FINANCING OF CLIMATE PROJECTS - SUCCESS FACTORS AND POLICY RECOMMENDATIONS
Imprint

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Dear readers,

The subject of “climate finance” has gained widespread attention in recent years. Publicly owned financial institutions, as well as private actors across the world, are becoming increasingly aware of the role finance needs to play as a force for good in delivering on the internationally agreed climate goals and contributing to a sustainable and healthy development in general. According to the UNEP Finance Initiative, the transition to low-carbon and climate-resilient economies requires investment of at least US$ 60 trillion, from now until 2050. To narrow the current finance gap for climate action, new financing institutions, instruments and regulations are developing at a rapid pace. This momentum for change is an encouraging sign.

However, the increasingly complex climate finance architecture also poses a challenge for developers of the sought-after climate projects – particularly in developing and emerging countries. A perceived lack of information on financing opportunities and how to find the appropriate solutions were among the most frequently expressed concerns of companies and organizations taking part in last year’s Special Report, at the R20 Austrian World Summit and in the context of our “Post Paris Navigator” initiative. For this reason we are focusing this report on the financing issue.

On the following pages we present carefully selected climate-impact projects in developing and emerging countries, show how they contribute to local sustainable development and discuss how each of them was financed. To complement this, additional information on financing instruments and institutions are provided throughout the report, as well as identified success factors and policy recommendations. The showcasing of these concrete project examples is intended to serve as a source of inspiration to other project developers and encourage replication in keeping with the motto of the R20 Austrian World Summit: Less talk, more action!

My special thanks go to the Austrian Development Agency (ADA) for their support and to my team for all the effort.

Monika Langthaler
Director R20 Austria&EU

Post Paris Navigator –
A climate project facilitator for companies

brainbows, the organizer of the R20 Austrian World Summit, initiated the Post Paris Navigator in 2017 as an information and matchmaking platform for Austrian green tech companies interested in the realization of sustainable, climate-resilient projects in developing and emerging countries.

The aim of this initiative is to raise companies’ awareness of climate action and speed up project implementation by matching relevant actors and facilitating successful entries into new markets. For that purpose, brainbows established a networking community for the sharing of knowledge and experience, while providing information concerning the global climate change process and success factors of best practice projects.

The initiative is supported by the Austrian Development Agency (ADA) and realized together with the Austrian Economic Chambers (WKO AUSSENWIRTSCHAFT AUSTRIA). Companies, development organizations and other parties interested in Navigator events may refer to navigator@brainbows.com.
INTRODUCTION

The topics of climate change and sustainable development have become ever more urgent in recent years and are increasingly shaping the international political agenda. In 2016, both the historical Paris Agreement and the United Nation’s 2030 Agenda with the 17 Sustainable Development Goals (SDGs) came into force – for the first time directly addressing all UN member states.

As they are particularly affected by these global challenges and frequently lacking their own resources, developing and emerging countries play a crucial role in the implementation of climate change mitigation and adaptation measures. Companies and organizations from more economically advanced nations can contribute to their climate-resilient development through technologies, know-how and financing for sustainable projects on site. Learning from such successful examples and encouraging replication is crucial for speeding up this process in order to reach the internationally agreed goals.

Therefore brainbows, the organizer of the annual climate conference R20 Austrian World Summit, regularly welcomes the submission of innovative projects related to developing and emerging countries, which deliver a positive climate impact. Entries from across the world are evaluated by project developers and experts before the identified best practices are summarized in a white paper for stakeholders and presented at the annual conference. A first Special Report on biomass & waste-to-energy projects was prepared for the 2018 conference and fed into the official platform of the Talanoa Dialogue, the United Nations’ participatory process on climate solutions. This can be downloaded from www.austrianworldsummit.com/images/pdf/SpecialReport2018.pdf.

This year’s report focuses on “Financing for Climate Projects”. The best practices discussed on the following pages were identified in the course of an online call for projects in winter 2018/2019 and presented at the R20 Austrian World Summit in Vienna on May 28/29, 2019.

The submissions were evaluated with regard to their degree of innovation, replicability, social and climate impact, as well as their contribution to the UN SDGs (by definition, all projects contribute to SDG 13 “Climate Action” and SDG 17 “Partnerships for the Goals”). The showcases were selected to represent a variety of different technologies and financing approaches. Each project is supplemented by a fact box, which contains information on related business and financing concepts or institutions. In addition, five best practice finance instruments are presented in greater detail and a (by no means exhaustive) overview of the climate finance landscape and follow-up links are provided to support project developers in their efforts.
The Project

The Mwenga Hydro and Rural Electrification Project is an integrated, renewable energy infrastructure project located in the Southern Highlands of Tanzania. The project currently operates a 4 MW hydropower station and a total of 400 km of rural electricity network, supplying local industry, 32 villages as well as the national utility TANESCO with an annual generation output of 21.5 GWh of grid-quality renewable electricity. Since the grid-connected project can be run in island mode, it can supply its own rural network and the local tea industry when the national grid is down.

Within its own network, the project supplies to date around 4,000 rural customers – including village institutions, schools, hospitals and hundreds of SMEs – with reliable and affordable green electricity below national tariffs and still continues to connect new customers. Three additional small hydro plants and a further wind project with a total generation capacity of 13 MW, as well as two other rural networks are currently being developed.

When put into operation in 2012, the Mwenga project was the first privately developed project under the new SPPA (Standardized Power Purchase Agreement) framework and the first UNFCCC-certified CER (Certified Emission Reduction) project in Tanzania. All rural customers use a cell phone-based, pre-paid metering system for their electricity purchases.

Impacts & Benefits

Apart from adding green electricity to and thereby stabilizing the far end of the national grid, the Mwenga project provides several additional benefits to the local environment. Through its own rural network, the project provides electricity access to around 65,000 people living in the Mufindi district, thereby replacing traditional energy sources such as kerosene, firewood and coal for lighting, cooking and hot water preparation. Also, local farms and businesses including small-scale maize and saw mills alongside two large tea factories in the region, can now be supplied by hydropower instead of (back-up) diesel generators.

A recently introduced productive use of electricity (PUE) initiative (currently in its trial phase) focuses on financing commercial appliances for SMEs in the wood processing and small-scale agro-industry, as well as for women-owned businesses. It is expected that this initiative will create hundreds of additional jobs and significantly raise family incomes in the project area.
Financing

The financing model is a suitable blend of international donor and private funds; additional initial financing came from pre-sold CER credits. The majority of the rural electrification network was funded by grants from the Rural Energy Agency of Tanzania and the ACP-EU Energy Facility, a funding mechanism of EuropeAid to co-finance projects that increase access to modern and sustainable energy services in African, Caribbean and Pacific (ACP) countries. Historically these type of infrastructure grants have more usually been provided to NGOs and governmental institutions, however, since the early 2000s donor programs have adapted their policies to include the private sector, in the hope of promoting a positive leverage effect, as other project parts are financed by private equity and local bank loans. The Rift Valley Group’s previously owned local tea farm (under which the project was originally developed), provided useful infrastructure for setting up the project, as well as a healthy balance sheet, that served as important collateral for the bank loan. The Mwenga project was later transferred to the Rift Valley Energy Platform, and now serves as a security for the forthcoming project developments.

Submitter: Rift Valley Energy Ltd
Location: Mufindi District, Iringa Region, Tanzania
Website: www.riftvalleyenergy.com
Contact: Franz Kottulinsky, franz@riftvalley.com

EuropeAid

The EU Commission’s DG for International Cooperation and Development (also known as EuropeAid) is responsible for designing European international cooperation and development policy and delivering aid throughout the world. With € 82 billion made available for the period 2014-2020, the European institutions and the EU countries together provided more than half of all official global aid. The European Development Fund (EDF) is the main instrument for providing assistance to African, Caribbean and Pacific countries, e.g. through mechanisms such as the ACP-EU Energy Facility.

The energy sector is one of EuropeAid’s highest priorities. It aims to improve access to sustainable energy, enhance energy efficiency and increase the use of renewable energy sources in developing and emerging countries. The instruments include public contract tenders, non-repayable assistance and loans to the private sector, risk capital and mechanisms to blend EU grants with loans or equity. Blending operations are implemented through regionally or thematically focused financial instruments. Initiatives such as the Electrification Financing Initiative (ElectriFI) focus on private sector development through the provision of equity, junior/senior debt, or guarantees.
The world’s first sea floating solar system, designed for tropical islands and coastal regions

The Project
Swimsol is a solar company that specializes in providing solar energy to tropical islands and coastal regions. Although tropical islands such as the Maldives receive approximately 300 days of sunshine per year, this potential energy source is rarely used, while relatively expensive and environmentally harmful diesel generators provide the majority of the energy requirements. Swimsol provides rooftop photovoltaic modules specifically developed for the often harsh weather conditions on tropical islands. Furthermore, since these islands usually have limited land available, Swimsol developed the world’s first floating solar system that can be placed on the sea – in order to provide as much clean and affordable solar electricity as possible.

The system was developed together with the Vienna University of Technology (TU Wien) and the Fraunhofer Institute in Germany and is stable enough to withstand waves and harsh conditions at sea for at least 30 years. It can easily be assembled on site and is cheap enough to compete with diesel generators. Customers are usually large island hotel resorts. The Project Swimsol Solar Island 2 is being realized in collaboration with the three resorts LUX, Aarah and Ozen in the Maldives. Altogether, the installed rooftop modules and floating solar platforms at sea are going to provide a total capacity of 1.4 MW. Further projects are in the pipeline.

Impacts & Benefits
Currently, energy in the Maldives is mainly produced by diesel generators. A typical island resort burns up to 10,000 liters of diesel per month. In 2014, the entire country spent 25% of its GDP on fuel imports. Moreover, the islands are usually very far apart from each other and the required diesel needs to be delivered to the islands by boat. With Swimsol’s technology, hotels can save up to 50% of their diesel consumption, creating positive effects for the climate as well as for local air and water quality. In the past, diesel repeatedly leaked into the ocean due to accidents with boats delivering diesel for the generators. This may be avoided by using photovoltaics instead.

Swimsol has a local subsidiary in the Maldives which profits from each realized project. So far, 10 jobs for locals have been created by the company’s projects and activities on site.
Financing
Since individual Swimsol projects currently have a volume which is too small to receive conventional bank loans, the company applies several other financing approaches. The Solar Island 2 project was partly financed by private equity and a loan backed by the Austrian guarantee program "aws Garantien international”. This risk-mitigating instrument for foreign direct investments of SMEs is supported by the Austrian government and enabled through the European Fund for Strategic Investments (EFSI). In addition, a crowdfunding campaign for the project was successfully closed in May 2019.

The early development phases (R&D and piloting) of the SolarSea® floating platform would not have been possible without venture capital provided by investors such as the Austrian Scheuch Family Foundation. Its subsidiary FSP Ventures joined Swimsol at an early stage and is currently its second largest investor. In addition, FSP Ventures has provided financing for Swimsol projects in the Maldives.

Submitter: Swimsol GmbH
Location: Maadhoo, Dhidhoofinolhu and Raa, Maldives
Website: www.swimsol.com
Contact: Daniel Reinhardt, daniel.reinhardt@swimsol.com

Scheuch Family Foundation
The Scheuch Family Private Foundation is an independent Austrian foundation, founded by the owner family of the environmental technology company Scheuch in 1999. It promotes sustainable development in which positive social, ecological and economic impact go hand in hand. Using a variety of approaches, the foundation supports start-ups and solutions that exist at the intersection of business, innovation and sustainability. Available instruments include donations, social venture capital, as well as equity and mezzanine financing. Through its subsidiary FSP Ventures the foundation invests in innovative companies in the cleantech sector in Austria and neighboring regions.

Venture capital provided by specialized firms, funds or foundations such as the Scheuch Family Foundation is particularly attractive for new companies with limited operating history that are too small to raise capital in the public markets and have not reached the point where they are able to secure a bank loan or complete a debt offering. In exchange for their private equity investment and the high risk associated with early-stage financing, venture capitalists get significant influence on the company’s decisions.
The Project
Thanks to its mountainous topography and tropical climate with heavy precipitation, Laos provides a huge potential for hydropower, not only for domestic energy demand, but also for the supply of neighboring Southeast Asian countries. To reach its aim to triple production from this renewable energy source by 2030, the country strongly counts on the expertise of foreign project developers and private investors.

The Austrian project development company RENDCOR (Renewable Energy Development Corporation), founded in 2017 as a joint venture between the Austrian development bank OeEB and the internationally renowned engineering and consulting firm ILF, taps into this potential. With its own office in the Laotian capital Vientiane and in cooperation with a local engineering company, RENDCOR prepares and develops small to medium-sized hydro plants as lighthouse projects meeting the highest technical, social and environmental standards. By 2023, several plants with a total power output of 250 MW shall be ready to build, providing high-quality green and profitable investment cases for international investors.

Impacts & Benefits
With support from the Austrian Development Agency (ADA), even before RENDCOR’s official establishment a knowledge transfer was initiated to train Laotian engineers and introduce them to European standards, thereby enabling local partner companies to take over the lead in developing such high-quality projects in the future. Several engineers received training in Austria and directly on site. In addition, graduates from Laotian technical schools were recruited and instructed by ILF experts in relevant disciplines such as geology, hydrology and hydraulic engineering.

Through these measures the project not only contributes to climate and environmentally friendly energy production, but also to substantial capacity building and quality local employment. The initiative creates about 200 local jobs, 150 of which will be long-term workplaces for the operating of the power plants.
Financing

With this project, a new and innovative path was forged in Austrian development financing. For the first time, the OeEB development bank set up a joint venture with another company. Both the OeEB, acting as a trustee for the Austrian Ministry of Finance, and the Austrian engineering and consulting firm ILF hold a 50% ownership in RENDCOR. Its corporate objective is to provide Austrian knowledge and capital for the development of medium-sized hydropower, photovoltaic and wind energy projects in developing countries and to enable international investors to participate in these green and profitable projects. To make the projects bankable, RENDCOR relies on its expertise in conducting technical and economic analyses and feasibility studies as well as in financial modelling, strict compliance with IFC Performance Standards, and the company’s privileged access to international development finance institutions.

Submitter: RENDCOR GmbH
Location: Laos
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Contact: Clemens Regehr, clemens.regehr@rendcor.at

Public-Private Partnerships

Although actually a joint venture of two private companies, with one of its 50% shareholders acting on a public mandate, RENDCOR could also be considered a quasi-Public-Private Partnership (PPP). Traditional PPPs involve different types of cooperative arrangements between a government agency and a private-sector company, usually to finance, build, and operate infrastructure projects, such as power plants, waste or water treatment plants. By this means expertise and strengths of the public and the private actor are combined and risks shared over a longer term.

Facing the obstacles associated with infrastructure funding, an increasing number of countries, notably emerging markets and developing economies, are also turning to PPPs in order to tap private capital. Although PPPs cannot fully solve this problem, they can provide significant financing where viable projects are carved out. Regional authorities or city governments might be unable to undertake a capital-intensive building project, but a private enterprise might be interested in funding its construction in exchange for receiving the operating profits once the project is complete. These partnerships work well when private sector technology and innovation combine with public sector incentives to complete work on time and within budget.
A mobile plug & play solar power plant and energy storage for remote, off-grid areas

The Project
The Solartainer® is a mobile plug & play solar power plant which includes an energy storage to substitute diesel generators in rural areas of Africa. The Solartainer® system fits into a 40-foot ISO container and comprises 144 photovoltaic panels, inverters, storage units, satellite internet, as well as optional extra equipment such as air-conditioning and water treatment systems. Each unit has a power output of up to 50 kWp and a battery capacity of 20-300 kWh (standard: 60 kWh), which, in the standard version, is capable of providing electricity for up to 4,000 people, 40 commercial customers and 10 communal facilities. Due to a life expectancy in excess of 20 years and its mobile, modular design, the system is equally suitable for temporary transitional uses (e.g. in crises and/or disaster areas) or as a long-term power source in areas without grid connection. As a flexibly expandable solution, the Solartainer® allows for retrospective adaptation to the individual needs of any given location.

The German developer and manufacturer of the Solartainers®, Africa GreenTec AG, partners with the local energy distributor EMS Electric for customer relation, staff training and billing. The dual tariff (day/night) prepaid system provides energy prices that are up to 50% cheaper than the diesel price for a kilowatt-hour of electricity. As of spring 2019, 15 Solartainers® have been put into operation mainly in rural areas of southern Mali, a total of 50 units are to be constructed by the end of 2019. Also, a Memorandum of Understanding has been signed with the government of Niger to power up to 500 Nigerian villages in the near future.

Impacts & Benefits
Not only does the solar power provided substitute CO2 emitting diesel generators and traditional cooking methods that lead to respiratory diseases, it also saves money due to high electricity prices in Sub-Saharan regions. The local population, businesses, and women in particular profit from the extended availability of electricity since the use of machines lowers the workload for chores traditionally done by women. Furthermore, with each installed Solartainer® two local employees are hired and trained for maintenance and billing services. Currently, the company has 60 employees in its Malian subsidiary Africa GreenTec S.A.R.L.

STAGE 1: Concept Development, Site Identification
STAGE 2: Pre-Feasibility Studies
STAGE 3: Feasibility Studies
STAGE 4: Permitting, Financing, Contracts
STAGE 5: Engineering, Construction, Operation
Financing

Initial capital was raised by the company founders Torsten and Aida Schreiber and substituted in part by money earned from awards. The pilot project in Niger was financed by DEG – Deutsche Investitions- und Entwicklungsgesellschaft in its grant program "Klimapartnerschaften mit der Wirtschaft" (climate partnerships with the private sector). The first Solartainer® project in Mali was financed by debt crowdfunding within three days in 2015. Another four successful crowdfunding campaigns followed, including one via the Austrian climate-finance platform crowd4climate (www.crowd4climate.org). Currently, corporate bonds are being issued to finance a total of 50 Solartainers® by the end of 2019.

Submitter: Africa GreenTec AG
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Crowdfunding

Crowdfunding is an alternative finance instrument to fund a project or venture by raising small amounts of money (in the form of donations, debt or equity) from a large number of people, typically via the internet. Lending-based crowdfunding (crowdlending) is an efficient, although usually relatively expensive way to finance projects associated with higher risks (e.g. due to political instability or week infrastructure in the project country) and therefore also higher interest rates. On the other hand, the public visibility of a crowdfunding campaign can be an important driver for new projects, especially for young companies and/or technologies. For the same reason, crowdfunding is considered a tool specifically suited for social/environmental impact projects.

www.crowd4climate.org, operated by Energy Changes and the Austrian Society for Environment and Technology (ÖGUT), is an Austrian crowdfunding platform created for climate projects in developing countries. Investors can participate in the projects with contributions starting from € 250.
SOLAR COOLING AND HOT WATER FOR MANAGUA HOSPITAL

A lighthouse project for the promotion of solar cooling in Central America

The Project

With approximately 400 beds, the Hospital Militar Dr. Alejandro Dávila Bolaños is the largest and most modern hospital in Nicaragua and was officially inaugurated in the capital Managua in 2015. Together with the Austrian collector manufacturer GREENoneTEC and the engineering company Caverion, SOLID planned, delivered and commissioned a solar thermal system as roof installation at the hospital, which began full operation in early 2018. The installation with a collector field area of 4,450 m² covers the hospital’s entire hot water demand and contributes up to 50% to the air conditioning of the building. This is made possible by the buffer storage with a volume of 70 m³ and the high solar fraction in the region.

The Managua Hospital has become a lighthouse project for the region. Given the fact that solar cooling remains a young and lesser known technology, it increases the awareness for the potential of sun power to either heat or cool buildings effectively. In addition, it contributes to reducing both greenhouse gas emissions and dependency on energy imports. The project was jointly initiated and developed by the United Nations Industrial Development Organization (UNIDO) and the National Cleaner Production Centre of Nicaragua (NCPC).

Impacts & Benefits

The solar thermal plant serving the Nicaraguan health sector saves up to 1,100 tons of CO2 per year. This benefits the local environment because emissions from fossil fuel burning can be reduced. Significant parts of the solar plant were sourced locally and therefore contributed to local value chains. Know-how transfer from Austria to Nicaragua started at the very beginning in the project development phase. The close collaboration between SOLID and the local partner NCPC brought a better understanding of the technology. In terms of project management activities, Austrian quality standards have been introduced to the local partner’s staff. To provide suitable operation and maintenance of the solar plant, relevant training was provided after commissioning the system.

The Managua project has a high replication potential in sunny countries. To facilitate the transfer of the concept and enable new projects to be realized in the region and beyond, the network of Cleaner Production Centers and SOLID are joining forces.

STAGE 1: Concept Development, Site Identification

STAGE 2: Pre-Feasibility Studies

STAGE 3: Feasibility Studies

STAGE 4: Permitting, Financing, Contracts

STAGE 5: Engineering, Construction, Operation
Financing
The project had a volume of around € 3.8 million and was financed via an Austrian soft loan by the Oesterreichische Kontrollbank (OeKB) acting as a guarantor. This concessional financing instrument used in the international export industry to contribute to sustainable development in recipient countries provided a low interest rate, long repayment term and a repayment-free period. Since Nicaragua had no soft loan agreement with Austria before this project, the Managua Hospital solar plant opened up this financing opportunity for other Austrian companies to follow.

Submitter: S.O.L.I.D. Gesellschaft für Solarinstallation und Design mbH
Location: Managua, Nicaragua
Website: www.solid.at
Contact: Nicole Olsacher, n.olsacher@solid.at

OeKB Soft Loan
A soft loan is an earmarked credit which, thanks to a low interest rate, long repayment term and grace period, is considerably cheaper than credit on market terms. This is made possible with the support of public funding. Soft loans are intended to support commercially non-viable projects which benefit the sustainable development of the target country as well as business relations of domestic companies abroad.

Since new and less developed markets offer great opportunities for Austrian companies, the Oesterreichische Kontrollbank (OeKB) offers soft loans to public institutions in certain countries within the framework of the export financing scheme (EFS), in cooperation with the Federal Ministry of Finance. The basis for the refinancing is an export guarantee from the Republic of Austria. This scheme enables the contractual partner abroad to access an affordable credit, granted to pay for the Austrian export. Soft loan financing is tied to Austrian deliveries and services. The foreign share – which includes third country supplies and local costs – may not exceed 50% of the contract value. More information can be found on www.oekb.at.
INTEGRAL ENERGY SYSTEMS FOR OFF-GRID HOUSEHOLDS MADE IN LESOTHO

The Project

African Clean Energy (ACE) is a Dutch-South African social enterprise that focuses on decentralized clean energy access for rural customers in Sub-Saharan Africa and Southeast Asia. At its flagship factory in Maseru, Lesotho, the company manufactures the ACE 1 Energy System, a highly efficient cookstove combined with a solar home system. It pairs thermal and electric generation to provide low-income households with a clean, smoke-less cooking opportunity, while also offering access to electricity for charging and lighting. The appliance uses 50-85% less fuel than conventional cooking stoves, runs on any available biomass (including crop residue, animal waste or wooden sticks) and comes with a 12V/10W solar panel and a battery to supply the built-in forced draft fan, an included LED lamp as well as other devices such as mobile phones.

Local retail kiosks and in-house sales teams distribute directly to customers (in cooperation with village chiefs, women’s groups etc.), thereby building last-mile distribution channels in the developing world which can facilitate remote households to gain access not only to the ACE 1, but also to maintenance services, financial support and clean fuels. The device can be purchased on a pay-as-you-save (PAYS) basis allowing customers to pay back a 6-9 month micro-loan using the average savings of more than 80% made on their monthly energy costs.

Impacts & Benefits

The ACE 1 is a high-quality product made in Africa with a life expectancy of 8-12 years. According to scientific studies and field tests, each device averts the emission of 2.5 tons of CO2 per year due to woodfuel use reduction. In addition, 95% of customers interviewed had completely stopped buying paraffin; 63% now rely exclusively on clean energy for cooking. It is estimated that the 55,000 units sold by the end of 2018 altogether avert 2,850 disability life years (aDALY) and 90 deaths from reduced cooking-smoke exposure.

Apart from its positive impacts on climate, local ecosystems and health, ACE with its factory in Lesotho also contributes to local employment and training. There are currently 35 staff on the production line, and an additional 30 in admin and sales roles. As a certified Benefit Corporation the company maintains a 50% gender split in all its operations, while more than 10% of factory positions are occupied by individuals with disabilities.
Financing

ACE is a privately-owned for-profit company which, apart from external private investors, foundations and bank loans, has been able to attract grant funding for its projects in Lesotho, Uganda and Cambodia from several institutions such as the Energy and Environment Partnership Trust Fund (EEP), the European Union, and – with support from EnTri Consulting – the Austrian Development Agency (ADA). The company does not see donor funding as a long-term business solution, but as an opportunity to attract and leverage new private capital for its operations in regions considered high-risk and thereby to accelerate scaling. To complement this, ACE is currently in the final stages of closing a convertible debt round.

As the ACE 1 device constitutes a major investment for households in the target markets of the developing world, providing microfinancing to customers has been a key success factor for the project (see below). In order to offer the product more widely to people with low and varying incomes in the future, the newest model has been equipped with “smart” technology enabling customers to activate the system’s functions via mobile phone for certain time periods. This allows for more flexible and reliable loan repayment and at the same time offers new opportunities to e.g. monitor and quantify fuel use and emissions savings that may be monetized. A blockchain-based loyalty program called Actual Impact Rewards (AIR) is already being tested.

Microfinancing

The provision of affordable financial products and services to unbanked individuals or groups at the bottom of the pyramid has become a relevant tool in development cooperation and for private business operations in developing countries. Microfinance includes above all small loans, but also micro savings, payment services, insurance etc.

Microloans may be provided by cooperative banks and development institutions or peer-to-peer via crowd-funding. Since ACE experienced complications with crowd-lending platforms focused on productive loans for small businesses rather than for end-consumers, the company decided to set up its own financial vehicle operating on a non-profit basis separately from the corporate entity: The SDG ACE Foundation is financed with a blend of philanthropic funding and debt. Possible capital losses from defaulting loans are covered through agreed risk profiles with the donors.
PROTECTING TAJIKISTAN’S HYDROPOWER FROM CLIMATE RISKS

An innovative approach to incorporate climate change considerations into critical infrastructure investments

The Project
Tajikistan’s hydropower plants, providing approximately 98% of the country’s electricity, depend on river basins fed by glacial melt water and snowmelt. However, as the climate warms, most climate models predict significant changes in the dynamics of local precipitation patterns, as well as alterations to the country’s glaciers. Therefore, the infrastructure of Tajik hydropower facilities, dating from the Soviet era, needs comprehensive renewal to cope with the already observed and projected impacts of climate change, particularly with regard to increased hydrological variability.

The state-owned Qairakkum plant, built in the 1950s and being the sole source of electricity for about 500,000 people in the Sughd Province, was chosen to pilot how to best ensure future electricity production and dam safety of the national hydropower infrastructure. Based on comprehensive mapping of climate change scenarios and risks, the plant is currently undergoing modernization and rehabilitation to improve its reliability and durability, as well as to take advantage of higher peak flows by increasing the installed capacity by 35% to 174 MW. The project is expected to be completed by 2023.

Impacts & Benefits
Apart from the comprehensive and continued integration of climate resilience measures into the plant’s operations, its rehabilitation also increases resource efficiency, preventing unnecessary discharge of water through spillways and allowing more renewable electricity generation with the same flow of water. In addition, the project also improves the safety and reliability of the plant, ensuring uninterrupted service to consumers in Northern Tajikistan. Furthermore, local hydropower operators are trained in best international practices to assess and manage climate risks, and institutional capacities and structures are developed for an effective trans-boundary management of hydropower cascades. These improvements will play an important role in dispersing new skills across the industry and throughout the region.

STAGE 1: Concept Development, Site Identification
STAGE 2: Pre-Feasibility Studies
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Financing

Phase 1 of the investment plan comprised a volume of US$ 76 million, which was provided by concessional loans and grants from the European Bank for Reconstruction and Development (EBRD) and the World Bank’s Pilot Program for Climate Resilience (PPCR). For phase 2, representing an additional volume of US$ 133 million, the EBRD – being an Accredited Entity to the Green Climate Fund (GCF) – applied for support by the GCF as one of the few international financing mechanisms accessible to Tajikistan, given the country’s increased debt level. The GCF provided grants and loans repayable over 40 years, co-financed by the EBRD and the European Investment Bank (EIB). Parts of the EBRD’s technical assistance package was funded by the Austrian and United Kingdom governments.

Submitter: Green Climate Fund
Location: Ghafurov District, Sughd Region, Northern Tajikistan
Website: www.greenclimate.fund/projects/fp040
Contact: info@gcfund.org

Green Climate Fund

The Green Climate Fund (GCF), based in South Korea, was set up by the parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 2010, and established as the centerpiece of international climate finance by the Paris Agreement in 2015. As an operating entity of the Convention’s Financial Mechanism, the fund assists developing countries in adaptation and mitigation practices to counter climate change through the provision of grants, loans, equity or guarantees. Developed country parties have pledged to endow the GCF with US$ 100 billion annually by 2020. The GCF seeks to catalyze these funds by stimulating private finance and opening markets to new investments.

The Fund works through a wide range of Accredited Entities (AE) to channel its resources to projects and programs. Applicants can approach the GCF exclusively through these official partner organizations carrying out activities such as the development and submission of funding proposals and the management and monitoring of the approved projects. The AE can be private or public, non-governmental, sub-national, national, regional or international organizations. In Austria, the only entity officially accredited by the GCF is the Austrian Development Agency (ADA).
UPGRADING MUNICIPAL WATER INFRASTRUCTURE IN SOUTH AFRICA

Promoting market-based deployment of clean energy technology solutions in municipal waterworks

The Project

Running 24/7 year round, water and wastewater infrastructure is among the largest consumers of electricity in municipalities, leading to high costs and substantial greenhouse gas emissions. As many urban areas in the developing world grow rapidly, decisive action is required to manage the environmental and financial impacts of providing these essential water and sanitation services. Clean energy technology (i.e. renewable energy and energy efficiency) interventions can dramatically improve the efficiency of municipal water infrastructure. However, local administrations often lack the institutional strength, organizational capacity, technical know-how and financial means to intervene.

The Climate Change, Clean Energy and Urban Water project, which is financed by the European Commission, implemented by UNIDO and executed by REEEP, taps into the enormous potential for energy efficiency gains and cost savings in South African municipal water and wastewater infrastructure by implementing energy management systems and other technical interventions and by empowering and connecting the relevant local stakeholders. This pilot project is carried out in close cooperation with the South African government departments of Energy, Environmental Affairs, and Water and Sanitation, as well as the South African National Energy Development Institute (SANEDI) and the National Cleaner Production Centre South Africa (NCPC-SA).

At each of the two pilot municipalities representatives of the administration, the private sector and financiers have successfully been brought together to catalyze commercial activity for emissions reductions in public infrastructure.

Impacts & Benefits

By replacing outdated water pumps and installing energy management systems for continued optimization the project not only contributes to significant reduction of energy usage and carbon emissions, but also to the reliability of water and sanitation services for the local population. In !Kheis Local Municipality for example, energy-efficient pumps at eight different water extraction and water treatment sites have been installed in pairs so that a reserve pump is always available in case of breakdowns or if maintenance is required. In addition, the project increases the demand for local business services by applying a proven and readily available clean energy technology and by empowering municipalities to work together with the private sector.

STAGE 1: Concept Development, Site Identification

STAGE 2: Pre-Feasibility Studies

STAGE 3: Feasibility Studies

STAGE 4: Permitting, Financing, Contracts

STAGE 5: Engineering, Construction, Operation
Financing
The pilot project has a volume of €1.6 million and is funded by a grant from the European Commission with co-financing from UNIDO. As energy efficiency measures and renewable energy upgrades of municipal infrastructure are extremely cost-effective, with payback times of often only one or two years, successor projects could be (partly) financed through private investment or an ESCO model (described below). The pilot supports such public-private cooperation and the gathered findings from the project, including a Best Practice Guide with tips for financing and implementing clean energy interventions, will be shared widely with other South African municipalities.

Submitter: Renewable Energy & Energy Efficiency Partnership (REEEP) and United Nations Industrial Development Organization (UNIDO)
Location: !Kheis Local Municipality, Northern Cape, and Nelson Mandela Bay Metropolitan Municipality, Eastern Cape, South Africa
Contact: Maria van Veldhuizen, maria.veldhuizen@reeep.org

Performance Contracting
As payback times of energy efficiency measures and renewable energy upgrades tend to be short- to medium-term, such projects can be suitable for performance contracting models. These involve specialized energy service companies (ESCOs) as external contractors that design, finance, implement and operate the required solutions over a particular time period on behalf of the customer (e.g. a municipal public entity). For providing project financing and taking over the technical and economic risks involved, the ESCO charges a fee that is lower than the savings achieved by the customer.

ESCOs provide a broad range of services including auditing, energy hardware installation and retrofitting, energy efficiency upgrades, energy infrastructure installations and power generation. More recently, providing innovative financing and risk management methods has become an important focus of their business.
The Project
The city administration of Bogotá aims to double the number of cycling trips in the Columbian metropolis by 2020, from 5% to 10% of all trips. The ‘Quinto Centenario’ Bikeway is the flagship initiative of the city’s strategy to achieve this target in the run-up to its 500th anniversary and will strongly improve citizens’ access to a climate-friendly, safe and convenient method of zero-emission travel. Traversing the city from north to south, the 25 km-long cycle highway will connect people from low, middle and high-income neighborhoods with jobs, schools and recreational opportunities, and will support approximately 34,000 bicycle trips in the morning peak hours. The project will include bicycle parking facilities and measures to enhance the security of vulnerable users (such as adequate street lighting) and promote economic development (e.g. improvement of public spaces along the route).

Impacts & Benefits
For the first time in the city’s history a mobility project has used greenhouse gas emission savings and resilience as a key criterion for design and planning. By shifting journeys from private cars and motorcycles to bikes, the cycle avenue is expected to result in an estimated cumulative reduction of 47,540 tons of CO2 by 2030 and of 134,430 tons by 2050. Aside from that, the project will improve Bogotá’s air quality and contribute to climate resilience by incorporating high quality drainage features to prevent flooding. Accompanying measures shall not only improve road safety, but also enhance the security factors currently preventing citizens from taking up cycling.

Supporting a mobility transformation in Colombia’s capital
Financing
A key challenge for this, and all cycling infrastructure projects, is that revenue is not generated directly, as opposed to other forms of urban infrastructure such as public transport or water. With the help of the C40 Cities Financing Facility, Bogotá is exploring alternative revenue and co-financing models, including a hybrid model with varying approaches for different segments of the cycling corridor. The use of corporate social responsibility funding, advertising and parking fees is being explored, as is „tax increment financing“ resulting from appreciated property and land values along the corridor. The project is valued at between US$ 40-70 million. Crowdfunding and carbon offsetting were both considered, but proved insufficient in raising enough financing or funding. A third-party verification of the carbon reductions is underway to explore carbon offsetting further.

Submitter: C40 Cities Finance Facility and Secretaría de Movilidad, Bogotá
Location: Bogotá, Colombia
Website: www.c40cff.org/projects/bogota-quinto-centenario
Contact: Aris Moro, amoro@c40.org

C40 Cities Finance Facility
The C40 Cities Climate Leadership Group of over 90 cities worldwide, representing more than 700 million people and one quarter of the global economy, focuses on driving urban action to reduce greenhouse gas emissions and climate risks, while increasing health, wellbeing and the economic opportunities of urban citizens. Its C40 Cities Finance Facility, launched during the COP21 in Paris, facilitates access to finance for climate change mitigation and resilience projects in urban areas by providing technical assistance to city administrations, developing bankable investment proposals and acting as an intermediary between the cities and potential financiers. The initiative is implemented together with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), the UK Government, the Children Investment Fund Foundation (CIFF) and the United States Agency for International Development (USAID). It is cooperating with several sustainable development-focused investor groups and urban development networks to make use of synergies, learn from and share best practices.
CONCENTRATED SOLAR POWER FOR DESALINATION, UNITED ARAB EMIRATES

An Austrian start-up innovating concentrated solar power technology

The Project
Founded in 2016, Solabolic GmbH is a start-up company providing a patented new technology for the resource-efficient and cost-effective construction of parabolic troughs for concentrated solar power (CSP) plants. The venture started as a research and development project in cooperation with the Vienna University of Technology (TU Wien) and received several renowned awards, including 1st place in the ClimateLaunchpad competition as Austria’s best cleantech business idea 2015 and the Inventum Award for best international patent by the Austrian Patent Office. With its unique design of flexible mirrors and cable sets evenly distributing forces to the reflective sheets, Solabolic realizes apertures larger than other systems and cuts down 35% of solar field capital costs by reducing material and a simplified assembly.

The Solabolic technology can be utilized in various applications and integrated into almost any existing system that requires thermal energy. The first commercial application is being realized to feed a seawater desalination plant in the United Arab Emirates.

The start-up supports the operator in building and commissioning the plant and licences its technology for continued operation. This concept will be transferred to other countries with strong solar radiation in the region, with a special focus on Egypt.

Impacts & Benefits
By avoiding complex and high-tech machining, mounting, or assembly processes, the Solabolic technology maximizes the utilization of local resources and manpower. This also reduces the associated costs of shipping and imports for local plant operators. Both advantages are highly relevant to emerging markets and developing countries. Converting sea water into drinking water by using climate-friendly and cost-efficient solar power instead of fossil fuels, the plant in Abu Dhabi will be the first to benefit from these features. Solabolic advises and trains the local staff in order to capacitate the client to independently operate the facility – and to become an example of replication in the region.

STAGE 1: Concept Development, Site Identification
STAGE 2: Pre-Feasibility Studies
STAGE 3: Feasibility Studies
STAGE 4: Permitting, Financing, Contracts
STAGE 5: Engineering, Construction, Operation
Financing
Initial capital for the start-up was provided by the company founder, Ahmed Adel. In addition, Solabolic was selected to receive several European and Austrian government grants, through Austria Wirtschaftsservice (aws), Wirtschaftagentur Wien (Vienna Business Agency), the Viennese university business incubator INiTS and the ClimateLaunchpad competition by EIT Climate-KIC (described below). The pilot project in Abu Dhabi is being financed by private investors from the United Arab Emirates.

Submitter: Solabolic GmbH
Location: Abu Dhabi, United Arab Emirates
Website: www.solabolic.com
Contact: Ahmed Adel, office@solabolic.com

SOLABOLIC
we keep the sun in suspense

EIT Climate-KIC
Essential elements for the success of new business ideas and start-ups are not merely financial, but include in-kind support, strong networks and the availability of advice on business concepts, piloting and marketing. Innovation contests, labs, incubators, accelerators and other institutionalized forms of support for entrepreneurs, from the conception phase to market entry and bankability, have boomed in recent years. The largest initiative covering all these phases and specifically focused on climate solutions is Climate-KIC, supported by the European Institute of Innovation and Technology (EIT).

The Knowledge and Innovation Community (KIC) aims at accelerating the transition to a zero-carbon economy by identifying and supporting innovative solutions that help society to mitigate and adapt to climate change. For that purpose it has established a broad range of programs and events, funded mainly by the European Union and realized together with more than 300 partners from business, academia and the public sector. The EIT Climate-KIC Climathon is a 24-hour hackathon for the development of new climate ideas taking place simultaneously in more than 100 cities around the world. ClimateLaunchpad is the world’s largest green business idea competition, offering training, coaching and financial support to entrepreneurs. The pre-incubation program Greenhouse and the Accelerator for advanced start-ups offer seed capital, training, technology validation, office space, as well as support from the large Climate-KIC network. Finally, the Demonstrator and Scaler programs aim at the piloting and scaling of already proven innovations.

Further information can be found on www.climate-kic.org
The implementation of the internationally agreed Sustainable Development Goals (SDG) and the Paris Climate Agreement requires large and long-term investments. The UNEP Finance Initiative estimates that the cost of transition to low-carbon, climate-resilient economies will amount to at least US$ 60 trillion, from now until 2050. The ambitious and binding goals have therefore shed light on the crucial role of the financial sector in this context.

A huge shift in investment is needed, if we want to keep the rise in average global temperatures below two degrees Celsius. Not least because of the urgent need of climate action, Article 2.1c of the Paris Agreement includes a long-term ambition to “make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.”

Mobilizing Climate Finance

“Climate finance” particularly refers to local, national or transnational financing – drawn from public, private and alternative sources – that contribute to reducing greenhouse gas emissions (mitigation) and increasing resilience against the negative impacts of climate change (adaptation).

Developed countries have pledged to “mobilize” a minimum of US$ 100 billion per year to help poorer nations in their mitigation and adaptation efforts by 2020. The UNFCCC’s recent biennial assessment found this sum had reached US$ 75 billion in 2016, including about a quarter in private finance. Other organizations, such as Oxfam, argue that in reality, far less progress has been made (US$ 16-21 billion per year in 2015 and 2016).

In any case, significantly more resources will be needed to successfully transform the world’s economies. As the finance architecture is constantly evolving therefore, it becomes increasingly fragmented and complex. Climate finance is channelled through multilateral funds – such as the Green Climate Fund, the Global Environment Facility and the Climate Investment Funds – as well as increasingly through bilateral channels. In addition, there are national and regional climate funds as well as private and philanthropic sources of finance.

Global
- World Bank Group (WB)
- European Investment Bank (EIB)
- Green Climate Fund (GCF)
- Global Environment Facility (GEF)
- Adaptation Fund (AF)

Multilateral
- European Bank for Reconstruction and Development (EBRD)
- Asian Infrastructure Investment Bank (AIIB)
- New Development Bank (NDB)

Regional
- African Development Bank (AfDB)
- Asian Development Bank (ADB)
- Central American Bank for Economic Integration (CABEI)
- Inter-American Development Bank (IADB)

Bilateral
- European Development Fund (EDF)
- KFW Group (KFW)
- Development Bank of Austria (OeEB)

Private Funds
- Blue Orchard
- African Renewable Energy Fund
- Green for Growth Fund

As the finance architecture is evolving, so are the instruments. Traditional instruments for the provision of development and climate finance include mainly grants and concessional loans. In recent years, ever more innovative instruments have been developed, including risk-sharing and blending mechanisms, carbon markets, guarantees etc. A (by no means exhausting) overview of different financing solutions – for private as well as public institutions – is provided on the following two pages.
NDCs – a guide for project developers

The main tool for achieving the Paris goals are the Nationally Determined Contributions (NDCs), which contain the committed climate action of each country to be part of the global effort in transitioning to a low-carbon and climate-resilient world. The NDCs guide not only the climate action of governmental institutions, but also represent a valuable source of information for project developers.

Today, private actors are largely responsible for flows of climate finance, particularly regarding investment in both renewables and the sustainable transport sector with the emergence of electric vehicles. Nevertheless, a key challenge for project developers is to gain access to finance and convince potential investment partners. Innovative financing solutions such as blended finance, risk insurance and impact investing for development initiatives will help bridge the gap between the resources needed to achieve the NDCs and the resources currently available.

In the world of project developers and project finance, the Paris Climate Agreement and the SDGs provided also a new perspective. The NDCs become a detailed description of the mitigation and adaptation requirements for each individual country and are underlined by national strategies and programs. This overview helps states to find partners and supporters necessary for their needs in combating climate change and supporting sustainable growth. NDCs can be seen as the most important information pool for feasible project ideas, cooperation and financing measures.

Follow-up links

Mapping of climate finance:
https://climatefundsupdate.org

Inventory of climate change investment:
www.climatefinancelandscape.org

Guide on financing solutions:
http://sdfinance.undp.org

Official UNFCCC NDC registry:
https://www4.unfccc.int/sites/ndcstaging

Climate finance explorer for project developers:
https://ndcpartnership.org/climate-finance-explorer

Funding database for renewable energy projects:
www.get-invest.eu/funding-database

Milestones:
Paris COP 21 and UN SDGs

National strategies and programs

Calls and projects on site (large/small)

NDCs: nationally determined climate protection contributions

Programs and goals of states, regions and cities
Grants
Financial rewards with no expected repayment or compensation, although usually conditional. Grants are typically provided for project implementation, feasibility studies, or capacity building measures.

Crowdfunding
Innovative approach for projects, organizations, entrepreneurs, and start-ups to raise money for their causes from multiple individual donors or investors. Four models of crowdfunding exist: donations, reward, lending, and equity.

Equity/Impact Investment
Ownership in a company by private investors (e.g. private equity firms, venture capital firms, angel investors) or publicly mandated institutions (e.g. development banks). Junior Equity accepts higher risks for lower financial returns in exchange for measurable social and environmental impact (Impact Investment).

Debt
Money lent for repayment at a later date, usually with interest. As opposed to Market Rate Debt, Flexible (Concessional) Debt provides favorable terms or rates for the borrower.

Green and Blue Bonds
Interest-bearing securities where the proceeds are invested exclusively in projects that generate climate or other environmental benefits. Blue bonds are a recent variation targeting Small Island Developing States and countries with large coastal areas.

Social and Development Impact Bonds (Results-Based Financing)
A public-private partnership that allows private (impact) investors to upfront capital for public projects that deliver social and environmental outcomes. If the project succeeds, the investors are repaid by the Government (Social Impact Bonds) or an aid agency or other philanthropic funder (Development Impact Bonds) with capital plus interest. If the project fails, the interest and part of the capital is lost.

Contracting
Financing model involving an external contractor charging a fee for providing project financing and taking over technical and economic risks associated with implementing and/or operating a solution on behalf of the customer.
Guarantees
Guarantees can mobilize and leverage commercial financing by mitigating and/or protecting risks (such as political, regulatory, and foreign-exchange risk), notably commercial default or political risks.

Blended Finance
The strategic use of development finance and philanthropic funds to mobilize additional, especially private, capital flows towards sustainable projects in developing and emerging countries.

Green Credit Lines
Finance that is provided to local financial institutions to on-lend to “green” projects and programs that would otherwise struggle to get finance.

Enterprise Challenge Funds
Funding instrument that distributes grants (or concessional finance) to profit-seeking projects on a competitive basis. A challenge fund subsidizes private investment in developing countries where there is an expectation of commercial viability accompanied by measurable social and/or environmental outcomes.

Direct Public Investment/
Public-Private Partnerships
Frequently, large-scale infrastructure investments in particular require funding/co-funding from governmental budgets. Public-private partnerships are a means of combining financing, expertise and other strengths between the public and the private actors, whilst sharing risk.

Carbon Markets/Carbon Taxes
Carbon markets aim to reduce greenhouse gas emissions cost-effectively by setting limits on emissions and enabling the trading of emission units. A carbon tax is a tax levied on the carbon content of fuels and, like carbon emissions trading, is a form of carbon pricing.

Ecological Fiscal Transfers
Integrating ecological services in intergovernmental fiscal transfers means making conservation indices (e.g. size/quality of protected areas) part of the allocation formula to reward investments in conservation.

Support for Policy Development
Grants or loans that are provided to help countries develop and implement policies that help establish a policy environment, which will be attractive for needed private sector investment.
SUB-NATIONAL CLIMATE FUND AFRICA

An innovative blended finance vehicle for mid-sized sustainable infrastructure projects in Africa

The Sub-national Climate Fund (SnCF) Africa, implemented by R20 Regions of Climate Action together with BlueOrchard Finance, a leading global impact investment manager, is a first-of-its-kind initiative to address the funding gap for sustainable infrastructure projects with expenditures of between US$ 5 to 50 million in Africa.

Projects of this size, developed at the sub-national level, have the greatest potential to accelerate reaching of the Paris Agreement and the SDGs goals. However, considered too small for institutional investors, too large for NGOs and philanthropists to finance or too risky for private investors, they are currently least-served by existing funding and development vehicles. To bridge this funding gap, SnCF Africa applies a blended finance approach to leverage funds from philanthropists, foundations, governments, development finance institutions and development banks with those of private investors.

Building upon an integrated value chain approach that fast-tracks the identification, development and delivery of a portfolio of bankable projects, the fund expects to invest in up to 30 projects – thereby combining US$ 10 million of donor-funded technical assistance (including the Swiss State Secretariat for Economic Affairs), with US$ 100 million of first-loss investment from bilateral and multilateral institutions (including the GCF) and philanthropic sources, and US$ 250 million from private investors. African investors include sovereign wealth funds and private entities from the AfroChampions Initiative. Beyond that, SnCF Africa projects shall mobilize up to US$ 1.05 billion of additional co-investments. The Fund will operate in up to 15 African countries and is expected to bring 17 million people in urban areas improved access to basic services, including waste collection, access to energy and energy efficient public lighting.

Submitter: Blue Orchard Finance Ltd, R20 Regions of Climate Action
Website: www.regions20.org
Contact: secretariat@regions20.org

Blended Finance

“Blended finance” is commonly defined as the strategic use of development finance and philanthropic funds to mobilize additional, especially private, capital flows with the aim of enhancing positive results for both investors and local communities. The rationale behind this approach is threefold: to increase capital LEVERAGE, i.e. the catalytic capacity of the donor funds; to enhance IMPACT by combining the resources and knowledge of public and private investors; and to deliver risk-adjusted RETURNS, i.e. to manage the risk in new, uncertain and fragmented markets.

To reach these targets, the different funds are mixed in a common investment scheme or deal, in which the “grant” or “aid” element may be used to e.g. take over upfront costs, provide concessional debt, or take a direct subordinate position in the capital structure. Additional supporting mechanisms include technical assistance (e.g. for project preparation services), risk underwriting, and market incentives (to provide guaranteed future payments to investors in exchange for upfront investment).
CARBON FUND OF THE UNIVERSITY OF NATURAL RESOURCES VIENNA

Combining carbon compensation with academic teaching and research

BOKU – Austria’s University of Natural Resources and Life Sciences – has developed a unique carbon compensation fund focusing on small-scale projects with considerable social impact to effectively contribute to CO₂ mitigation and the UN SDGs.

Whereas most conventional CO₂ certification schemes do not work for projects below 10,000 tons of CO₂ per year (due to the complex technical and funding requirements), the innovative BOKU Carbon Fund supports local communities in less developed countries to develop such small-scale carbon mitigation projects, which at a later stage can be scaled-up and advanced as e.g. a Gold Standard project. All BOKU’s mitigation projects, such as afforestation in Costa Rica or biomass composting in Ethiopia, are firmly rooted in academic institutions or the relevant authorities on site and continuously supervised; climate and SDG impacts are monitored every 3-5 years. The applied participatory methods directly address the local population and other stakeholders; a special focus is placed on gender aspects. In addition, project implementation and findings are integrated into teaching and research activities both in Austria and the host country.

The Carbon Fund is managed by BOKU’s internationally renowned Institute for Global Change and Sustainability, project development, certification and monitoring is provided by its Centre for Development Research. An advisory board including the Austrian Development Agency, Austrian Development Bank (OeEB), Greenpeace and the Ministry of Sustainability and Tourism selects and reviews the projects. Since its public start in 2012 the fund has created 6 pilot projects in Latin America, Asia and Africa with a total project volume of € 670,000 and a lifetime carbon reduction of around 40,000 tons of CO₂ equivalents. Several new projects shall be developed by 2021.

Submitter: University of Natural Resources Vienna (BOKU)
Website: www.boku.ac.at/co2-kompensation.html
Contact: Dominik Schmitz, dominik.schmitz@boku.ac.at

Carbon Offseting

As it makes little difference to the global climate where in the world greenhouse gases are emitted or reduced, emissions from one part of the world may be offset somewhere completely different. Companies or individuals who want to compensate for their emissions (e.g. from air travel) can therefore fund carbon mitigation projects in developing and emerging countries, thereby providing additional co-benefits. In international carbon trade established by the Kyoto Protocol the same principle applies – the Protocol’s Clean Development Mechanism is the world’s largest carbon offsetting initiative.

Other, voluntary carbon markets rely on independent certification schemes such as the internationally renowned Gold Standard or the Verified Carbon Standard. BOKU with the Carbon Fund established its own offsetting instrument with very high standards in terms of co-benefits for local ecosystems and communities and tightly bound to its scientific work. Donations can be made either directly on the university’s website or via the mobile app CO₂mpensio by calculating individual carbon offsets for flights or car trips.
OeEB provides climate finance to financial intermediaries

Oesterreichische Entwicklungsbank AG (OeEB), the Republic of Austria’s development bank and the country’s largest provider of international climate finance, provides long-term finance for on-lending for the implementation of private sector projects in developing countries and emerging markets in order to contribute to sustainable development.

An example is OeEB’s long-term credit line of US$ 25 million for earmarked on-lending through the development-oriented ProCredit Bank Georgia. The funds are used for local micro, small and medium-sized businesses (SMEs) and households, mainly for financing energy efficiency measures such as the replacement of old, energy-guzzling machines or to improve building insulation, thereby saving energy, strengthening the local private sector and creating new jobs. In addition, OeEB uses its Business Advisory Services funds to finance supporting measures such as the introduction of “green finance” banking products at the ProCredit holding company level.

Another example is OeEB’s US$ 25 million capital participation in the eco.business Fund for Latin America. The public-private partnership fund provides financing for private sector projects that contribute to the preservation of biodiversity or to the sustainable use of natural resources. In its first five years of operation, by investing in such things as sustainable coffee and cocoa production the fund has helped to protect 140,000 hectares from deforestation, to sequester 4.3 million tons of CO2, and to save 4 million cubic meters of water.

Submitter: Oesterreichische Entwicklungsbank AG (OeEB)
Website: www.oe-eb.at
Contact: Klaus Steiner, klaus.steiner@oe-eb.at

OeEB Instruments
Oesterreichische Entwicklungsbank (OeEB), founded in 2008 as a wholly-owned subsidiary of Oesterreichische Kontrollbank (OeKB), is a private stock company with a public mandate to implement developmentally relevant and economically viable private-sector projects in developing and emerging countries, mainly in the renewable energy, energy efficiency, infrastructure, SME and micro-finance sectors. With investment financing, equity investments and advisory services it has a comprehensive toolkit at its disposition to support Austrian as well as foreign companies:

Investment finance (i.e. long-term loans, risk sub-participations, and refinancing lines for financial institutions with a specific loan purpose), granted at near-market conditions, is the main service provided by OeEB. The securing of the loans with a state guarantee from the Austrian Federal Ministry of Finance (BMF) means that it can take more risks than commercial banks and offer longer terms for loans of up to 15 years.

OeEB also participates in private equity funds or directly in companies, acting as trustee for the BMF (with a maximum shareholding of € 5 million or 25%). All projects must make developmental and economic sense and are subject to a comprehensive environmental and social review.

In addition, the company provides non-repayable grants earmarked for measures that enhance the developmental impact of the supported projects. These Business Advisory Services funds are used primarily for preparational studies of potential OeEB customers and for collateral measures in the implementation phase such as on-site work by local experts or training measures.
GEEREF NeXt (Global Energy Efficiency and Renewable Energy Fund) is structured as an innovative fund-of-funds, with the aim of being a first investor (anchor investor) in renewable energy and energy efficiency investment funds, and encouraging other investors to co-invest. Advised by the European Investment Bank and catalyzed by funding from the Green Climate Fund (GCF), GEEREF NeXt offers risk-averse private investors a broad diversification of capital across different projects and technologies in GCF eligible developing countries and transition economies. In doing this, the fund builds on the success and experience of its predecessor, GEEREF, launched in 2008 with support from the European Union, Germany and Norway.

GEEREF NeXt blends US$ 250 million in Green Climate Fund equity capital (and additional US$ 15 million in grants for local capacity building through a Technical Assistance Facility) with private capital in order to reach overall commitments of up to US$ 750 million. These funds are used to invest either indirectly via specialized funds, or directly into the beneficiary projects themselves. These may include small and medium-sized enterprises, energy services companies and other corporates directly contributing to the development of the RE/EE landscape in the eligible countries. GEEREF NeXt provides the long-term and patient capital which is essential to grow these projects from early development to full operations.

Based on GEEREF’s experience, it is anticipated that each underlying fund will raise up to seven times as much total fund commitments from other investors as from GEEREF NeXt’s initial commitment yielding an overall capital mobilisation number of US$ 30 billion. By this means, GEEREF NeXt is expected to finance more than 200 RE/EE projects through the course of its fifteen year lifespan. Once all investee projects are developed, 39 million tons of CO2 equivalents shall be saved each year. In addition, GEEREF NeXt will build capacity and track records of local fund managers in developing countries, which will help turn RE/EE investment into a mainstream asset class for institutional investors.

Submitter: European Investment Bank
Website: www.geeref.com
Contact: Esther Badiola, e.badiola@eib.org

European Investment Bank
The European Investment Bank (EIB) is the bank of the European Union, owned by the EU Member States. As the largest multilateral borrower and lender, the EIB has been supporting projects helping to implement EU policy objectives. A key priority for the EIB is to support low-carbon and climate-resilient growth in Europe and in developing and emerging countries outside Europe.

Between 2016 and 2020, the EIB is investing over US$ 100 billion in climate change mitigation and adaptation projects and acts as a catalyst encouraging others to match its long-term investment. Beyond that, the EIB complements innovative financing instruments with a range of technical assistance tools to provide rounded solutions for commercially promising climate initiatives.

Innovative EIB financing instruments for climate action include funds such as the GEEREF and GEEREF NeXt, the Green for Growth Fund or the European Energy Efficiency Fund, as well as green bonds. Having issued the world’s first green bond in 2007, labelled a Climate Awareness Bond, the EIB remains the largest issuer of green bonds up until today.
AFRICAS FIRST CERTIFIED CLIMATE BONDS, NIGERIA

Proceeds of sovereign and corporate green bonds support the transition of Africa’s largest oil-producer

In December 2017, Nigeria became the first (and so far only) African nation to issue a sovereign green bond, and in doing so became only the fourth nation in the world to issue one after Poland, France and Fiji. The US$ 30 million tranche (in local currency) with a 5-year-tenor was the “pilot sovereign” for the country’s anticipated several hundred million dollar green bond program. The proceeds of the bond are used to provide green electricity to rural communities that were previously in darkness, and support a government afforestation initiative. One of the projects, the Energizing Education Programme, aims to provide reliable, off-grid power supplies to 37 universities and 7 university hospitals across the country. These will utilise renewable energy in the process, particularly solar and hydropower.

DNV GL of Norway, a global verification and sustainability group, reviewed the green credentials of each initiative before endorsing the use of bond proceeds for these projects, which come under Nigeria’s ministries of power and environment. The British non-profit Climate Bonds Initiative (CBI) also granted certification, confirming its alignment with the 2-degree global warming limit in the Paris Agreement. Nigeria’s issuance was the first sovereign green bond to be granted the CBI’s best practice distinction, lending confidence to banks, institutional and retail investors who took up the bond.

The green bond issuance marks a breakthrough not only for the oil-rich Nigeria, contributing towards the commitments it made under the Paris Agreement, but also for other developing and emerging nations. With international support the Government of Nigeria has put in place a comprehensive governance structure and framework that is aligned with the country’s newly developed green bond guidelines and international best practices. This created a benchmark for subsequent issues of green bonds by state governments as well as corporates. Other African countries, including Kenya, are already gearing up to issue green bonds to finance their sustainable projects. Meanwhile, in March 2019, Nigeria’s Access Bank Plc successfully issued the first certified corporate climate bond in Africa, raising US$ 41 million.

Green Bonds

Green bonds are fixed income, liquid financial instruments used to raise funds dedicated to environment-friendly projects. Historically, most green bonds have been used to finance climate-change mitigation measures. Over the last two years, the financing of climate-change adaptation and resilience projects has also gained increased attention. Issuers of bonds can be private companies, supranational institutions (such as multilateral banks) and public entities (municipal, state or federal). Development banks (such as the European Investment Bank and the World Bank) and corporates have been the largest issuers of labelled green bonds to-date.

Green Bonds can help catalyze the market and unlock investment for private sector projects. A lack of appropriate institutional arrangements for green bond management, the issue of minimum size, and high transactions costs associated with green bond issuance, are the key barriers to the development of green bonds in developing countries. According to the Climate Bonds Initiative, emerging market (EM) green bonds account for about a quarter of total issuance to-date.

Submitter: Climate Bonds Initiative
Website: http://environment.gov.ng/green-bonds
Contact: Andrew Whiley, andrew.whiley@climatebonds.net
A SPECIAL FOCUS ON CLIMATE LEARNING AND ADVOCACY FOR RESILIENCE

To achieve lasting effects of climate action projects and finance in the development context, the transfer and firm anchoring of know-how on site is of particular importance. This applies to knowledge and capacity building in terms of both the practical use of low-carbon technologies and climate change adaptation measures. Whereas numerous of the aforementioned showcases focus on knowledge transfer with regard to a particular technology or infrastructure, other (non-profit) initiatives frequently apply broader capacity building concepts. These projects address wider target groups and/or cover more basic needs, specifically in the context of climate resilience, and provide a nexus between short-term humanitarian aid and long-term climate-resilient development.

One such example is the project "Solar Skills and Environmental Education" by Jugend Eine Welt – Don Bosco Aktion Österreich (funded by ADA). It provides not only a roof over the heads of homeless children and schools in several cities in Ethiopia and Uganda, but also comprehensive vocational training in electrical engineering and photovoltaic technology. Workshops and pilot plants are set up and local teaching staff are trained, with the aim of capacitating young people to install and maintain decentral, solar electricity supply systems for homes, water pumps etc.

Another showcase is a project to ensure sustainable and lasting food security by CARE Austria in two rural regions of Chad. The comprehensive approach aims to increase local climate resilience and adaptation through the dissemination of robust agricultural crops and innovative farming techniques to (agro-)pastoralists at risk of malnutrition due to increasingly erratic rainfall and a lack of productive land. Complementary measures include micro-projects creating community assets, animal health insurance, grain banks, village savings and loans associations.

Finally, to enhance the capacity of and generate evidence and learning from such projects, CARE established the "Climate Learning and Advocacy for Resilience (CLAR)" program. Working with a range of practitioners and global to local civil society organizations, the program gathers and disseminates successful climate-resilient development approaches and techniques to strengthen knowledge brokering for multi-stakeholder, cross-discipline and south-south learning and coordination.

Innovative donor funding

As (non-profit) NGOs implement aid and development projects that do not usually generate revenues, they depend on funding from governmental institutions or private sources (individual donations, corporate philanthropy etc.). In recent years, several new, innovative NGO fundraising ideas have flourished: Crowdfunding has become a frequent tool not only for for-profit projects, but also for charitable causes. Besides donations-based crowdfunding also interest-free crowdlending and lending/donation models based on in-kind rewards have appeared; several online platforms such as justgiving.com, respekt.net or meinespende.at have emerged. Another way of attracting funds and public attention may be public charity auctions of goods, services, meet-and-greet with celebrities etc. Finally, in the context of climate protection, bequeathing donations in last will and testaments have been promoted as a generous and unconventional way of leaving future generations a better world.
SUCCESS FACTORS

In order to support project developers, investors and other stakeholders in developing, implementing and maintaining mutually beneficial projects that meet the criteria of ecological, social, as well as economic sustainability, important success factors have been gathered for this white paper.

Listed below, the lessons learned mainly originate from the projects presented in this report and further submissions by project developers to the 2019 best practice call. They were supplemented by outcomes of workshops and direct talks with experts, as well as important findings from last year’s white paper.

The content reflects the experience of the individual people and projects involved and should be understood in close connection with them. Nevertheless, they comprise general findings that go beyond certain branches and countries and may therefore be a source of inspiration for other project fields.

Access to finance

One of the most frequently stated challenges of project developers participating in both the 2018 and the 2019 best practice call – together with finding the right project partners in general – was the access to finance and convincing investing partners. Equity proved a major challenge alongside the issue of debt financing. A prevalent problem continues to be the existing financing gap for middle-sized projects of around € 2-5 million (i.e. such projects are usually too big for crowdfunding, philanthropic or venture capital etc., and too small for individually designed bank loans or International Finance Institutions).

Generally, difficulties mostly arise from the real or perceived elevated risk of investments in developing and emerging countries (due to unstable political, social or legal conditions, exchange rate risks etc.) and/or of the proposed customer segment on site. Long lead times and high upfront costs, together with western investors’ lack of knowledge concerning local circumstances and new business approaches, as well as prejudices, add to this problem.

- An early, in-depth financial analysis and the development of a business risk model including adequate means to continuously monitor and manage risks is therefore a key success factor to overcoming scepticism of potential financiers. Also, the structuring of financial risks and establishing agreed risk profiles as provision for possible capital losses is an important measure.

- In this context, even reconsidering the business model or adaptations to the product can be helpful. As was the case with the Solartainer®, several risks may be significantly reduced by e.g. developing a mobile solution which can be moved in the case of changing infrastructure or security situations. Another approach might be the introduction of pay-as-you-go systems. Exchange rate risks may be avoided by using loans (or even crowdfunding) in local currency, if available.

“As we prepared new markets to receive our products, we learned that financing was also to be provided by us.”

Carbon Fund of the University of Natural Resources Vienna
• In developing and emerging countries financing is often expected to be provided by the project developer; this might also prevent possible legal uncertainties or disputes. Maintaining a sound overview of the various available financing opportunities and their respective conditions is advantageous. In particular, instruments such as grants and government-backed loans or guarantees not only provide favourable terms directly to the project developer, but may also attract and leverage additional private financing sources. With regard to the procurement of International Financial Institutions, information should be obtained and contact made as early as possible (prior to tendering).

• When it comes to consumer finance, a frequent problem in developing countries is that customers lack access to bank services or that local interest rates do not reflect the relatively low risk of the offered solution (e.g. photovoltaics with low maintenance and long lifespans). In this case financing may be provided by the project developer through micro-credits or crowd-lending platforms etc. “Smart” technologies and (blockchain-based) innovative payment services via mobile phone can support such solutions and might open up re-financing opportunities simultaneously.

**Partnerships**

Well-functioning partnerships – characterized by qualities such as trust, endurance and reliability – are an obvious, yet not trivial factor for the success of any project. Finding dedicated (local) partners for project development and implementation is particularly difficult for new companies and/or technologies.

• Connecting to partners with an already established network (and reputation) is therefore an important success factor – especially with regard to local contacts in the project country. For start-ups, taking part in initiatives such as EIT Climate-KIC and similar networking platforms or accelerators can be beneficial. Already established businesses benefit from close and sustained cooperation, e.g. in tech clusters and with scientific institutions.

• In general, finding not only financiers, but “smart money” – i.e. engaged (“angel”) investors that do not only supply funding, but through its network, experience and interest in the project are able to advance the project – is an essential advantage.
Furthermore, it is essential to keep all partners within the project consortium or team on board – from project developers, sub-contractors and technology providers to those who implement and operate the project directly on site. **Maintaining broad inner support** is particularly important in case of changing external conditions such as waning local political commitment.

- Identifying a common goal for all stakeholders and keeping them in the loop with transparent reporting and **institutionalized communication** is especially important for start-up companies, which often deviate from forecasts. One project reported that this helped in overcoming barriers and developing alternative, more adequate solutions together with financial stakeholders.

- Also **bringing external, local stakeholders together** to discuss their common challenges and opportunities, whilst strengthening cooperation directly on site, can greatly support the advance of a project.

**“Tailored solutions for local needs”** was a key success factor of last year’s white paper. This means taking a specific look at local needs and circumstances (including environmental and political, as well as social and cultural conditions) to adapt the solution or technology to the local situation and local users is a precondition for success.

- This was complemented in this year’s call by several references to **“frugal innovation”**. Frugal, i.e. simpler (in terms of complexity, not quality), more robust and affordable products, services and business models often not only meet the demands of customers in developing and emerging countries best, but also lower the usage of finite and depleting natural resources and thereby contribute to the SDGs.

- Additionally, **knowledge transfer and capacity building on site** were frequently mentioned success factors in both project calls. This not only ensures that newly introduced products or technologies will be adequately maintained in the longer term, but also contributes to the general acceptance of the solution and a **sense of ownership**.

**Business model**

- **“Solar skills and environmental education”** by Jugend Eine Welt

- **“We have worked closely with municipalities, the national government, the private sector and financiers, forging new bonds between these stakeholders, where previously they had never met or talked to one another.”**

- In addition, cooperation with **“unusual alliance partners”** such as well-connected local NGOs can be fruitful. These players should be involved in an early project phase to communicate the advantages and benefits of the project so that they support it as well.

- **Building upon existing products, technologies or pilot plants** etc. increases acceptance and can serve to demonstrate the feasibility and the potential of a planned solution. The same applies to taking up local traditions, trends or established strategic guidelines etc.

- On the other hand, **new and creative solutions** such as the combination of different technologies (e.g. efficient cooking stoves with photovoltaics and a battery for charging devices) or the integration of digital systems, may add functionality and efficiency to products and therefore increase their appeal to the customers (and investors).
Off-grid solutions, pre-paid schemes (via mobile phone/apps) and blockchain technology are frequently used approaches in the context of developing countries to ensure independence from unreliable infrastructure, as well as to increase accountability and transparency.

Product sales in bundles and the offer of after-sale services to customers may be an effective strategy to gain new customers (through referrals) and retain existing ones. Word of mouth often plays a key role in many developing regions.

Sustainable development solutions ideally carry themselves financially and are independent of outside funding for their longevity; a good business model therefore should also include maintenance, a long-term financing plan and training for locals.

In the case of projects that do not directly generate revenue (as is the case with Bogotá’s cycling infrastructure) a hybrid model of varying revenue and financing approaches for different project parts may be a suitable solution.

General aspects

A rigorous prior assessment of local circumstances and peculiarities, with regard to environmental (regional climate, resource potentials, etc.), economic, financial, political, legal, social and cultural conditions, is of utmost importance to the success of any project. Proper pre-evaluation is vital for the measurability and predictability of project outcomes.

Cultural peculiarities are specifically important for the realization of projects in developing and emerging countries. Factors such as meeting local stakeholders on an equal footing, speaking the local language and good judgement in terms of people and commitments are essential. Several of the projects presented in this report profited from having locals in their core team.

Also, clarifying misconceptions (by investors, decision-makers, customers etc.) may be necessary. One example from the submissions was the conflation of energy and electricity and the need to raise awareness of the importance of thermal energy.

In many cases, strong willingness coupled with persistence was necessary to overcome barriers and successfully realize the respective projects (if necessary, with a “plan B” readily available). Moreover, the bridging of difficult project phases and time delays also requires a solid financial base, enough liquidity and patient investors.

In this context, accountability and transparency are important guiding principles. Consistent measuring, reporting and validating principles need to be applied not only to financial indicators, but also to environmental aspects such as CO2 emissions or the SDGs in general. Where lacking, metering systems to detect inefficiencies or calculate emission savings need to be installed early on.
POLICY RECOMMENDATIONS

Project lessons learned and success factors provide a basis for the formulation of policy recommendations to foster framework conditions that support the potential of energy and climate projects worldwide and especially in developing and emerging countries. This white paper therefore addresses decision-makers in countries, regions and municipalities, as well as capital providers and non-state actors such as companies, private initiatives, platforms, and NGOs. Building upon last year’s report, the 2018 policy recommendations have been complemented and deepened with a special focus on financing. However, they reflect the experiences and opinions of the involved experts and practitioners and do not constitute an exhaustive list.

“It has to start with governmental policies: if policies are not in place, there won’t be private sector investment coming in.”

Political commitment and lighthouse projects
Broad and strong political commitment regardless of legislative periods and short-term political considerations, and influential forerunners sending out encouraging signals of concrete action, continue to be decisive prerequisites for the realization of new climate-impact projects. This not only applies to the ambitious translation and observance of the internationally agreed targets for climate protection and sustainable development (NDCs, SDGs) at all levels and areas of administration, but also to the required financial resources. Finance volumes available for climate change mitigation and adaptation measures need to be quickly ramped up further – with a particular focus on the mobilization of private capital resources – and more easily accessible, complementary instruments and financing mechanisms should be established.

Businesses and organizations need stable and reliable political, institutional and financial framework conditions in order to successfully develop and realize their respective projects. On the other hand, examples of ambitious projects and innovative financing approaches by private companies, initiatives and platforms send an important signal to other private actors. Public and private lighthouse projects of various sizes and on all levels make viability and successes visible and encourage imitation.

Strategic and comprehensive approach
Within individual countries a broad strategic approach is required to effectively support the development and implementation of climate-impact projects and to provide them with adequate, well-coordinated financial instruments. Nationally integrated financing frameworks as specified by the 2015 Addis Abeba Action Agenda provide a tool to identify and implement targeted policies and reforms to increase their effectiveness, coherence and alignment with sustainable development and a basis for long-term policymaking beyond political cycles.
Derived national (climate finance) strategies and programs need to involve and address all relevant stakeholders (e.g. the crucial treasury departments and central banks) and sectors (e.g. building). Policy measures should complement private initiatives and help to build an environment that aligns (short-term) private sector incentives with (long-term) public goals and strengthens accountability – for example, through carbon pricing. Developing and emerging countries should be offered support in these comprehensive planning and implementation processes by advanced economies and international organizations.

“Climate-resilient development is not a single and stable future state: it is a product of capabilities to constantly change course in response to climate change and broader development dynamics in a particular context. Climate resilience calls for locally determined actions that take into account the interests, capacities and different vulnerabilities of the local community, institutions and ecosystems.”

Expanding traditional and innovative instruments
Well-established instruments to support the realization of climate-resilient development projects include grants, concessional loans and public guarantees. National governments, development banks and the private sector need to further expand (in terms of volume and availability in local currencies) these and other, innovative instruments, such as blending facilities, to provide the financing needed for international sustainable development.

“Not only products and services should be frugal and local, but the financing as well.”

There are many concrete suggestions on how to facilitate projects: Particularly business partnerships, soft loans and other risk mitigating mechanisms such as insurances for export credits and exchange rate risks, could be expanded (e.g. by removing limits for the maximum number of approved projects or geographical restrictions). Moreover, concessional loans could be transformed into grants in case of project failure due to external factors – or the other way around in case of success to regain grant money for additional projects. In addition, early-stage funding for business development, project preparation, piloting etc. should be more widely available for already established technologies (much needed in the developing world), not primarily to newly developed or high-tech solutions. Innovative approaches such as Green Venture Funds, blending facilities, crowdfunding and contracting models should also be encouraged.

Removing barriers, closing gaps
Overly complex contracts and application requirements or contradicting funding conditions of existing instruments may constitute barriers to project development and implementation. These and other bureaucratic regulations that are strictly interpreted by some countries (e.g. in connection with the EU De Minimis Regulation) could be relaxed and facilitations in international trade accorded (e.g. double taxation agreements, common EU trade missions on site etc.). Also national provisions such as tax deductions for donations or investments in energy projects can contribute to favourable framework conditions.

In addition, finance gaps need to be eliminated. A frequently diagnosed gap exists between small grants or equity and conventional large-scale financing, i.e. for project sizes of about € 2-5 million. Such projects can have significant direct impacts on site and could be replicated significantly more easily than e.g. large infrastructure projects. Another gap is the lack of funding for feasibility studies. Access to this crucial enabling instrument providing the basis for e.g. project tendering also needs to be facilitated.
Engaging with the private sector
Local governments should be supported to further develop and implement a policy environment that will be attractive for the necessary private sector investments. Important factors to build trust and confidence include independent and stable public institutions, reliable rule-of-law and market incentives. Foreign direct investment needs to rely on fair regulatory conditions and authorities (e.g. in terms of public procurements, subsidies, licensing, tariffs etc.). For energy generation projects, transparent, guaranteed and cost-reflective feed-in tariffs that allow adequate returns on investment are of great importance. Additional incentives include tax benefits for equipment imports, facilitations for residence and work permits, as well as long-term, low-interest financing opportunities. Finally, an early involvement of private stakeholders in legislative processes may contribute to building trust and mutual understanding.

“The government can invent projects, but we need entrepreneurs who invest and take the risk.”

Knowledge bundling and sharing
Creating platforms on local, national and international levels for bundling, sharing knowledge and supporting projects, particularly in their early stages and with respect to financing opportunities and risk cover, is an important task. These initiatives may be located at already established institutions such as public offices or private project preparation facilities and provide matchmaking opportunities, information and training e.g. for procurement (one-stop shop principle).

Furthermore, the bundling of financial instruments would be necessary to improve transparency and provide an overview for interested parties. This could be implemented by establishing a single access point for project financing tools that covers climate change, renewable energy and sustainable development aspects. These tools should provide rapid realization of (innovative) funding opportunities and focus on a longer-term perspective beyond a fast return on investment. Moreover, they should elaborate and actively offer financing programs to interested companies rather than wait for individual requests.

Cross-cutting cooperation
Decision-makers should particularly support networks of “unusual alliance” partners with different backgrounds and expertise, e.g. cooperation between the business sector and developing agencies or NGO’s. The same is true for the financial sector: New, innovative (blending) instruments for the leveraging of public or philanthropic money by catalyzing private capital are necessary to mobilize the required additional funds for climate-resilient development. Currently existing instruments could also be used, combined and structured to e.g. reduce risks or increase returns for private investors.

Responsibility, accountability, transparency
Accountability and transparency of projects and investments should be ensured through common principles of measuring, reporting and validating (MRV) – with respect to financial and other performance indicators. This is especially true if projects are bundled and offered to third parties for investment. In order to ensure not only financial viability, but also adequate climate and SDG impact, such comprehensive assessments need to include external effects and opportunity costs (“costs of inaction”). Last but not least, these assessments should be made (publicly) accessible and spread widely.
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