



SIFEM

SWISS INVESTMENT FUND
FOR EMERGING MARKETS

SIFEM – INVESTING IN SUSTAINABLE DEVELOPMENT

2019 EDITION



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FOREWORD

Dear Readers,

SIFEM, the Development Finance Institution founded by the Swiss government, represents a small component of the Swiss development architecture but makes an important contribution to the promotion of inclusive growth in developing and emerging markets. Since 2005, SIFEM has invested a total of approximately USD 958 million in 132 projects. In 2018, it engaged in eight new investments totaling USD 70 million. By providing long-term finance to SMEs and other fast-growing companies, SIFEM helps firms to expand and strengthens local entrepreneurship. Through medium- to long-term equity investments and the provision of loans to well-focused financial intermediaries, SIFEM supports the creation of decent jobs, the generation of income and the collection of taxes by local governments.

During my first 18 months in office as Chairman of SIFEM's Board, I have had the opportunity to observe the activities of SIFEM in developing and emerging markets. What I saw during the Board visit to Kenya and Tanzania, what I heard and discussed in Myanmar and Laos, and what I learned in the monthly investment committee meetings has confirmed the relevance of SIFEM's contribution to Switzerland's international development cooperation. Indeed, SIFEM's investments are highly complementary to the efforts deployed by the Swiss Agency for Development and Cooperation (SDC) and the State Secretariat for Economic Affairs (SECO).

The Board's visit to Kenya in January 2019 also illustrated the fragility of the context in which SIFEM's partners operate: the attack on a hotel in Nairobi left more than 20 people dead while the SIFEM Board was visiting a project nearby. The optimism and resilience shown by local partners and entrepreneurs after this tragic episode was an inspiring lesson to the Board as well as a strong message of hope.

Such immediate challenges cannot be captured in a report such as this, however the figures and stories featured attempt to show how SIFEM makes a difference through its investments. For instance, together with other co-investors, SIFEM has helped in creating and supporting more than 830,000 jobs since 2005. Approximately 40% of the employees in SIFEM portfolio companies are women, a share which has been increasing in recent years. SIFEM recognizes that investing in human capital development is an important contribution to job quality, particularly for low-skilled workers. Staff training is being provided by 70% of the companies in the portfolio.

This report explores the role of SIFEM in the field of climate financing, a domain of high priority for the Swiss Government. Indeed, SIFEM plays a niche role in climate financing, focusing on disruptive or innovative business models in renewable energy as well as in energy efficiency solutions for SMEs. In the last two years, SIFEM invested in three new climate-relevant projects in Sub-Saharan Africa and Asia, including in the forestry sector, which plays an important role in carbon sequestration. The importance of supporting the energy transition in Africa is also highlighted by Andrew Reicher, an "angel investor" and advisor on various energy investments in the region, in an interview featured in the same chapter. His main message is that Development Finance Institutions (DFIs) are crucial for climate financing, especially in smaller markets which are often perceived as too risky by private investors. Three case studies exploring the solar-led energy transition in Africa and Asia supplement this chapter.

The results presented in this report, which are all based on 2018 data collected in 2019, show the effectiveness of SIFEM's approach to development: our organisation facilitates the emergence of enterprises that combine financial success with sustainable economic and social benefits for the wider community.

Jörg Frieden
Chairman of the Board of SIFEM



SIFEM Board visit in Kenya





SIFEM

WHAT IS SIFEM

The Swiss Investment Fund for Emerging Markets (SIFEM) is the Swiss Development Finance Institution. It is owned by the Swiss Government and is an integral part of the instruments of economic development cooperation. SIFEM is specialised in providing long-term financing to small and medium-sized enterprises and other fast-growing companies in developing and emerging countries, focusing on the priority countries of Switzerland's development cooperation. This helps to create and secure more and better jobs and reduce poverty while also contributing towards the integration of these countries into the global economic system.

WHAT IS THE ROLE OF A DEVELOPMENT FINANCE INSTITUTION (DFI)?

DFIs are government-backed institutions that provide finance to private sector companies in developing and emerging countries. They have a double mandate to generate development impact as well as financial profitability. Indeed, only profitable companies will be able to generate lasting development effects on people and society. As a complement to traditional aid and public-sector loans, DFIs are one of the key channels for development finance from donor countries to beneficiary countries.

DFIs can help sustainably shape the private sector in developing countries, where companies tend to have insufficient or inadequate access to finance, and as a result are hampered in their growth, technological innovation and job creation.

DFIs also have a key demonstration effect for private investment flows. Compared to the majority of private investors, which only operate in developed markets, DFIs have a higher risk tolerance, a longer-term investment horizon and a successful track-record in difficult markets. DFIs will typically remain invested in projects for an extended period of five to 10 years, or even longer. At the end of the investment period, the proceeds of the investment including the profits are then reinjected into other investments.

HOW DOES SIFEM WORK?

SIFEM provides mostly long-term financing to small and medium-sized enterprises (SMEs) as well as other fast-growing companies in developing and emerging countries by investing in local or regional risk capital funds, or by providing credit lines to local banks and other financial institutions, often in collaboration with other Development Finance Institutions and private investors. Investing through local funds and financial institutions is in general a more efficient solution than providing direct support to individual SMEs. This investment strategy contributes to strengthening

the local financial and capital markets in developing and emerging countries, which are important development facilitators.

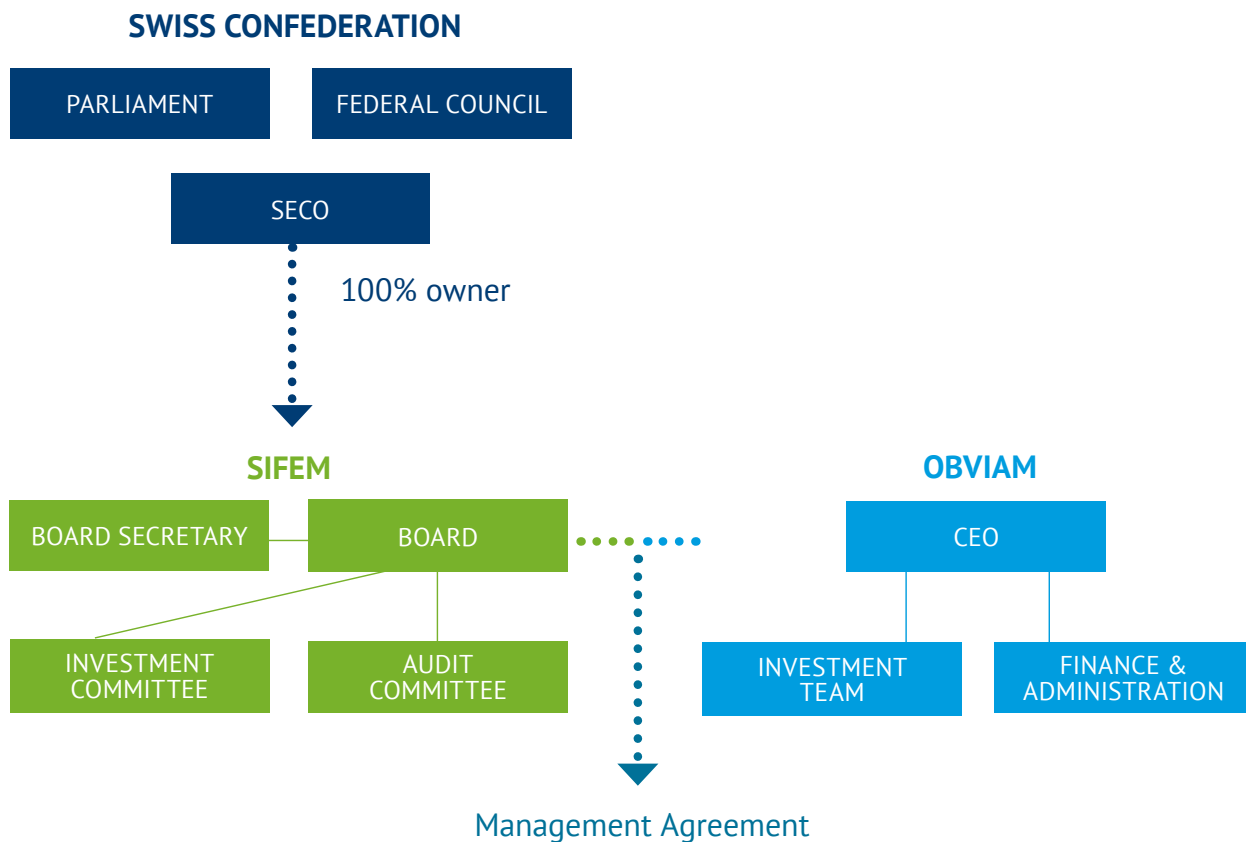
SIFEM is working together with fund managers and financial institutions not only to deliver relevant financing solutions, but also to add value to local businesses. In fact, SIFEM's role goes beyond the provision of long-term finance: for example, it seeks to strengthen the capacity of local fund managers or financial institutions to manage environmental, social and governance risks at the level of their underlying portfolios. This is especially important when considering investing in high-risk companies from a social or environmental perspective, such as those operating in the infrastructure, forestry, construction, and heavy industry sectors. SIFEM needs to make sure that the risks are not only understood but also appropriately addressed.

At the operational level, SIFEM's modus operandi is similar to the way other bilateral development cooperation actors implement their projects: most traditional development cooperation projects financed by Switzerland are implemented by local partners or local teams of professional development organisations (NGOs, foundations, multilateral and UN agencies). In the case of SIFEM, those local partners are fund managers or local financial institutions such as SME banks or microfinance institutions.

IN WHICH COUNTRIES IS SIFEM ACTIVE?

SIFEM closely follows the geographical priorities of Switzerland's development cooperation but also requires some flexibility to diversify its portfolio risks. In 2018, around two-thirds of SIFEM's investments targeted Swiss priority countries for development cooperation (State Secretariat for Economic Affairs, SECO and Swiss Agency for Development and Cooperation, SDC), thereby complementing the offerings of both SECO and SDC via their respective programs. Complementarity is expressed in particular in relation to private sector promotion measures, which improve financial market infrastructure and the business environment in the target countries.

CORPORATE GOVERNANCE



SWISS CONFEDERATION

SIFEM AG is a private limited company, the shares of which are 100 per cent owned by the Swiss Confederation. The shareholder rights are exercised by the Federal Council. It defines SIFEM's strategic objectives, usually for a four-year period. Acting on behalf of the Swiss Government, the State Secretariat for Economic Affairs (SECO) is responsible for the control and oversight of SIFEM. SECO conducts regular controlling and portfolio review meetings with the SIFEM Board and Obviam. An oversight concept and supervisory framework ensure that SIFEM is investing in line with its remit.

SIFEM

The Board of SIFEM is responsible for investment decisions and other executive management tasks. As per its Organisational Regulations, the Board has delegated certain responsibilities to two committees: the Investment Committee and the Audit Committee. Investment and divestment decisions are delegated to the Investment Committee. The Audit Committee validates valuations of SIFEM investments, reviews SIFEM's financial accounts and related matters, and liaises with the auditor. SIFEM does not have any employees besides the part-time Board secretary.

OBVIAM

The management of SIFEM's investment portfolio and its day-to-day operations have been delegated to Obviam, an independent company specialised in impact investments in developing countries and emerging markets. This facilitates the raising of third-party capital by Obviam, thus fulfilling SIFEM's objective of mobilising private investments into target countries, while shielding SIFEM and the Swiss Government from liability risks.

SIFEM BOARD MEMBERS



Jörg Frieden

Chairperson of the Board, Chairperson of the Investment Committee, since May 2018

Jörg Frieden's career at the Federal Department of Foreign Affairs, from 1986 to 2018, covered a broad range of posts and responsibilities. He worked as coordinator in Mozambique, advisor for the World Bank in Washington, and Head of the Eastern and Southern Africa Section in Bern. Between 1999 and 2003, his professional career took a sidestep to the Federal Office for Refugees, where he held the position of Deputy Director. In 2003, he returned to the Swiss Agency for Development and Cooperation (SDC) where he took up the position of Resident Director of Development Programmes in Nepal. From 2008 to 2010, he was Deputy Director of the SDC and headed the Global Cooperation Department. He was also an advisor to and representative of Federal Councillor Calmy-Rey in the UN Commission on Sustainable Development. From 2011 to 2016, Jörg Frieden was Executive Director of Switzerland at the World Bank Group, specifically at the International Finance Corporation (IFC) and then Swiss Ambassador to Nepal until 2018. Jörg Frieden is also a board member of Helvetas, an NGO working in the field of development cooperation based in Zürich.



Susanne Grossmann

Vice-Chairperson of the Board, since 2014, Member of the Investment Committee, since 2011

Susanne Grossmann has been active in private sector finance in emerging markets and developing economies since 1999. From 2007–2014 she was Managing Partner at BTS Investment Advisors, a private equity fund advisor for investments in non-listed Indian small- and mid-sized companies. Today, Ms. Grossmann manages the Dalyan Foundation, a charitable foundation supporting women and children in India and Turkey. Since 2014, she is also a Managing Director at FinanceContact GmbH in charge of administering the SECO Start-Up Fund. She serves as member of the advisory committees of Weconnex,

a service and project management firm focusing on Base-of-the-Pyramid markets, and of the Department of Environmental Systems Science of ETH Zürich. She is also a member of the investment committee of Dreilinden GmbH in Hamburg, a company supporting social acceptance of gender and sexual diversity.



Regine Aeppli

Member of the Board, since 2017

Regine Aeppli was a partner in a law firm dealing with family law, state and administrative law from 1986 to 2003. In addition to her work as a lawyer, she was politically active as a representative of the Social Democratic Party of Switzerland. From 1987 to 1996, she was a member of the Zürich Cantonal Council, and from 1995 to 2003, she was elected to the Swiss Parliament's National Council. In 2003, she was elected to the cantonal government of the Canton of Zürich where she headed the Education Directorate until her departure in 2015. She is a member of the board of various foundations (Kulturama, I care for you), as well as board member of Movis AG in Zürich. She is also chairperson of the Association "Schulen nach Bern". Regine Aeppli studied law at the University of Zürich where she obtained her diploma.



Julia Balandina Jaquier

Member of the Investment Committee, since 2011, Chairperson of the Audit Committee, since 2014

Dr. Julia Balandina Jaquier has 25 years of investment and strategic consulting experience, the last 15 of which have been focused on impact investing. She started her career at McKinsey and subsequently held senior positions at ABB Financial Services and AIG Global Investment Group, where she managed AIG's European direct private equity business. In 2010, she founded an independent impact investment consultancy and has since served as a trusted adviser to major private, institutional and

sovereign investors. Julia is a Senior Fellow and Advisory Board Member of the Center for Sustainable Finance and Private Wealth (CSP) at the University of Zürich, where she leads the NextGen Impact Accelerator. She lectures on impact investment at IMD, St. Gallen University, Harvard, Yale and CEIBS. She also serves on the (advisory) boards of Unilever, FORE Partnership, toniic 100 and PYMWYMIC Field Building Center. She is also a member of the selection committee of Swiss Bluetec Bridge and a member of the impact steering committee of Kieger, an independent wealth and asset manager.



Geoff Burns

Member of the Investment Committee, Member of the Audit Committee, since 2014

Geoff Burns has over 30 years of experience in private equity. He has his own private equity advisory business to address specifically the challenges facing DFIs in this sector. He has provided advice on all aspects of investing to a number of bi- and multilateral DFIs, including the Asian Development Bank, FMO, CDC and Norfund. He is a board member of the Ascent Rift Valley private equity fund in Mauritius and of Gebana AG in Zürich. He sits on the investment committee of various funds or investment structures active in emerging markets (responsAbility, AfricInvest, Islamic Infrastructure Fund), as well as on various advisory boards (South Asian Clean Energy Fund, Mekong Brahmaputra Clean Development Fund, Grofin).



Angela de Wolff

Member of the Investment Committee, since 2017

Angela de Wolff has been active in the financial sector for 23 years, with a focus on responsible investment since 2001. She began her career as a consultant with Andersen Consulting and then held various positions in private banks. Among other positions, she has led the sustainability team at Lombard Odier bank. In 2007, she capitalised on her experience to create

Conser, an independent firm specialised in responsible investment. She is the co-founder of Sustainable Finance Geneva, a non-profit association which aims to promote responsibility and sustainability in finance. She is Vice-President of the platform Swiss Sustainable Finance, and also sits on the Board of Directors of Banque Cantonale de Genève (BCGE), the Audemars-Watkins foundation in Geneva, and the Race for Water foundation in Lausanne. She is also a member of the supervisory committee of Sustainable Finance Geneva. Angela de Wolff obtained a Master's in economics from Lausanne University in 1989. She became a Certified European Financial Analyst (CEFA) in 2000.



Kathryn Imboden

Member of the Investment Committee, since 2014

Kathryn Imboden is a Policy Advisor for the Consultative Group to Assist the Poor (CGAP), a research and policy platform on financial inclusion housed at the World Bank. In this position, she focuses currently on the engagement of global standard-setting bodies in financial inclusion. Following nearly twenty years with the Swiss Agency for Development and Cooperation (SDC), where she led SDC's macroeconomic and financial sector work, she held financial sector policy related positions at Women's World Banking, United Nations Capital Development Fund, and the Aga Khan Foundation, before joining CGAP in 2007. She is also a member of the board of the Microfinance Investment Support Facility in Afghanistan.





PORTFOLIO

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BENEFITS



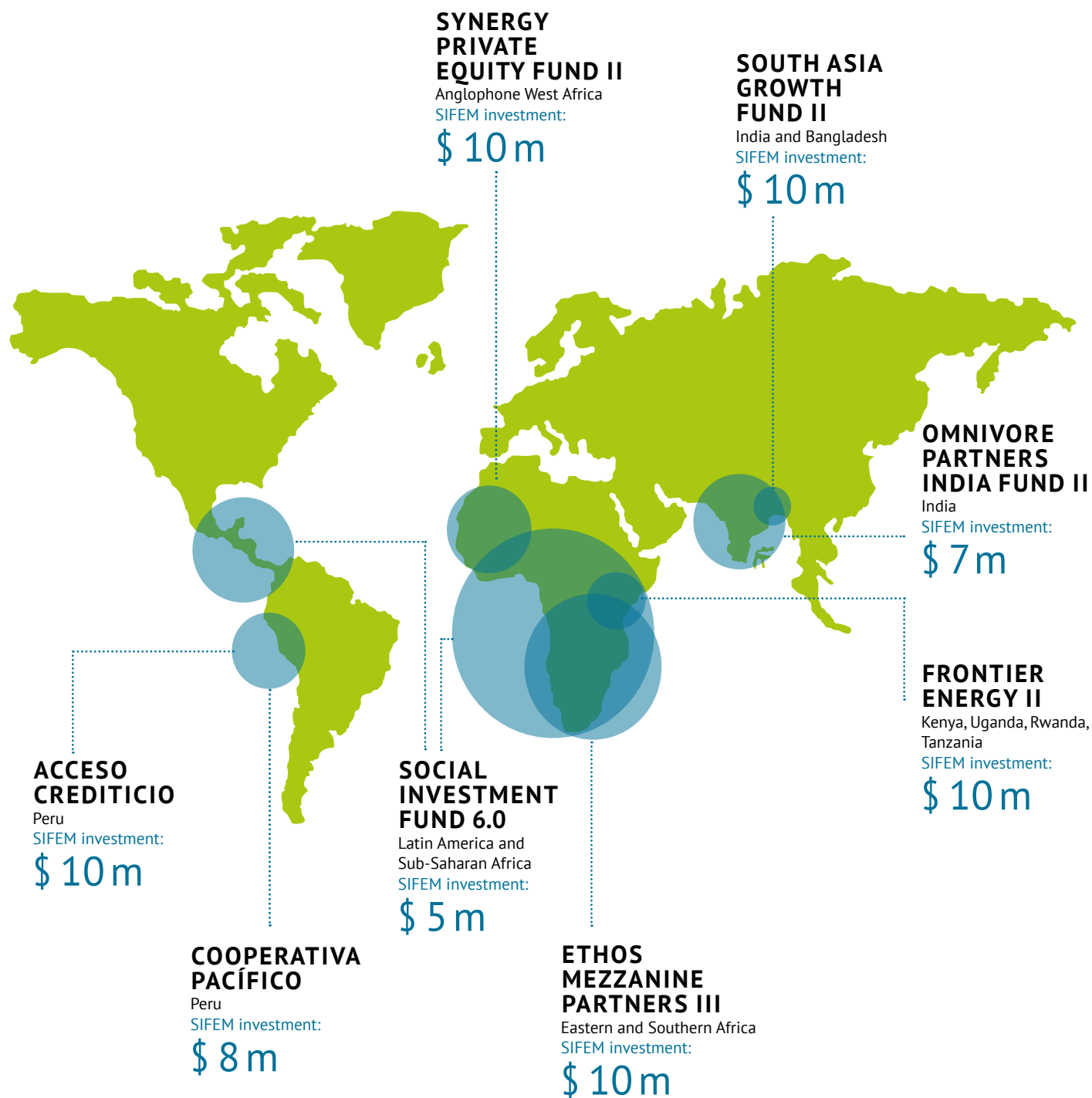
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NEW INVESTMENTS

In 2018, a total of USD 70 million of new investment commitments were made. The new portfolio positions are as follows:





ACCESO CREDITICIO (USD 10 million committed)

Established in 1999, Acceso Crediticio is a financial institution in Peru specialised in providing financing for taxis to lower income customers, most of them without a formal business, and for other productive vehicles such as buses and trucks to MSMEs. In 2018, taxis accounted for more than half of Acceso Crediticio's loan portfolio, and almost 80 per cent by the number of outstanding loans. Since 2010, the Institution has only financed the acquisition of liquefied natural gas (LNG) and liquefied petroleum gas (LPG) fuelled taxis in Lima. Through its 21 branches the Institution reaches nearly 14,000 clients, many of whom were previously underserved by traditional financial institutions.

Peru is one of the countries in Latin America with the lowest penetration of vehicle use, and there is an insufficient supply of vehicle financing available from the traditional financial system. Through the financing of productive vehicles, Acceso Crediticio supports its clients in their self-employment, and offers them financial inclusion, as 40 per cent of its new clients in 2017–2018 were unbanked. SIFEM's investment of USD 10 million in Acceso Crediticio helps to further develop the financial sector beyond the traditional banking sector and to foster low-income individuals' and MSMEs' access to funding, and also supports employment generation and financial inclusion.



COOPERATIVA PACÍFICO (USD 8 million committed)

Established in 1970, Cooperativa Pacífico is the largest credit and saving cooperative in Peru and as such is owned by its 45,000 members. It offers a wide range of services including business and individual loans, mortgages, deposits, transfers and mobile banking services. Cooperativa Pacifico's core focus lies on SMEs, with 85 per cent of its loan portfolio allocated to small and medium-sized companies.

SMEs in Peru struggle to access financing, due to high fees and commissions and cumbersome collateral requirements. As a cooperative, Cooperativa Pacífico looks beyond the maximization of profit, and focuses on offering affordable financial and non-financial services to its members in order to contribute to individual and community development. For example, it has established financial literacy training programs for its members and their families. SIFEM's USD 8 million loan enables the Institution to meet the increasing demand from its members for additional and longer-term SME loans. This contributes to the deepening of the financial sector beyond the traditional banking sector and supports formal job creation.



ETHOS MEZZANINE PARTNERS III (USD 10 million committed)

Ethos Mezzanine Partners III (EMP III) is a sector-agnostic mezzanine debt fund aiming to provide growth capital to larger SMEs and mid-market companies in Eastern and Southern Africa. The Fund targets sectors such as consumer goods, technology, media and telecoms, tourism, healthcare, and agri-industries by offering tailored solutions specific to each company's operating needs.

In Sub-Saharan Africa, the lack of credit and banking services available to SMEs and mid-market companies are impediments to economic progress and the reduction of poverty in the region. By introducing mezzanine financing options to companies, the Fund will deepen and diversify local capital markets and fill a critical financing gap for growing businesses. Going further, EMP III takes an active investment approach through participation in strategic planning committees and offering guidance on improved corporate governance and meeting international best environmental and social standards. SIFEM's investment of USD 10 million will help enable the Fund to develop successful, sustainable companies and drive local employment in Eastern and Southern Africa.



FRONTIER ENERGY II
(USD 10 million committed)

Frontier Energy II is a renewable energy fund focused on developing, constructing and operating renewable energy generation projects, with a primary focus on hydroelectric, geothermal, wind, and solar opportunities in Kenya, Uganda, Rwanda and Tanzania. The largest part of the investment will be used for construction purposes and the Fund Manager will oversee this critical phase to ensure that quality, time, budget, and ESG standards are met. The Fund's portfolio is expected to provide more than 2,700 GWh/year of additional renewable energy, which roughly equates to meeting nearly 2.5 million households' annual energy needs in the target countries.

Sub-Saharan Africa is home to 13 per cent of the world's population but also accounts for nearly 50 per cent of the global share of people living without access to electricity. Because of the energy gap, companies across Sub-Saharan Africa suffer from a competitive disadvantage, which leads to lost business opportunities and lower job growth. Investment in additional power capacity is required in order to meet the demand, in particular, investment in renewable energy in order to ensure it is a significant part of the energy mix. SIFEM's investment of USD 10 million in Frontier II supports Africa's energy security and economic development by adding capacity to the power grid and assists climate change mitigation through avoided CO₂ emissions.



OMNIVORE PARTNERS INDIA FUND II
(USD 7 million committed)

Omnivore II invests in Indian start-ups developing breakthrough technologies for food and agriculture, which primarily benefits the rural economy. The Fund Manager believes the key to transforming rural India lies in increasing the profitability, improving the sustainability, and reducing the uncertainty faced by smallholder farmers.

Although India has made good progress in its transformation to an industry and service-based economy, 42 per cent of the total workforce are still working in the agriculture sector. Smallholder farmers represent 85 per cent of total farm households yet remain at or slightly above the global poverty line. They are faced with multiple challenges, including low yields, water scarcity, soil degradation, and low access to agricultural credit and insurance. Omnivore II's investment in early-stage companies which propose business solutions for such challenges supports the farmers to realise higher and more sustainable incomes. SIFEM's investment of USD 7 million helps to reduce the inequalities in the rural sector and promotes sustainable food production, ultimately fostering broad-based and long-term private sector growth in one of the most important sectors of the Indian economy.



SOCIAL INVESTMENT FUND 6.0
(USD 5 million committed)

Social Investment Fund 6.0 (SIF 6.0) lends money to microfinance institutions and farmers' cooperatives that offer a combination of financial and non-financial services in Latin America and Sub-Saharan Africa, with a focus on women and rural areas. The Fund also explores innovative business models for social inclusion targeting areas such as entrepreneurship, agriculture, green technology, home improvement, and artisan market access. The end beneficiaries are clients at the base-of-the-pyramid, including women with small income-generating activities or smallholder families living from subsistence farming. The number of unbanked adults in Latin America and Sub-Saharan Africa amounts to 210 million and 350 million respectively, the majority of whom are women. SIF 6.0 supports the portfolio companies in providing underserved clients with effective access to financial products and services in a responsible way. In addition to requiring that its microfinance clients endorse the Smart Campaign's Client Protection Principles, the Fund Manager provides support to its clients' delivery of a combination of financial and non-financial services – for example in the form of financial literacy programs. SIFEM's investment of USD 5 million in SIF 6.0 fosters the financial inclusion of unbanked people and helps them to earn a living and improve their lives.



SOUTH ASIA GROWTH FUND II (USD 10 million committed)

The South Asia Growth Fund II contributes to the promotion of a more efficient use of energy and water in India and Bangladesh, through investment in companies creating products or services which impact the broader clean energy and water value chains. The Fund intends to contribute to climate change mitigation through the more efficient use of energy and natural resources in the target region.

The demand for energy is increasing in both India and Bangladesh due to population growth and rising rates of urbanisation. India alone is estimated to have over 300 million people without access to electricity, and those that do often have limited access. Enhancing the capacity, delivery, and efficiency of energy supply chains is therefore a key priority for economic development. In the same way, water is a critical resource for agriculture, industry, food security, and manufacturing. The Fund enables increased energy and water efficiency in the region, and SIFEM's investment of USD 10 million supports greater public access and encourages sustainable business practices in South Asia.

base by investing in SMEs. SMEs contribute to the economy by producing a variety of goods and services, creating jobs, and eventually becoming vehicles of skills development and income disparity reduction. However, SMEs struggle to grow and ultimately survive, mostly due to a lack of financing, management capacity and business development, and generally require significant input and active support. SIFEM's investment of USD 10 million will help the Fund to provide much-needed access to capital to SMEs, assisting them to develop their business and reach financial viability.

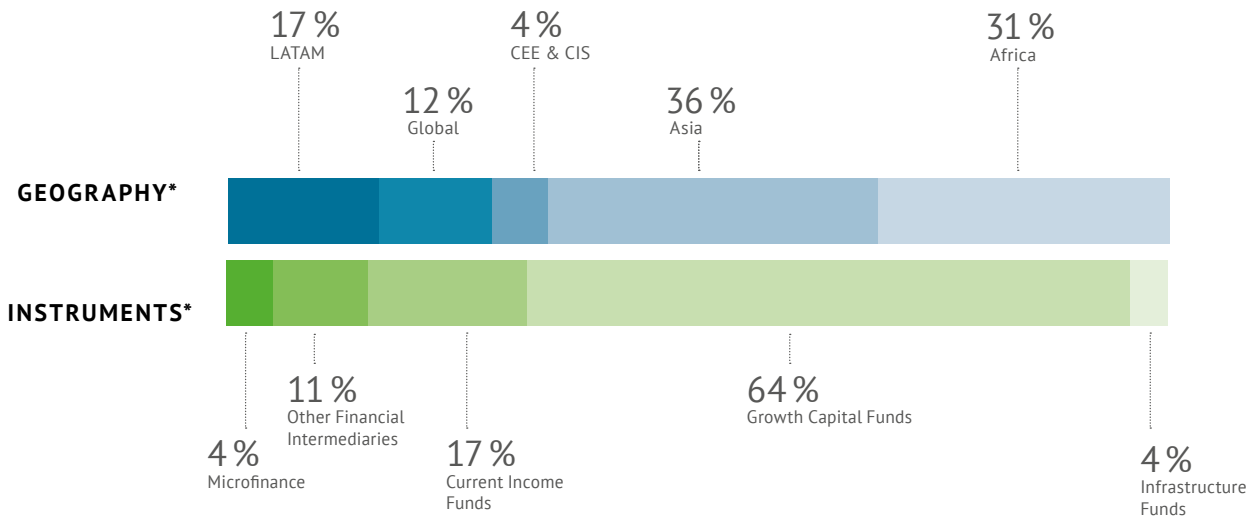


SYNERGY PRIVATE EQUITY FUND II (USD 10 million committed)

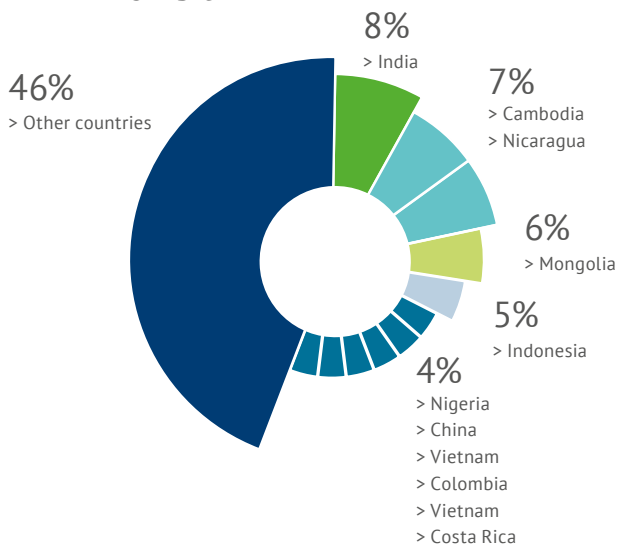
Synergy Private Equity Fund II is a sector-agnostic private equity fund aimed at providing growth capital to emerging small and medium-sized enterprises in anglophone West Africa. The Fund targets companies in sectors such as healthcare, basic infrastructure, ICT, consumer goods, financial services, business solutions and transportation & logistics. The focus is on investees which have the potential to become leaders in their sectors and present prospects for regionalizing across West Africa with the Fund's financial and operational support.

Anglophone West Africa is experiencing encouraging economic development, but there is also broad-based recognition of the need to diversify the area's economic

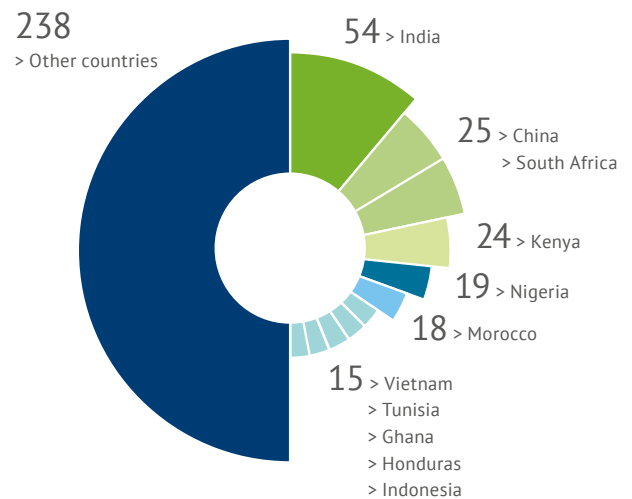
PORTFOLIO OVERVIEW



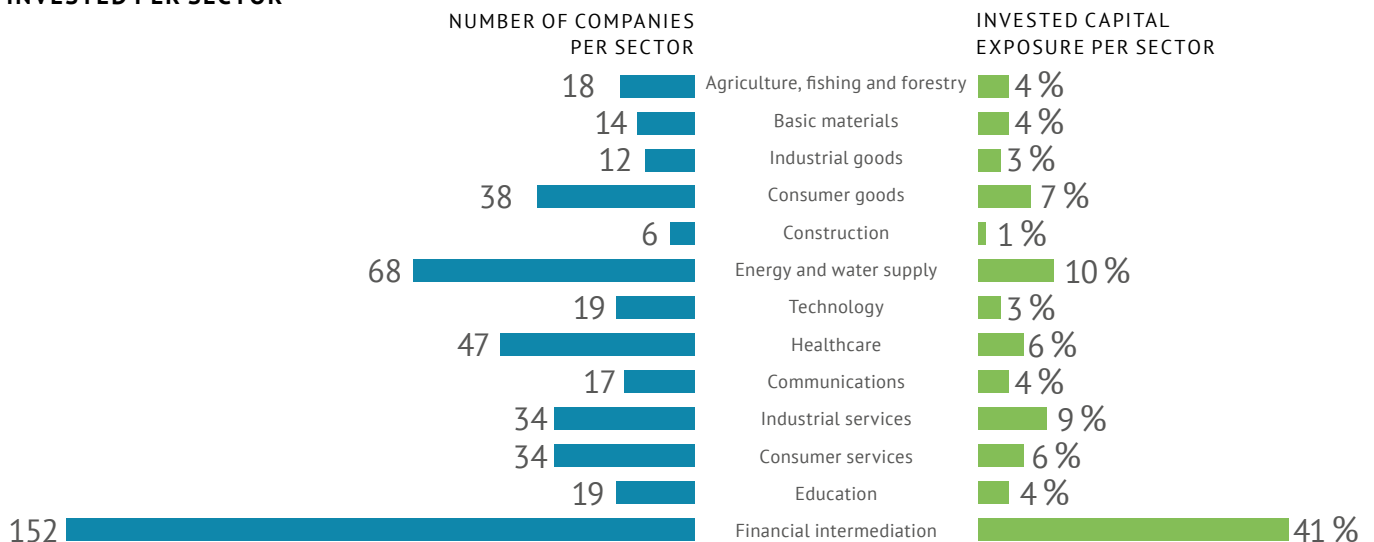
LARGEST COUNTRY EXPOSURES BY INVESTED CAPITAL**



LARGEST COUNTRY EXPOSURES BY NUMBER OF COMPANIES**



INVESTED PER SECTOR**



* Data as of 31 December 2018 ** Data as of 30 June 2018

FINANCIAL HIGHLIGHTS

2018 2017

OPERATIONAL HIGHLIGHTS

in USDm

Commitments and cash flows

Total commitments made to date	958.1	899.4
Total active commitments	782.0	757.1
Uncalled commitments	225.2	258.5
Cumulative paid-in capital to date	742.5	647.9
Cumulative reflows received to date	539.8	483.9
Cumulative net cash flow to date	-202.7	-164.0
New investment commitments	70.0	87.4
Reflows from investments	55.9	40.9

Investment Portfolio Valuation

Residual value	388.4	377.0
Internal Rate of Return (%)	6.30 %	7.44 %
Total Value over Paid-In (%)	125 %	133 %

Private finance mobilised

Total private investor commitments advised by Obviam	123.5	123.5
New co-investments from private investors	5.3	7.8

FINANCIAL STATEMENT HIGHLIGHTS

in CHFm

Annual Results

Investment profit (loss)	-12.5	45.0
Operating result	-22.5	36.7
Total comprehensive income	-17.0	7.8

Balance Sheet

Balance sheet total	621.4	623.7
Cash and cash equivalents	218.5	233.5
Uncommitted capital	-3.5	-18.4
Financial assets	382.8	367.4
Long-term liabilities	0	368.2
Shareholder's equity	606.0	237.7
Equity ratio (%)	97.5 %	38.1 %

USD
70.0 m
NEW INVESTMENT
COMMITMENTS

CHF
382.8 m
FINANCIAL
ASSETS

Note: Operational highlights are presented in USD, the functional (base) currency in which SIFEM's accounts are held. The Financial Statements are translated into the presentation currency CHF for reporting purposes. Annual result and balance sheet figures per IFRS account; investment portfolio valuation based on rolled-forward data as of 30 September 2018.



A landscape photograph of a lake at dusk. The sky is a pale, hazy blue. In the background, a dark line of trees is visible. A tall, thin wind turbine stands on the right side of the lake, its reflection visible in the water. The foreground is filled with tall, green reeds. A blue rectangular box is overlaid on the upper right portion of the image, containing white text.

SIFEM CONTRIBUTION TO DEVELOPMENT

HOW DOES SIFEM MAKE A DIFFERENCE?

SIFEM'S DEVELOPMENT CONTRIBUTION

SIFEM is an impact investor, as all SIFEM investments are made with the intent to generate a measurable development impact, based on specific indicators and corresponding targets in developing and emerging countries, including job creation, skills development, tax payments, financial sector deepening and diversification, and implementation of international best practice environmental, social and governance standards.

SIFEM's main development effects are reported to Parliament as contributions to the target outcomes ("Wirkungsziele") of Switzerland's economic development cooperation framework. SIFEM is relying on a result measurement system in line with the practice of other Development Finance Institutions, allowing for the monitoring and aggregation of results at the portfolio level. This framework is fully in line with the 2030 Agenda for Sustainable Development adopted by the United Nations in 2015 featuring 17 specific goals

(Sustainable Development Goals – SDGs). These goals put great emphasis on a development model wherein the private and public sectors have complementary roles in supporting sustainable growth and improving lives.

The result measurement framework used by SIFEM is composed of three different levels. First, an internal rating tool (SIFEM GPR), originally developed by the German Development Finance Institution (DEG), is used to appraise investments and track their development performance over time. In order to do this, a benchmark is established prior to investment to reflect the expected development effects. Second, a number of indicators are collected for each investment to measure development effects, which can be aggregated at the portfolio level and reported to Parliament. Third, case studies are conducted on an annual basis to take a closer look at the effects and value-add of SIFEM's investments in specific contexts.¹

SIFEM'S RESULT MEASUREMENT FRAMEWORK

INTERNAL RATING TOOL	DEVELOPMENT METRICS	CASE STUDIES
SIFEM GPR System providing an assessment of the development performance during the whole investment period	Development indicators (employment, training, tax payments, financing volume, climate change mitigation, access to healthcare etc.)	2-4 case studies per year

Each year, SIFEM collects and monitors data on the key development effects of the underlying portfolio companies (506 companies in more than 70 countries as of December 2018). Underlying portfolio companies report on the direct effects of their operations, using indicators which are harmonised, to the extent possible, with other Development Finance Institutions and with the standardised metrics developed by the impact investing community. These metrics capture portfolio-wide effects applicable to all investments, and sector-specific effects (for example: clean energy production, access to healthcare) whenever applicable. Changes in the composition of SIFEM's portfolio (new investments, exits, delays in getting annual data) lead some of the figures that describe the development effects of SIFEM's investments to fluctuate from year to year.

As part of a new "Impact Policy" developed in 2017, which has been in use since January 2018, SIFEM commits to maximise the development effects throughout the whole investment cycle, from investment analysis, investment decision-making, to investment management and monitoring. For this purpose, SIFEM analyses and monitors the contribution of its investments to four broad development pillars, which are fully in line with the 2030 Agenda for Sustainable Development and with the strategic objectives assigned to SIFEM by the Swiss Government for the period 2018-2020 (see chart on page 22).

The Impact Policy requires that every SIFEM investment contributes at least to the first two outcomes (Economic viability and Economic development), which are at the

¹ <http://sifem.ch/impact/case-studies/>

core of SIFEM's interventions. Furthermore, some SIFEM investments may also contribute to additional development effects captured by outcome 3 (Social Inclusion) and 4 (Global Public Goods & Challenges), depending on the characteristics of the investment: for instance, a sector-specific investment fund targeting education or health will also contribute to outcome 4, while an investment in a financial institution fostering the financial inclusion of low-income clients will also contribute to outcome 3². The above-mentioned results measurement framework is used to track SIFEM's contribution to these different outcomes.

SIFEM's current practice of impact management is broadly aligned with the Operating Principles for Impact Management which were developed by the International Finance Corporation (IFC) and launched on 12 April 2019 at the World Bank Group Spring Meetings in Washington DC. The Principles provide a common market standard for what constitutes an impact investment. They describe the essential features of managing investments into companies or organisations with the intent to contribute to measurable positive social, economic, or environmental impact, alongside financial returns. Impact considerations have to be integrated into all phases of the investment lifecycle: strategy, origination and structuring, portfolio management, exit, and independent verification. Critically, the Principles call for annual disclosure as to how signatories

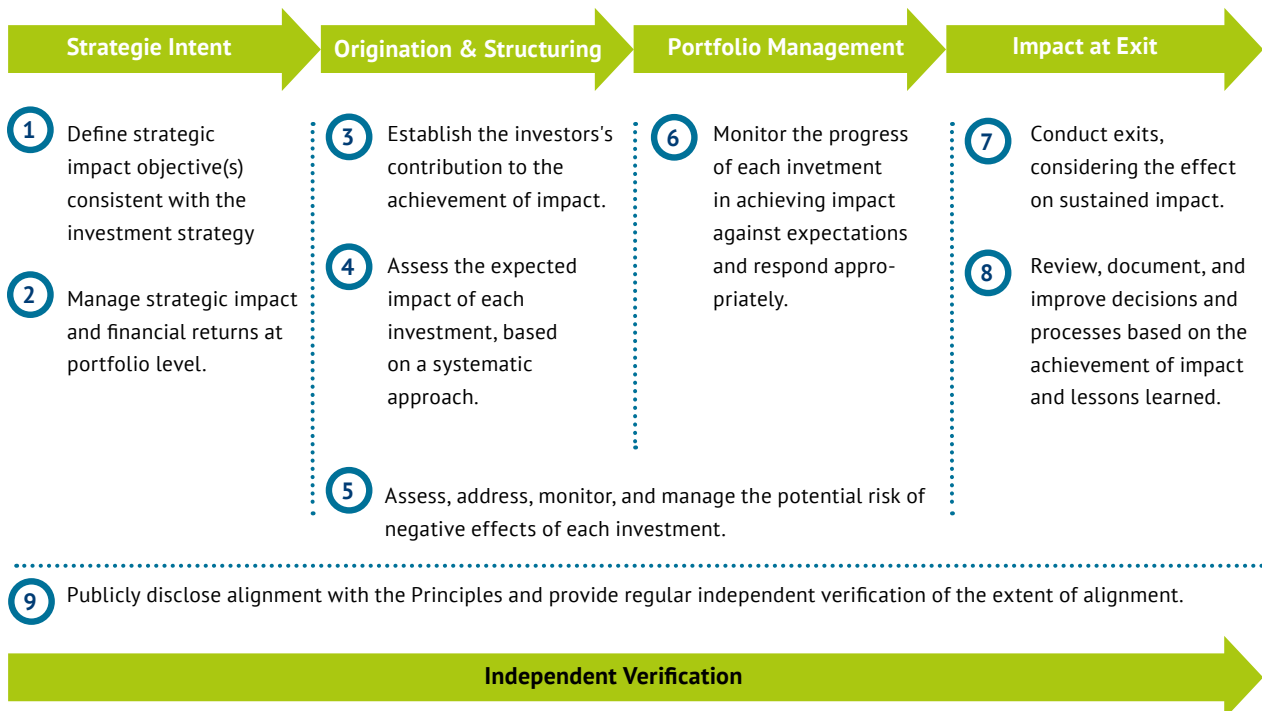
implement the principles, including independent verification, which will provide credibility to the adoption of the Principles.

SIFEM was among the first adopters of these Principles, committing to manage their impact assets in accordance with the Principles. As of October 2019, 77 investors have become signatories of these Principles³.



SIFEM's Chairperson of the Board Jörg Frieden with Philippe Le Houérou, CEO of IFC, at the official launching ceremony of the Operating Principles for Impact Management

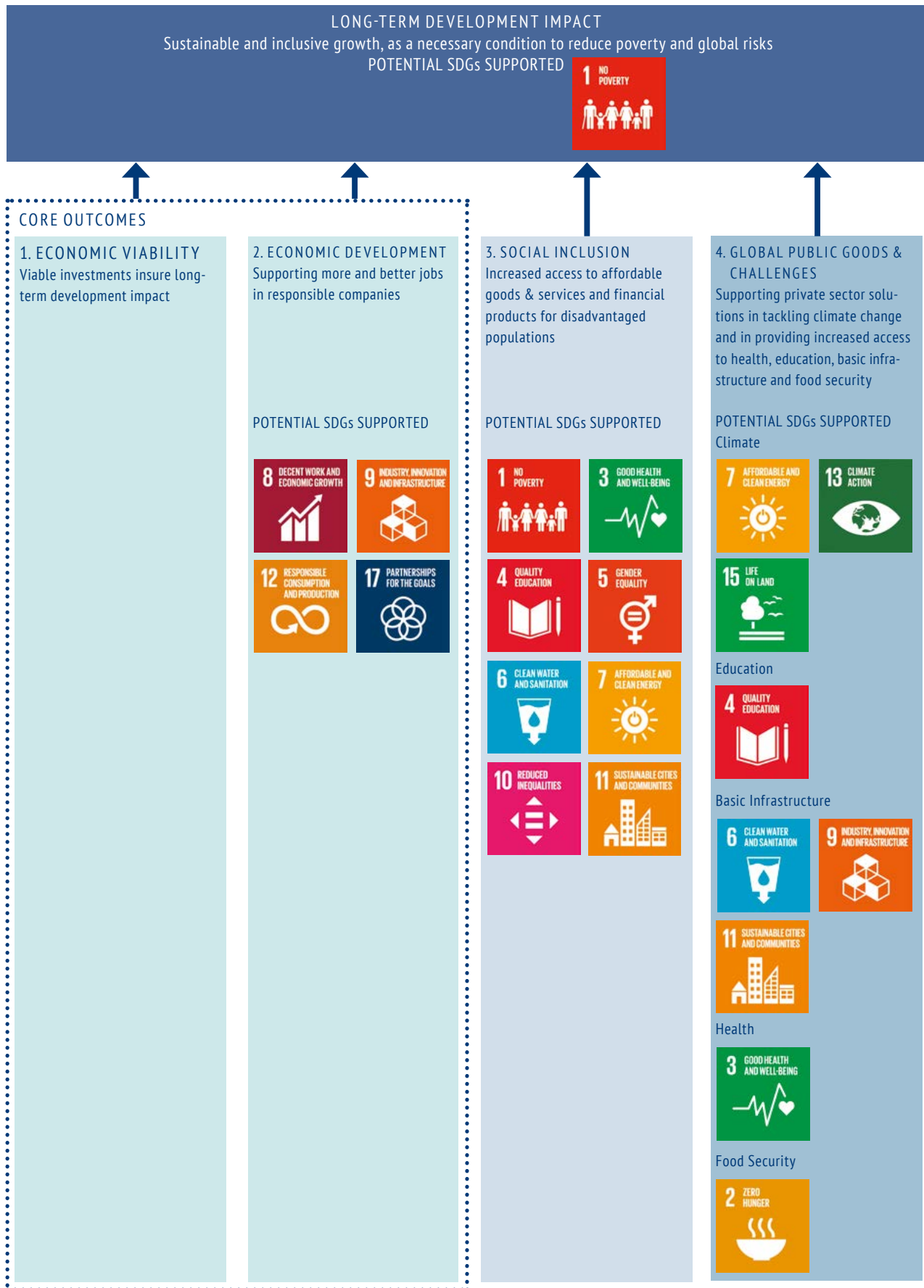
IFC OPERATING PRINCIPLES FOR IMPACT MANAGEMENT



² The full text of the SIFEM "Impact Policy" is available at <http://sifem.ch/impact/impact-policy/>

³ <https://www.impactprinciples.org/>

SIFEM'S DEVELOPMENT OUTCOMES AND THEIR LINKS TO THE SDGs



4. GLOBAL PUBLIC GOODS & CHALLENGES
Supporting private sector solutions in tackling climate change and in providing increased access to health, education, basic infrastructure and food security

POTENTIAL SDGs SUPPORTED

Climate

7
AFFORDABLE AND CLEAN ENERGY


13
CLIMATE ACTION


15
LIFE ON LAND


Education

4
QUALITY EDUCATION


Basic Infrastructure

6
CLEAN WATER AND SANITATION


9
INDUSTRY, INNOVATION AND INFRASTRUCTURE


11
SUSTAINABLE CITIES AND COMMUNITIES


Health

3
GOOD HEALTH AND WELL-BEING


Food Security

2
ZERO HUNGER


2018 DEVELOPMENT HIGHLIGHTS

EMPLOYMENT



CREATING MORE JOBS WITH DECENT WORKING CONDITIONS
Through its investments, SIFEM helps SMEs and other fast-growing companies to support and create formal sustainable jobs

830,000

jobs supported and created since 2005 (together with investment partners)

70%

of SIFEM portfolio companies provide training to their employees (*)

GENDER



CREATING ECONOMIC OPPORTUNITIES FOR WOMEN
Through its investments, SIFEM promotes gender equality and equal opportunities

40%

of the employees in SIFEM portfolio companies are women (*)

ACCESS TO FINANCE & FINANCIAL INCLUSION



PROVIDING ACCESS TO FINANCIAL SERVICES & PRODUCTS
Through its investments, SIFEM facilitates access to finance to SMEs and fosters financial inclusion

**3.8 million micro loans
80,000 SME loans
44,000 housing loans**

outstanding as of end 2018 at the level of SIFEM partner institutions and their underlying portfolio companies (*)

CLIMATE CHANGE MITIGATION



ACCELERATING THE ENERGY TRANSITION
Through its investments, SIFEM fosters access to clean energy and to more efficient energy & resources management solutions

5,470 GWh

of clean energy produced (together with investment partners) in 2018

6.1 million tonnes

of CO₂ emissions avoided (together with investment partners) in 2018

DOMESTIC REVENUE MOBILISATION



BROADENING THE LOCAL TAX BASE
SIFEM's investees and their underlying portfolio companies comply with tax regulations and pay taxes where they conduct business

USD 1,860 million

Corporate and other taxes paid by underlying portfolio companies in total in 2018 (*)

PRIVATE INVESTMENT MOBILISATION



REDUCING THE FINANCING GAP
SIFEM leverages further private investment for development

1 to 6

For each dollar invested by SIFEM, there were USD 6 of private investment in 2018

* For post-2013 investments as of end 2018

SUPPORTING MORE AND BETTER JOBS

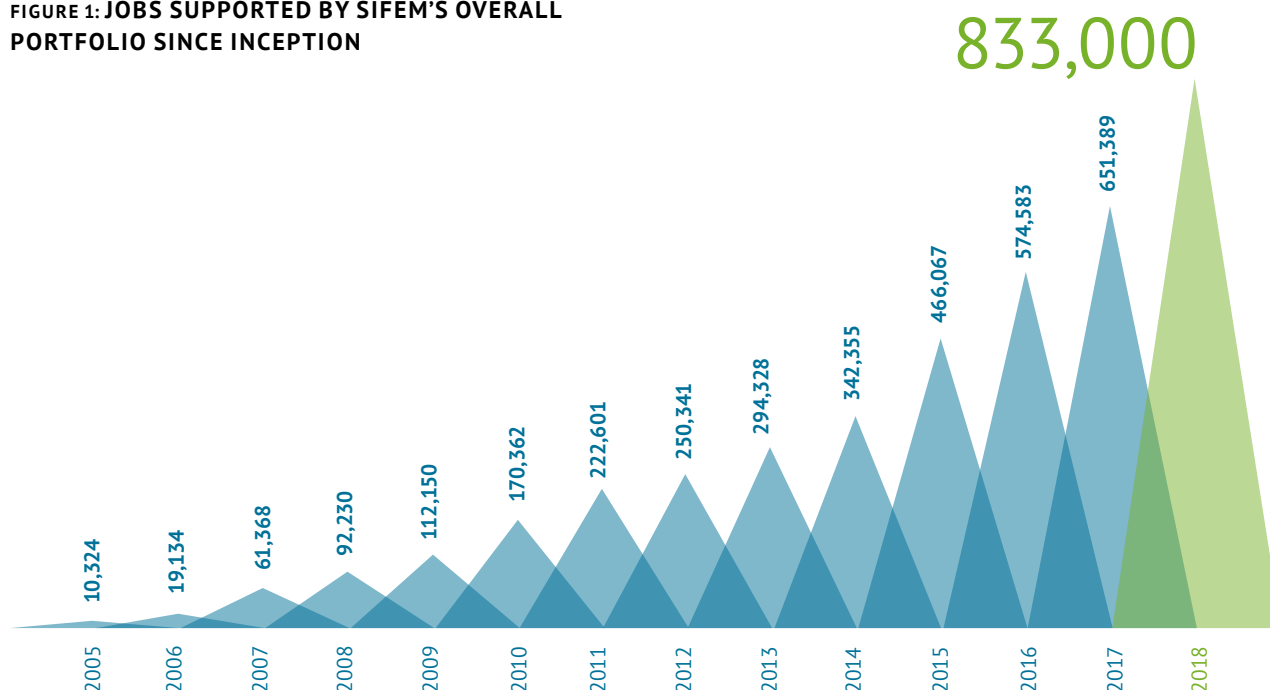
Creating more and better jobs is frequently identified as one of the top priorities for global development. Within the SDGs, SDG 8 calls for promoting "sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". Jobs are the principle escape route out of poverty: jobs boost living standards, help to build self-esteem and social cohesion, and thus contribute to a country's economic and social development. The biggest challenge is the sheer number of jobs needed to cope with the socio-demographic changes in developing and emerging countries. Some 170 million people are currently unemployed, many of them young people, and it is estimated that by 2020, some 600 million jobs need to be created, mainly in Africa and Asia, largely driven by demographic trends, technological change and migration pressures. The current rate of job creation is insufficient, however: according to some recent estimates, a 50% step up in employment creation will be needed to meet this vast demand⁴.

The second challenge is to ensure that those jobs also provide proper terms of employment and decent working conditions: they must comply with the core labour standards of the International Labour Organization (ILO) and all applicable laws and regulations, and must provide safe working environments as well as personal development opportunities for the employees. However, ensuring that existing and newly created jobs are also

better jobs should not be taken for granted, especially given the prevalence of vulnerable employment in developing countries. This group includes, in particular, farmers and agricultural workers, but also those running or working in small household-owned enterprises. People engaged in this type of employment are more prone to have informal work arrangements, poor and volatile wages, inadequate social security coverage, a lack of decent working conditions, and cannot benefit from social dialogue. According to the ILO, around 75% of workers in developing countries are engaged in vulnerable employment. Among vulnerable workers, women are more exposed to informal employment in low- and lower-middle-income countries and are more often found in the most vulnerable situations.⁵

The private sector plays a critical role in job creation, since more than 9 of out 10 jobs in developing countries are provided by that sector. Yet, private companies typically face bottlenecks to growth. The most important barriers are the lack of access to finance and electricity and the lack of know-how, as well as the prevalence of informality. Access to long-term funding can serve to lessen or remove these bottlenecks and this type of funding is a necessary condition for sustainable business expansion, the creation of diversified job opportunities and ultimately, more inclusive growth and the reduction of inequalities (as envisioned in SDG 8).

FIGURE 1: JOBS SUPPORTED BY SIFEM'S OVERALL PORTFOLIO SINCE INCEPTION



⁴ <https://www.edfi.eu/wp/wp-content/uploads/2019/06/EDFI-Impact-Conference-Session-note-on-jobs.pdf>

⁵ https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_627189/lang-en/index.htm



SMEs are important for job creation but so are other fast-growing companies. SMEs have represented on average about 66% of permanent, full-time employment in developing countries according to the World Bank, and SMEs create between 70% and 90% of new employment opportunities in these countries. However, such opportunities may sometimes be associated with weak terms of employment and working conditions, especially in sectors and activities with high occupational, health and safety risks, such as primary agriculture and forestry, manufacturing and construction. Employment in SMEs may also be less secure since SMEs are more likely to fail than larger firms. Larger firms also tend to provide formal terms of employment and better working conditions. They tend to be more productive and innovative, and as a consequence, they are often better able to offer skills development opportunities to their staff. Furthermore, larger firms can influence their supply chains' employment practices, including the terms of employment and working conditions in these chains.

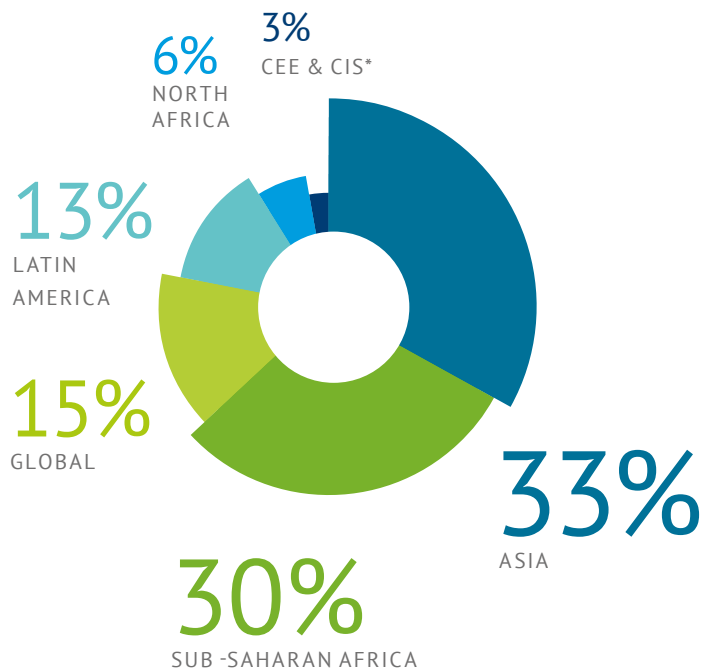
SIFEM'S JOB CONTRIBUTION

MORE JOBS

Together with its investment partners, SIFEM has since 2005 cumulatively created and supported more than 830,000 jobs as of year-end 2018 (FIGURE 1).

The job distribution by geographical region largely reflects the corresponding distribution of SIFEM's investment portfolio (see FIGURE 2). About 65% of the jobs in SIFEM's active portfolio are in Switzerland's

FIGURE 2: DISTRIBUTION OF JOBS ACCORDING TO REGIONS (AS PER END OF 2018)



* Includes Southern & Eastern European countries as well as Ukraine



development cooperation priority countries. Overall, employment in the SIFEM portfolio companies grew by around 8% in 2017-2018. While higher than last year, this growth rate is not necessarily indicative of a trend; it largely reflects changes in the underlying composition of the SIFEM portfolio.

Women account for approximately 40% of the employees in SIFEM's portfolio companies (companies invested in between 2013 and 2018 and which were still part of the portfolio at the end of 2018).

BETTER JOBS

According to SIFEM's Impact Policy, SIFEM captures the qualitative dimension of jobs by examining three complementary aspects:

COMPLIANCE WITH MINIMUM REQUIREMENTS

SIFEM's fund managers and financial institutions contractually commit to operating in line with national labour and occupational health and safety regulations and to work over defined time frames to meet the ILO core standards and basic terms and conditions of employment, when national legislation falls short of these standards. SIFEM requires that these financial intermediaries' contracts with their portfolio companies and clients also include the same types of commitments. However, SIFEM invests in countries where national regulations may be

weak and/or not enforced, and in countries where laws are rigid and could create incentives for the use of specific contractual arrangements such as contract labour. In addition, many of SIFEM's funds and financial institutions invest in SMEs (approximately 70% of SIFEM's underlying portfolio is comprised of SMEs). As a consequence, SIFEM ensures that its financial intermediaries develop Environmental and Social Management Systems and engage qualified personnel to manage these systems. This is so that they are equipped to identify risks related to labour and working conditions and actively work together with their respective portfolio companies and clients over defined time frames to meet SIFEM's requirements.

PROGRESS MADE IN HEALTH & SAFETY AT WORK, ABOVE AND BEYOND MINIMUM REQUIREMENTS

SIFEM has required that the managers of the funds that it has invested in after 2017 set occupational, health and safety targets that exceed relevant local regulations. Health and safety in the workplace are important components of what constitutes quality jobs – decent work is safe work.

In 2018, SIFEM invested in six funds, which have all committed to report year-on-year occupational, health and safety targets for their respective portfolio companies. For instance, one fund set a target of zero accident rate, while in another case, the target was defined in terms of the minimum number of safety inspections per month and the percentage of safety recommendations

implemented. Nonetheless, information on these targets will not be submitted to SIFEM until 2020. Beyond these concrete cases, it is important to stress that SIFEM's fund managers recognise the importance of ensuring that their investees provide proper terms of employment and good working environments. Some managers have developed innovative tools or initiatives to support the decent work agenda at the level of their portfolio companies, as illustrated by the case of Altra in Colombia (**BOX 1**).

TRAINING OPPORTUNITIES FOR STAFF & MANAGEMENT

SIFEM monitors the professional development of portfolio companies' staff. SIFEM recognises that investing in human capital development is an important dimension of job quality, particularly for low-skilled and other vulnerable workers. This training serves to support the growth and development of the fund managers, portfolio companies, and their respective employees' professional development. During 2018, 80% of SIFEM's fund managers provided training to their employees, and 63% of them also provided training to other stakeholders (e.g. suppliers, students etc.), often in cooperation with local universities and industry associations. In addition, 70% of SIFEM's funds' portfolio companies reported that they have formal training in place for their employees. The high share of managers and companies that provide training is impressive, especially considering the large share of SMEs in the portfolio. A concrete illustration of skills development programmes in the SIFEM portfolio is provided in **BOX 2**.

In addition, 37 capacity-building and training interventions have been provided to portfolio companies, mainly in Asia and Latin America, by a Technical Assistance (TA) facility partially financed by SECO. These interventions focused on a range of areas, such as financial & risk management, social & environmental impact management, and skills management.

SIFEM recognises that more should be done to foster good working conditions and best practices in the context of its investments. The increased attention paid to the issue at the level of all European DFIs should also pave the way for a more harmonised approach in the future to capture and/or measure job quality, while recognising that "job quality" is a very broad concept with highly context-specific elements.

Finally, to better understand the structural transformational process associated with SIFEM's investments and contribute to the harmonisation discussion, SIFEM commissioned an external study which focuses on the effects of structural transformation on jobs and job quality in the manufacturing sector. The results of this study will be presented in the next edition of this report.

BOX 1: MONITORING DECENT WORK IN PORTFOLIO COMPANIES

Altra, a Colombian-based fund manager, has taken a proactive stance in identifying, mitigating and managing its environmental and social (E&S) risks and supporting its investees in moving towards best practices. For example, Altra ensures that its investees have policies, procedures and systems addressing E&S risks, and the responsibilities for these items have been assigned. The Manager has developed an innovative method of assessing and benchmarking its investees' environmental, health, safety and quality practices: investees are mapped according to risks and maturity of practices. Taking a risk-based approach, Altra seeks to ensure that its higher-risk investees have the most mature practices. The Manager holds monthly conversations together with all of its investees, such that best practices can be shared and challenges can be discussed among the investees.

BOX 2: SKILLS DEVELOPMENT SUPPORTED BY TECHNICAL ASSISTANCE

Locfund II is a USD 60 million debt fund providing local currency loans to microfinance institutions across Latin America. SIFEM invested USD 5 million in this fund in 2013. In 2018, around 15 microfinance institutions supported by Locfund II benefitted from the capacity building and training interventions of the TA facility made available by SECO. In the context of these interventions, some 600 employees were trained in 2018 in risk management and social & environmental impact management, mostly in Central America and Bolivia.

THE CLIMATE CHANGE CHALLENGE AND THE ROLE OF DFIs

THE NEXUS BETWEEN DEVELOPMENT & CLIMATE CHANGE

Despite impressive progress over recent decades, the world still faces enormous developmental needs: expanding access to safe drinking water for the 785 million who currently lack it;ⁱ extending proper sanitation to more than 700 million people; providing modern energy sources to nearly one billion people who do not have access to electricity and 2.7 billion who lack clean cooking facilities;ⁱⁱ providing adequate nutrition to more than 820 million chronically hungry people;ⁱⁱⁱ and expanding access to decent healthcare and education services. Addressing these challenges requires economic growth, job creation and massive investments in socio-economic infrastructure.

At the same time, climate change – with its associated increases in the prevalence and severity of droughts, floods, heatwaves and storms – threatens to exacerbate poverty and inhibit development. Developing countries are most vulnerable to the impacts of climate change, partly due to their greater reliance on climate-sensitive natural resources (e.g. widespread smallholder agriculture), and also because most are located in tropical or subtropical areas that already experience high temperatures and volatile weather. Overall, global warming is expected to negatively affect agricultural yields in most developing countries, and it has been estimated that three-quarters of the costs of damages associated with climate change could be borne by developing countries.^{iv} Moreover, poorer countries have inadequate technical capacity and financial resources with which to handle shocks such as droughts and floods, to adapt to shifting weather patterns, and to cope with the destruction of infrastructure caused by extreme weather events.

In general terms, responding to climate change requires both *mitigation* – via reductions in net greenhouse gas (GHG) emissions – and *adaptation* to its negative impacts. These imperatives need not be seen as conflicting with the need for economic growth and development. The key is to recognise that there are different pathways to development. Historically, most countries have relied heavily on fossil fuels, but what is required now is green growth and low-carbon development. Mitigation requires climate-smart investments in clean and renewable energy sources,^v enhancing energy efficiency, and sequestering carbon through sustainable forestry and agriculture. Adaptation and reducing vulnerabilities to climate impacts calls for more resilient agriculture, settlements

and infrastructure. Investments in low-carbon, resilient systems can also contribute to the vital goals of job creation and boosting incomes, as well as strengthening energy security, preserving ecosystems and improving health by reducing pollution from fossil fuels. In short, development, mitigation and adaptation can go hand-in-hand.^{vi}

CLIMATE CHANGE AND THE SDGs

The Sustainable Development Goals (SDGs), agreed upon by 193 Member States of the United Nations in September 2015, represent a global consensus on the priorities for sustainable development. They also recognise the interconnectedness of poverty alleviation, environmental protection and climate change. As the World Bank points out, “unmitigated climate change is incompatible with sustainable development.”^{vii}

Responding to the climate challenge is the explicit focus of SDG 13 (“climate action”), which highlights climate strategies and policies, and their implementation. Furthermore, climate mitigation and adaptation relate to several other SDGs. On the mitigation side, SDG 7 (ensuring access to affordable and clean energy) requires investments in renewable energy and energy efficiency in order to limit GHG emissions from fossil fuel combustion. SDG 15 (sustainable land management) includes sustainable forestry to expand carbon sinks and reduce emissions from deforestation. SDG 12 (responsible consumption and production) relates to enhancements of resource efficiency and the reduction of waste across industries, which helps to curtail GHG emissions.

When it comes to adaptation to climate change impacts, an additional set of SDGs come into play. Achieving SDG 6 (providing clean water and sanitation) will become increasingly challenging as rainfall patterns shift and extreme weather events intensify. SDG 2 (achieving zero hunger) requires sustainable agriculture to boost food production in the face of severe climate-related disruptions and uncertainty, while also mitigating climate change by avoiding slash-and-burn techniques and adopting low-till farming methods that release less CO₂. SDG 3 (ensuring good health and well-being) is threatened by the expected spread of certain diseases – such as malaria – as average temperatures rise. SDG 11 (sustainable cities and communities) includes making human settlements more resilient to the impacts of climate change.



Progress towards the realisation of these SDGs is being made, albeit slowly. By April 2019, 185 parties had ratified the Paris Agreement and all but two of these had submitted their first ‘nationally determined contributions’ to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC).^{viii} Flows of global climate finance rose by 17% in 2015–2016 relative to 2013–2014. As of mid-2019, 28 countries had made recourse to Green Climate Fund grant financing – worth USD 75 million – to support national adaptation planning. Nevertheless, the fact that global energy-related CO₂ emissions increased by 1.7% to reach a record level of 33.1 gigatons in 2018^x highlights the need for more concerted action on mitigation.

While its impacts are unevenly distributed, climate change affects the entire globe. There is a limited global “budget” for carbon emissions, and emissions need to start falling soon and rapidly to limit warming relative to the pre-industrial benchmark to “well below” 2°C, as agreed in Paris in 2015.^x Yet developing countries have a right to grow their economies. Hence, it is in the interests of developed countries to invest in low-carbon projects in emerging economies so that the global carbon budget is not exceeded.

THE GLOBAL CLIMATE FINANCING LANDSCAPE

The realisation of the climate-related SDGs requires massive financial investments. According to a recent report published by the Intergovernmental Panel

on Climate Change (IPCC), USD 1.6-3.8 trillion will need to be invested in transforming energy systems to limit global warming to less than 1.5 °C above pre-industrial levels and thereby avoid the most harmful impacts of climate change.^{xi} Earlier estimates had indicated that the costs of mitigation in developing countries could reach USD 140-175 billion annually by 2030.^{xii} By the end of 2018, however, the cumulative total quantity of finance originating from public sources approved from key climate funds for mitigation was just USD 9.8 billion,^{xiii} and for adaptation, USD 4.4 billion.^{xiv} The huge gap demonstrates the scale of the challenge that lies ahead.^{xv}

Given the public good nature of climate investments and the need to take a long-term view, one of the principles of climate finance is that public entities need to lead the way, especially when it comes to developed countries fulfilling their obligations under their “common but differentiated responsibilities and respective capabilities,” as outlined in the UNFCCC.^{xv} To date, the primary architecture for climate finance has consisted in several multilateral funds. The largest are the Global Environment Facility (GEF) and the Global Climate Fund (GFC), both operating within the UNFCCC’s financial mechanism. Multilateral Development Banks (MDBs) also play a significant role in climate finance, often with a thematic or regional focus. The Climate Investment Funds (CIFs), managed by the World Bank, include the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF), which is itself composed of several specialised funds. Other examples include the European Investment



Bank's Global Energy Efficiency and Renewable Energy Fund (GEEREF) and the Africa Renewable Energy Initiative (AREI), administered by the African Development Bank.

A significant share of public climate finance is spent bilaterally, via bilateral development assistance institutions and/or Development Finance Institutions (DFIs), although a number of countries have also set up special bilateral climate funds. DFIs provide several types of climate finance, including loans and equity investments, mostly focusing on mitigation measures, including investments in renewable energies and energy efficiency. These institutions have a broad development mandate, combining considerations of development impact and financial sustainability. This is achieved through a long-term perspective and by building a specialist understanding of the risks in frontier markets and sectors and how these can be mitigated. Their main advantage is that they have extensive experience of investing in frontier markets and may be more familiar with local market conditions than most private investors. At the European level, Development Finance Institutions – which include institutions from 15 countries including SIFEM – have collectively committed around USD 15 billion in climate finance projects since 2009. For the year 2018, 95% of these commitments were direct investments, while 5% were invested through financial intermediaries such as investment funds. The top investment destinations were Sub-Saharan Africa, Latin America and South Asia. The largest climate portfolios among European DFIs are held by FMO (Netherlands), followed by CDC (UK) and Proparco (France), which are also among the largest DFIs.

All these efforts have been and still are crucial to accelerate the competitiveness of renewables vis-à-vis fossil fuels, which depends on both technology and geography. In addition, some mitigation finance instruments such as the Clean Development Mechanism (CDM)^{xvii} have allowed private-sector actors to develop mitigation activities on their own initiative in developing countries. Yet, private climate investments tend to target a handful of large emerging markets such as China, Brazil, India and Mexico.^{xviii} In these large markets, a growing amount of private investment activity is taking place, driven by international utilities, project developers, and commercial banks. In other developing countries, however, differentiated regional dynamics are at play, and private capital is relatively scarce in view of the different risks and uncertain profitability of some investment models.

To some extent, these dynamics are also reflected in the efforts made by DFIs (both multilateral and bilateral) to mobilise further private sector flows into climate projects. According to the OECD, USD 8.5 billion were mobilised from the private sector in 2017 for renewables and energy efficiency, for investments taking place mostly in upper-middle-income countries.^{xix}

HOW DOES SIFEM CONTRIBUTE TO CLIMATE CHANGE FINANCING?

As part of its development mandate, SIFEM invests primarily in local private equity or debt funds targeting SMEs and other fast-growing companies, with a view to support local economic development and decent job creation. In this context, SIFEM may also invest in some sector-specific funds in a broad range of areas (renewable energy generation, energy efficiency and storage, resource management, waste management, sustainable forestry), which are all relevant for lowering GHG emissions. These investments can also bring about associated development benefits to local populations, such as increased access to clean water, energy and other infrastructure.

As one of the smallest DFIs in Europe, SIFEM plays a niche role in climate financing, focusing on disruptive or innovative business models in renewable energy as well as energy efficiency solutions for SMEs. SIFEM's cumulative financial commitments to 12 climate-related investments amounted to USD 120 million during the period 2008-2018. This represents 13% of SIFEM's cumulative historical commitments (since 2005) of USD 958 million. Of the USD 120 million total, 29% was invested in Asia, 6% in Latin America, 41% in Sub-Saharan Africa, and 24% in global funds (see **FIGURE 3** below). SIFEM's geographical mandate focuses on smaller, less developed countries rather than large markets that attract substantial private finance for climate investments, such as China, Mexico and Brazil.

These 12 investments are concentrated in two climate mitigating sectors: 86% in renewable energy and energy efficiency (contributing towards the fulfilment of SDG 7) and 14% in sustainable forestry (SDG 15, see **FIGURE 4**). In addition, some other generalist funds in which SIFEM has invested also contribute to climate financing through opportunistic investments in companies which address either climate mitigation (e.g. through reducing GHG emissions via improved resource efficiencies) or adaptation (e.g. water resource management and resilient small-holder agriculture).

The most recent climate-related investments were approved in 2018: these are the Frontier Energy II fund (contributing to SDGs 7 and 13) and the South Asia Growth Fund II (contributing to SDGs 6 and 7). Frontier Energy II has several renewable energy generation projects in its pipeline, all of which were still under development as of December 2018. South Asia Growth Fund II had yet to make any investments in portfolio companies as of December 2018.

SIFEM's niche role in climate finance is complementary to that of other governmental bodies such as the Federal Office for the Environment (FOEN), the State Secretariat for Economic Affairs (SECO) and the Swiss Agency for Development and Cooperation (SDC), as well as the private sector and non-governmental organisations (NGOs).

FIGURE 3: SIFEM'S CLIMATE-RELEVANT INVESTMENT PORTFOLIO (% 2008-18 COMMITMENTS, BY REGION)

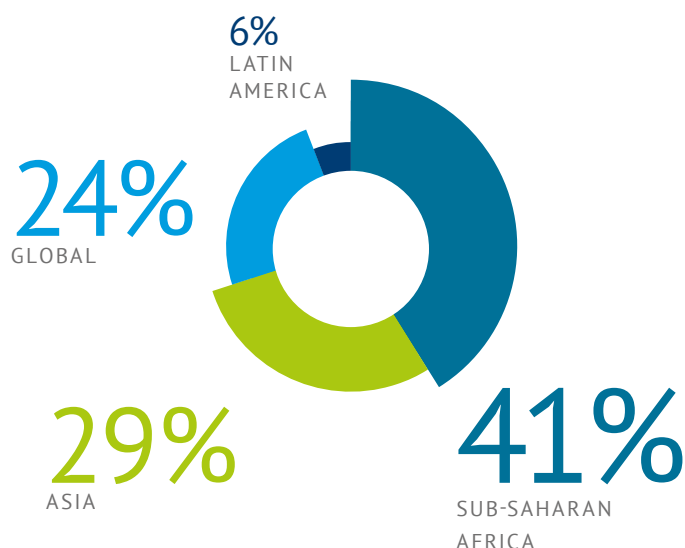
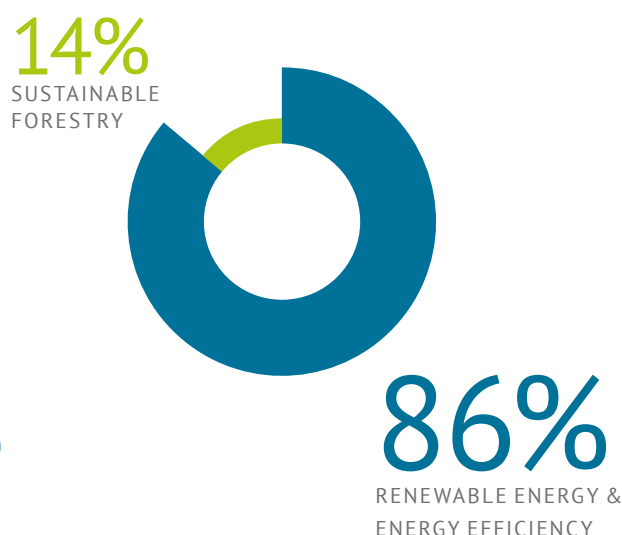


FIGURE 4: SIFEM'S CLIMATE-RELEVANT INVESTMENT PORTFOLIO (% 2008-18 COMMITMENTS, BY SECTOR)



While the FOEN is responsible for Switzerland's domestic climate policy implementation, SECO – as part of its external economic development cooperation mandate – supports partner countries to pursue low-carbon growth by promoting energy efficiency, renewable energy technologies, sustainable resource management, and climate-friendly market and financing mechanisms including supportive energy tariffs and standards.^{xx} One of the flagship initiatives supported by SECO along with other donors is the Private Infrastructure Development Group (PIDG), which operates at the frontier of infrastructure development in low-income countries and fragile states.^{xxi} SDC addresses climate change within its bilateral cooperation projects as well as within its global programmes in collaboration with multilateral organisations such as the UN and development banks. SDC provides technical capacity and funds for climate protection.^{xxii}

Through its investments in developing countries, SIFEM contributes to market development by investing in markets that are riskier than most private investors are willing to enter – hence ensuring financial additionality. SIFEM also brings value additionality by supporting the capacity-building of fund managers specialising in the renewable energy (RE) and sustainable forestry sectors. This includes support for management best practices, corporate governance, quality control, environmental and social management, and business strategy, which is realised via participation on Boards of Directors or advisory committees and through direct advice. In a limited number of cases and based on formal requests, technical assistance and capacity building through specialized consultants is also being provided to fund managers and their investees through the Technical Assistance Facility administered by SECO for SIFEM's investments. Between 2014 and 2018, technical assistance was provided to seven investees of a renewable energy fund operating in Asia, mostly in the field of environmental and social management.

Beyond the specific climate mitigation investments mentioned, it is important to mention that all SIFEM investments must comply with international standards in environmental, social and corporate governance (ESG). The compliance with such standards is part and parcel of the detailed analysis carried out by SIFEM when reviewing investment opportunities and is part of SIFEM's responsible investment policy.^{xxiii} SIFEM asserts that proper ESG risk management not only reduces risks to the environment, but also serves to reduce reputational and financial risks. Proper ESG risk management can also serve to generate a range of sustainable, positive financial,

environmental and societal impacts, such as reducing costs through energy and resource efficiency measures or reducing emissions and waste in production processes.

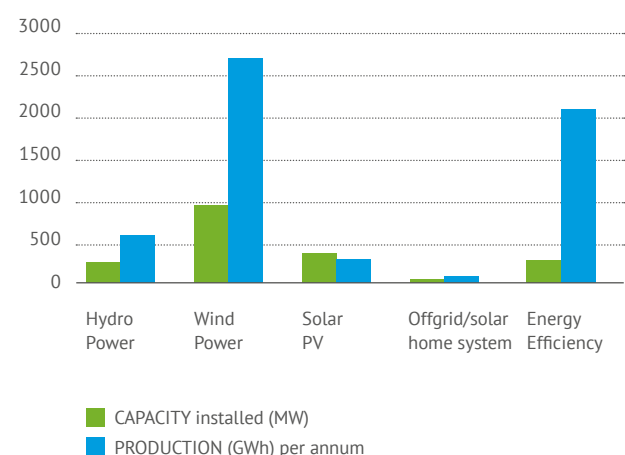
MAIN CLIMATE-RELATED DEVELOPMENT RESULTS TO DATE IN THE SIFEM PORTFOLIO

SIFEM collects data annually on several climate-related indicators for funds involved in the renewable energy, energy efficiency and sustainable forestry sectors, namely clean energy installed, clean energy produced, and GHG emissions avoided during the reporting year. The aggregated figures reported in **FIGURE 5 AND 6** below include only current climate-related investments with active projects, not earlier investments that have since been exited.

FIGURE 5: CLIMATE MITIGATION DATA IN THE SIFEM PORTFOLIO

Indicator	
Clean energy installed capacity, cumulative by end-2018 (MW)	1 747
Clean energy produced in 2018 (GWh)	5 472
GHG emissions avoided in 2018 (tCO ₂ e)	6 142 553

FIGURE 6: CLEAN ENERGY CAPACITY & PRODUCTION BY TYPE OF ENERGY (2018)



It is worth noting that SIFEM's clean energy projects have broader development impacts than their contribution to climate change mitigation through the reduction of GHG emissions. As mentioned earlier, expanded access to clean energy is enshrined in SDG 7, which recognises that energy plays a catalytic role for economic development. Electrification facilitates the expansion of myriad business activities in developing countries, while also laying the platform for other infrastructural systems such as telecommunications and financial systems. Clean electricity also brings a variety of important social benefits, including improved health (for example by reducing indoor air pollution from kerosene and allowing the refrigeration of vaccines) and enhanced educational outcomes (by providing lighting for scholars to enable them to study at night). The latter benefits are particularly noteworthy outcomes from the off-grid solar home systems provided by companies such as d.light (an investee of one of SIFEM's fund investments, Evolution II), since the mostly rural customers typically have no access to electricity grids (see case study on d.light in this report).

Clean energy projects also create and support local jobs, especially during construction phases. For instance, one of Armstrong South East Asia Clean Energy Fund's investees, Gia Lai Electricity Joint Stock Company, commissioned the first two utility-scale solar PV farms in Vietnam in 2018. For the 48MW Phong Dien project, approximately 300 job opportunities were supported during the construction phase (over 9 months) and about 20 job opportunities during the operation phase, while for the 69MW Krong Pa plant, approximately 1,000 jobs were supported during the peak construction phase. SIFEM requires Fund Managers, like Armstrong, and their investees (and their investees' sub-contractors) to meet national labour and occupational health and safety legislation, the ILO core standards and basic principles at work, and the IFC Performance Standards.

Last, but not least, renewable energy project developers have supported local communities in various ways, not only to comply with corporate social responsibility (CSR) regulations but also on a voluntary basis. For example, the Renewable Energy Asia Fund II's investee Lubuk Gadang, which built a mini-hydro plant in Indonesia, also installed irrigation piping to provide water to local farmers.

MOBILISATION OF PRIVATE CAPITAL VIA CLIMATE-RELATED INVESTMENTS

Under the UNFCCC, developed countries agreed to mobilise USD 100 billion per year from public and private

sources for climate-relevant investments in developing countries from 2020 onwards. The Swiss Government decided in 2017 that a significant portion of Switzerland's fair share of this USD 100 billion would be mobilised from private sources.

As part of Switzerland's official development assistance architecture, SIFEM seeks to mobilise private investment for development, including in the context of climate-relevant investment. This applies to the volumes mobilised directly by SIFEM through Obviam – when private funds managed by Obviam co-invest alongside SIFEM – as well as to the volumes mobilised together with other DFIs, which are calculated on a pro-rata basis.

For the period 2017-18, SIFEM invested in three new climate-relevant investments (African Forestry Fund II, Frontier Energy II and South Asia Growth Fund II), for a total commitment of USD 27 million. In this context, SIFEM mobilised directly and indirectly around USD 6 million of private investment. This represents approximately 10% of the total volume of private capital mobilised by Switzerland for climate-relevant activities.

CHALLENGES & LESSONS LEARNED

While SIFEM's historical commitments contributing to climate change mitigation represent a relatively small share (13%) of the portfolio, SIFEM is committed to continue investing in climate relevant opportunities in the future, in line with its core development mandate. However, it is also important to recognise a number of existing challenges from a development perspective, especially in the field of macroeconomic and market conditions, policy and regulatory environments, business models and financial viability, as well as environmental, social and governance (ESG) concerns. These challenges may also differ across the main regions in which SIFEM invests, namely Asia, Africa and Latin America.

1. The regulatory environment for clean energy projects is a critical determinant of the ultimate success of investments in this sector.

Energy regulations encompass aspects such as competition in the sector, the role of national power utilities vis-à-vis independent power producers, subsidy and tax regimes for fossil fuels and renewables, the availability and quality of transmission infrastructure, and power offtake arrangements with national utilities. Each of these dimensions can be favourable or detrimental to private investments in clean energy. For instance, many of SIFEM's renewable energy investments in Latin



America were greenfield projects, which tended to take a considerable amount of time owing to regulatory or infrastructure delays, which in turn reduced investment returns. Furthermore, uncertain regulatory frameworks and dominant state-owned power utilities can complicate Power Purchase Agreements (PPAs) and create substantial counterparty risk for private sector investors.

An important lesson emerging from the regulatory challenge is that fund managers should be encouraged to work with regulators in order to help to build capacity. A positive example from the SIFEM portfolio is provided by the case of the Evolution I fund, which was a pioneer private equity investor in the South African renewables sector. Evolution had to wait two and a half years for the regulatory authorities to finalise the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), which added to financial costs and risks. However, once it was finalised, the REIPPPP proved to be a successful framework which other African countries began to emulate.

2. The investment fund model used by SIFEM generates differentiated opportunities across regions, as equity investors are having to adapt their strategies and business models.

With the rapidly falling costs of renewable energy resulting from technological innovation and the emergence of new technical solutions, business models have evolved in different ways. In Asia, for instance, some investments have struggled to break even, and the emphasis nowadays is on large-scale investments with low fees. Fund managers that lack inhouse project

development capacity are finding themselves squeezed out of the market by bigger players that can operate on very large scales. In Latin America – excluding Mexico and Brazil from the discussion – different countries are at different stages, and renewable energy still provides good opportunities for fund investors in the context of relatively small projects. However, owing to the reliance on hydropower, which is increasingly at risk with climate change, there is an urgent need to focus on complementary technologies such as wind and solar and improving infrastructure through energy efficiency measures. In Sub-Saharan Africa, because centralised utility generation has generally under-performed owing to issues such as dysfunctional grids and power losses, investors are increasingly leapfrogging to small and micro grids, commercial and industrial (C&I) rooftop solar power, and similar examples of “private-to-private” (P2P) power supply arrangements. Overall, the difficulty of concluding successful exits on equity investments remains one of the major challenges for investors.

3. Environmental and social issues tend to be especially prominent for investments in renewable energy and sustainable forestry, primarily because such investments often involve significant amounts of land and directly affect the lives of local residents.

Climate-related investments often invoke sensitive land rights issues, especially in countries where there remain unresolved land ownership issues. Another critical aspect is whether local communities stand to benefit directly from the new energy infrastructure. Such matters are politically complex, involving authorities from central and local governments as well as surrounding communities.

The appropriate response to such challenges is for investors to conduct thorough due diligence processes, and to engage with all relevant stakeholders including affected communities and local and national government authorities. In some cases, however, unresolved land or community rights issues have ultimately led to the abandonment of investment projects.

4. On the impact reporting side, there are several methodological challenges surrounding data collection, which complicates comparison and aggregation.

The metrics for SDG 7 and SDG 13 are centred on the number of gigawatt hours (GWh) produced and the GHG avoided as a result of investments. GHG emission reduction or avoidance figures are based on model calculations which require multiple inputs, which can differ by country, sector and energy type. There are also complex aggregation issues, especially considering that private equity investors are continually entering and exiting from climate-relevant investments over the course of the fund lifecycle. These issues have important implications, not only for impact reporting but also for catalysing further investments in the sector. Such issues are being addressed through climate indicator harmonisation initiatives within collaborative groups like the Association of European Development Finance Institutions (EDFI), Harmonised Indicators for Private Sector Operations (HPSO) and Global Impact Investor Network (GIIN), but progress is slow. SIFEM actively participates in these efforts.

5. Mobilisation of private capital remains challenging outside large emerging markets.

The need to mobilise private finance is at the heart of international discussions on how to finance the SDGs and move the needle from ‘billions’ of dollars in development aid to ‘trillions’ of dollars in investment. In practice, however, mobilising private capital outside large emerging markets remains difficult. Real or perceived risks often lead to higher costs, delays, or prevent a transaction from happening. One of the tools to help mitigate such risks and attract further private capital investment is the use of concessional funds, which can take the form of foreign exchange risk coverage, first-loss guarantees, or other instruments aimed at “de-risking” investments. Such tools, known as “blended finance” structures, have been used extensively in renewable energy projects in the last decade, but limited commercial viability remains the main challenge to bring investments to scale. Indeed, even if some of the risks are mitigated, commercial and institutional investors still need attractive financial returns to consider investing in new and riskier markets.

I United Nations. 2019. Sustainable Development Goals. <https://sustainabledevelopment.un.org/sdg6>

II International Energy Agency (IEA). 2018. World Energy Outlook 2018. Paris.

III Food and Agriculture Organisation of the United Nations (FAO). 2019. The State of Food Security and Nutrition in the World. Rome.

IV World Bank. 2010. World Development Report 2010: Development and Climate Change. Washington, DC.

V In SIFEM’s usage, clean energy refers to energy sources and technologies that do not pollute the atmosphere, including renewable sources like solar, wind, hydro, geothermal and wave energy, as well as technologies that improve energy efficiency and thereby reduce GHG emissions and other pollutants.

VI Frankhauser, S. & Stern, N. 2016. Climate change, development, poverty and economics. London School of Economics. <http://www.lse.ac.uk/GranthamInstitute/publication/climate-change-development-poverty-and-economics/>

VII World Bank, 2010, p.39.

VIII UN SDGs. <https://sustainabledevelopment.un.org>

IX International Energy Agency. 2019. Global Energy & CO₂ Status Report. <https://www.iea.org/geco/>

X IPCC. 2018. Special Report on the impacts of global warming of 1.5°C above pre-industrial levels. <https://www.ipcc.ch/sr15/>

XI Ibid.

XII World Bank, 2010.

XIII Watson, C. & Schalatek, L. 2019. Climate Finance Thematic Briefing: Mitigation Finance. Heinrich Böll Stiftung.

XIV Watson, C. & Schalatek, L. 2019. Climate Finance Thematic Briefing: Adaptation Finance. Heinrich Böll Stiftung.

XV Based on a broader methodology that includes private investments in renewables and other low-carbon technologies such as electric vehicles, global climate finance flows (including within developed countries) were estimated to average USD 463 billion in 2015-2016, up 27% from 2013-14. Oliver, P., Clark, A. & Meattle, C. 2018. Global Climate Finance: An Updated View 2018. Climate Policy Initiative.

XVI Schalatek, L. & Bird, N. 2018. The Principles and Criteria of Public Climate Finance - A Normative Framework. Climate Funds Fundamentals 1, Heinrich Böll Stiftung.

XVII Created by the Kyoto Protocol, the Clean Development Mechanism (CDM) established the first global carbon crediting scheme of its kind by providing an approach to verifying emission reductions and translating them into carbon credits. Operational since the beginning of 2006, the mechanism has already registered more than 1,650 projects in developing countries and is anticipated to produce CERs amounting to more than 2.9 billion tonnes of CO₂ equivalent.

XVIII Bloomberg NEF. Climatescope: Emerging Markets Outlook 2018. November 2018.

XIX OECD. 2019. Amounts mobilised from the private sector by development finance institutions – Highlights 2017. <https://issuu.com/oecd.publishing/docs/amounts-mobilised-from-the-private-sector-by-dev-fi>

XX https://www.seco.admin.ch/seco/en/home/seco/Staatssekretariat_fuer_Wirtschaft_SECO/Direktion_Aussenwirtschaft/Wirtschaftliche_Zusammenarbeit_Entwicklung.html

XXI <https://www.pidg.org/>

XXII <https://www.eda.admin.ch/deza/en/home/themes-sdc/climate-change/finanzierung-des-klimaschutzes.html>

XXIII https://www.sifem.ch/fileadmin/user_upload/sifem/pdf/en/Other_Documents/SIFEM_s_Approach_to_Responsible_Investment.pdf

EXTERNAL VIEW

THE ENERGY TRANSITION IS UNDER WAY IN AFRICA BUT PRIVATE CAPITAL IS SCARCE

INTERVIEW WITH ANDREW REICHER, ANGEL INVESTOR AND INDEPENDENT ADVISOR ON INFRASTRUCTURE CLIMATE RESILIENCE AND ENERGY ACCESS IN AFRICA AND ASIA.

IN YOUR OWN INVESTMENT EXPERIENCE, WHAT HAS BEEN THE MOST SPECTACULAR MARKET DEVELOPMENT IN THE CLIMATE FIELD IN SUB-SAHARAN AFRICA IN THE LAST DECADE?

Until about 2010, energy development was concerned about the megawatt capacity of the system, based on low consumption rates. Therefore, the emphasis was on finance for large scale projects, mainly for generation, and less for transmission and distribution. However, three major streams of issues forced the energy development sector to reinvent itself. The first one was the growing recognition that access to energy had in fact not increased at all in Sub-Saharan Africa on a percentage-of-population basis, as large power utilities were not interested or able to reach rural areas and people at the base of the pyramid. As a result, only 25% of the population had access to electricity in 2005. Second, climate change started to affect the lives of people, with growing risks and uncertainty for food security, especially in rural areas. Third, technological advances in renewable energy and falling prices dramatically expanded the options for underserved customers. Decentralised solar options, including mini-grids, have been developing rapidly across the region, reaching rural unconnected and urban underserved populations much faster than grid-expansion. The combination of these three streams has fundamentally changed the energy access equation in Sub-Saharan Africa. There is no room for complacency, however: even today, the region has the lowest energy access rates in the world. Electricity reaches only about half of the population, and clean cooking only one third.

HOW DO YOU PERCEIVE THE ROLE OF DFIS RELATIVE TO DONORS ON THE ONE HAND, AND PRIVATE FOR-PROFIT INVESTORS ON THE OTHER HAND?

Official development assistance from donors has an important role to play and still provides the largest contribution to financing electricity access in Africa, but the vast majority is going to the grid. The role of donors remains essential in other areas, for instance to strengthen framework conditions, including on the regulatory side, or to support emerging business models up to the proof of concept stage. This being said, private financing is crucial to deliver decentralised renewable options, but apart from

social impact investors, private capital does not rush to finance risky climate investments. Let's be clear: in this field, financial returns tend to be low while risks are very high, including currency risks. Why would private investors prefer to invest in Africa when they can make much higher returns with lower risk in other markets? Those that are looking most seriously at investment opportunities are corporate investors coming from large energy companies based in OECD countries, but this is a different model. This is precisely why DFIs have been – and still are – so important for climate financing in Africa, since they ought to have a longer time horizon and larger risk tolerance than private investors, given their development mandate.

EVERYBODY STRESSES THE IMPORTANCE OF PRIVATE FINANCING TO ACCELERATE THE ENERGY TRANSITION IN SUB-SAHARAN AFRICA, BUT THE INVESTMENT TRACK RECORD REMAINS PATCHY. WHAT HAVE BEEN YOUR MAIN LESSONS LEARNED AS AN INVESTOR AND AS A MEMBER OF DIFFERENT INVESTMENT COMMITTEES OF INVESTMENT FUNDS?

The investment track record is indeed patchy and by and large incomplete, essentially because of the limited number of exits. It is a fact that private equity funds providing capital to off-grid clean energy generation enterprises (both companies and projects) are struggling. This is largely due to liquidity constraints, because investee companies often have very limited or no access to working capital from the local financial sector in frontier markets. But in addition, business management skills are lacking and there remain considerable regulatory as well as macroeconomic risks in the region, which complicates the exit environment for investors. Ultimately, who is going to buy their shares in these companies? It is also crucial to understand that currency swings have literally crushed the financial performance of many investments. In other words, while investments may have done relatively well in local currency terms, their performance is poor once converted into dollars or euros. One of the main lessons learned for me in frontier markets is that we tend to underestimate the lack of access to debt financing facing local investees, which affects the sustainability of the investment model. More debt is required, but more fundamentally, local financial and energy sector reforms

are also badly needed so that uncertainties can be reduced and the lending proposition made more “bankable”.

IN THIS CONTEXT, HOW DO YOU ASSESS THE ROLE OF “BLENDED FINANCE” STRUCTURES, WHICH SEEM TO HAVE BEEN USED EXTENSIVELY IN THE ENERGY INFRASTRUCTURE SECTOR TO ATTRACT PRIVATE INVESTORS?

The use of concessional funds – let’s call them subsidies for what they are – to “de-risk” some investments or cover some operational costs in the short run may be useful where you believe there is a chicken-and-egg problem or market failure – for instance, to finance early stage costs, cover foreign exchange risks or address risk perception. But “blending” needs to be transitional to be effective. However, blending will do little if the underlying operational model does not allow you to break even. And if subsidies artificially lower the price of renewable energy for customers, they may completely distort the market and may be difficult to phase out.

AS A SMALL DFI, SIFEM HAS A BROAD DEVELOPMENT MANDATE WHICH ALSO TOUCHES UPON CLIMATE ISSUES. AS A RESULT, IT HAS SMALL YET SIGNIFICANT EXPOSURE TO CLIMATE-RELEVANT PROJECTS, MOSTLY THROUGH FUND INVESTMENTS. HOW DO YOU ASSESS THE POSITIONING OF SIFEM ON CLIMATE, IN TERMS OF PORTFOLIO AND FOCUS, VIS-À-VIS MUCH LARGER DFIS?

As a small DFI, SIFEM certainly cannot and shouldn’t even try to compete with larger institutions driven by big investment volumes. Instead, SIFEM could play a role as a nimble, niche investor, essentially looking at specific opportunities in the current energy transition across the region in an agile way. The current investment structures are undergoing radical changes in many regions, because some of the earlier business models have failed and new ones are emerging. Innovation also plays an important role, where size does not necessarily matter. New investment structures may emerge, providing SIFEM with niche opportunities. This could include Commercial & Industrial solar and off-grid systems and devices, but other opportunities need be considered, such as energy storage technologies, smart grids and energy efficiency solutions. The most important thing is to have a clear vision about what needs to be done and about your comparative advantage vis-à-vis other players.

WHAT IS YOUR MEDIUM-TERM OUTLOOK FOR RENEWABLE ENERGY FINANCING IN AFRICA, SAY OVER THE NEXT 10 YEARS, IN THE CONTEXT OF RAPID TECHNOLOGICAL CHANGE AS WELL AS THE TREND TOWARDS GREATER POLICY COMMITMENTS?

I remain optimistic! My sense is that the energy transition will continue and accelerate in Africa. The focus will increasingly be on distributed generation. I strongly

believe that the traditional utility model is breaking down, especially in larger countries where the costs of transmission are greater than generation. The future is about facilitating rural clean energy access by creating suitable conditions for off-grid investment, and by making provision for subsequent connection of decentralised solutions to the grid in a complementary manner. This will inevitably induce disruptive change in some markets, driven by commercial and industrial (C&I) customers, who are developing their own off-grid solutions. The same trend will apply to rural areas, which are not connected with the extension of national grids, but which have increasingly made use of cost-effective solar home systems and small individual devices. In other words, the energy revolution is gathering pace, with increasing emphasis on C&I solar and off-grid solar, and this will inevitably lead to a consolidation of business models. However positive, the ultimate challenge of this energy transition will be to make sure that regulators understand what is happening, decide to embrace rather than resist the change (for example by protecting incumbent utilities and forbidding new entrants to operate), and successfully tackle the issue of energy affordability for poorer consumers. This in turn requires political and moral decisions about fairness. Should everyone have a connection irrespective of income? Should all members of a class of consumer (households) pay the same tariff irrespective of cost to serve? These debates are already starting to happen in countries such as Rwanda, Kenya, Togo, Benin and Nigeria. That’s why I’m optimistic, but it will take a long, long time for the entire continent to be covered unless donors play an active role.



ANDREW REICHER, a British national, has more than 40 years of international finance experience, including 32 years in emerging markets, focusing on access to energy and climate change. Among other responsibilities, he headed the infrastructure business of CDC – the British Development Finance Institution, and headed the programme management unit of PIDG, a multi-donor facility active in infrastructure financing in frontier markets which is co-financed by SECO. He currently serves on the investment committees of several renewable energy funds and is also an “angel investor” in Africa.

CASE STUDY

D.LIGHT: BRINGING AFFORDABLE AND CLEAN ENERGY PRODUCTS TO UNDERSERVED HOUSEHOLDS

In 2016, SIFEM invested USD 10 million in Evolution II Fund, a private equity fund focused on investments in clean energy infrastructure and resource efficiency. One of the Fund's investments is in d.light, a company selling off-grid solar light and power products in 70 countries. The company has sold over 20 million products and is on track to meet its target of improving the lives of an estimated 100 million people by 2020. Through Evolution II, SIFEM's investment has enabled d.light to expand its innovative pay-as-you-go (PayGo) consumer financing model in existing markets of Kenya, Uganda and Ethiopia and into new markets in Nigeria and Tanzania.

THE NEED FOR ACCESS TO CLEAN, MODERN ENERGY

Nearly a billion people in the developing world – living mainly in rural and peri-urban areas – lack access to grid-based electricity. For lighting, many families rely on polluting, dangerous and expensive kerosene lamps. A major challenge is how to bring the benefits of electric lighting and power to low-income households in remote areas that are beyond the reach of cost-effective power grids. A promising development in recent years has been the rapid growth of off-grid solar energy solutions. While affordability for low-income households has until recently been a significant hurdle, d.light is at the forefront of a revolution in product and payment solutions that are transforming people's lives and contributing to the transition from fossil fuels to clean energy.

PROVIDING OFF-GRID SOLAR PRODUCTS

d.light's founders were initially inspired to introduce solar-powered products that could phase out kerosene

lamps. The company's mission is to transform lives by making high-quality clean energy products universally available and affordable. d.light's approach is based on the concept of an "energy ladder", meaning that products are tailored to different income levels. For instance, the entry-level products are very simple and relatively low cost individual solar lamps (costing between USD 4-15), which are designed to replace kerosene lamps in low-income households. At higher income levels, consumers can move up the energy ladder by purchasing more sophisticated solar products, such as more powerful lamps and torches with mobile phone charging capabilities.

The next level of products – targeted at households with incomes of around USD 300 per month and who have no access to grid electricity or face unreliable grids – are solar home systems (SHS) consisting of a solar panel, battery, control panel, phone chargers, several lights, a torch and a radio. All products are rigorously tested and certified by Lighting Global, a World Bank initiative to ensure quality standards for off-grid solar products. d.light's ongoing process of product research, design and development (RD&D) is informed by reports submitted



2018

YEAR OF INVESTMENT IN
D.LIGHT



\$ 10 m

SIFEM INVESTMENT IN
EVOLUTION II FUND



GLOBAL



d.light customer call centre, Nairobi, Kenya

by manufacturers as well as the global design chief and product chief, resulting in regular product improvements. The company's headquarters are in Nairobi, Kenya, with additional hubs in India, China and the United States.

PAY-AS-YOU-GO CONSUMER FINANCING

While the simpler, lower cost products are sold on a cash basis, d.light has developed an innovative pay-as-you-go (PayGo) model of consumer financing for sales of the SHS. When buying a SHS, a customer pays a deposit and commits to repaying the balance over a predefined period, typically between 9 and 18 months. d.light is committed to ensuring that customers purchase products that are within their means. Its sales agents are appropriately trained and carefully explain how the PayGo transaction works. Furthermore, each customer goes through a financial screening process with the sales agent and the local call centre, whereby the customer is assessed for their capability to pay – with the method varying by country, depending on the strength and reliability of the local credit reference bureau. When PayGo customers make a repayment, they receive a top-up code via SMS, which is entered into a controller keypad to enable the SHS. Once the credit expires, the SHS stops functioning until the next payment is made. In some countries, for example Kenya, customers use mobile phone payment platforms to purchase credits.

Should customers encounter difficulties making repayments, d.light staff contact them to enquire about the reasons for non-payment, which could be a lack of knowledge, financial difficulties or faulty products. d.light seeks to implement realistic payment plans to prevent over-indebt-

edness and retain customers. Once the product is fully paid off, the purchaser has full ownership and use of it.

A FLEXIBLE BUSINESS MODEL

In its Kenya operations, d.light has two principle 'routes to market'. The first is direct distribution via its own network of 15 regional hubs and about 700 local "Experience Centres", which are branded stores selling exclusively d.light products. From these centres, d.light distributes products through nearly 4,400 independent sales agents who work on a commission basis. The use of local agents ensures familiarity with potential customers, local languages and cultures, and reduces the need for transport. The second route involves working with a variety of third-party distribution partners. These include over 200 retail distributors who supply to mainly rural multi-product retail stores, which in turn sell in cash to end users. d.light also partners with microfinance institutions (MFIs), which buy cash products (e.g. solar lanterns) and then finance them to their customers. d.light enters new markets with cash products only, and then adds PayGo options once the brand and distribution network have been established.

IMPROVING LIVES AND LIVELIHOODS

d.light's solar products help to improve customers' lives in various ways. Those who replace kerosene lamps with solar lights not only save money, but also have improved health and safety in their homes or workplaces, since indoor air pollution and the risk of fires is eliminated. Products with mobile phone charging capabilities facilitate communication and enable people in remote



A d.light customer purchasing a solar home system in Machakos, Kenya.

areas to use mobile money platforms. Solar lamps allow scholars to improve their educational performance by extending night-time study hours. Many rural schools that are beyond the reach of electricity grids are using d.light products. Those buying a SHS with a radio or television benefit not only from entertainment, but also from access to news and information.

d.light products also provide enhanced livelihood possibilities. For example, small business operators – including farmers – use solar-powered lights at night to extend their business hours. Some entrepreneurs sell d.light-powered phone charging services as an alternative to costly charging at shopping centres. Others lease their lighting systems to people who need them for night-time events, such as funerals.

MITIGATING CLIMATE CHANGE

Solar lamps also bring significant benefits for climate mitigation by displacing kerosene lamps. It is estimated that 2.4 million tonnes of CO₂ equivalent were avoided globally

REPLACING KEROSENE LAMPS WITH SOLAR LIGHTS SAVES HOUSEHOLDS MONEY. Given that a litre of kerosene costs USD 1 in Kenya (September 2019), a family can easily spend USD 0.38 per week on kerosene fuel per lamp they use (assuming three hours of use per day and a burn rate of 0.018 litres/hour). d.light's basic solar lamp sells for \$4, which means that a family recovers the cost within 11 weeks.

in 2018 from the use of d.light products. This is equivalent to the CO₂ emissions of 1.85 million cars each driven 10,000 kilometres in a year.

CHALLENGES AND OPPORTUNITIES

While the off-grid solar market has grown rapidly in recent years, there are still numerous challenges in serving remote, low-income customers in underdeveloped markets. These conditions create risks and uncertainties, leading several companies to encounter financial difficulties. Newer markets present more challenging conditions. For example, Nigeria lacks widespread mobile payment systems, necessitating customers to sign on to a mobile money payment system integrated with d.light or to have pre-existing bank accounts that d.light can debit from in order to purchase a d.light product. Furthermore, while the affordability of products has improved, many are still beyond the reach of the poorest households.

d.light, now a market leader, continues to refine its strategy and is exporting the successful Kenyan business model to other countries, where it is scaling up distribution networks. Through its expanding range of products, d.light aims to continue enhancing the quality of life of its customers. The company is making an important contribution towards the fulfilment of SDGs 7 (affordable and clean energy) and 13 (climate action), thereby illustrating the synergies between poverty alleviation and environmental protection.



A family near Machakos, Kenya, benefiting from solar-powered lighting and TV.



“I enjoy working for d.light because it allows me to grow my career, and also because we want to preserve our environment. We see that our clients can’t afford electricity, and we are proud to be part of the d.light team offering affordable alternatives.”

JOSEPH (D.LIGHT REGIONAL MANAGER, NAIROBI REGION)



“My husband bought the solar home system with a TV. I used to use dirty kerosene lamps, now I have solar-powered lights in all four rooms in my house. My daughter has light to do her schoolwork at night. As a family we now enjoy entertainment from the TV and can watch the news.”

RACHAEL (CUSTOMER LIVING NEAR MACHAKOS TOWN)

CASE STUDY

SOLARAFRICA: PROVIDING A CLIMATE-FRIENDLY AND COST-SAVING FINANCING SOLUTION FOR URBAN SOLAR PV SYSTEMS

In 2016, SIFEM invested USD 10 million in Evolution II Fund, a clean energy fund with a dual focus on clean energy infrastructure and resource efficiency. In early 2019, Evolution II invested in SolarAfrica, a solar photovoltaic (PV) financing company that provides a financing solution for rooftop systems for Commercial & Industrial (C&I) and residential clients. To date, SolarAfrica has installed more than 34,000 solar panels, avoiding more than 12,000 tonnes of CO₂ emissions.

THE LOCAL CONTEXT

South Africa

South Africa is highly dependent on coal, with 90% of its electricity generated in coal-fired power stations, contributing to high per capita levels of CO₂ emissions by global standards. The electrification rate is comparatively high for the region at approximately 85%, but South Africa has a very energy-intensive economy with low rates of energy efficiency. This, combined with increasing energy demand and a backlog of investment in capacity expansion and maintenance, has precipitated periodic rolling blackouts across the country. Furthermore, electricity tariffs have risen by more than 300% over the last 10 years, growing much more rapidly than the national inflation rate. These conditions – unreliable power supply, escalating tariffs and concerns about carbon emissions – have driven many electricity consumers to look for alternatives.

The C&I Sector

Industrial users are responsible for approximately 41% of the electricity consumed in South Africa, which partly explains why 70% of all new rooftop solar PV installations nationally are in the C&I sector. South Africa has a highly competitive solar contractor market as well as some of the world's best solar irradiance resources. These two drivers, together with the increasing local electricity pricing and the continued reduction in the cost of solar PV hardware, make solar PV an increasingly attractive option within the C&I market. Despite the obvious advantages of solar PV systems, however, the market for C&I solar has only started to mature in recent years. Local challenges in this sector include access to financing for new projects, overall customer awareness and education, as well as regulatory uncertainty for larger projects (1MW+). As more customers become aware of the cost-saving potential of solar PV, and new financing models gain traction, it is expected that the adoption of solar in the C&I sector will accelerate.



2019

YEAR OF INVESTMENT
INTO SOLARAFRICA



\$ 10 m

SIFEM INVESTMENT IN
EVOLUTION II FUND



SOUTH AFRICA



Rooftop solar PV installation on Apollo Hotel in Johannesburg, South Africa.

SOLARAFRICA'S CONTRIBUTION TO CLIMATE FINANCING

Currently focused on South Africa, SolarAfrica finances a project's construction phase through to commercial operations, working with engineering, procurement and construction (EPC) contractors for project installation and then providing monitoring and maintenance going forward. Taking into account the high up-front cost of a solar PV system, SolarAfrica offers an alternative to outright purchase. SolarAfrica enters into power purchase agreements (PPAs) with its clients, with the clients having to pay only for the amount of solar energy they consume, according to an agreed price (indexed according to the rate of consumer price inflation) for the duration of the PPA (usually 10-15 years). SolarAfrica aims to offer its clients savings of 20-40% compared to electricity tariffs charged by local municipalities or the national utility. They accomplish this through the use of an internally developed proprietary software solution which calculates the optimal scale and other parameters of the solar system and takes advantage of the competitive pricing of solar PV power after years of rapidly falling costs.

SolarAfrica offers both climate-friendly and cost-saving solutions to its clients. The majority of its installations are embedded generation, that is, they are "grid-tied" or connected to the national grid. The solar PV installations are scaled to provide a portion (usually around 25% and up to 40%) of a client's electricity needs, with the remaining power drawn from the grid. This model ensures that the PV system is utilised optimally – ensuring financial viability – and that the client can use grid power to meet peak demand and when the sun is not shining. The downside is that when the grid is offline (during power outages), the solar PV system also does not provide power. Currently the cost of battery storage is mostly still too expensive to provide cost-efficient stand-alone systems, but SolarAfrica is monitoring this opportunity carefully and expects to be able to offer a reliability solution for all clients within a couple of years.

VALUE FOR CLIENTS

Clients of SolarAfrica sign up for solar PV systems both for the contribution to climate mitigation and the cost-saving opportunity. With SolarAfrica aiming to save clients between 20-40% of power costs in comparison to the national utility company's tariffs, and with clients being required to pay only for the electricity consumed, clients can save money from the very first day of the system's operation. The significant CO₂ emission reduction also comes into play immediately upon each project's installation.



“We started looking into the possibility of solar power due to the unreliability of power and steep increase of tariffs from the national utility company. The deal SolarAfrica offered was for us to always pay less than the utility's tariffs, with no capital expenditures. I don't understand why everyone is not doing the same! Our main focus was to save expenses, as well as act in a climate-friendly way. SolarAfrica handled the installation efficiently and professionally, they did not disturb the hotel's operations at all during the installation. I hope in the future to also install a battery system to improve our energy security.”

MR JEFFREY HURWITZ, DIRECTOR OF APOLLO HOTEL

SolarAfrica installed a 112kW solar PV system comprising of 408 modules on Apollo Hotel's roof in 2019. The installation will not only reduce the CO₂ emissions of the hotel but is also expected to save the hotel more than R3 million (USD 200,000) in operating costs over the lifetime of the PPA.



“Our church is located on the outskirts of Pretoria and we did not have access to the national grid. SolarAfrica offered to install the solar PV system with batteries and to take care of maintenance and insurance, and we would only need to pay a monthly fee for the power consumed. We have a 10-year power-purchase agreement with SolarAfrica, after which we will own the system. As we operate mainly during the day when the sun is shining, we can take full advantage of solar power.”

PASTOR BERNARD MULDER, HOUSEHOLD OF CHRIST CHURCH
(PICTURED WITH HIS WIFE, PASTOR BELINDA MULDER)

Due to its location, Household of Christ Church (HoCC) is not connected to the national grid, and the costs to do so were prohibitively expensive, leading to their search for alternative solutions such as a solar PV system. HoCC now has a fully off-grid solar PV system (60kW) with a 120kWh battery, as well as their own diesel generator as back-up. Prior to the installation of the solar PV system, HoCC were spending R50,000 (USD 3,300) per month on diesel, and now only spend R5,000 (USD 330) per month. This demonstrates not only the large cost-savings for the church, but also their significant reduction in CO₂ emissions.

CASE STUDY

MIRKALA SOLAR: MEETING THE RAPIDLY INCREASING DEMAND FOR POWER IN A COST-EFFECTIVE, SUSTAINABLE AND RELIABLE WAY

In 2016, SIFEM invested USD 10 million in Renewable Energy Asia Fund II (REAF II), a private equity fund focused on investing in renewable energy products in South & Southeast Asia. REAF II invested in Mirkala Solar, now a 10 MW solar PV plant located in the western Indian state of Maharashtra. This solar project was an opportunity to turn a relatively harsh and almost barren landscape into a clean energy producing hub. Construction of the plant was completed in 2017, and in its first full year of operations, the plant performed slightly above expectations with 18.8 GWh of energy generated in 2018. A second phase of an additional 10 MW is in early planning stages.

THE LOCAL CONTEXT

The Mirkala Solar plant is located near Rajpimpri, a village with a population of 3,000 located in the Beed District (population 2.5 million) in the state of Maharashtra. One of the poorest districts of the state, 80% of Beed's population live in rural areas, the majority of whom live below the poverty line. The average annual income in the District is USD 789 (in comparison to the state average of USD 1,363), and the literacy rate is 77% (in comparison to the state average of 82%). In Rajpimpri, this drops to 68%. It is a highly drought-prone region, with scant and unpredictable rainfall. This further contributes to unemployment, and shortages of food and water. The scarcity of natural resources and a low consumer base hinder further development in this District.

INDIA'S RENEWABLE ENERGY TARGETS

The World Bank estimates that 200 million Indians lack access to electricity. Demand for electricity in India is set to double by 2040, propelled by an expanding population and rising incomes. With India's heavy reliance on coal, CO₂ emissions will also increase substantially.

India is working towards an ambitious target of 175 GW of renewable energy installation by 2022; 100 GW of this is intended to result from solar power projects. Eleven per cent of the total nation-wide targets are the responsibility of Maharashtra State. India has enormous potential for power generation from solar energy. Maharashtra State has 250-300 days of sunshine annually, with high available average radiation rates. Mirkala Solar contributes to reaching these bold targets for increased capacity of renewable energy across India.



2016

YEAR OF INVESTMENT IN
MIRKALA SOLAR



\$ 10 m

SIFEM INVESTMENT IN RENEWABLE
ENERGY ASIA FUND II



INDIA



Mirkala Solar celebrating one year of successful operations.



Aerial view of Mirkala Solar site.

A RENEWABLE ENERGY STRATEGY

The Mirkala Solar plant is one of several renewable energy projects in the region jointly materialised by the project developer, Panama Renewable Energy Group (Panama), and the fund manager, Berkley Energy. Prior to the development of Mirkala Solar, two large wind projects were also completed, for a total of 152 operational MW. Mirkala Solar is located adjacent to one of these, Mirkala Wind. As a result, Mirkala Solar shares much of the physical infrastructure with the Mirkala Wind site, including access roads and the purpose-built grid substation at Rajpimpri. The two projects also jointly contribute to local community engagement activities.

MIRKALA SOLAR'S CONTRIBUTION

Optimising the available land, Mirkala Solar uses seasonal tilt mounting structures, allowing three different angles to enhance the performance of the modules throughout the year. The plant directly contributes to the avoidance of 18,800 tons of CO₂ emissions each year.

As well as the installation of 35,660 solar panels for the first phase, the project included the construction of a 1.5-kilometre transmission line and a 33KV feeder bay at the substation in Rajpimpri. The energy produced will be channelled through the grid but sold directly to commercial and industrial consumers in Maharashtra, thus helping them reduce their carbon footprint and secure their electricity supply.

Mirkala Solar generates a positive impact not only by contributing to meet the rapidly increasing demand for power in Maharashtra, but also by doing so in a cost-effective, sustainable and reliable way.

PROVIDING MORE THAN JUST ELECTRICITY

A renewable energy project directly contributes to increased availability of electricity, but it also has numerous indirect outcomes which deliver positive impacts to the wider community. For example, the access roads built for Mirkala Wind also improved the quality of life in the surrounding villages. The improved road conditions allowed for increased access to markets for the local farmers, as well as to a secondary school which would otherwise be too far away.

Direct employment opportunities are also generated for the local population during the construction of renewable energy projects. Approximately 100 jobs were supported during the construction process of Phase 1. Most of the workers were unskilled and hired locally. The services of a security contractor were employed for Mirkala Wind and are continued for Mirkala Solar. Local employees are hired from the surrounding villages and provided with training to support their tasks.

In addition, the additional energy capacity for the region contributes to indirect employment support. Reliable and sufficient power enhances growth in the region, provides stability which protects jobs, and broadens opportunities for improved livelihoods.



Mirkala Solar community renewable energy awareness programme.



Newly installed solar panels on Balgram Orphanage.

(Photos courtesy of REAF II)

TAKING ENVIRONMENTAL AND SOCIAL FACTORS INTO ACCOUNT

A solar plant provides renewable energy which brings positive, sustainable impacts. However, during the construction and operation of the plant, both environmental and social factors must be considered in order to minimise any negative impacts. Panama carried out an in-depth environmental and social impact assessment for Mirkala Solar as part of the first steps for the project. Due to its proximity to the Mirkala Wind site, Mirkala Solar could utilise synergies not only in terms of physical infrastructure, but also with respect to community and other stakeholder engagement activities. Panama worked with local leaders to inform the communities about the project activities, land acquisition activities, safety measures and grievance mechanism. This also provided an open channel to receive community opinions and concerns. In addition, multiple community engagement activities have been implemented by Panama, including a renewable energy awareness programme for schools and the local community. Panama considers education around renewable energy and climate change to be a vital part of its projects.

All the required land for Mirkala Solar was purchased from willing private landowners. No physical resettlement was required, only acquisition of some agriculture and grazing land. As there is scant vegetation growth in this region, the impact on fauna and flora was minimal.

CORPORATE SOCIAL RESPONSIBILITY

A few kilometres from the Mirkala Solar plant, Balgram Orphanage is home to 90 children, ranging in age from 3 to 18 years. These children are either orphans or have been abandoned by their parents who were unable to provide for their children. The orphanage relies on donations from the public to operate, including for food and medication for the children. During the construction of the Mirkala Wind and Solar plants, the Panama Group and Berkley Energy supported the orphanage with multiple donations, such as study desks, a water filter, solar lanterns, food, clothes, and sport equipment.

To address the orphanage's challenge of limited electricity, Berkley Energy and the construction partners of Mirkala Solar donated a 10 kW rooftop solar plant and battery bank. This donation provides continuous and reliable electricity to the orphanage, which in turn allows the children to study and use computers even in the evening.



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GLOSSARY

Investment partners: other DFIs or private investors investing in local funds together with SIFEM
Local fund manager: management team of local funds in which SIFEM has invested
Portfolio companies: local SMEs and other fast-growing companies which were provided long-term financing by a fund
Underlying portfolio: totality of portfolio companies

