Stiftung Klimarappen
Fondation Centime Climatique
Fondazione Centesimo per il Clima
Climate Cent Foundation

Final Report 2014–2022

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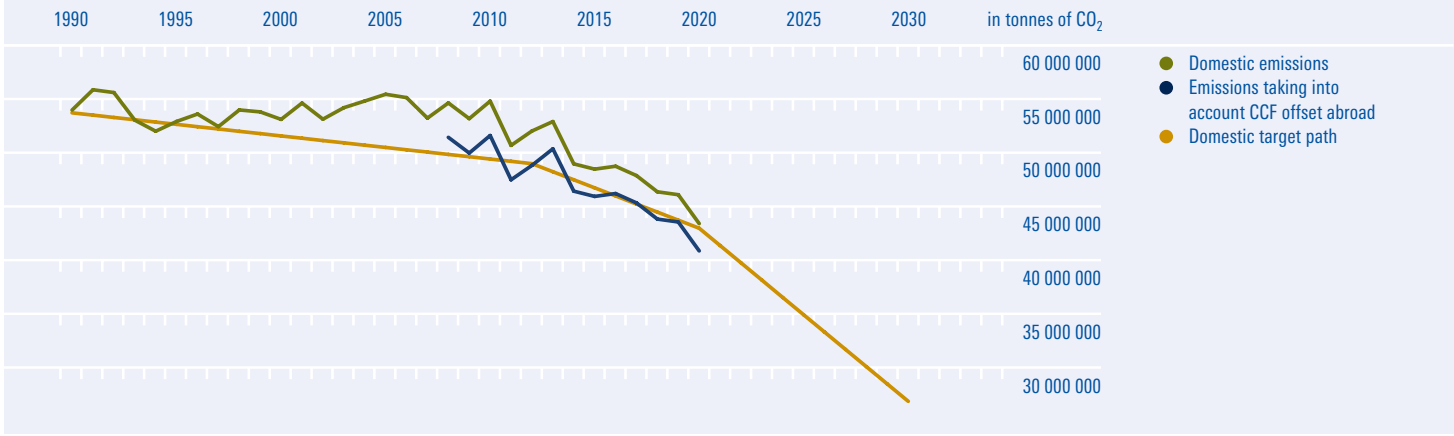
Dieser Bericht ist auch in Deutsch erhältlich.
Ce rapport est également disponible en français.

Purpose of this report

With the present final report, the Climate Cent Foundation takes stock of its activities since signing its agreement with the Swiss Confederation on 9 October 2013 concerning the use of the Foundation's surplus assets. The report explains that and how the Foundation has fulfilled its commitments vis-à-vis the Swiss Confederation as set out in the aforementioned agreement as well as follow-up agreements dated 16 September 2016 and 29 April 2022.

Targets and framework of the Foundation

Greenhouse gas emissions in Switzerland 1990 to 2030 and contribution of the Climate Cent Foundation 2008 to 2020



The Climate Cent Foundation was established in August 2005 by the organisations economiesuisse, Swiss Petroleum Association (now Avenergy Suisse), Schweizerischer Gewerbeverband and strasseschweiz as a voluntary measure of the Swiss business community according to the terms of the Swiss CO_2 Act. Its aim was to provide an economically efficient "polluter pays" contribution to Switzerland meeting its climate policy commitments by investing in greenhouse gas reduction projects within Switzerland and abroad.

In its agreements with the Swiss Confederation dated 30 August 2005, 17 February 2009 and 17 January 2012, the Climate Cent Foundation committed to procuring a set amount of certified greenhouse gas emission reductions from climate mitigation activities carried out in Switzerland and abroad. Only certificates contributing to fulfilling Switzerland's international emission reduction pledge under the Kyoto Protocol were allowable.

More concretely, Switzerland had committed to reducing its greenhouse gas emissions by an average 8% compared to 1990 over the period 2008–2012, that is by 21.5 million tonnes of CO_2 equivalent over those five years. Until 1 April 2014, the Foundation made the following deliveries to the Swiss Confederation: on the one hand, it delivered the precise agreed amount of 2 million tonnes of CO_2 in certified domestic emission reductions, keeping another 692'038 certificates on its books. On the other hand, it delivered certificates covering the reduction of 16'016'902 tonnes of CO_2 equivalent by more than 170 climate mitigation activities approved by the UN according to the rules of the Kyoto Protocol (see the Final Report 2005–2013).

The direct and indirect costs of procuring the certificates amounted to more than CHF 689 million. Revenues, generated by a charge of 1.5 cent per litre levied on all petrol and diesel oil imports between 1 October 2005 and 31 August 2012, stood at CHF 738 million. Upon completion of the Kyoto Protocol's first commitment period, the Climate Cent Foundation's residual assets thus comprised liquid assets amounting to CHF 49 million as well as a stock of 692'038 Swiss emission allowances.

In the second phase of its existence, in agreements with the Swiss Confederation dated 9 October 2013, 16 September 2016 and 29 April 2022, the Climate Cent Foundation committed to using its remaining assets to support climate mitigation activities expected to yield a maximum amount of certified emission reductions that could be credited toward Switzerland's Kyoto pledge for the period 2013–2020 and meeting the requirements set out in the Swiss CO_2 Ordinance.

Unlike the first phase, the Foundation was allowed to support only climate mitigation activities carried out abroad. No specific amount of emission reductions was prescribed. While the certified emission reductions purchased by the Climate Cent Foundation were if possible to be usable toward fulfilling Kyoto commitments, the scope was deliberately created to fund pilot projects aiming to test new approaches to climate finance in accordance with Switzerland's international negotiation stances. In 2016, the Foundation explicitly committed to using at least CHF 20 million toward supporting pilot activities aiming to concretise and implement the possibilities set out under Article 6 of the Paris Agreement until and after 2020.

For the Kyoto Protocol's second commitment period, Switzerland pledged toward the international community to reduce its greenhouse gas emissions by an average 15.8% compared to 1990 over the period 2013–2020. By contrast, the Swiss CO_2 Act only set a reduction target for the year 2020, by which emissions could amount to no more than 80% of their 1990 levels – yet with no possibility of offsetting excess emissions abroad. As greenhouse gas emissions in the period 2008–2012 were effectively lower than 1990 emissions by only 1% on average, Switzerland's emission reduction requirements under its Kyoto pledge amounted to a cumulated 62.7 million tonnes of CO_2 equivalent for the period 2013–2020.

Final outcome

Delivered certificates by country of origin

Achieved emission reductions

On 13 September 2022, the Climate Cent Foundation transferred the 20'157'817 emission reduction certificates from the period 2013–2020 held on its account with the Swiss Emissions Trading Registry onto the Swiss Confederation's account. The certificates (so-called CERs) met the requirements of the Swiss CO_2 Ordinance and came from around 220 climate protection projects approved by the UN according to the rules of the Kyoto Protocol. Detailed information on all projects presented below is available on the website www.unfccc.int/cdm.

The amount of transferred CERs is thus significantly higher than the amount of 12 million named as required by Switzerland in the Swiss Federal Council's Message regarding the approval of the second Kyoto period 2013–2020 (BBl 2014 3455). It also significantly exceeds the delivery volume of 18 million CERs announced to the Federal Department of the Environment, Transport, Energy and Communications (DETEC) on 19 June 2020 upon its request. More particularly, it is to be viewed in relation to the aforementioned emission reduction requirements of around 63 million tonnes of CO_2 equivalent for the commitment period 2013–2020. With its activities, the Climate Cent Foundation alone thus contributed a third to the success of Swiss climate policy.

Overall revenues and expenses as of 30 September 2022

Assets as of 31.3.2014	**49'154'685**
Revenues	**116'269'043**
Sale of CHU1	53'778'273
Buildings Programme	54'334'664
Financial income	8'156'106
Expenses	**53'475'031**
Purchase of certificates from traders	6'604'973
Purchase of certificates from project owners	35'330'688
World Bank funds	7'721'178
Pilot activities	1'634'251
Secretariat	2'183'941
Assets as of 30.9.2022	**111'948'697**
Outstanding liabilities	**46'000'000**
Available resources	**66'000'000**

Revenues and expenses

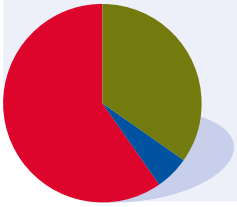
As of 31 March 2014, the Climate Cent Foundation's assets amounted to CHF 49'154'685. Since then, revenues have been generated on the one hand from the sale of 692'038 Swiss emission allowances to the KliK Foundation and on the other hand from the sale, also to the KliK Foundation, of the Climate Cent Foundation's Buildings Programme's enduring impact of 339'532 tonnes of CO_2 for the period 2013–2020. This yielded revenues of CHF 108'112'937. Financial revenues amounted to CHF 8'156'106.

Procuring the certificates handed over to the Swiss Confederation incurred direct and indirect costs of CHF 51'291'090. CHF 2'183'941 were spent on operating the Secretariat and on communication activities. Transaction costs thus represented a share of 4.1% of deployed resources. Apportioned to emission reductions, transaction costs amounted to CHF 0.11 per tonne of CO_2. Across the entire portfolio, the reduction of one tonne of CO_2 equivalent cost CHF 2.65.

As of 16 September 2022, upon processing of all transactions realised since the reference date of 31 March 2014 of the Final Report 2005–2013, the Climate Cent Foundation's assets amounted to CHF 111'948'697. Liabilities to third parties of approximately CHF 46 million in total are currently still outstanding. Resources of around CHF 66 million thus currently remain available for investments in projects in the field of negative emissions technologies, as provided for in the most recent agreement with the Swiss Confederation dated 29 April 2022.

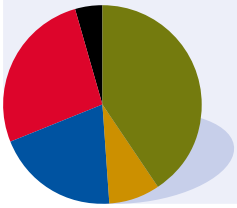
Delivered certificates by mode of acquisition

2014 to 2022	in tonnes of CO_2
Self-acquisition	6'999'965
Funds	1'157'852
Traders	12'000'000
Total	**20'157'817**



Delivered certificates by project type

2014 to 2022	in tonnes of CO_2
Wind	7'988'938
Hydro	1'629'937
Landfill gas	3'924'398
Energy efficiency	5'214'399
Other project types:	
Biogas	538'834
Biomass	416'422
Laughing gas	378'880
Solar	19'042
Tidal	7'944
Fuel switch	37'720
Waste management	1'303
Total	**20'157'817**



Purchase of certificates from traders

In June 2014 and March 2015, the Foundation carried out standard-modality public calls for tenders to purchase 4 resp. 1 million CERs. Only CERs stemming from projects featured on the Swiss Confederation's "White List" were admitted. In total, four bidders won. The average price per certificate was EUR 0.51 in the first and EUR 0.49 in the second call for tenders.

In addition, in a renewed competitive process, the three suppliers who had submitted the most competitive bids in the two previous calls for tenders were specifically invited to procure CERs meeting the requirements set out in the Swiss CO_2 Ordinance up to a maximum limit defined in terms of quantity and price. A further 7 million CERs were thus purchased at an average unit price of EUR 0.52.

Overall, 12 million CERs were purchased at average unit costs of EUR 0.51. In view of the certificates' high quality, this may be viewed as an excellent result. The certificates stem from 162 projects in nine countries. More specifically, the four suppliers delivered the following certificates:

Kyoto certificates by trader

Project type	Country of origin	UNFCCC n°	Quantity
Amsterdam Capital Trading			
Waste management	China	5879	1'303
Biogas	Thailand	1040	41'421
Biomass	Brazil	209	9'508
	China	2561	139'397
	China	2563	16'024
	China	3056	683
	China	3071	567
	China	3072	1'516
	China	3606	1'172
	China	5514	450
	India	1852	67'878
Landfill gas	Brazil	165	461'466
	Brazil	888	50'000
	China	887	8'686
	China	1664	663
	China	3937	120
	China	5238	181
	China	5652	219
	Colombia	2554	685'205
Energy efficiency	Thailand	3483	31'405
	China	1046	544
	China	1619	729
	China	1622	489
	China	1623	461
	China	1624	139
	China	1685	2'579
	China	7651	283
Fuel switch	Egypt	834	37'720
Tidal	South Korea	349	7'944
Solar	China	2307	528
	China	2311	531
	China	2924	462
	China	5106	3'014
	China	5119	3'029
	China	5945	40
	China	6125	1'647
	China	6987	1'707
Hydro	Brazil	4936	25'854
	China	1430	119
	China	1477	19'714
	China	1485	145
	China	1496	566
	China	1769	87
	China	1775	36
	China	2066	1
	China	2142	86'819
	China	2478	373
	China	2707	20
	China	3113	36'787
	China	3588	1'072
	China	3668	142'894
	China	3748	77'105
	China	3824	774
	China	3864	294
	China	3941	24'209
	China	4160	28'241
	China	4499	269'629
	China	4716	8'808
	China	4771	492
	China	6559	6'823
	China	7148	524
	China	7344	162
	China	7345	152
	India	1253	21'542
	South Korea	788	473
	Vietnam	6203	9'000
Wind	China	491	158'266
	China	1118	3'169
	China	1854	1'853
	China	2040	2'288
	China	2047	1'368
	China	2093	2'410
	China	2149	1'296
	China	2170	431'987
	China	2483	133
	China	2597	2'573
	China	3399	3'624
	China	3670	600'000
	China	3829	1'026

Project type	Country of origin	UNFCCC n°	Quantity
Wind	China	4240	803
	China	4715	2'258
	China	4734	607'587
	China	4882	2'052
	China	4963	3'475
	China	5029	3'579
	China	5128	123'337
	China	5181	132'678
	China	5284	251'033
	China	5285	282'030
	China	5664	130
	China	5713	2'351
	China	5730	2'243
	China	5736	143'425
	China	5799	123'676
	China	5809	93
	China	5851	2'172
	China	5904	100'089
	China	6016	519
	China	6022	2'781
	China	6052	1'711
	China	6176	12'971
	China	6293	1'677
	China	6338	1'919
	China	6481	2'341
	China	6562	1'302
	China	6580	1'913
	China	6655	113'022
	China	6677	24'688
	China	6858	2'543
	China	7177	1'824
	China	7221	186'063
	China	7288	1'797
	China	7337	42'714
	China	7552	280'685
	China	7566	3'063
	China	7943	64'607
	India	8524	57'932
	India	8606	76'929
Total Amsterdam Capital Trading			**6'218'730**

Project type	Country of origin	UNFCCC n°	Quantity
CF Partners			
Biogas	Thailand	1040	5'000
Biomass	India	127	79'227
Energy efficiency	China	812	65'000
	India	313	19'824
Hydro	Brazil	1800	7'514
Wind	China	5233	30'139
	China	5869	87'357
	China	8618	85'475
	India	1615	47'347
	Mexico	5676	14'525
	Mexico	6216	58'592
Total CF Partners			**500'000**
First Climate			
Biomass	China	2563	100'000
Hydro	China	6977	10'095
	China	7025	35'139
Wind	China	2021	34'606
	China	2764	200'760
	China	5738	19'400
	India	1600	65'212
	India	5537	47'053
Total First Climate			**512'265**

Project type	Country of origin	UNFCCC n°	Quantity
Statkraft			
Biogas	China	6444	92'077
	China	8391	95'998
	China	8392	106'728
	China	8394	56'677
	China	8740	52'792
	China	8840	25'354
	China	9135	55'624
Energy efficiency	China	812	246'814
Hydro	China	1125	72'224
	China	1276	99'105
	China	1486	82'366
	China	1560	55'584
	China	1569	46'562
	China	2104	87'687
	China	2178	78'939
	China	2204	83'487
	China	2207	15'191
	China	4152	94'927
	China	6436	45'513
	China	6696	52'889
Wind	China	491	94'260
	China	1837	237'589
	China	2170	700'000
	China	3670	496'095
	China	4734	193'067
	China	4853	407'000
	China	5799	200'000
	China	6338	13'207
	China	7339	215'000
	China	7409	205'376
	China	7424	281'796
	China	7480	178'043
	China	7495	1'034
Total Statkraft			**4'769'005**

Purchase of certificates from project owners

In total, the Foundation had concluded a delivery agreement with four project owners. One of these agreements was terminated by mutual consent without leading to the delivery of any CERs. The three projects for which the contracts were fulfilled were the following:

– **Microfinancing of household devices, India:** The CCF purchased 3 million CERs from US company Micro Energy Credits Corp. (MEC). MEC still operates the programme registered with the UN in 2012 as n° 9181 to support microloans for greenhouse gas reducing household devices in India. Under the programme, which reached approximately 3 million households, microloans were facilitated for improved cook stoves, solar lamps and water purification devices.

  The contractually agreed quantity of CERs was almost fully delivered to the CCF.

– **Drinking water chlorination, Kenya / Uganda / Malawi:** The CCF purchased 2 million CERs from Pure Water Ltd generated by the "International Water Purification Programme" registered with the UN in 2012 as n° 5962. The programme's implementation partner Evidence Action fitted 27'000 wells and springs in Malawi, Kenya and Uganda with chlorine dispensers, enabling more than 4 million people to purify their drinking water in a safe and simple manner rather than boiling it with non-sustainably used firewood.

  The contractually agreed quantity of CERs was fully delivered to the CCF, of which 200'000 CERs from a wind power project in China registered with the UN as n° 233. These certificates, delivered in 2017, were accepted as a substitute after the programme initially did not scale up as fast as planned and was therefore unable to comply with its delivery schedule.

– **Landfill gas destruction, Latin America:** Due to low market prices for CERs, it was no longer economically viable to operate, service and develop systems for the collection and destruction of landfill gas. Small and medium-sized landfills were particularly affected because they lacked access to adequate funding.

  In order to make it possible to keep operating such stranded projects in Latin America, the CCF signed a framework agreement with First Climate (Switzerland) AG, defining a cost ceiling of EUR 12.5 million. An innovative pricing structure, which followed the marginal cost of methane destruction, lowered risk for project owners and set incentives to maximise emission reductions.

  A purchase agreement was signed with 20 projects (9 in Brazil, 5 in Colombia, 5 in Mexico, 1 in Chile). In total, the CCF received delivery of 2'000'308 CERs.

The agreement terminated by mutual consent in March 2022 concerned the "Programme for the Reduction of Emissions from Non-renewable Fuels from Cooking at Household Level" operated by the Norwegian company Green Development AS in Malawi and registered with the UN as n° 7359. The contractually agreed certificates could not be delivered on schedule because their issuance was denied by the competent UN body and the appeal against this decision by the programme owner remained pending to the last.

Participation in World Bank funds

Pilot Auction Facility (PAF)

The low price of CERs, trading at below USD 1 during the entire 2013–2020 period, was threatening the continued operation of many registered CDM projects. The World Bank's Pilot Auction Facility for Methane and Climate Change Mitigation (PAF, https://www.pilotauctionfacility.org/) tested a way to determine a price for such projects both acceptable from the seller's point of view and efficient from the buyer's point of view.

The CCF and the Swiss State Secretariat for Economic Affairs (SECO) jointly participated in the PAF with a share of USD 2.5 million each, thereby in total meeting minimal share requirements. The governments of the United States, Germany and Sweden also invested in the fund. The fund had a total endowment of USD 55 million.

Four auctions were carried out in total: three for methane reduction projects in the waste management sector and one for projects aiming to reduce laughing gas emissions in the production of nitric acid. Each of the auctions was carried out according to a different design. Overall, bidders acquired put options to deliver a total of 24.8 million certificates up to and including the production year 2020. The net price was USD 2.10 per tonne for the first two auctions and USD 1.80 resp. USD 1.98 per tonne for the third and fourth auctions.

Only just under 40% of the put options purchased at the fourth auction for the delivery of 4.2 million CERs were exercised, as the Covid-19 pandemic apparently delayed the implementation of projects. In the context of the issued bonds' six maturities, the fund received delivery of 21.3 million CERs in total, of which a share of 1'065'025 CERs went to the CCF. Taking into account transaction costs, the unit price of CERs thus stood at CHF 2.21.

The dissolution of the PAF is planned for 31 December 2022. The fund's current assets amount to more than USD 5 million. Shareholders will decide in the coming months how to use the assets then remaining.

Carbon Initiative for Development (Ci-Dev)

Since early 2014, the CCF has held a share of USD 23 million in the World Bank's Carbon Initiative for Development (Ci-Dev), which will be in operation until the end of 2025. The fund also numbers among its investors the governments of Great Britain and Sweden, which hold shares of respectively GBP 50 million and USD 23 million. GBP 35 million and USD 40 million are available for the purchase of certificates; the remaining funds go toward activities granting governments, financial institutions, the private sector and civil society improved access to the carbon market. The Foundation is entitled to a share of roughly 20% of the certificates purchased by the fund. For more information, see https://www.ci-dev.org/.

The portfolio currently comprises the following nine programmes:

– **Bioethanol, Madagascar**
In Madagascar, non-sustainably obtained wood charcoal is widely used for cooking purposes. Instead, the programme fosters the use of sustainably produced bioethanol. On the one hand, it involves the installation of more than 60 ethanol micro-distilleries to produce the necessary fuel. Two pilot facilities were set up to determine the best available technology and the optimal raw material based on sugar cane. Furthermore, the government received assistance in designing and implementing regulation in order to ensure that the raw material is obtained in an environmentally and socially compatible manner and that the distilleries and the cook stoves are of good quality.

On the other hand, the programme subsidises the sale of up to 35'000 ethanol cook stoves to households in cities and agglomerations. An information campaign is designed to convince consumers of the benefits of using ethanol cook stoves: less deforestation, improved rural livelihoods and less air pollution near cooking sites.

The programme was registered by the UN in 2012 as n° 7359.The Ci-Dev has concluded a purchase agreement for at least 850'000 of the certificates generated over the period 2016 to 2024. Around 9'000 ethanol cook stoves subsidised by the programme are currently in operation. To date, 50'247 CERs have been delivered to the Foundation.

– **Biogas, Ethiopia**
The programme covers the subsidised construction of biogas units for rural households in Ethiopia, whose price is reduced by USD 240 down to USD 560. The biogas units are built by local biogas companies working with specially trained masons. The local biogas companies receive a yearly bonus of USD 10 per reliably functioning biogas unit, ensuring that the biogas facilities are properly built and serviced.

The biogas units are built underground and topped off with domed masonry work. They have a capacity of 3 to 6 m³ and require dung from at least four heads of cattle to be processed into biogas. The biogas replaces non-sustainably used wood for cooking purposes. The nutrient-rich sludge generated as a by-product can be used as fertiliser. Households are thus able to reduce their fuel and fertiliser expenses, spend less time gathering wood, and improve their health by inhaling fewer pollutants when cooking. Connecting the facility to the latrine makes it possible to further improve biogas yield and hygiene.

The programme forms the second phase of Ethiopia's national biogas programme. The first phase, in which more than 5'000 biogas units were constructed and more than 100 masons trained, lasted from 2009 to 2013 and entailed market testing and technological development. The second phase, over the course of which 40'000 biogas units are to be built, has been operating since 2014; emission reductions under the programme are only credited from 1 April 2016 onward.

The programme was registered by the UN in 2016 as n° 10268. The Ci-Dev has signed a purchase agreement for at least 440'000 of the certificates generated over the period 2016 to 2024. Around 24'100 biogas units subsidised by the programme are currently in operation. To date, 7'163 CERs have been delivered to the Foundation.

– **Solar power, Ethiopia**
The programme covers the sale of 2.8 million solar lamps and 200'000 solar home systems (supplying electricity e.g. for televisions and ventilators) to rural households without grid connection over the years 2016 to 2020. The programme enables households to stop using kerosene and reduce their CO_2 emissions.

Driven by sharply falling prices, solar lamps are experiencing a boom in Africa. However, the devices being sold are often of poor quality and do not last long in everyday use. The programme aims to enable high-quality solar lamps and solar home systems to break through in Ethiopia. The proceeds from the sale of certificates are therefore used toward providing warranty coverage and a battery exchange programme.

The programme was registered by the UN in 2016 as n° 10285. The Ci-Dev has signed a purchase agreement for up to 230'000 of the certificates generated over the period 2016 to 2024. More than 900'000 solar lamps and almost 70'000 solar home systems subsidised by the programme are currently in operation. To date, 8'084 CERs have been delivered to the Foundation.

– **Biogas, Burkina Faso**
Burkina Faso operates a national biogas programme in order to foster the use of household biogas units. Around 6'000 biogas units were installed between 2014 and 2016. The programme's financial backing was phased out in 2018. The purchase of emission reductions achieved under the programme makes it possible to maintain and reinforce this successful scheme. Concretely, up to 35'000 biogas units are to be installed from 2019 up to and including 2024. The information detailing the biogas units under the biogas programme in Ethiopia apply by analogy (see above).

The programme was registered by the UN in 2014 as n° 9977. The Ci-Dev has signed a purchase agreement for at least 325'000 of the certificates generated over the period 2019 to 2024. Around 11'000 biogas units subsidised by the programme are currently in operation. To date, 24'555 CERs have been delivered to the Foundation.

– **Rural electrification, Mali**
The programme strengthens the capacity of the Malian Agency for Rural Electrification to convert the existing 250 diesel off-grid systems into hybrid diesel/photovoltaic off-grid systems. This reengineering reduces greenhouse gas emissions and electricity generation costs. The price of electricity for connected households can be lowered accordingly. A second aspect of the scheme is to subsidise the sale of high-quality solar lamps. Combined with awareness-raising measures, this reduction in sale price is meant to enable high-quality solar lamps to break through in Mali.

The programme was registered by the UN in 2018 as n° 10429. The Ci-Dev has signed a purchase agreement for up to 66'000 of the certificates generated over the period 2019 to 2024. 81'000 solar lamps subsidised by the programme are currently in operation and 6 MW_e in solar off-grid systems have been installed. No certificates have been delivered to the Foundation to date.

– **Rural electrification, Uganda**
The Ugandan government has decided to fully take on the grid connection costs incurred by rural households. In-house wiring costs remain the responsibility of individual households. However, studies show that around one quarter of rural households cannot afford such costs.

In order to lower the cost of in-house wiring, the programme developed a so-called "ready board", which combines power outlets, fuses, lamp sockets and electric metre, and thus replaces in-house wiring. Wiring costs have thereby been reduced by almost 50%.

The programme was registered by the UN in 2015 as n° 10186. The Ci-Dev has signed a purchase agreement for at least 2'000'000 of the certificates generated over the period 2017 to 2024. Around 18'000 "ready boards" funded by the programme are currently in operation. No certificates have been delivered to the Foundation to date.

– **Solar power, Kenya**
The programme aims to provide rural households in 14 regions in Kenya with access to electricity through the sale of up to 250'000 solar home systems. The proceeds from the sale of certificates are used toward providing warranty coverage for the solar home systems. The programme experienced significant delays due to the Covid-19 pandemic.

The programme was registered by the UN in 2019 as n° 10515. The Ci-Dev has signed a purchase agreement for at least 200'000 of the certificates generated over the period 2020 to 2024. 85'000 solar home systems subsidised by the programme are currently in operation. No certificates have been delivered to the Foundation to date.

– **Small-scale hydropower plants, Kenya**
In several regions of Kenya, KTDA Power Company Ltd plans to develop, implement and operate 10 projects for the generation of electricity in run-of-river hydroelectric power plants totalling about 30 MW in power. The parent company Kenya Tea Development Association (KTDA) is carried by 560'000 tea farmers, who through regional cooperatives also own 66 tea processing factories. The power plants facilitate access to electricity resp. increase the reliability of power supply, thereby contributing to improving the productivity of tea processing. Electricity that is not used directly by the factories is bought by the state-owned Kenya Power and Lighting Company and fed into the national grid.

Income generated by the sale of certificates is used as an additional collateral to secure external capital needed to fund the power plants. The high investment costs per installed unit of power, which are due to special requirements, constitute a major barrier that has been overcome thanks to the purchase agreement signed with the Ci-Dev. Several financial establishments have thus granted loans totalling USD 55 million, covering two thirds of financing. The residual amount is provided by the cooperatives as equity.

The programme was registered by the UN in 2012 as n° 6606. The Ci-Dev has signed a purchase agreement for at least 130'000 of the certificates generated over the period 2018 to 2024. Three run-of-river hydroelectric power plants made possible by the programme and totalling more than 12 MW in power are currently in operation. No certificates have been delivered to the Foundation to date.

– **Improved cook stoves, Laos**
In Laos as in many other countries, air pollution in indoor spaces due to the burning of combustibles for cooking purposes is a leading cause of premature death, as it triggers respiratory diseases that especially affect women and children. A government programme implemented by a private organisation plans to make improved cook stoves available to 25'000 households, thereby reducing pollutant emissions by 99%. In addition, charcoal hitherto used for fuel will be replaced by biomass pellets (e.g. made of rice husks).

Proceeds from the sale of certificates are used to lower leasing costs for the cook stoves, provide warranty services for users, and establish a market for the cook stoves' state-of-the-art burner technology. Close attention will be paid to measuring the positive impact on women, in order to quantify the benefits of the improved cook stoves and enable results-based financing for comparable future projects.

The programme is not yet registered with the UN. The Ci-Dev has signed a purchase agreement for at least 150'000 of the certificates generated over the period 2022 to 2024.

The 92'827 CERs delivered to the Foundation to date by four of the nine programmes presented above cost an average USD 10.15 per certificate (not taking into account transaction costs). The delivery of another 200'000 CERs from the portfolio is expected by the end of March 2023. The Ci-Dev had already concluded purchase agreements with another four programmes, which were terminated because due to various reasons the programmes did not make headway or reach implementation. Due to the loss of these programmes, but also to cutbacks in the delivery volumes of existing programmes in the portfolio, the Ci-Dev is currently not fully invested. Negotiations are underway for the admission of two further programmes to the portfolio.

It remains to be seen in what way programmes registered under the Kyoto Protocol can also be certified under Article 6 of the Paris Agreement. One option would be a renewed registration under Article 6.4, yet implementing this approach may well take longer than the fund's operating time (until the end of 2025). A preferred option would thus be the issuance of ITMOs under Article 6.2; however, this presupposes the signing of an implementation agreement between Switzerland (resp. Sweden or Great Britain) and a programme's host country. In case this can be achieved, the Foundation expects the delivery of a roughly estimated amount of 0.2 million ITMOs (Internationally Transferred Mitigation Outcomes) from the period 2021 to 2024.

Transformative Carbon Asset Facility (TCAF)

The CCF and the Swiss State Secretariat for Economic Affairs (SECO) are jointly participating in the World Bank's Transformative Carbon Asset Facility (TCAF), in operation since 2017 and until the end of 2028. They hold shares of USD 12.5 million each, thereby in total meeting minimal share requirements for having a say in the selection of funded activities. The other major investors are the governments of Great Britain (GBP 60 million), Norway (USD 80 million) and Sweden (USD 25 million). Germany, Canada and Spain also hold shares. The fund has a total endowment of approximately USD 210 million.

The countries involved in the TCAF aim to make use of the possibility set out in Article 6 of the Paris Agreement for signatory states to cooperate on a voluntary basis. Like Norway and Sweden, the CCF plans to use the certified emission reductions toward fulfilling national emission targets. Great Britain and the SECO, on the other hand, are using their resources toward climate finance, which explicitly precludes counting certificates toward national emission targets.

In autumn 2020, after lengthy debates, the fund's investors reached an agreement as to how the facility was to present itself to partner countries in view of this particular constellation. So far, however, the TCAF's more concrete proposal has not yielded any tangible results. Of the 16 activities assessed in greater detail since 2017, only one (located in Uzbekistan) currently holds the prospect of an agreement to purchase resulting emission reductions, likely to be signed in 2023.

It thus has to be acknowledged that the World Bank's ambition to implement the crediting of transformative climate mitigation activities via the TCAF scheme has for now failed. Methodological challenges, combined with protracted regulatory uncertainty concerning the implementation of Article 6 of the Paris Agreement, have weighed too heavily. The TCAF's contribution therefore lies primarily in technical papers, which present market participants with detailed and in-depth assessments of the issues at hand as well as sketching possible solutions.

Pilot activities

In December 2016, the CCF launched a targeted call for proposals to source potential pilot activities in the areas of "landfill gas", "improved cook stoves" and "grid-connected renewable power". An application form was devised to assess a pilot activity's suitability with regard to the requirements established jointly with the Swiss Confederation. 17 applications were submitted; in January 2017, they were assessed and discussed with the Swiss Confederation's competent body. The selection was based on the following criteria:

- **Nationally Determined Contributions NDC:** Is the activity covered under the national emission target (Nationally Determined Contribution NDC)? Is the activity included in the NDC as an unconditional measure? (exclusion criterion)
- **Results-based financing (RBF):** Does the activity follow the principle of RBF? (exclusion criterion)
- **Implementation potential:** Are the implementation risks acceptable?
- **Value for money:** Are the CCF's financial contributions used efficiently to achieve substantial emission reductions?
- **Political context:** Is the pilot activity well anchored locally? Is it possible to build on existing relations between Switzerland and the host country? Is Switzerland directly involved in the pilot activity?

Based on the assessment conducted, three pilot activities were selected and followed up on in Mexico, Peru and Thailand. In the end, only one of them was implemented, while the other two were discontinued in 2021. In July 2017, a second call for proposals was carried out in the three aforementioned countries to source further pilot activities, but it yielded no results.

Tuki Wasi, Peru

Aimed at the country's poorest households, the "Tuki Wasi" programme (tukiwasi.org) strengthens the Peruvian market for improved cook stoves by means of competitive calls for tenders and standardisation. Improved cook stoves reduce the currently non-sustainable use of wood for cooking purposes. The programme complements the state-led "Foncodes" initiative, which provides low-income households with access to clean energy sources.

The Foundation funded the drafting of a Pilot Activity Design Document (PA-DD) by pilot activity owner Microsol S.A.S. On the basis of this document, the Swiss Confederation's competent body decided in December 2017 that Switzerland should enter into negotiations with Peru for an agreement governing the details of the pilot activity's allowability under Article 6 of the Paris Agreement.

At the time, the Foundation viewed the basis for negotiating a commercial agreement for the purchase of ITMOs as insufficient; in April 2018, Microsol was therefore tasked with further detailing the concept for the pilot activity's implementation and testing it on a small scale (pre-pilot phase). Between 2019 and 2021, Microsol was then tasked with contracting the construction of cook stoves via calls for tenders as well as monitoring and reporting emission reductions. The budget for this phase amounted to CHF 1 million.

On the basis of this enlarged concept, the programme was launched in February 2019 with an online presence (tukiwasi.org). In the following month, a first call for tenders was carried out to select two companies tasked with installing 1'500 cook stoves each according to defined specifications. The programme offered a five-step compensation scheme; except for an initial advance payment, each instalment was tied to certain requirements. Among the 17 proposals received, two companies were selected, which over the course of 2020 installed 1'000 cook stoves. In order to avoid massive taxation of payments made to the stove manufacturers, in 2019 Microsol established the NGO Ruru Tarpuy under Peruvian law; the NGO is able to forward the CCF's payments free of tax.

In October 2020, Switzerland and Peru signed the worldwide first implementation agreement. The two countries thereby established the legal framework for the issuance and the transfer of ITMOs, anticipating the rules agreed in Glasgow in November 2021. These rules include the requirement of environmental integrity, which restricts certification to emission reductions generated in addition to a country's climate targets, thus raising its ambition. The implementation agreement further guarantees the avoidance of double crediting of emission reductions, the contribution to sustainable development as well as the observance of human rights.

However, to date Peru has not established the national processes needed to guarantee the emission reductions' formal accounting and their transfer to the CCF. The pilot activity's authorisation under the agreement is still pending.

In November 2021, the CCF and Microsol signed the worldwide first purchase agreement for ITMOs. Concretely, the CCF – and in a downstream transaction the KliK Foundation – are purchasing up to 960'000 ITMOs from Microsol until 2030. Up to 60'000 improved cook stoves are to be installed over the period 2022 to 2025. The CCF will prefinance the scaling of the programme and more specifically the construction of the stoves with over half of the contract value. A first call for tenders for the construction of 4'000 cook stoves was launched in summer 2022.

Abandoned activities

In May 2021, the Foundation Council decided not to pursue the two pilot activities "Biover, Mexico" and "Shift, Thailand", as the signing of implementation agreements with the two countries before the end of 2021 was no longer considered feasible. The project owners were informed of the possibility to take part in future calls for proposals carried out by the KliK Foundation.

– **Biover, Mexico**
The programme aimed to provide landfill owners with an incentive to collect and flare landfill gas containing methane. Owners were also to commit to converting the landfill gas into electricity within a specified timeframe, without this being credited as a reduction of emissions. Since the generation of power could have been operated profitably as soon as the costs of landfill gas capture were covered, and the risk of unexpectedly low gas formation within the landfill had decreased, the programme could have been transformative for the entire sector.

The Foundation funded the drafting of a PA-DD by the pilot activity's developer First Climate (Switzerland) AG. The document was submitted for comment to the Mexican government at the end of 2018 but elicited no reaction. Negotiations for an implementation agreement launched between Mexico and Switzerland in February 2020 ground to a halt due to the outbreak of the Covid-19 pandemic.

– **Shift, Thailand**
The programme aimed to increase the number of private electric vehicles in Thailand. To this end, it defined measures to foster the installation of charging stations as well as incentives to switch to electric vehicles. The programme's implementation was to be carried out primarily by private fleet operators (taxis, delivery services, etc.). At the suggestion of the Thai government, the programme was conceived in place of the originally planned activity that was to increase power generation from photovoltaic installations.

The Foundation funded the drafting of a PA-DD by the pilot activity's developer South Pole Group. The document was submitted to the Thai government in spring 2020. In June 2020, the Swiss embassy in Bangkok launched formal talks with the Thai government on starting negotiations for an implementation agreement; however, these negotiations only came to a successful conclusion in June 2022.

Appraisal

In the second phase of its existence, the Climate Cent Foundation's activity decreased significantly in intensity. This was due mainly to the takeover of domestic climate protection activities by the Foundation for Climate Protection and Carbon Offset (KliK Foundation) following the introduction of the legal carbon offset obligation in 2013. From 2013 onward, the Climate Cent Foundation's Secretariat was thus handled by the KliK Foundation, which took on the Climate Cent Foundation's two members of staff as of 1 January 2013. Expenses incurred by the KliK Foundation in running the Secretariat were and are accounted for and billed according to a service agreement established in compliance with the arm's length principle.

The Climate Cent Foundation was nonetheless given a second lease of life following two decisions by the Swiss Confederation. First, the Swiss Confederation decided that the stock of Swiss emission allowances remaining after closing of the first commitment period 2008–2012 could be sold on to the KliK Foundation. Second, it decided to allow for crediting the lasting impact of the more than 8'000 projects co-funded between 2006 and 2009 within the framework of the Climate Cent Foundation's Buildings Programme – with the possibility of also selling this impact on to the KliK Foundation. The resulting revenues of approximately CHF 108 million significantly increased the Climate Cent Foundation's scope for action.

In the second commitment period, the Kyoto Protocol's Clean Development Mechanism (CDM) greatly lost in significance compared to the preceding period. This was due in part to the international community's inability, exposed in Copenhagen in 2009, to define a regime encompassing all parties to the Climate Convention in the fight against climate change. Demand signals therefore failed to materialise. In addition, the Doha Amendment to the Kyoto Protocol adopted in December 2012 only attained the quorum of ratifications required for it to come into effect at the last possible moment, thus coming into force on 31 December 2020, the very last day of the commitment period.

Due to exceptionally weak demand for Kyoto certificates, their unit price was consistently lower than EUR 1, thus amounting approximately to the transaction costs incurred for their certification. The Foundation therefore decided to purchase at market prices the amount of 12 million CERs named by the Swiss Confederation in 2014 as needed by Switzerland for the second commitment period, and to aim its remaining resources at climate mitigation activities featuring specific additional benefits and feasible only at a significant markup compared to market prices.

In that respect, the second phase differed from the previous one: the activities of outstanding sustainability supported by the Climate Cent Foundation were for the most part "Programmes of Activities", a format newly created by the UN at the beginning of the period to make it possible to certify climate protection schemes consisting of many small parts. It thus became possible to support large-scale programmes in developing countries aiming to supply households with renewable energy or clean drinking water, and to avoid the non-sustainable use of renewable resources.

By their very nature, such programmes are highly complex and thus fraught with risk, yet they also provide an opportunity for innovative business models involving local economic agents. The experience gained by the Climate Cent Foundation in this field is extremely useful with regard to the already begun third commitment period 2021–2030, even though this period falls under the regime of the Paris Agreement and thus presents further and new challenges.

It should be mentioned at this point that overall the Foundation's cooperation with federal agencies to implement the joint agreement proceeded smoothly. With the adoption of the Paris Agreement in December 2015, however, a need for clarification arose regarding the use of the Foundation's resources in compli-

ance with the terms of its agreement "in accordance with the Swiss negotiation stance under the UNFCCC regime". This was to provide for the event in which the Foundation should decide to fund an activity that was not certifiable under the Kyoto Protocol. In the end, this led to the agreement's amendment in September 2016 and marked the beginning of pilot activities for the implementation of Article 6 of the Paris Agreement.

Public awareness of the Climate Cent Foundation's activities was already low during the first commitment period. This is even truer today than eight years ago, which is hardly surprising in view of the aforementioned reduced intensity of the Foundation's activity. In any case, when the Swiss Confederation presented Switzerland's performance in the second commitment period in April 2022, the Foundation's contribution to the achievement of Swiss climate targets was not picked up in the media or in political circles.

And yet the Climate Cent Foundation's activity would deserve recognition on several counts. The Foundation thus repeatedly broke new ground in the field of climate policy, paving the way for developments some of which set global precedents – such as pilot activities for the implementation of the Paris Agreement, which now form a blueprint for the implementation of Article 6 for many countries. However, the Foundation's mode of operation remained unique worldwide, in particular the organisation of its funding by private-sector entities according to the "polluter pays" principle.

Owing to a targeted and careful selection, the projects funded by the Foundation further displayed significant positive impacts. Next to cost-efficient greenhouse gas reductions, they also led to new, sustainable jobs, to educational and health measures as well as to the transfer of innovative technologies. In partner countries, the projects made and are still making valuable contributions to improving local populations' life quality and to fostering social and economic development.

It may therefore be viewed as a testimony to the track record of the Climate Cent Foundation that, since the beginning of this year, offsetting greenhouse gas emissions abroad by funding selected climate mitigation programmes has once more become an official component of Swiss climate policy, and should remain so until at least 2030 according to the Swiss Federal Council's plan. Switzerland's requirements in terms of reductions abroad in the period 2021–2030 are estimated at more than 40 million tonnes of CO_2 equivalent. A significant part of this amount will have to be procured by the KliK Foundation in the context of the legal carbon offset obligation.

With the increasingly manifest consequences of man-made climate change, in past years the fight against climate change has gained in importance in public debate. In some countries, it has been accompanied since 2019 by the rise of the climate movement. Even the Covid-19 pandemic did nothing to shift this trend. At a policy level, a majority of states reacted by setting themselves so-called net zero targets, mostly aiming for some time between 2035 and 2070. "Net zero" means durably balancing remaining emissions using safe and secure greenhouse gas sinks.

Achieving net zero targets calls for a massive tightening in climate policy. However, it also requires the development of negative emissions technologies to offset residual greenhouse gas emissions that remain difficult to avoid in the long term. In the third phase of its existence, the Climate Cent Foundation will keep fulfilling its ambition to contribute to innovative climate protection by using its as yet not earmarked resources toward funding concrete projects aimed at testing novel negative emissions technologies especially in Switzerland and in the private sector.

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