
- Jibu's business model is based on a well-defined franchise model that ensures the sustainable alignment of impact and profitability.
- Jibu is a promising business that targets a huge and growing market and that is ready to be scaled up based on the realistic and well thought through expansion plan 2022.

Therefore, we recommend to invest $500K in equity to hold approximately 3% of Jibu's share over a time horizon of six years until Jibu's growth strategy 2022 is implemented.

4. *Sunny Money:* Impact Investing Proposal

Christina Heise, Jacopo Tamos, Paolo Sassi & Martin Szwajda

Enlightening People Fund

The Enlightening People Fund, an impact investing firm, is based in St Gallen and its aim is to invest into companies that help to improve the living standard of people sitting at the bottom of the pyramid and enhance economic prosperity around the world. The idea is to leverage the well-developed private wealth management industry in Switzerland with a social motivation and the leading research background from the University of St Gallen and the global network of other universities. The fund mainly invests into companies that are in their growth and expansion phase with a proven sustainable business model. The investment can be either debt or equity capital depending on the investee's needs, in both cases the fund will provide knowledge and expertize where beneficial. As it is one of the first steps towards economic prosperity, the fund first invests into companies that bring light to people in rural areas.

Introduction

The project relates to developing electricity in the third world and especially in African countries. Having analyzed a number of investment alternatives and, after a benchmark, risk-return and social-impact analysis, we strongly believe that the company Sunny Money, subsidiary of SolarAid, is the best option for our impact investors. With this brief, we submit this investment to the investor committee as a final approval step. The company is ready to be financed immediately after investors' green light.

A simple evaluation model is implemented with IRR as a core measure for the economic return and with qualitative and quantitative numbers for the social impact of the investment. We will provide to SunnyMoney a sufficient and flexible amount of financing in order to reach the goal of the project which is to distribute in 3 new African countries lighting instruments and small photovoltaic systems mainly targeted for rural populations. The 10 years track record of SolarAid coupled with the dimensional scale which will be achieved thanks to this direct investment, make this opportunity a win-win strategy for three main stakeholders: Sunny Money, impact investors and, most important, people that live in these areas.

Investee: SunnyMoney

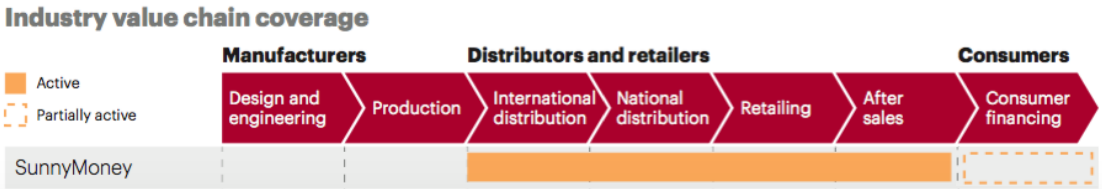
The company SunnyMoney was founded in 2008 by a foundation named SolarAid and still is a fully owned subsidiary of that London-based foundation with the aim of promoting clean solar energy and fighting poverty in rural Africa. Further they aim to eradiate the unhealthy and costly kerosene lamp from Africa by 2020 and want to build a market for clean energy by the operations of SunnyMoney, but also promote research in that field together with world-class universities.

The holding foundation SolarAid was founded and is still led by Dr. Jeremy Leggett, who also founded the solar-energy company Solarcentury and dedicated 5 percent annually of their profits to Solar Aid. It was named Champion of the Year at the 2014 Business Green Leaders Awards for his achievements.

The investee SunnyMoney is led by a management team experienced in business and development aid and is headed by CEO Caesar Mwangi (PhD), who obtained an MBA and his PhD in Organizational Performance and Change Management in Johannesburg and worked before in consulting and similar enterprises like Global Village Energy Partnership.

Business Model

SunnyMoney has developed a generic yet innovative sales and distribution approach that has the potential to significantly advance the solar off-grid lighting industry in Africa and thereby improve the lives of the vast majority of Africa's population. Quite uniquely, SunnyMoney has been granted the right to sell and demonstrate its affordable, high-quality solar lights at local schools throughout five African countries: Kenya, Malawi, Tanzania, Uganda and Zamibia. Through this unparalleled approach SunnyMoney is able to reach even the most remote areas and target the mass of low-income customers, who do not have access to the electricity grid.



SunnyMoney's product portfolio covers a broad variety of solar lights that differ in size (number of light bulbs) and features (for example USB power outlet), and prices range from around $7.50 to $40. All lights are sourced from global certified manufacturers and sold on to customers with a warranty of 6 months to 2 years. The sales and distribution of the solar lights takes place through two channels: the prevailing is school campaigns and less strongly through direct sales thanks to a growing network of independent sales agents who are slowly increasing.

The company's proposed "SunnyMoney Way" can be characterized as a focus strategy that uses elements of both the cost leadership (order pooling, use of schools and local buses) and differentiation (distribution by teachers and word-of-mouth) strategies to serve the customers at the bottom of the pyramid. SunnyMoney's business model allows to generate financial returns, while maintaining the status of a social enterprise. Its ultimate goal is to build a sustainable solar lights market with local employment opportunities and more sophisticated produtcs.

Competitors

In general, the solar off-grid lighting product industry is rather fragmented and there exist many small local players that remain virtually unobservable. As can be seen in Figure 1 in the appendix, relative to other established players, SunnyMoney has a clear focus on its key competencies in distribution while cooperating with the technology firm Angaza to provide pay-as-you-go financing for end-consumers (Angaza, 2013). Since December 2012,

SunnyMoney is considered the biggest seller of off-grid solar lighting products in Africa, putting oil giant Total in second place (SolarAid, 2013).

Moreover, SunnyMoney competes with many charity organizations and government programs that provide solar lights for free or - like competitor Total - at or below cost as part of its CSR program. As a social impact business approach, SunnyMoney considers fair and virtuous competitors a valuable resource to tackle the same problem and to achieve the same goal.

Market Analysis

Market Size

As SunnyMoney targets all household and individuals that are living without access to the electric grid, the African continent offers a total off-grid population of 600 million people (approximately 110 million households) and hence a potentially huge customer base (A.T.Kerney, 2014). Of these, around 50% can afford average solar products without any end-consumer financing. The potential market size of solar lanterns in Africa in terms of revenues is projected to be $1.15 billion (A.T.Kerney, 2014).

SunnyMoney estimates its current market share throughout Africa to be 33%. The five countries the firm currently operates in have a total population of about 158 million, of which 81% or 128 million do not have access to grid electricity and spend on average 13% of their household income on expensive lighting alternatives like kerosene.

Attractiveness

SWOT Analysis

Strengths	Weaknesses
• Proven, scalable business model with focus on key competencies • Wide network of partners & supporters • Financial support through SolarAid • Exclusive rights for use of schools • Effective and efficient marketing, sales and distribution processes to reach rural, off-grid population • Up- and downstream sustainable value chain	• Business model dependent on local government's support • Substantial working capital needed for product sourcing
Opportunities	**Threats**
• Huge, untapped potential customer base with growing demand • No established market leader for distribution yet • Evident government support in Senegal, first pilot projects successful • High entry barriers protect established operations	• Volatile macro-environment, esp. political instability in many African countries • Insufficient investor funding in solar off-grid lighting industry • High entry barriers (incl. capital needs, infrastructure) hamper Africa-wide expansion

Approximately 73% of companies operating along the value chain for solar off-grid lighting products are profitable (A.T.Kerney, 2014). Of the unprofitable firms, most are pursuing aggressive growth plans to achieve the necessary scale to increase profitability, but have already proven their business model's profitability on a small scale. Besides increased sales, demand for larger, more expensive products will be necessary

to increase margins. Business models focused on distribution and consumer financing are especially attractive, because there are no market leaders yet (A.T.Kerney, 2014).

Investment

Stage of Life Cycle & Legal Implications

SunnyMoney's profitability suffers from its continuous international expansion; nevertheless the firm has proven its business model on a national basis and expects predictable cash flows in the near future. Although this would already argue in favor of a debt investment, we decided to provide an earmarked debt investment to the owning foundation SolarAid. Its legal status as a foundation and a constant stream of donations minimize the risk of default and guarantees cash flows from our investment.

Reason and investment need

According to the former managing director John Keane, one of the greatest obstacles SunnyMoney has to tackle is the lack of liquidity in the short and medium term to run its operations. This is mainly due to the nature of the unstable financing coming from donations and translates into a constant requirement of working capital. Additionally, sales made to customers take time to be translated into cash. The tangible effects are quantities of lamps supplied that are lower than the potential demand from the market and supplied at a higher cost for SunnyMoney. Higher volumes will further reduce transportation costs and acquisition costs (market power over the supply chain)[6].

Based on the data available from the financial statements of the previous 5 years and considering the projections we made for the future 5 years, we concluded that a fair amount of working capital supplied would be 500,000 £. This amount corresponds to the value of debt towards creditors in FY2015. Total liabilities between FY2014 and FY2015 are relatively constant (from 1,086k £ to 1,039k £) but there has been a change in the composition of liabilities from accounts payable to loans with the latter higher of 152,026£ (and the former

Financing Model		
Credit Line		**500000**
Fix fee		**2,0%**
Variable fee up to 100K	5,0%	**7,0%**
Variable fee up to 300K	7,5%	**9,5%**
Over 300K	10,0%	**12,0%**
	Weighted	**10,0%**

[6] According to 2015 Report, on average only 50% of cointainer capacity for is used for product shipping.

lower roughly by the same amount). Given the same size of revenues, this means that suppliers asked SunnyMoney to go back with their exposure and therefore they had to start a loan to pay suppliers. The amount of the newly subscribed loan brings the total amount of loans to 438,520£ which leaves no further room for the company to grow through debt.

Co-investor

Given the small deal size, we are not considering any co-investors for the provision of the 500,000£ working capital. However, we believe there is a strong opportunity to simultanouesly drive downstream demand through investments in SunnyMoney's financing project to end consumers conducted in cooperation with Angaza and diviPower. A suitable candidate is AlphaMundi, an impact investment fund that provided capital for SunnyMoney in the past and that shares similar values and goals. This would allow learning from their prior experience, provide risk sharing and decrease average due diligence costs.

Instrument

The ideal financial instrument in order to finance the working capital requirements for SunnyMoney would be a credit line: it offers the greatest flexibility. The interest payment for the credit line would be 2% flat for the total 500,000£ and then 8% for the actual usage of the resources. In the case the amount of money is not used it remains in the coffer of the company and is invested in low-risk and highly liquid government bonds. In this way the interest paid by the company would be lower than in the scenario of full-debt which would be more suitable in the case of longer terms CAPEX. The flexibility of the credit line is also a positive aspect for the investors, which could reduce the amount of the credit line if the company approaches insolvency.

Effect on sales

Given that the ratio of credit payables to sales equals 10% and considering that in year 2015 the amount of accounts payables is 566,304£ (which is already the "new" value after the more conservative policy from the suppliers after 2014), we assume that, by maintaining the

same proportion for the next 5 years[7], Sunny Money would be able to double sales, thanks to the doubling of working capital.

Moreover, this increase of liquidity, as stated above, would also allow reducing the costs of the goods sold and therefore increasing profitability.

Time frame, change of the business and exit strategy:

The total period of investment is 5 years with the exit strategy corresponding to the payment back of the whole credit line. In the meantime, the business would be able to grow in terms of sales and reduce the costs throughout the supply chain. Towards the end, the firm will shift the composition of its product mix toward products with higher margins, thus increasing profitability and allowing obtaining credit lines from financial institutions.

Investor's perspective resume

The Enlightening People Fund will provide 500k £ to SolarAid group which includes SunnyMoney, that is a 100% controlled subsidiary. The company is based in London and accounts 50 employees, 20% of which are based in Africa (retail functions). With this amount SunnyMoney will be able to finance 100% of current working capital or, as expected, to finance a double digit increase of working capital in the next 5 years doubling firm's revenues and providing financial flexibility and sustainability. The impact fund would be the only investor that can approach SunnyMoney, since the funding capabilities over traditional links seem to be close, because of the recent 150k £ loan (2014). Without this amount of money Sunny Money would not be able to expand its activities and put in place its ambitious 2020 original business plan.

Base case						
		31/03/2017	**31/03/2018**	**31/03/2019**	**31/03/2020**	**31/03/2021**
Drawdawn		-50	-50	-100	-100	300
Cumulative		-50	-100	-200	-300	0
Interest		0	12,5	15	22,5	30
CF		-50	-37,5	-85	-77,5	330
IRR		**12,74%**				

Because of the flexibility and uncertainty associated with the business of the company, the fund will provide 500.000 £ as a credit line financing-model with periodic and flexible drawdowns that the Sunny Money could exploit over the next 4 years (investment period). For

[7] Exit expected in 2020, according to time frame.

the availability of the overall sum, a fix fee of 2% is requested. When the capital is not used by Sunny Money, it will be invested in top-rated firms or investment grade government bonds. Moreover for different cumulative drawdown amounts the fund will apply different interest rates according to the increasingly riskiness of the operation (see table).

The IRR on the base case scenario is roughly 12%, with and average credit line usage of 100k and maximum capital usage of 60% of the total. Final IRR is expected to range between 10% and 16%.

Scale of Impact

The economic and social returns of the project are considered to go in tandem when calculating the scale of the impact of fresh capital in SunnyMoney. According to the Base Case scenario, the 5-year effect in terms of households that can have access to SunnyMoney products is quite impressive, with more than 150k additional units sold thanks to direct intervention on the Working Capital management of the company (see table below for detailed impact). Additional impacts, from extending future results untill 2030, can be measured in additional 80k units to be sold from 2020 to 2030. The analysis shows that the positive effect of the Fund contribution is also evident after the exit strategy will be completed. This effect will boost the "sustainability rating" of the project. Due to the scarcity of information we do not assume an increased capability of fundraising for the company, but the Enlightening People Fund is confident that, with the new debt financing resources at disposal, SunnyMoney will be able to convince a wider range of investors to put money as donations in the company.

Estimated Direct Impact of proposed Investment [8]	
Additional lights sold over 5y period	150,000
Additional people with access to solar lights	950,000
Money saved for families in £ over product lifetime	19,600,000
Extra hours of child study time over product lifetime	190,000,000
Tonnes of CO_2 emissions averted over product life	82,000
People experiencing better health	550,000

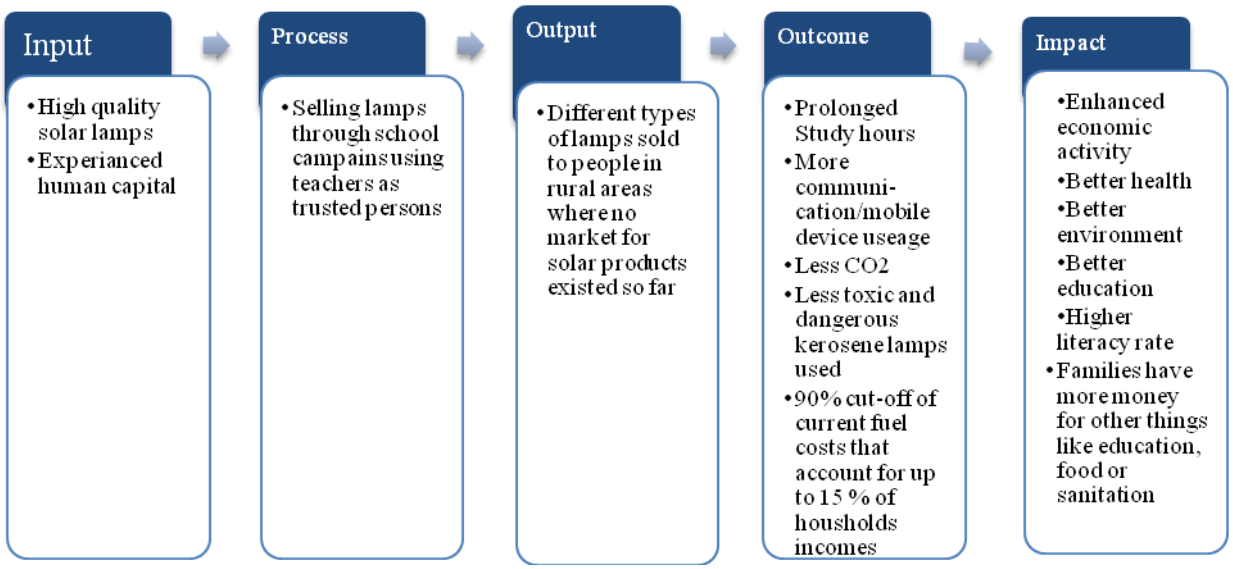
[8] Based on research conducted by SolarAid: http://solar-aid.org/online-impact-calculator/

Metrics to be tracked

To verify the estimated impact of our investment, the Enlightening People Fund will track the following metrics and support SunnyMoney to reach its ambitious 2020 goals.

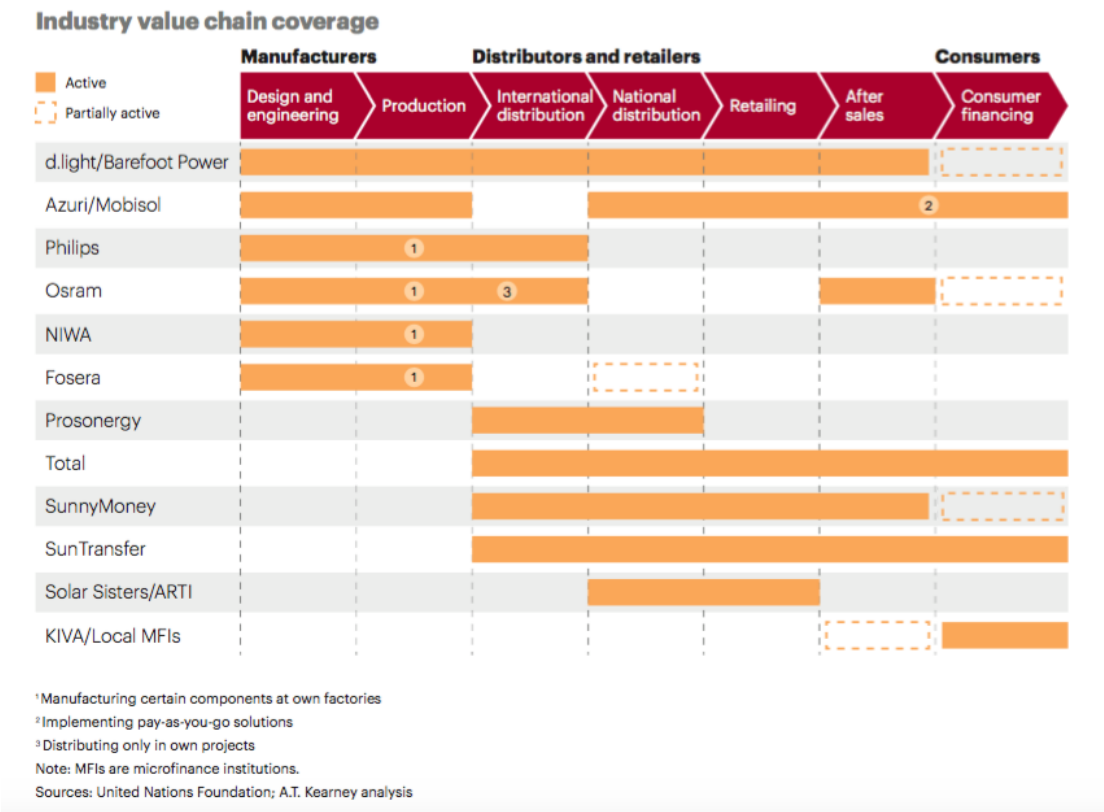
SunnyMoney's Impact	2014	2015	2015 cum.	2020 cum.
Solar lights sold	614,000	625,000	1.7 mio	10 mio
People with access to solar lights	3.8 mio	3.9 mio	10 mio	60 mio
Money saved for families in £	132 mio	132 mio	345 mio	2 bn
Extra hours of child study time	765 mio	775 mio	2 bn	12.5 bn
Tonnes of CO_2 emissions averted	330,000	330,000	880,000	5.3 mio
People experiencing better health	2.2 mio	2.2 mio	5.8 mio	35.5 mio

Impact Chain



Appendix

Figure 1: Competitors and their value chain coverage (adapted from A.T.Kerney (2014))



Further notes and analyses for the Investment

Performance

In the last 5 years SunnyMoney showed a high volatility in terms of profitability (EBITDA range from -2% to +39%). This outcome is mainly driven by two factors: instability of African market and instability of donations, which accounted for a variable % of revenues from 15 to 40%. This uncertainty leads to practical problems in term of medium-term planning and self-financing capabilities, which do not allow SunnyMoney to expand in an organic and efficient way.

While income side is characterized by high volatility, costs side seems formed mainly by fixed costs and increasing cash flows needed for investment purpose. This in view of the peculiarity of the business which is based on local and political relations which are crucial for running business in such difficult areas. In order to build up, maintain and increase this network of people and organizations time, investments and planning are needed.

Another important driver of lower profitability is the strong influence of low-margin products on the total sales, which account for more than 90%.

Projections

According to expansion projects of the company two assumptions have been made in projecting actual result over the next 5 years: (1) Revenues volatility reduction thanks to amount of debt provided by the impact investing fund; (2) Increasing profitability thanks to a re-focus of commercial activities over more profitable segments (products with sell price over 50$). Now less than 10% of the total turnover are given by low-cost and low-margin products, while in 5 years the company will be able to reach a more balanced mix with at least 20% of "premium" products sold.

The (2) is possible thanks to demographic and income data from countries in which Sunny Money is operating. Currently a standard family in most of these countries is spending 70/80$ in kerosene each year to have light at home. With a 80$ Sunny Money product these families can save up to 90% of this expenses and rely on an multiple light and electricity sources. Premium products are designed both for lighting and for charging small-medium size electronic devices such as smartphones.

According to our estimation Sunny Money will reach an EBITDA of 11-12% by 2020 and, at that time, the company will be also able to be run itself (without funding and further donations). We assume that, when the company will be financially stronger and independent, it will be able to ask for credit to specialized financial institutions on a larger scale, giving an exit strategy to the impact investing fund.

Due Diligence process

In the process of obtaining data we based our research on the financial statements provided by the company and signed by the regulatory authorities and auditors. We assume therefore that the information provided corresponds to the truth and that the data in the financial documents are consistent for the company. We also controlled that the foundation that holds the entire amount of shares of Sunny Money which is Sunny Aid exits in the reality and that all the founders for the charity are physical and juridical persons. The projects that the company developed until the end of fiscal year 2015 have been effectively carried out and certified by the auditors. The company's parent, SolarAid is located in the UK and therefore has to comply with the local strict regulations.

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5. *ECOSIA*: Green Tech Fund Research

Daniel Drewniok, Florian Lethen, Jasmine Vogel & Sebastiaan Weekers

Executive Summary

Investee, business model and impact generation:

Ecosia is an online search engine, which donates 80% of its profits to a tree planting project in Burkina Faso. 4 million trees have already been planted.

Investment thesis:

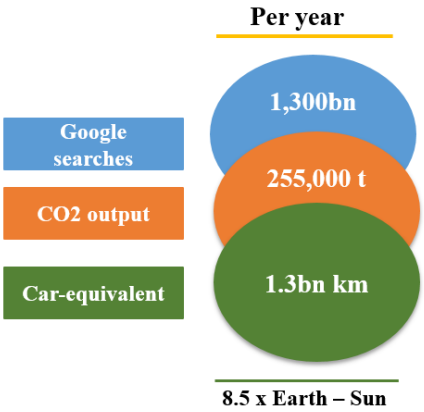
Overall 200.000€, split into two equal debt tranches. The loan and the convertible loan provide an overall return of 5.10% p.a. and mature in 2021.

Impact generation:

Main investment in expenses related to advertisement will boost Ecosia´s success. The aim is to have planted more than 50 million trees by the end of 2020 (excl. a potential follow-up investment).

Fundamental problem

Every year, an area of forest the size of Ireland is lost through deforestation. This is a major modern-day problem, as deforestation has very dangerous effects on our world. This does not only include the loss of habitat for a plethora of species, but also the acceleration of climate change. Trees are necessary for the perpetuation of the water cycle, for keeping soil fertile, and notably also for absorbing greenhouse gases like CO2. Ecosia's founder, Christian Kroll, saw the effects of deforestation while traveling the world and wanted to create simple tools for planting trees which people can use for everyday tasks. This is how Ecosia was born.



Graph 1: CO_2 output Google *Based on Google data*

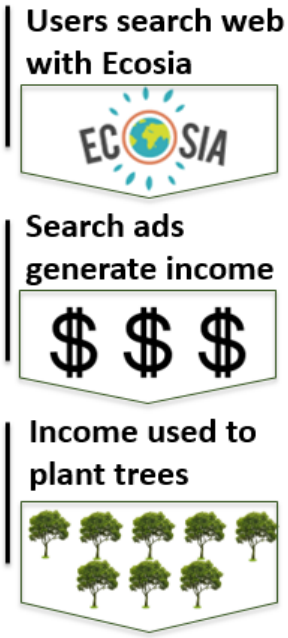
Ecosia

Organization History and Solution

Important Facts
• >2,5 million active users a month • 700.000 search queries a day • 0,5 cents of as revenues per query • €0,28 to plant 1 tree • 1 new tree every 10 seconds • >3,7 million trees planted in total

Ecosia is a search engine that donates 80% of its profits, generated mainly by ad revenues, to a WeForest tree planting project in Burkina Faso. It enables its users to make an impact just by searching the web.

In Burkina Faso, decades of drought made land infertile and destroyed plant and animal life. Planting trees makes it possible for the water cycle to return, through which sustainable land use is possible. The new plant life also filters the air and water, which prevents the spread of disease and makes humans and livestock healthier. In addition, the local economy is revived since locals are involved in choosing, collecting and sowing the seeds.



Ecosia's tree planting partners are WeForest and OZG, who work on-site with the local communities. The WeForest project is part of the "Great Green Wall" project which is backed by the World Bank and the African Union. The project was chosen for its potential impact, strength of partners, and its cost-effectiveness. In the last project supported by Ecosia, one tree cost 1€ while the cost is now only 0.28 per tree. Ecosia actively involves its users in the project choice.

Business Model

Search Engine: The core part of the business is very simple and is illustrated in graph 2. Ecosia uses a combination of search results from Bing and own algorithms to generate its search results. When an Ecosia user clicks on an advertisement or a sponsored link, the sponsoring company pays Bing for the click. Bing then gives 25% of these advertising revenues to Ecosia, which in turn donates 80% of its profits to the WeForest project.

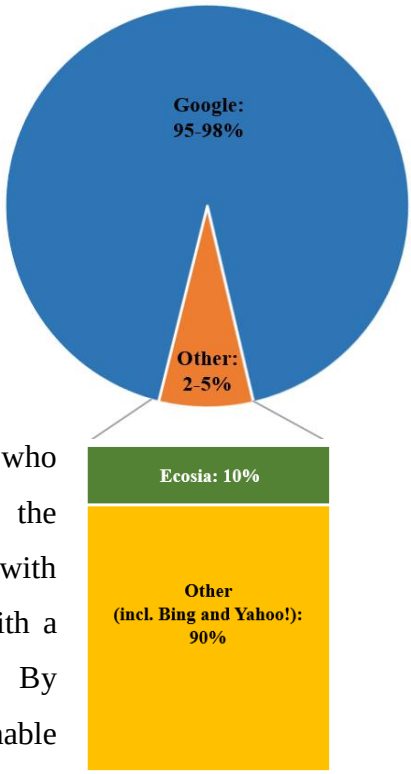
EcoLinks: In addition to its search engine, Ecosia also provides the browser add-on EcoLinks. This add-on is an affiliate program. When an EcoLinks user buys from one of

EcoLinks 200 cooperating online stores, this online store pays a commission fee of around 6% of the sales price to EcoLinks. In exchange, the advertisements of the cooperating stores are placed higher on the page in Ecosia's search results and are marked with the tag "EcoLinks".

Why we choose to invest

Partners, Networks & Competitors

Since September 2015, Ecosia has an exclusive partnership with Bing to use it as a foundation for its website. The company also cooperates with browsers like Waterfox and Dolphin, where Ecosia can automatically be set as the default search engine. As the company is still in its growth phase, it is constantly seeking to increase its team size and form new alliances with other companies. The collaboration with other companies is crucial for Ecosia to establish itself as a well-known search engine and as a serious competitor in the industry. Furthermore, through a broad network Ecosia can reduce its dependency on a single partner and, in the long term, build up the knowledge to create its own search algorithms.



Graph 3: Market shares search engines in DACH region

The search engine industry is dominated by Google, who leads in terms of market share in all relevant regions. In the subdivision of impact web search engines Ecosia competes with firms like Benefind and Goodsearch (table 2), who work with a similar approach, but support a large variety of projects. By contrast, Ecosia believes that the highest and most sustainable impact can be generated by investing in only a single project, like WeForest, where an actual impact is quantifiable.

Benefind	Goodsearch
Founded in Germany	Founded in US
Supports 100.000 projects	Supports 114.000 projects
Donates 70% of revenue	Donates 1 cent per search or 50% of revenue
Has similar product to EcoLinks	Has similar product to EcoLinks
Opaque	Transparent

Table 2: Overview competitors from Germany and the US

SWOT Analysis

From the preceding evaluation of the company and its environment, the following SWOT analysis arises:

Strengths	Weaknesses
• Simple business model • Easy to use • No cost to user • Certified B-Corporation • Partnerships & mergers	• Uses Bing, not Google • Small marketing budget • Geographic concentration
Opportunities	**Threats**
• Geographic expansion • Target audience increasing • Alternative to Google • Ad department • Partnerships & mergers	• Existing competition • Low barriers to market entry • Loss of Bing as partner

Although Ecosia seems to exhibit some threats, we think that these risks are already mitigated or can be mitigated by Ecosia in the future. The threat of the existing competition is partially weakened by the scandals and opacity of the market leaders in the search engine industry. Here, Ecosia can position itself as a transparent and scandal free alternative to Google and Yahoo. On the other hand, Ecosia can distinguish itself from other impact search engines through its focus on a single project and the resulting concentration of its environmental impact. The initial barriers to entry appear to be rather low at first glance. However, to become a serious and long-term competitor in the search engine field, an extensive investment or a collaboration with a market leader is necessary. Otherwise, it is not possible to create useful and relevant search results. The last concern, the hypothetical loss of Bing as a business partner, is partially mitigated by the fact that the partnership is quite new (since September 2015) and that it allows Bing to reach a new audience which it otherwise could not reach. A substantial part of the advertising revenue is kept by Bing. Therefore, the collaboration of the two companies is a lucrative deal for both parties.

Financial Structure

Ecosia pursues a rigorous and transparent reporting of their financials every month. As a result, the financial structure can easily be monitored.

As can be seen in table 3, Ecosia generated cash-inflows of €1.4 million in the year 2015, with a resulting profit €780.700. The by far biggest cost factor were personnel costs (26%), followed by social contribution & tax (8%) and server & domains (3%). For our investment case, we regard Ecosia's high cash reserves and its aim to keep its costs variable (by renting servers with a pay-as-you-use model via Amazon AWS) as highly valuable. Since Ecosia thus has a very solid financial basis, we consider financial distress as highly unlikely. Through its financial prudence, Ecosia has been able to finance itself without relying on outside funding capital from the start. The downside of this structure (and the fixed donation rate) is that only a small percentage is left on the table for the company itself. Further growth of the company is possible either through extensive marketing or through product innovation. Based on the 2015 numbers, we can deduce that Ecosia has clearly focused on the latter and has built up reserves that are 16 times higher than the marketing expenses in 2015 (cumulative). The purpose of these reserves is future investments (e.g. new products) and absorbing short-term shocks to fixed costs. As a result, marketing costs are handled as a residual position. Currently, Ecosia concentrates on online advertising campaigns and on merchandize. We consider this strategy of building up capital buffers for sustainable growth before investing in marketing as very valuable. This is exactly the area in which we want to provide further support.

Table 3: Financial statement 2015 *All figures in €*

Cash-Inflows	**1.390.056**
Reserves	**124.899**
Salaries	**362.878**
Employment cost & taxes	**115.411**
Server & Domains	**47.357**
Office rent	**29.248**
Other	**45.869**
CO2 offset	**2.875**
Marketing	**7.771**
Profit	**780.700**
Donation	**655.970**

Table 4: Investment vehicles *Overview of first stage investment*

Loan	
Size:	€100.000
Maturity:	2021
Return:	5,60% p.a.
Repayment:	at the end
Convertible note	
Size:	€100.000
Maturity:	2021
Return:	4,60%
Repayment:	on maturity

Investment Thesis

Financing Instrument

Based om Ecosia's high ecological impact and its solid cash-flow structure, our fund has decided to invest €200.000 as a single investor, split into two tranches. The first tranche is a loan of €100.000, while the second tranche is a convertible note of €100.000. Both mature in 2021, as we see the business year 2020 as an important milestone for the success of Ecosia.

In our opinion, debt is initially the preferred instrument in order to keep the investment lean, simple and to provide the maximum impact for Ecosia. While several reasons for these instruments are listed in table 5, the highly likely repayment ability and Ecosia's preference for debt are certainly the two most important criteria for debt instruments. The reasoning for our convertible note is twofold: First, both sides want to use this instrument as a familiarization phase, as Ecosia has never had and external investor thus far. If the collaboration is proven to be solid and dependable, we will convert the note and become a shareholder by 2021. Second, if Ecosia hits all its milestones or outperforms them, we want to enhance our return by a conversion into equity. This will allow us a direct exposure to the firm's success. If not converted, the note will be fully paid back in 2021.

For the valuation of our debt-instruments, we examined the peer-to-peer lending market for a comparable benchmark, as the capital market would not be applicable for the small size of our loans. Our research focused on comparable projects in terms of business segment, Euro amount, maturity and if the project was successfully funded or not. Based on six similar funded projects (Appendix) within the last two years, the average funding rate equals 7,60% p.a. In our opinion, the interest rate needs to be adjusted for the facts that Ecosia can fall back on its cash reserves and, over the past years, has proven that it is capable of managing its money efficiently. Accordingly, an interest rate of 5,60% p.a. for the loan is more reasonable. The interest rate for the convertible note is 4,60%, because this instrument provides further optionality, which reduces the rate. As a result, the overall return on investment is 5,10% p.a.

Table 5: Reasons against equity

Investee perspective	Investor perspective
• Ecosia board highly prefers debt instruments • Fear of ownership dilution • No (external) equity investment in the past • Possible disruption of corporate culture	• Ecosia management works efficiently • Incorporated expertise by business angel • Threat of illiquidity (exit strategy)

Impact generation

Utilization of Investment

As shown in graphs 5 and 6, Ecosia's success is strongly related to its level of awareness. Given the fact that it is currently spending less than 2% of its revenues for marketing purposes, we strongly believe that a sizeable increase in expenses related to advertising and merchandise will significantly boost Ecosia's success. Thus, our investment's main purpose is to raise the level of awareness around the globe. In the short term, the main focus will lie on North America, as this region offers a huge market potential. In North America, the population has significant purchasing power and many citizens already live according to "LOHAS" (Lifestyles of Health and Sustainability). Additionally, a rise of popularity in the US and Canada might have strong effects on other countries worldwide, given that the English-speaking press has the most extensive coverage worldwide. Potential measures to achieve the objective to increase Ecosia's awareness are shown in table 6.

Follow-up investments

If Ecosia proves to be a good investee and hits its milestones (table 7), we would consider a follow-up investment of €1.500.000 in 2018 as a co-investor. As elaborated below, an investment in an own ad-department would be the most value-adding option within the different possibilities.

	Horizon	Costs	External Financing	Value
Direct donation application	ST	↓	✗	+
Cooperation with browsers	MT	↓	✗	+ +
Extensive Marketing	MT	↔	✓	+ +
Own ad department	LT	↑	✓	+ + +

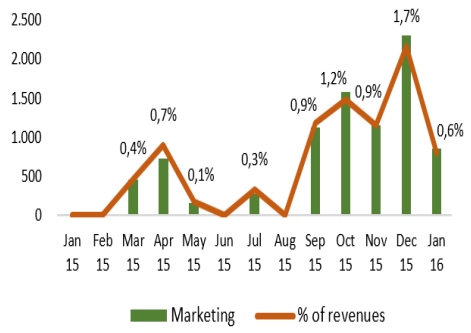
Direct donation: Ecosia will soon integrate an application for its users to directly donate money to the WeForest project. Except for some expenses related to the required programming, this additional feature will not be costly.

Cooperation: Ecosia wants to strengthen its cooperation with internet browsers. One objective in this context is to build up relationships with additional browsers such as Mozilla Firefox, Opera or Internet Explorer. A cooperation with the latter is especially likely, as it also belongs to Bing's parent company Microsoft.

Extensive Marketing: Depending on the success of the first intensive marketing campaign. Ecosia is willing to invest significant further amounts of its own reserves or additional risen capital for advertising purposes.

Own ad department: The investment that would add the most value for Ecosia is an own ad department. Currently, Ecosia completely depends on its search engine partner Bing regarding the inserted advertisements. By introducing its own ad department, the enterprise would still receive the ad income from Bing but could at the same time place own ads on the currently sparely used right side of the search window. Thereby, Ecosia could attract advertisements from companies which want to advertise exclusively on Ecosia, and not on Bing in general. Such an investment would require new employees and significant programming work. According to Ecosia and other industry experts, the income per search query could be increased from 0.5 cents to 2 cents (in EUR) while the investment's costs are estimated at EUR 1.5m. We would hereby act as one member of a three-party lender group. This investment is conditional on whether Ecosia achieves certain milestones by the end of 2018 (see Appendix).

Graph 5: Marketing expenses 2015
Based on published business reports



Graph 6: Search queries 2015
Based on company information

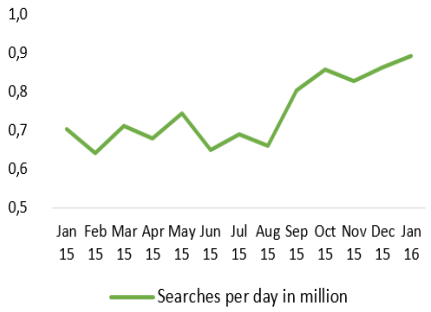


Table 6: Possible multipliers Measures to increase popularity

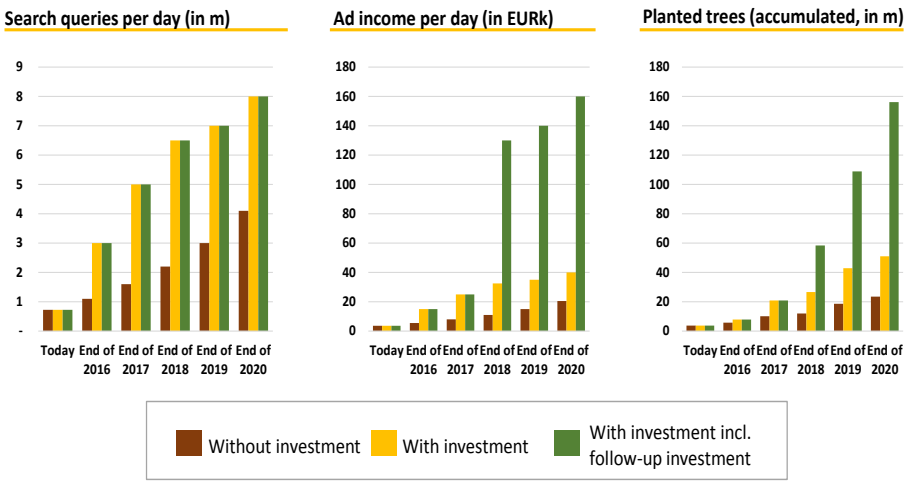
Events	Examples	PR	Examples
Lohas-events	Greenbiz, VERGE	Social Media	Facebook, Instagram
TEDx events	Talks & conferences	Blogs	Gawker, Buzzfeed
		Newsletter	Entrepreneur, Forbes

Table 7: Follow-up Investment Milestones for further investment

	End of 2018
Returning Users (per month)	18m
Search queries (per day)	6,5m
Planted trees (per day)	58.000
Planted trees (accumulated)	26,5m

Scenario Analysis

The main aim of our investment is to generate significant impact in terms of planted trees. The number of planted trees is determined by the generated ad income, which in turn is directly impacted by the development of Ecosia's search queries. The development of these three figures is exhibited below. In our analysis, we exclude income from sources other than the search engine and include only the investment into an own ad department (increasing ad income by 1.5 cents per search query) in our follow-up investment scenario. Consequently, the presented scenarios can be understood as a conservative forecast of Ecosia's development:



Appendix:

About us

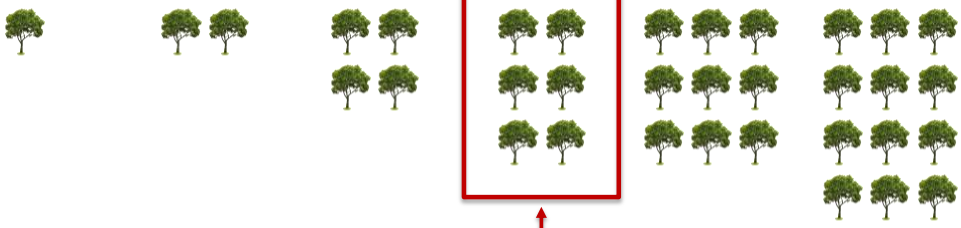
Green Tech Fund is an Impact Investment Fund that focuses on environmental and forestry projects. Our aim is to help social entrepreneurs in the environmental sector to scale and grow their business while providing our investors with a stable long-term IRR perspective and achieving a high environmental impact.

P2P-lending projects

Project	Segment	Amount (€)	Lending rate	Maturity (y)	Issue date
Innovative Online Start-Up	IT	72.000	8,70%	5	24.02.15
Growth financing	Online Shopping	60.000	6,90%	6	15.06.15
Start-Up Financing	Digital Marketing	120.000	7,30%	4	28.01.16
Growth financing	IT	65.000	6,50%	5	08.10.14
Financing of operating material	Telecommunication	90.000	8,40%	6	26.03.15
Sales growth program	IT	95.000	7,80%	5	07.11.14
Average		**83.667**	**7,60%**	**5,2**	

Investment milestone

	Today	End of 2016	End of 2017	End of 2018	End of 2019	End of 2020
Returning Users *(per month)*	2.5m	10m	15m	**18m**	22m	25m
Search Queries *(per day)*	0.72m	3m	5m	**6.5m**	7m	8m
Planted trees *(per day)*	6,400	26,800	44,600	**58,000**	62,500	71,400
Planted trees *(accumulated)*	3.7m	7.8m	20.8m	**26.5m**	42.8m	50m



Follow-up investment decision

Convertible conversion

Peers - Trading Multiples

Peers	EV/Revenue
Baidu	6.0x
Etsy	2.6x
Google	6.0x
Microsoft	4.3x
Tripadvisor	6.2x
Mean	5.0x
Median	6.0x

	Mar 16	Mar 2021
LTM Feb 16 Revenues	1,429,300	14,600,000
x EV/Revenues (5.0x) = EV	7,175,086	73,292,000
Convertible / EV	1.39%	
Conversion rate		**1.00%**
EV (100% Equity) after Conversion		732,920
IRR (initial investment of EUR100k)		**48.94%**

6. *X-Runner:* Investment Briefing

Sandro De Gasperi, Lukas Freiburghaus, Agnese Mineo & Rosa Aurora Vargas

INVESTMENT BRIEFING

x·runner

Sandro De Gasperi | Lukas Freiburghaus | Agnese Mineo | Rosa Aurora Vargas

IMPACT INVESTING – REDEFINING THE MEANING OF RETURN

UNIVERSITY OF ST. GALLEN - Spring Semester 2016

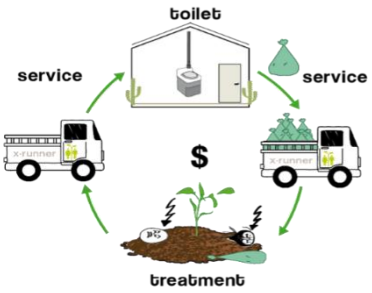
Sanitation and Water Scarcity in Lima, Peru

In Peru's capital, around 2 million people do not have their own toilet and can only rely on pit latrines. This leads to infectious diseases, low hygiene in dwellings and potential ground water contamination. Failing sanitation leads to increasingly contaminated and eventually uninhabitable and dangerous neighborhoods.

Lima is the second driest capital in the world. The city faces severe water scarcity and has to provide safe sanitation to families without relying on a water-based sewer system. X-runner provides a solution that works without sewerage, prevents odors and the presence of insects, operates on the ground and keeps human waste out of habitats and waters.

The Investee – Business model and impact area

Product and business model



X-runner is a sanitation company headquartered in Switzerland and operating in the suburbs of Lima, Peru. It provides families who live in the poor urban parts of Lima with a simple, safe, and waterless toilet system.

X-runner's main products are the toilet and the service it provides to its customers. The dry toilet is an alternative sanitation system based on urine diversion technology: it does not need water nor piping to function. Feces are collected in a bucket inside the toilet, which is lined with a biodegradable bag. Urine infiltrates into the ground through a separate opening or is collected in a plastic canister. The toilets are supplied by Separett, a Swedish company, at the production price of 80 USD. When sold, the toilets are installed by the team on-site. In addition, customers are instructed on how to use them and they receive a manual. One-time installation cost is 33 USD, and it includes the first service.

Once a week a truck rented by x-runner goes to the clients' houses, the service team picks up the buckets with the full bags and exchanges them with fresh biodegradable bags and sawdust. Weekly service costs customers 12 USD a month. Finally, the truck transports the waste to a treatment plant where it will go through a composting process. One truck is able to service roughly 200 clients.

NFC microchips (tags) are attached to toilet containers for service process monitoring. During the weekly waste collection, the staff scans the tags and enter the customer data into

smartphones. From the data, staff can assess in real time whether there are any issues with the toilet, the payments, or the service. In the vast majority of cases, the toilets have proven to be durable.

X-runner's payment system works in collaboration with Banco de Credito del Peru (BCP). The system allows customers to make payments in their area at their convenience through BCP Agents, which are affiliated businesses like corner stores, drugstores, hardware stores, local kiosks (bodegas). In case of delays or issues in the payments, the staff of x-runner agrees with the households a sustainable repayment plan.

Scale of impact and impact potential

X-Runner currently operates in 28 Human Settlements in the south of Lima, settlements located in Villa El Salvador and San Juan de Miraflores. It services 500 installed toilets, which represent 2500 direct users. X-runner's customers are low-income families in urban and peri-urban Lima. Most of them are immigrants from different regions of Peru. The country uses a scale that categorizes population according to income and living conditions. Levels range from A (highest) to E (lowest). 87% of the customers belong to 'D' level and 13% to 'E' level: monthly family incomes range from 490 USD to 710 USD. 94% of the customers used latrines before acquiring x-runner's toilet, while 6% of the customers did not have any facility at all.

To achieve some measurement of the impact x-runner has on customers' health directly, surveys are conducted every six months. According to a recent survey performed by x-runner, 89% of customers are happy with the toilet and 96% feel that the toilet has somehow improved their home

Impact potential is immense; of the one billion people worldwide that live in slums and do not have access to reliable sanitation systems worldwide, two million live in Lima. Considering x-runner reaches around 2500 direct users, potential for increasing the customer base and thus the social impact is large, even though x-runner is not currently considering expanding operations beyond the city area of Lima.

Impact areas

Impact on health

Improvements in public health are at the heart of the demographic transition. One of the main diseases derived from the lack of sanitation in homes is EDA (Acute Diarrheal

Diseases). X-runner users spend between 7 USD and 12 USD every time they suffer from EDA. After 4 months of using the x-runner toilet, there is an average reduction of 12% of diarrheal events.

Environmental impact

X-runner's environmental objective is to minimize the amount of water used. Dry toilet is a product that consumes an average of 84 liters of water per year, which is very low compared to the 9,450 liters of a silo and the 31,104 liters of a WC (toilet with drainage). This means that the water consumed by a dry toilet is equivalent to 0.88% of the water consumed by a silo and 0.27% of the amount needed by a WC per year.

Impact on economic performance of the local population

The aforementioned diseases cost 2 days of work and missed attendance at school. Evidence is mounting that health is also a key determinant of economic performance, against the frequently made assumption that causation runs only from wealth to health. The WHO Commission on Macroeconomics and Health has found substantial evidence showing that improved health of the population contributes to higher economic growth and poverty alleviation.

Acknowledgements of x-runner's impact

In 2014 x-runner has been named one of the prestigious SUSTANIA 100 sustainable solutions for the world. The same year X-runner's Isabel Medem won the MIT Technology Review Award for Peruvian Innovators under 35 and she made the Forbes "30 under 30" list in early 2015. X-runner has recently had a lot of media coverage that helped leveraging customer inquiries and private funding. Since April 2013, X-runner has become the first Peruvian company to be certified as a B Corporation, meeting rigorous standards of social and environmental performance, as well as accountability and transparency.

Fund Type and Investment Strategy of the Social Impact Fund

Fund type and Legal structure

The Social Impact Fund is a *Société d'investissement en capital à risque* (SICAR), registered as an Alternative Investment Fund (AIF). This provides for a passport for

distribution to qualified investors in the EEA. Furthermore, distribution to qualified Investors in Switzerland is possible without registration with the FINMA according to the KAG.

Investment objective and policy

The fund invests in businesses that follow innovative approaches to solve social, economic or ecologic challenges of our time. Moderate financial returns are targeted. Decisions are based on strategy, management, financial performance as well as measurable social impact of potential investees. The fund can invest using debt-, equity- or hybrid capital. The general partner may make use of derivative financial instruments to hedge currency risks.

The fund is set up for a duration of 10 years. Nonetheless, the general partner may decide to extend duration by one year a maximum of two times.

Fund-specific risks

Investors have to take notice of elevated risks of an investment in this fund, compared to funds that invest in traditional securities. As this fund mainly invests in developing and transition countries, there may be considerable country-specific political, economic, legal and currency risks. Furthermore, as this fund makes venture capital investments, there is high issuer, business and liquidity risk. Investors may not get their capital back in case the investees do not prosper in a way projected within the scope of the due diligence.

The investment process

Readiness for Equity Investment

As mentioned, by the end of the year 2015 x-runner could reach around 500 households in Lima with its service. The service is the part of x-runner's business that generates steady revenues. Already now, with revenues per customer amounting to an average of around 140 USD per year, steady cash flows are generated, while delays in payments or customer defaults are low due to the adaptable and punctual payment system. By the end of 2016, the customer base is expected to be doubled. In addition, cost related to logistics can and, according to x-runner's team, will be decreased by around 20% on a per customer basis until the end of 2016. Projecting a steady customer growth, profits are expected to be made in a base case scenario in four to five years. Factors that have to be taken into account when projecting cash flows of businesses operating in developing countries, are in general inflation

and currency risk. Since revenues are earned in Peruvian Sol; an issue could emerge with consideration of the fact that inflation is expected to be higher in Peru than in the EEA, where The Social Impact Fund is based and where it has to pay part of the costs. In the interest of social impact and customer retention, prices charged to customers cannot be adjusted upwards as fast as proper correction for inflation would imply. In fact, salaries of the targeted population often having no regular jobs are not promptly adjusted for inflation. Our projections account for this risk.

Readiness for investment will be reached at the beginning of 2017, conditional on client base expansion and cost reductions. X-runner will be funded until the end of 2016 by pending donations obtained through crowdfunding and an amount of 200’000 USD currently on hold from the Inter-American Development Bank (IDB). X-runner finds itself currently in a situation where it has to deal with legal issues in connection with its compost treatment business concerning a license – clearance of these legal issues is necessary to receive funds from the IDB. The treatment business will be outsourced to a separate controlled entity and to run it on donations as an R&D project once the license can be obtained, or to sell it to a license holder in Peru.

Stage I – Implementation phase

The Social Impact Fund plans to enter the project with a total of 650’000 USD in equity, reserving to call for additional capital for a maximum amount of 700’000 USD. Equity financing, as compared to debt financing, places no additional financial burden on the company. The first-stage investment, at the beginning of 2017, will amount to 300’000 USD. Purpose of those funds is not only bridging the gap between expenses and revenues, but also to run an awareness campaign and to search for alliances with the Peruvian government and NGOs. For this purpose, the sales team will be extended by one local sales professional and two local practitioners will be hired to perform lobbying activities. Stage I investment will cover additional salary for an amount of USD 35‘000, additional marketing expenses for an amount of USD 23‘000. 267‘000 USD will be used to cover operations expenses, considering that the business will not yet be profitable in 2017. The compost business will be outsourced to save operating expenses connected to the treatment amounting to USD 25‘000 (see Appendix).

Stage I of the Investment will be conditional on:

a) Reaching a client base of around 1’000 by late 2016;

b) Outsourcing of the compost business;

c) Zero net cash flow in 2016.

Alliances with the government and NGOs

Supporting other initiatives in health and environment helps broaden the scope of the impact of the company, for instance acquiring membership in bigger organizations, participating in research, joining and supporting peer networks. X-runner already cooperates with the local NGO SANISOL, in charge of implementing the dry toilets project in Peru. Apart from an increased social impact, x-runner will be able to grow its customer base faster cooperating with such projects. Access to proper health services is one of the development goals of the Peruvian government. Increasing activities to make the Peruvian government aware of the x-runner project and lobbying for the issue of lack of proper sanitation to the population in Peru's slums have a potential to increase x-runner's impact. A second aspect of relations with government is the swifter management of political and legal risks. Close cooperation with the Peruvian government helps to avoid issues as, for instance, getting competition from a government organization.

Two local practitioners will be in charge of the lobbying activities. X-runner has been working on its network with local organizations, companies and government for the past years, so the base for these activities has already been created.

Raising awareness of the benefits of proper sanitation

In the poor areas of the city, the locals do not always understand the essentiality and potential benefits of sanitation. What is done currently to make the population aware of problems connected to non-proper sanitation are informative events and cooperation with schools. The fund's investment will be used to increase activities in both fields.

Stage II – Expansion phase

The second phase of investment will amount to 450'000 USD and take place at the beginning of 2018. The investment will be used to cover the gaps between revenues and operating expenses (breakeven is expected in 2020). An amount of USD 50'000 will be targeted at sales activities to further boost client additions until 2020 – 2021. Awareness campaigns and lobbying activities with NGOs and the government will be maintained in the scale introduced in 2017 until at least the end of 2018. Furthermore, once awareness of the general population of Lima has been raised in different areas, activities specifically fostering the distribution of x-runner's toilets and service will be increased. Currently, distribution is

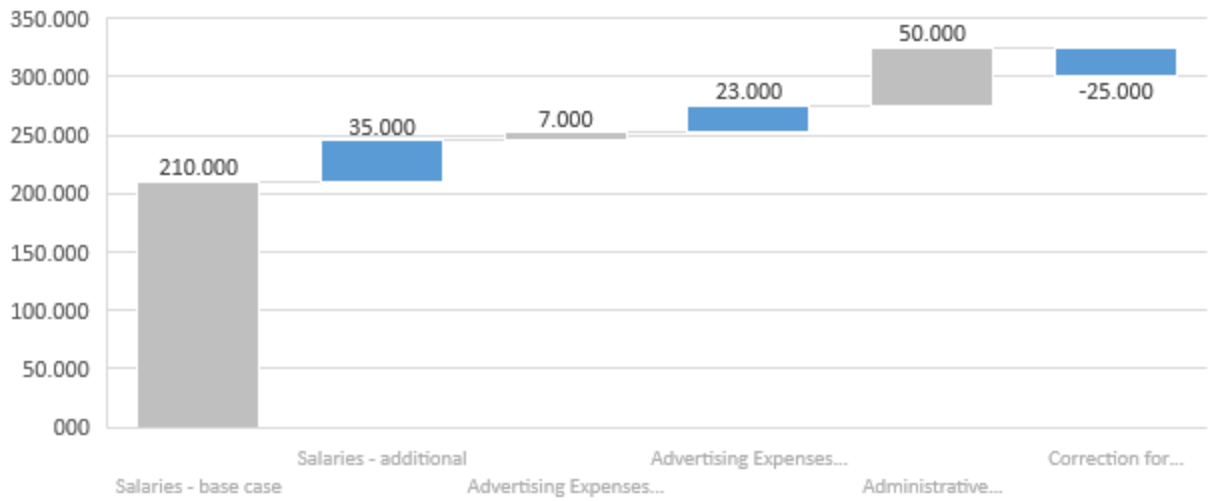
mainly achieved by word of mouth recommendations of satisfied customers and local volunteers going door to door in the slums of Lima. It is planned to invest in the development of marketing possibilities based on social media. Ownership of smartphones is expected to further increase over the next two years, rendering this a possibility to increase the scale of impact among the local population. From year 2020 on, x-runner is expected to make profits. Scale of distribution activities as well as potential larger investments in facilities once x-runner has achieved a certain size, will be defined by the volume of positive net cash flows x-runner will be able to generate with its service business, and thus will be able to reinvest into such activities. Stage II of the Investment will be conditional on success of sales activities (i.e., reaching a client base of 1'500 by late 2017) and net cash outflows from the operating business not higher than projected (see Appendix for more details).

Stage III – The Exit

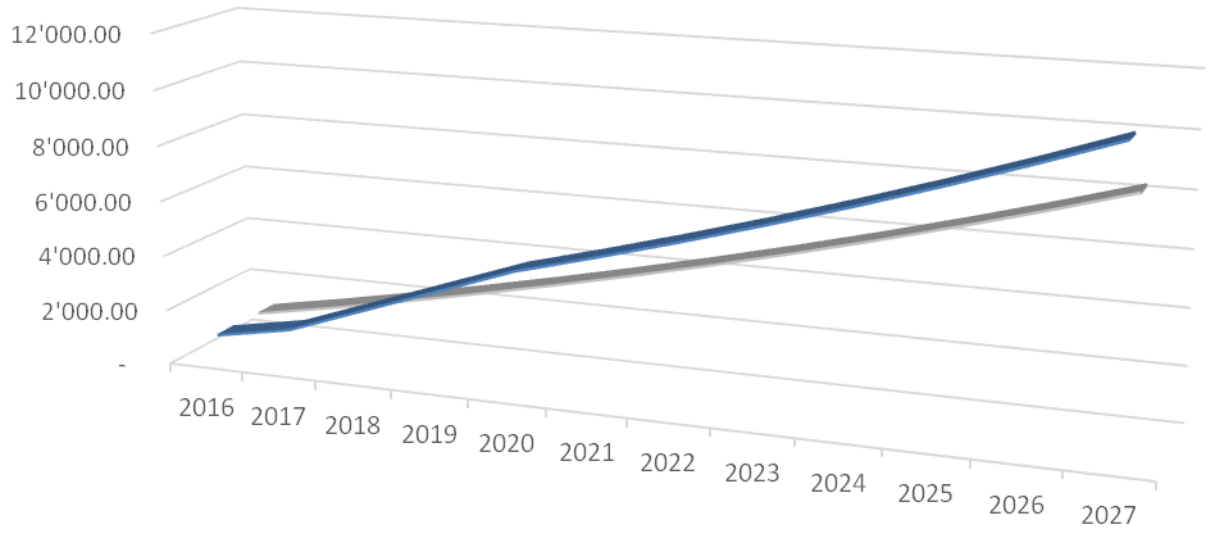
Our intention is to stay in the equity of x-runner venture for 8 to 10 years in order to provide management expertise to the firm in the years of its expansion and especially in the first years, as described above. Our estimation is that x-runner will have an exit value of approximately 1'500'000 USD, giving the Social Impact Fund a 2.0x to 2.2x multiple return. This corresponds to a P/E ratio of around 10x what we expect to be the average net cash flow x-runner will generate, under the assumption that expenses stay at a constant level. Potential acquirers are Private Equity funds that invest in mature businesses as x-runner will provide steady and reliable revenues. Another possibility are governmental entities which might be interested in managing directly the servicing of the areas which are most in need in the capital city of the country.

APPENDIX

Stage I: target of 300,000 USD, breaking of the investment



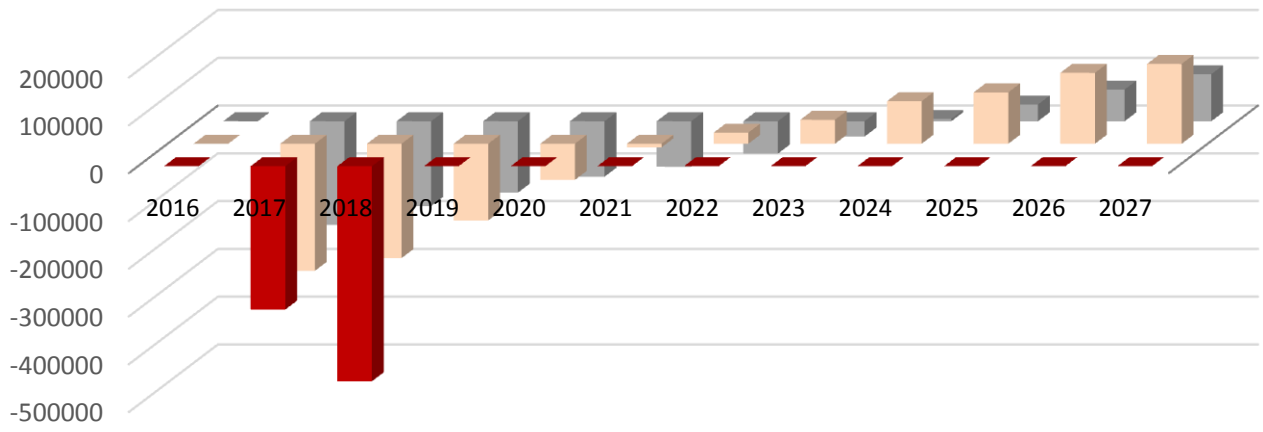
Stage II: sustainable increase in client base



Clients – strategy implementation

Clients – base case

Stage II: free cash flow projections (USD)



Investment – Stages I and II

FCF – Strategy implementation

FCF – Base case

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7. *AWAMU Biomass Energy Ltd.*: Investment Proposal

David Boutellier, Lara Mogge &Maximilian Schacker

Awamu Biomass Energy Ltd.

Changing over 120'000 lives with 150'000 USD

Investment Proposal

Investor: African Businss Angel Network

Investee: Awamu Biomass Energy Lt.d

Authors:

David Boutellier

Lara Mogge

Maximilian Schacker

Investor: African Business Angel Network, focus on Social Impact

We are a network of African Business Angels mirroring the model of Switzerland based B-to-V but focused on social entrepreneurship. As such we create a deal flow of promising African social ventures for our members and propose suitable investment structures. We also conduct a first basic due diligence to ensure the quality of our venture proposals. Our goal is to improve the living standard of people at the bottom of the pyramid throughout Africa by having impactful local businesses funded and coached by our business angel. Our focus is particularly on seed and early stage investments and on the impact areas environmental protection, health and the empowerment of women.

Introducing Awamu: Clean Cook Stoves for Africa

90% of the Ugandan population cooks with inefficient and health-threatening stoves – according to the Global Alliance for Clean Cookstoves [GACC] (2012), traditional three stone fires are only 15% energy efficient and are thus very fuel- and time-intensive. This leads to high environmental costs. 44 million tons of tree mass are cut down every year, an unsustainably high demand (UNDP, 2016). Very high carbon emissions as well as toxic emissions harm both the planet and the people (Lambe, Jürisoo, Wanjiru & Senyagwa, 2015). They cause Indoor Air Pollution (IAP) and severe health issues of the local population – each year, nearly 20’000 Ugandans die due to IAP (GACC, 2012). Besides causing health problems, the traditional cooking process is very time intensive as women and children have to watch the fire and keep it going for hours each day (McKinsey, 2015).

Awamu’s solution

The 2012 founded Ugandan social enterprise Awamu addresses the outlined problems of traditional stoves by manufacturing and distributing a more efficient and healthy stove: the clean Top-Lit UpDraft (TLUD) gasifier stove. The technology is provided by one of the two founders, Dr. Paul Anderson. He is a leading expert in the field. As a believer in open innovation, he did not acquire a patent. The other founder and shareholder, Nolbert Muhuzumar, knows the local business environment well and leads the local team of 12 in Kampala. One year after foundation, Awamu won the Seed Award for Low Carbon Emissions and three years after foundation, already 3’000 gasifier stoves have been sold.

Awamu's stoves are three times more efficient than traditional ones. They need less fuel, time and money to operate. As any biomass, i.e. residual biomass (twigs, charcoal, etc.), can be used to fuel Awamu's stoves, fuel costs and the speed of forest degradation are decreased. 90% of the smoke and 100% of any toxic emissions are eliminated, which has a beneficial impact on people's health. During the cooking process, the stove does not have to be watched, allowing women to spend their time on other, income generating activities. Further, charcoal is produced as a by-product and can be either re-used as fuel in other stoves or sold in the market with the charcoal Awamu's charcoal buy-back program[9]. For an analysis of the impact generated through the proposed investment see chapter 4.1.

As of now, most of the revenue comes from selling gasifier stoves (92%), which retail at a price of 16$ (unit costs: 12$) each. Awamu is manufacturing by hand and distribution is managed with sales agents - labor makes up 85% of total costs. Awamu targets households in rural and peri-urban settings, with daily income between1-3$ per day, a basic educational level and a cooking spot outside. This results in a potential target market of 2 million and an addressable market of 500'000 households.[10]

Key challenges and success factors for Awamu

With the vision to expand the business, Awamu is in need of strategic advice and business expertise, which should ideally be brought in by a smart investor. Awamu does not have a patent on the TLUD technology and also big competitors have recognized Uganda's market potential – so Awamu has to be quick in establishing its brand and positioning itself as a prominent market player. Another key challenge for Awamu is to establish a distribution network. This is vital to ensure the first mover advantage, but also to decrease the risk of high stock costs and low customer satisfaction.

[9] Locals can set up their own business by selling their charcoal to Awamu. Awamu is then selling it to big charcoal briquette producing companies.

[10] All financials about the company are based on internal documents such as the business plan, audit report and accounting files, which the company provided.

Investment Structure: A Staged Equity Investment Approach

Our investment proposal for Awamu is a 100% equity investment of 150’000 US$ coming in three tranches. The first two tranches are targeted towards increasing the production capacity while the third tranche is geared towards improving the profit margin by getting a carbon credit certification. This approach is chosen to give the investor additional security, as the next tranche is only paid out, when certain milestones are reached.

The first tranche of 50 000 US$ is payable directly after the deal has been closed, ideally still in the second quarter of 2016, and will give the investor a 15% equity share in the venture. 80% of this money is invested into the building of a new factory. By early 2017, the new facility will have an output of up to 70 stoves daily. The remaining 10 000 US$ will be spent on improving Awamu´s distribution and sales network in order to ensure that the increased production of stoves can be sold off successfully.

The second tranche of 30 000 US$ is paid out to Awamu when and if total revenue of 300 000 US$ is reached as a milestone. This will grant the investor an additional 8% of equity, increasing the total share to 23%. This threshold will be reached by the end of 2018 according to our projections. The money will mainly be used to increase the production capacity further to 150 stoves per day by adding additional machinery and equipment. Again, 20% of the investment will go into improving distribution and sales.

Finally, the third tranche of the investment is for being approved as an official carbon project in a carbon offset scheme. It has a size of 70 000 US$ and will make the investors equity share 40% in total. It will be paid out when and if total revenue has surpassed the 600 000 US$ mark (which is expected to happen by the end of 2020). This threshold ensures that the carbon certification is only pursued once a sufficient scale has been reached to offset the substantial fixed costs associated with this process. Essentially there are two options of being accredited as a carbon project: either through the official United Nations Clean Development Mechanism (CDM) or in a voluntary offset scheme for example the Gold Standard or the Social Carbon Scheme (GACC, 2016a). We propose Awamu to register for the latter option, as the offset prices paid in voluntary schemes have historically been much higher (GACC, 2016b). For the completion of the certification process which includes a thorough documentation of the project and its impact, registration at the responsible organizations and an ongoing monitoring, we estimate a time frame of around two years based on information from the Awamu founders and from independent sources (cf. Disch, Rai & Maheshwari, 2010; GACC, 2016a). Although there is substantial risk involved in this step, as carbon prices

have a high volatility (cf. GACC, 2016b), the overall expected contribution of this revenue to the business is large enough to mitigate this risk.

Results: Impact and ROI

With the outlined investment, Awamu is able to both increase production capacity and numbers of units sold. The most realistic scenario leads to an irregular sales increase, based on the two tranches and the respective increases in production. In actual stoves sold, this means that Awamu will be able to sell over 15’000 stoves in 2018 and reach 45’000 stoves in 2022. Compared to the current growth track without an investment, this is an increase of 12’000 stoves in 2018 and 38’000 stoves in 2022.

Impact Creation along the Triple Bottom Line

Through its technology Awamu is able to reach different impact areas at the same time: social, environmental and economic. This chapter builds on insights from chapter 2.1 and explores what impact our proposed investment can create along the triple bottom line.

One single stove saves 40 trees from being cut and 3.5 tons of CO2 are prevented from entering the atmosphere. This amounts to three flights from New York to Zurich. If summed up over the whole company, the impact potential becomes even more impressive. Looking at 2016, Awamu plans to sell 1553 stoves, which translates to 5435 tons of CO2 and over 60’000 trees saved. Over the lifetime of the presented investment horizon this adds up to 350’000 tons of CO2 and 4 million trees.

The time saved thanks to the more efficient cooking with Awamu’s stoves and the fewer wood-gathering trips adds up to 640 hours per household per year. One single stove produces around 550 kg of charcoal a year. Awamu’s buy-back program provides an additional source of revenue for the households. Besides the positive impact on health, it also has an educational benefit: the rural population starts to understand and appreciate the effects of lowering emission and burning fuels more efficiently. During the next seven years, Awamu enables customers to produce 55’000 tons of charcoal and save 64’000’000 hours of cooking and wood-gathering time.

The simple production technology and the extensive knowledge of Prof. Anderson allows Awamu to produce the stoves very cost-efficiently, once the factory can be expanded. Unit costs of gasifier stoves can be reduced to 9$ in 2017 and even further to 7$ in 2020. This enables Awamu to be profitable from 2017 on. This profit does not only enable a return on the

investment and the ability to pay taxes, it also sets a basis for sustainable growth and the hiring of more people. Overall, Awamu will create over 80 direct jobs in Uganda in the next 7 years. Moreover, Awamu has a significant indirect impact on the customer's life: One TLUD stove by Awamu enables a household to save 230 USD per year. This means that the cost of such a stove are paid back within a little more than a month. Over the whole investment horizon, Awamu enables the customers to save more than 23 million USD.

Financial Return and Risk

Not only is the impact of Awamu substantial, it is also a very attractive investment in terms of financial return and risk profile. With a staged investment of 150 000 US$ for 40% equity we estimate the internal rate of return to be at 35%. This is based on a weighted average cost of capital estimate of 32% and a compounded annual growth rate of 87%. While this may seem a bold assumption at first, considering the small current size of the firm and looking at comparable firms, the sales projections used in this calculation seem reasonable and are more conservative than the original business plan. More details on the underlying calculations are displayed in exhibit 1 in the appendix.

Of course, the very attractive expected IRR of 35% comes with a significant amount of risk. This risk is composed of business risk and country risk. As an early stage startup the business risk is – as in any venture capital context – substantial. Although other firms' past performances with similar business models in comparable countries have proven the concept as well as having a strong experienced team operating the venture, the company is not profitable as of yet. Awamu still faces some significant challenges, as outlined in chapter 2.2. Moreover, Uganda as a Sub-Saharan country brings a high country risk with it due to political and economic instabilities, corruption and fraud.

Nevertheless, in case Awamu is successful in growing its business over the 7-year investment horizon, there are several attractive exit options at the end of this period. As selling the company to a competitor or to a private equity firm could have adverse effects for the business and its founders, the preferred option is a leveraged management buyout (MBO). Under the precondition that the company creates stable cash flows and maintains a relatively low leverage by 2022, an MBO is both possible and the most sustainable option, as it returns full decision making power and ownership to the founders who follow a longer term vision for the company instead of just pursuing short term gains.

Overall, Awamu is an attractive investment opportunity because it combines high impact in various areas such as health, environment and gender equality with an attractive

financial return. Nevertheless, the investor should be aware of the risk associated with this venture. Ideally we are looking for a business angel with experience in clean energy technologies and with a knowledge of local and regional markets to help Awamu live up to its great potential.

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Appendix

	2016	2017	2018	2019	2020	2021	2022
Net Revenues	26,405	264,046	316,855	380,226	836,496	961,971	1,106,267
Approximate Number of Stoves	1553	13897	16677	18730	37178	42754	49167
Net Operating Expenditures	34,695	249,801	274,781	302,259	544,067	598,473	658,321
EBIT	(8,290)	14,245	42,074	77,966	292,430	363,497	447,946
Discounted Cash Flows	(6,289)	8,199	18,373	25,831	73,504	69,319	64,809
Discounted Terminal Value	126,090						
Enterprise Value	**379,835**						

Target Capital Structure	10% Debt	Cost of Debt	12%	Cost of Equity	35%	Corporate Tax Rate	30%	**WACC**	**32%**	**Long-term growth rate**	**5%**

Exhibit 1: Calculation of Awmu´s enterprise value based on a conservative sales projection

8. *Little Sun:* The Global Energy Access Fund

Alexander Strub, Angelo DeCarluccio & Anina Schuler

The **G**lobal **E**nergy **A**ccess **F**und investing in LittleSun GmbH

Abstract

The following is an investment proposal for LittleSun GmbH, a social business and global project addressing the need for light in a sustainable way that benefits communities without electricity, creates local jobs, and generates local profits.

Authors:

Alexander Strub
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Anina Schuler

The Investor: The Global Energy Access Fund

Convinced that access to energy is fundamental to human and economic development, the Global Energy Access Fund (GEAF) aims to promote the delivery of clean, affordable energy to people around the world living off-grid. It provides both long-term funding and knowledge to companies that effectively implement environmentally and socially sustainable business strategies. All investments are subject to a thorough due diligence process at the local level.

The Investee: LittleSun GmbH

Challenge

The availability of energy is a necessity to human development: it is needed to grow, distribute and cook food, it provides light when night falls, it heats up homes, powers machines and enables transportation and telecommunication. The lack of it not only constitutes an obstacle to economic activities but also hinders the delivery of sanitation, health services and education as children cannot study after sunset. According to the International Energy Agency (IEA), today, there are approximately 2.7 billion people that rely on traditional biomass for cooking and heating, and about 1.2 billion – that is almost one person in five – who do not have access to electricity. A well-performing energy system that improves efficient access to clean, reliable and affordable forms of energy not only helps to eradicate extreme poverty but is also the key to reach long-term climate goals. It is for these reasons that the UN has set ‘access to affordable, reliable, sustainable and modern energy for all’ as one of its 17 sustainable development goals. According to the IEA, in order to achieve universal access to modern energy services by 2030, additional investments of USD 756 billion, or USD 36 billion per year, are required.

Investment Motivation

LittleSun GmbH was established to address this issue and support the UN Sustainable Energy for All Initiative to achieve universal access to modern energy services by 2030. With its solar-powered products it offers an affordable, reliable and clean alternative to commonly used but unsustainable energy sources such as kerosene. In fact, households in Africa often spend up to 20% of their total budgets on kerosene. Breathing kerosene toxins is damaging to

health – 4 hours alone is equal to smoking 40 cigarettes. In addition, their open flames carry the risk of burns and house fires. While polluting homes at the local level, kerosene also impacts the environment on a global scale, releasing 190 million tons of CO_2 into the atmosphere per year. This is the equivalent of emissions from approximately 60 large U.S. coal plants.

Impact Potential

LittleSun GmbH was launched in 2012 and currently distributes its solar-powered lamps in 13 different African countries. Since its foundation, the company pursued a vigorous expansion strategy with excellent results especially in terms of social impact. As of January 1, 2016, around 365’000 solar-powered lamps were sold worldwide. About half of them went to areas where there is no electricity available, impacting on estimated 920’000 lives of people living in off-grid areas. The lamps helped to reduce $C0_2$ emission by around 20’000 tons and at the same time enabled households to extensively save on energy expenses. In addition, thanks to its two-fold mission, LittleSun GmbH not only provides light but also strengthens off-grid communities from the inside out by training young local entrepreneurs to become sales agents and powering their businesses with an initial seed capital. So far, it enabled around 600 African entrepreneurs to get started with their small businesses.

Given the enormous number of people worldwide living without access to clean, affordable energy, there is a wide potential for further regional expansion not only across Africa but also to off-grid regions within Latin America and Asia. Besides regional expansion, there is also the possibility for further diversification of LittleSun GmbH’s product range. Currently, the company is in the final stages of bringing a high-performance handheld solar phone charger to the market.

Management

Little Sun was founded by artist Olafur Eliasson and engineer Frederik Ottesen. Olafur Eliasson, a famous Danish-Icelandic artist, engaged in a number of popular public projects such as „The New York City Waterfalls“ and „the weather project“ in the Tate Modern, which all attracted considerable international attention. From 2009 to 2014 he was a professor at the Berlin University of Arts and since 2014 he is an adjunct professor at the Alle School of Fine Arts and Design in Addis Abeba. Since the very beginning, LittleSun GmbH was managed by Felix Hallwachs, a German engineer and architect who is very committed to the

project and has gained a lot of experience within the business. Hence, the management team does not only possess the necessary capabilities to manage LittleSun GmbH, it also has an internationally known artist aboard, which is very useful for marketing and reputation purposes.

Business Model

LittleSun GmbH relies on an innovative and well-functioning social business model, which Felix Hallwachs describes as 'Trade, not aid'. Sales of Little Suns in on-grid communities, such as Europe, subsidize the supply of lamps to local sales agents in off-grid communities, helping to generate local profits and build livelihoods.

While the lamp costs about USD 12.50 in Africa, about double the price is charged for the product in countries that do not lack access to energy. The higher price is used to cross-subsidize the product and make it more affordable in off-grid areas. Even though the price of USD 12.50 might seem rather high, compared to the price of USD 1.- per week for the operation of a kerosene lamp, the purchase of a Little Sun lamp is amortized after 13 weeks of usage.

Rather than a short-term fix of donating lamps, LittleSun GmbH works with local entrepreneurs to build profitable local businesses that distribute Little Sun lamps. The entrepreneurs themselves are supported by a network of distribution partners within their countries, providing them with business starter kits (with an initial seed capital of Little Sun lamps to sell on credit), micro-entrepreneurial training, and ongoing support. Furthermore, LittleSun GmbH mobilizes high-level networks in the arts, politics, and social business arenas to raise awareness for the issue of access to sustainable energy. LittleSun GmbH engages in projects with partners such as art institutions, international agencies, NGOs and the private sector. Through the power of creativity and the arts, Little Sun provides a way to understand abstract concepts like global energy access and what having power means.

Products

The company's core product is a yellow, portable LED solar lamp in the shape of a sun, which is about palm-sized and also goes by the name „Little Sun". On the front there is the LED bulb while on the back of the lamp, the solar surface is collecting the energy. Featuring two light levels, it is easy to use: 5 hours of charging in the sun produces 10 hours of soft light or 4 hours of bright light. The material of the Little Sun is recyclable and highly

water- and UV-resistant. While other solar-powered lights are also available, Little Sun is unique since it is not only a light but also a work of art. Its design was developed by Olafur Eliasson in close dialogue with users in Ethiopia and therefore combines aesthetic and practical functions. The solar lamp can be used flexibly: on a desk for studying; attached to a bike; carried as a torch; or any other way the owner can imagine. For these reasons, the product is also very popular beyond off-grid areas.

The company recently launched its second product: a solar lamp and a solar-powered mobile phone charger in one. The „Little Sun Charge“ is able to fully recharge a smartphone with just 5 hours of sunlight. Similar products from other manufacturers currently still need about 8 to 20 hours of sunlight to deliver the same performance.

Sales, Marketing, Network

The Little Sun project was launched at the Tate Modern in London, where the lamp continues to be available for purchase. It is also sold online and in museums, like the MoMA Design Store in New York City and select retail stores in the U.S. and Europe. Regarding off-grid areas, Little Sun is currently distributed in 13 African countries including Ethiopia, Kenya, Nigeria and Zimbabwe. Major museums, cultural institutions but also shopping malls and music-festivals have decided to support LittleSun GmbH and to bring focus to energy access issues, including Tate Modern in London, MoMA in New York, Art Basel Miami, Coachella Music and Arts festival in California, the famous KdW in Berlin and many more. LittleSun GmbH is also collaborating with a selection of internationally well-known musicians who spread its message while on tour. Furthermore, LittleSun GmbH works in close collaboration with Wolff Olins, a renowned brand consultancy based in London, responsible for the marketing and branding concept.

Market Analysis: SWOT

Strengths	Sustainable and large-scale social and environmental impact Proven business model and committed management Work of art that works in life
Weaknesses	Success based on few key products and key players Initial investment in lamp rather expensive Competitors with similar products

Opportunities	Growth potential thanks to a large off-grid market Megatrend sustainability, growing interest for renewables Acceleration effect through local entrepreneurs
Threats	Future dependence of local entrepreneurs on few products Bail-out of major partners Low entry barriers and unreliable legal and political systems

Investment Readiness

LittleSun GmbH has already achieved several milestones. In April 2014, the company convinced Bloomberg Philanthropies to make their first impact investment ever, providing the company with USD 5 million low-interest debt.

Following the success of its first product, the company decided to introduce its second product, the solar charger for mobile phones that can be sold using the same established sales network. The company ran a crowd funding campaign in September 2015 to pre-finance the production costs, with success: It raised five times more than its initial target of EUR 50’000. This shows that LittleSun GmbH disposes of a large customer base, which supports their business and products and believes in the project. Furthermore, Little Sun GmbH’s team is equipped with the necessary and extensive expertise related to the industry, experience in developing new products and delivering them to off-grid entrepreneurs thanks to a large network of partners.

From a financial point of view, investing in LittleSun GmbH means to invest in a strong and reliable enterprise with high liquidity ratios and a passive exposure with no maturity mismatch. The already received investment from Bloomberg Philanthropies greatly boosted the scope of its operations and had a strong impact on the company’s growth. As it is clear, LittleSun GmbH is still in the growth stage, sales are expected to increase and margins are expected to improve. An investment at this stage will allow the company to access more off-grid countries and to empower more local entrepreneurs to set up their own businesses.

The growth and sales forecasts have been calculated in 3 different scenarios based on the power charger impact and 3 different growth paths. These patterns have been estimated by considering the market stage, company projections and historical growth rates so far; the financial statement is mainly based on this data and the peers ratio. Complete data are available in the *Appendix*.

The Investment

Investment Strategy

It is proposed to invest a total amount of USD 3.5 million in form of a variable interest loan divided into 3 different phases. To access the subsequent phase, it is necessary to fulfill certain conditions defined with regard to financial and social return.

This strategy is chosen for two reasons: First, the positive impact of the previous investment made by Bloomberg Philanthropies (low interest rate loan) was comparable in size. Second, calculations show that the three-phase investment is necessary to keep the growth rates (at least) stable and to allow the company to spread "its light" where it is needed.

It is chosen to invest by means of debt instead of equity because of the beneficial effect of the leverage, because of the tax deductibility and because of the smaller risk involved in this kind of investment. The amortization plan is in the *Appendix*.

The investment has a positive NPV with a (low) IRR of 3.22%. The NPV was calculated with an opportunity cost of 2.46%, the rate for an investment with the same time horizon and the same risk.

1st Investment

The 1st investment, a fixed loan of USD 1.5 million at fixed interest rate of 8% covers the first 3 years of the investment (2016-2019). The funds will be used for two different purposes (the remaining amount is kept as a buffer for liquidity):

- USD 750'000 to launch the distribution of the new solar-powered charger in Africa (provision of Little Sun Business Boxes, training of local sales agents)
- USD 750'000 for advertising (hire more sales managers based in Berlin, marketing project in the USA and Europe to increase public awareness)

The main task is to accelerate the production and distribution of the phone charger. The funds will be used to teach and help local people to set up their own businesses.

Advertising is necessary to push the products in the developed world, where higher prices can be charged to cross-subsidize sales in the off-grid regions.

To access to the 2nd phase, the company must, at least, achieve revenues of USD 8.5 million by the end of 2019.

2nd Investment

The 2nd loan of USD 1 million at an interest-rate of 7%, covering the next 2 years of the project, will help LittleSun GmbH to launch the next product: the Little Sun Globe – a bigger unit to light up a whole room. The investment will be used to cover costs for the development, the production and the distribution.

To access the 3rd phase, at least 950'000 lamps (in off-grid areas) and at least 200'000 chargers (in off- or on-grid areas) must have been sold by the end of 2021.

3rd Investment

The 3rd loan of USD 1 million at an interest rate of 6% will be used to initiate a pilot project in Asia. The goal of this project will be to enroll sales of LittleSun products in Cambodia where currently two thirds of the population do not yet have access to electricity. This country is chosen as a first point of entry especially because LittleSun GmbH will be able to profit from its already established partnership with EcoSun Energy, a social business providing sustainable energy solution services in Cambodia.

Exit Strategy

If all the conditions to access the 2nd and the 3rd investment are fulfilled, there will be a stepwise disbursement of the funds over a 5 year horizon, starting in 2016. The repayment will start in 2022 and last over a 4 year horizon. If the conditions to access the 2nd, resp. the 3rd investment, are not met, GAEF will exit and the repayment of the outstanding loan(s) will immediately start (USD 1mio per year).

Impact & Recommendation

Estimated Impact

Based on LittleSun GmbH's projections and GAEF's own calculations – if all the conditions are met and the three investments are disbursed – the impact expected will be: 15.5 million lives changed, 290'000 tons of CO_2 reductions, 5'000 entrepreneurs joined and USD 70 million of energy expenses saved in off-grid areas.

Summary and Recommendation

After a thorough due diligence process, the investment committee concludes:

Business model: LittleSun GmbH's business model has proven large potential for social and environmental impact not only through the distribution of its high-quality solar-powered products but also by supporting local entrepreneurs to build profitable local businesses.

Growth potential: In the long run, there is high potential not only for the expansion into new markets but also for the launch of new solar-powered products.

Management: During visits to the headquarter of LittleSun GmbH in Berlin and to the LittleSun entrepreneur networks in Ethiopia and Zimbabwe, the management expertise and integrity was confirmed. The company is found to have the necessary capabilities and networks to successfully move the company forward.

Risk: The financial sustainability of the business is reaffirmed by inspections of relevant financial documents. Having been running for 4 years, LittleSun GmbH is already profitable. Therefore, the risk of the investment is limited. In addition, the fact that the company has successfully received a considerable investment from a well-reputed institution confirms the readiness to receive the above proposed funding.

The innovative business model, its scalability and its long-term orientation in combination with the wide market potential convince us that LittleSun GmbH will generate an important impact to many communities living off-grid.

The investment is strongly recommendable.

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Context Editorial Notes and Disclaimer on this Collection of Short Papers

This course titled *Impact Investing: Redefining the Meaning of Return* took place as part of the Contextual Studies at Master's Level in the Spring Semester of 2016. Contextual Studies at the University of St. Gallen constitute a pillar of the educational concept. They provide an opportunity to develop intellectually and culturally beyond the scope of core studies. The course has also been successfully delivered at the University of Tübingen in Germany and will be offered to various universities around the globe.

In addition to the short papers compiled in this document participating student teams presented their investment proposals in a one hour session in class. During these presentations the presenting teams assumed the role of Investment Managers of a fictitious Impact Investing Fund and the rest of the class acted as the Fund's Investment Board. Following the pitch presentation, the Investment Board had the opportunity to raise questions on the proposed investment structure as well as the financial and impact case driving the proposal. Each Investment Board member subsequently took a decision on whether or not to invest and gave reasons based on the social and / or environmental impact as well as their financial return expectation. The role assumed by the participants in this course and the investment proposals they have developed were fictitious. The investees researched by the student teams however are all real, impact oriented organizations changing people's lives and / or providing a healthier environment through their daily operations.

During the last two days of this block seminar the course enjoyed a small conference with guest speakers from LGT Venture Philanthropy and UBS Sustainable Investing.

Disclaimer: All case examples presented in this document result from self conducted research by the participating student teams. Where data was not available or not accessible to the teams, figures shown are based on the teams' own estimations and assumptions. It is therefore explicitly stated here that no claim of accuracy is made regarding any figures shown throughout this document. If you are a member of an organization featured in this document and do not consent to the public availability of any of the content presented here please get in touch so that we can remove the case or correct any possible misrepresentation.

For further information on any aspect of this document or the course please contact Ernst von Kimakowitz under ernst@humanisticmanagement.org.

Impact Investing:
Redefining the Meaning of Return
2016 Edition

Collection of short papers researched and written by the participants in the Master's Level course on Impact Investing in the Contextual Studies at the *University of St. Gallen* in the Spring Semester of 2016

Humanistic Management Center