

NEFCO Carbon Finance and Funds

Operational Review 2014



Mobilising innovative
climate finance

Annual review

The annual Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (COP20/CMP10) in 2014 took place in Lima, Peru, from 1–12 December. The COP20 was essentially a preparatory event for the next annual conference to take place in December 2015 in Paris (COP21), which is aimed at delivering a comprehensive new climate agreement from 2020 onwards. Despite low expectations in many quarters, the COP20 succeeded in adopting two preparatory documents: the Lima Call for Climate Action and an Annex of the “elements for a draft negotiating text”. There appears however to have been little substantive progress or convergence on the main issues, thus leaving the negotiators with a formidable work programme during 2015 while preparing the Paris COP21.

Economists, the private sector and many policy makers believe that when it comes to climate change mitigation, what really matters is to get the markets function. For instance at the UN Climate Summit in New York in September 2014, which NEFCO attended, the World Bank’s Joint Statement on Carbon Pricing was able to garner signatures of over 1,000 CEOs and 74 national governments, urging international negotiators to acknowledge that carbon pricing must be a key element of the new climate agreement to be concluded in Paris. This is in line with the positions of the Nordic governments and NEFCO itself over the years. Unfortunately, the negotiations on future carbon markets were not however progressed at the UNFCCC level in Lima.

Without a clear mandate as to what role market-based mitigation instruments will play under the new climate agreement, several countries were not prepared to continue discussions on these instruments in Lima. This is a lost opportunity as such markets and carbon pricing, (both explicit and implicit) are

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a critical conduit for capital investment, ideas, cooperation, technology and innovation. Notwithstanding, one can expect some language on market mechanisms in the Paris agreement. This however, is likely to be only the start of a process, which will then unfold over the following years, just as it was with the Kyoto Protocol, with the financial instruments taking shape merely gradually and through subsequent successive COP decisions.

The financing of climate actions and low-carbon development at scale is an ongoing bone of contention at the climate talks. With developed countries having jointly committed to mobilising USD 100 billion per year starting 2020, expectations are understandably high in developing countries. In response, the Green Climate Fund (GCF) has received commitments of some USD 10 billion in initial capitalization, of which half will be distributed to adaptation and poorer countries and the rest to mitigation programmes. The GCF expects to accredit implementing entities and finance the first climate programmes in its eight strategic impact areas during 2015.

Continued progress for NEFCO's climate finance facilities

The ongoing international negotiations will hopefully draw upon the significant achievements of the JI and CDM mechanisms under the Kyoto Protocol. Following the collapse in the carbon credit market, NEFCO is now one of the few institutional actors remaining in the market. The NEFCO Norwegian Carbon Procurement Facility (NorCaP), established by Norway in 2013 with NEFCO as the facility manager, aims to support the climate commitments of the Norwegian state whilst at the same time sustaining some level of demand in the ailing carbon market in parallel with the international negotiations. 2014 has been an excellent year for this facility. From the first Call for Proposals (CfP1), 10 projects were contracted, for a total volume of some 19 million tonnes of carbon savings, primarily from projects in Latin America, but also in South Africa. A second Call (CfP2) was launched in September 2014, which included a set aside for projects from Least Developed Countries (LDCs) and received 114 eligible proposals. In addition, the NEFCO Carbon Fund (NeCF), with Norwegian funding, was opened up for LDC projects, and received 44 project ideas.

The NorCaP also received its first credit deliveries, from landfill gas projects in Manaus, Brazil and Bogota, Colombia before year end 2014 (i.e. in the same calendar year of the closing the CfP1). This demonstrates the ability of the CDM to respond promptly to a price signal and to generate near term benefits to the climate system.

The Nordic Climate Facility (NCF) funded by Nordic Development Fund (NDF) and administered by NEFCO, continues to perform

well in its mission to finance smaller, but concrete mitigation and adaptation projects in low income countries. Grants with co-financing requirements are provided through the automatic calls. During 2014, a fourth Call (NCF4) with the theme "Inclusive green growth projects contributing to private sector development" was closed during the spring, and a fifth Call (NCF5) announced in December, with the theme "Climate Resilience in Urban and Private Sector Contexts". During same year, further nine grant agreements were concluded under NCF4.

NEFCO supports the view that Nationally Appropriate Mitigation Actions (NAMAs) – which are not project driven, but focused on policies and sectorial targeted actions that countries can undertake as part of their commitment to reduce greenhouse gas emissions – can be robust building blocks for a future climate regime, and is pleased to report good progress in its Nordic Partnership Initiative (NPI) NAMA activity in Peru. A NAMA con-

cept has now been elaborated for the Peruvian solid waste sector, and was showcased at the Lima COP20 in December 2014. The related technical assistance programme is on track for completion in mid-2015. NEFCO is also contributing to other NAMA initiatives in Bangladesh, Honduras, Nicaragua and Vietnam.

The climate action projects and activities administered and facilitated by NEFCO range from typical mitigation projects based on solid waste management, renewable energy and energy efficiency, to adaptation programmes in areas as diverse as rainwater harvesting in Ghana, low carbon household water purification technologies in the Mekong sub-region and the integration of climate smart agriculture in solar irrigation schemes in Malawi. In this report, we showcase examples from our hands-on work, with climate projects undertaken in Eastern Europe, Latin America, Asia and Africa. Hopefully this work can provide some inspiration and trust in the huge potentials of a resource-efficient driven green economy.

Ash Sharma

Special Adviser for Climate Change

Helle Lindegaard

Vice President

NEFCO, January 2015

Highlights

- The NPI makes good progress in Peru with the development of mitigation options and the presentation of a concrete NAMA proposal for the management of solid waste at the COP20 held in Lima, based on an inclusive stakeholder consultation process.
- NEFCO forms part of a Nordic Council of Ministers' working group overseeing work on Fossil Fuel Subsidy Reform in developing countries.

PHOTO: HUNG CHUNG CHIH/SHUTTERSTOCK



Nordic climate change initiatives

NEFCO undertakes developmental activities to promote the concept of market-based mechanisms as an important means of mobilising international finance for climate action and rewarding innovation in low carbon technology. It recognises that to be effective in facilitating the shift to low carbon technology, pricing mechanisms must be credible, stable and sustainable over time.

Nordic Partnership Initiative

The concept of NAMAs was first introduced in the UN climate negotiations by the 2007 Bali Action Plan, which calls for “nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable” (MRV’ble) manner. As later defined in the Cancún Agreements, the objective of the NAMAs is to produce a deviation of the emissions compared with a business-as-usual scenario using appropriate support from the developed countries through technical, financial and capacity-building assistance. Looking at the global universe of existing NAMAs, 2014 has witnessed a significant growth in actions under preparation, across all sectors and regions of the world. However, these remain largely at the stage of preparation, similar to the NPI activities in Peru and Vietnam, and there have only been a few actions securing funding for full scale implementation, notably through the NAMA facility. There is some Nordic support for NAMAs through the NDF and other multilateral institutions, but the GCF mitigation window should direct a much greater volume of funding and operationalising toward such activities. A stronger signal is required from donors and institutions that implementation support will be forthcoming to support the increased number of well-developed NAMA proposals.

Since 2010, NEFCO has sought to promote the innovative concept of NAMAs in order to provide tangible Nordic input into the expected new climate agreement. 2015 will be a critical year in this respect as countries have undertaken to consider and inform the UNFCCC what types of actions and policies which may contribute to their target commitments under so-called intended Nationally Determined Contributions (NDCs).*

The NPI, which includes the Nordic Council of Ministers, NDF and NEFCO, was formally constituted in October 2010 with a mission to start a pilot initiative to test the potential of support for up-scaled NAMAs approaches to climate change mitigation, initially focusing on solid waste management in Peru and the cement sector in Vietnam. The NPI was formally launched at the Durban Climate Change Conference in South Africa (COP17) in December 2011.

* Under current proposals, countries are to specify their own targets, actions and policies to reduce greenhouse gas emissions. The nature and ambition of such NDCs will however be based on the host country's domestic political considerations and other factors.

In Peru, NEFCO has been administering a multi-donor trust fund and acting as the implementing agency for an initial two-year programme in cooperation with the Peruvian Ministry of Environment (MINAM). The technical work commenced in July 2013 and progressed well throughout 2014, culminating in the presentation of the NAMA concept for improved management of solid municipal waste in Peru at the COP20, coincidentally held in Lima in December 2014.

The Peruvian Solid Waste NAMA presented at the COP20 event in Lima

The solid waste NAMA in Peru aims to generate a transformational change in waste management in the Andean nation by minimizing GHG generation from waste management and addressing related environmental, health and social issues including a formalisation of the role of waste pickers. In addition, the



PHOTO: GREENSTREAM

Peru aims at recycling 60% of its recoverable waste by 2017.

NAMA is designed to complement and accelerate the existing modernization policy for solid waste management in Peru by creating incentives that increase the economic value of waste that currently goes to landfills and dumps.

During 2014, the NPI action has focussed on the development of mitigation options and the elaboration, through a stakeholder consultation process of a NAMA concept. The NAMA support proposal includes: Regulatory and policy changes to the waste sector aimed at ensuring the long term sustainability of the expected impacts, coupled with the establishment of financial mechanisms designed to catalyse both private sector and additional public sector investment. These financial mechanisms are foreseen to result in concrete project implementation to prove the alternative waste management and mitigation technologies in practice. In addition, technical assistance will be provided to ensure that the first set of project implementers possess the necessary capacity to minimize the risks of unsuccessful implementation.

Peru is in an excellent position to develop a NAMA proposal for its solid waste management sector, as its Congress is currently close to enacting a modification to its general waste legislation and the relevant national agencies are developing a new National Waste Management Plan. Once passed, this legislation and the Plan are to be implemented via regulations issued by MINAM and others. Under current law, Peru has a non-binding 2017 goal of recycling 60% of its recoverable waste and ensuring proper treatment and disposal of 70% of its non-recoverable waste. The proposed amendments of the Peruvian general waste legislation are to establish integrated solid waste management (SWM) and waste minimization principles as key policy elements, and require that municipali-



PHOTO: GREENSTREAM

A recycling plant in Surco, Lima.

ties develop comprehensive plans based on the waste management hierarchy prioritizing waste prevention and reduction. In addition, the amended legislation is to allow and encourage local governments to establish partnerships with the private sector to optimize the implementation of waste management activities based on these principles.

In this context, the supported NAMA proposal presented in outline at the COP20 (noting it is yet to be formally approved at the time of writing) builds on the Peruvian legislation to clearly commit the country and its municipalities to implementing policies to minimize waste disposal and increase composting, recycling, and reuse. Key features include:

- By strengthening the capacities of local government officials, the NAMA seeks to accelerate the incorporation of the principles and aims of the foreseen amended legislation and to result in concrete waste management improvements in the short term.
- The creation of binding guidelines for cities to set specific goals for these initiatives in their local plans and offering them incentive financing on a competitive basis is considered as important elements.

- The allocation of a portion of the national Peruvian budget for waste reduction and composting is considered as a way to spur innovation.
- Requiring municipalities to provide equal or greater per tonne payments than paid for traditional landfilling to private sector players who implement composting or any other alternative treatment facilities is considered to improve the core economics of these technologies and increase private sector interest.
- The NAMA may also allow cities to sell recyclables directly to recycling markets, which is currently prohibited, something which could provide increased annual local funding for capacity building and training for municipal officials.
- Requiring reporting of annual GHG emissions from municipalities and solid waste sector participants is also considered as an important step toward mainstreaming awareness of GHG emissions in the solid waste sector.
- Requiring all new landfills to be designed to capture methane emissions and phasing in similar requirements for existing landfills is also considered an important element of a comprehensive NAMA proposal.

The NAMA initiative in Peru is being executed over the period 2013–15 by an international consortium consisting of NIRAS (Germany); Perspectives (Germany); ECO Consultorias e Ingeniera, the Pontifical University of Peru, Mirando and Amado Abogados (all of Peru); and the Centre for Clean Air Policy (USA).

Other NAMA initiatives

The NPI is also active in Vietnam through the NDF funded cement sector NAMA programme. NEFCO is a part of the Nordic advisory group overseeing this programme. In addition, there are two NCF, NDF funded activities with NAMA components aimed at steel sector optimisation in Bangladesh (completed in 2014) and at the development of a livestock management NAMA in Nicaragua and Honduras (commencing 2015).

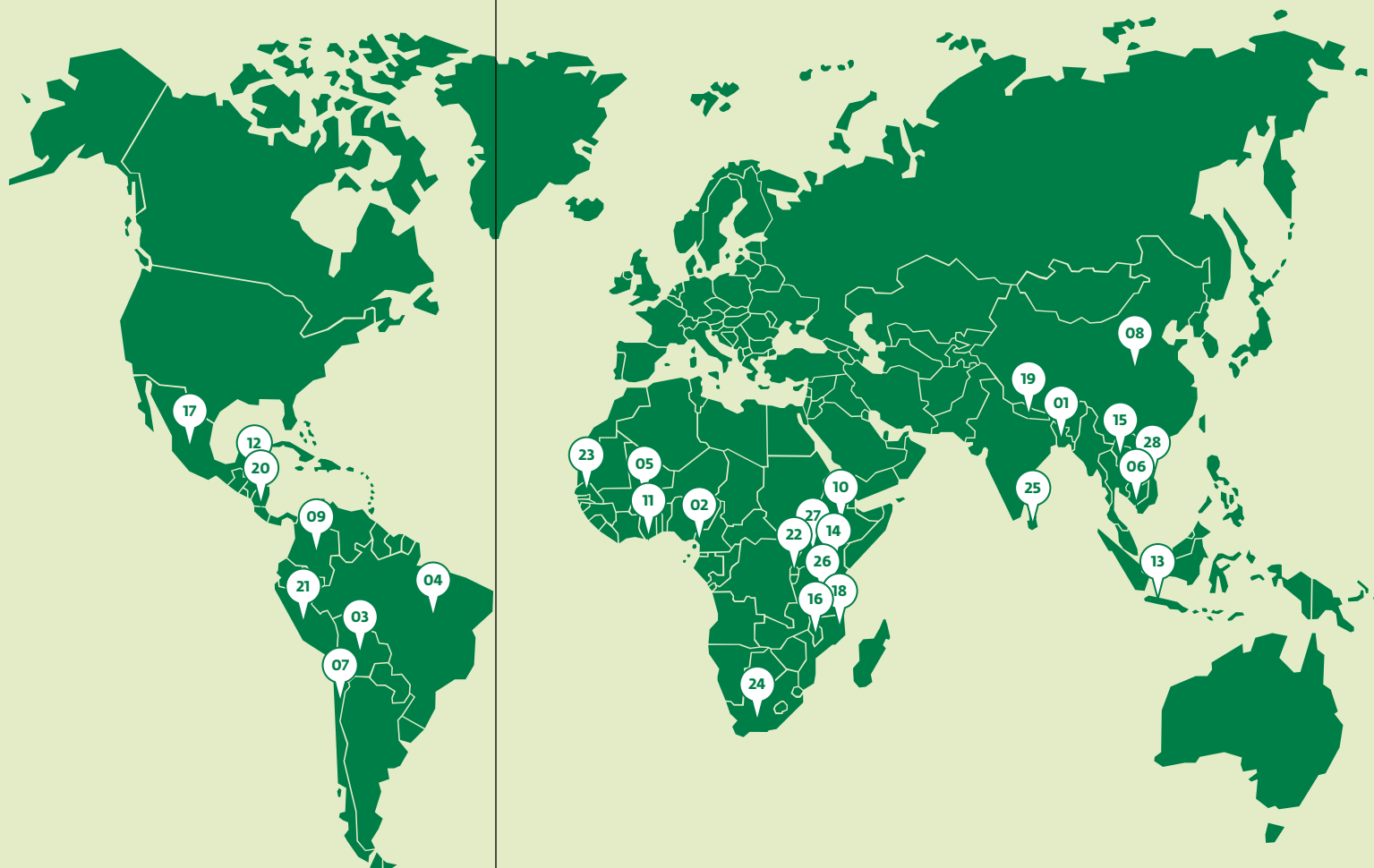
Fossil fuel subsidy reform

NEFCO is participating in a Nordic Council of Ministers Working Group overseeing an initiative called: “Supporting Sustainable Fossil Fuel Subsidy Reform”. The objective of this initiative is to look at measures to facilitate the reform of fossil fuels subsidies by identifying a pilot project between Nordic countries and a partner country that supports the fossil-fuel subsidy reform concept through a recognition of the need for reform and a readiness to undertake national carbon mitigation measures and efforts to build towards more sustainable and diverse energy systems in light of the ongoing global negotiation efforts at the UNFCCC. This initiative could serve to demonstrate as another practical Nordic support towards other countries to meet their emission mitigation objectives. The technical work is undertaken by the International Institute for Sustainable Development’s Global Subsidies Initiative.

Project reports and outputs from all the above initiatives are available at → www.nefco.org/publications

Geographic distribution

Country	No. of projects/funds			
	NorCap	NeCF	NCF ¹	NPI ²
01 Bangladesh			1	
02 Benin			1	
03 Bolivia			4	
04 Brazil	5			
05 Burkina Faso			1	
06 Cambodia			2	
07 Chile	2			
08 China		1		
09 Colombia	1			
10 Ethiopia			4	
11 Ghana			5	
12 Honduras			1	
13 Indonesia		2		
14 Kenya			11	
15 Laos			1	
16 Malawi			2	
17 Mexico	1			
18 Mozambique			2	
19 Nepal			2	
20 Nicaragua			2	
21 Peru				1
22 Rwanda			4	
23 Senegal			1	
24 South Africa	1			
25 Sri Lanka			1	
26 Tanzania			6	
27 Uganda			8	
28 Vietnam		10	2	1



1 — Some NCF projects are multi-country initiatives
 2 — Nordic Partnership Initiative

Case study

Mainstreaming climate-friendly agriculture in solar irrigation schemes in Malawi



PHOTO: ANJA NYSTEN

A vegetable market for local farmers in Ganda, Malawi.

The objective of this NCF project, financed by the NDF, is to empower vulnerable communities in Malawi through the development of sustainable businesses aimed, respectively, at adapting to the impacts of climate change – through the use of solar irrigation schemes – and at adapting and mitigating climate change – through the introduction of climate smart agriculture techniques. The project is undertaken by a consortium consisting of the grantee DanChurchAid and local partners in Malawi: Kusamala Institute of Agriculture and Ecology (KIAE), Churches Action in Relief and Development (CARD), and the Christian Service Commission (CSC).

The introduction of climate-smart agricultural techniques will hedge climate risks for the rural poor smallholder farmers in Malawi. At the same time the project will utilize the organic products brand for marketing purposes combined with training aimed at creating innovative and effective business skills, plans and linkages.

The NCF project works with existing solar and other irrigation schemes in the Mzimba, Lilongwe, Thyolo and Nsanje districts of Malawi, directly targeting at 15,000 farming households that are vulnerable to the adverse impacts of climate change and extreme weather events. The project aims to reduce the vulnerability of these households, in particular, with regard to droughts and dry spells and has a positive impact for at least 75,000 people living in the targeted districts. It is expected that these and other farming families will adopt the new and climate smart agriculture techniques, as they provide them with an alternative and low cost farming model that reduce their vul-

nerability to food and nutritional insecurity through improved and less rain-water sensitive agricultural production.

The project will also promote a shift from use of synthetic fertilisers towards use of organic farming practices, which will reduce N₂O emissions, a potent greenhouse gas. The project utilizes a strong rights-based approach and mainstreaming of critical cross-cutting issues of HIV/AIDS and gender, by facilitating economic as well as social empowerment, of women, HIV/AIDS impacted and other marginalised households.

Farmer's clubs and co-operatives

The project has identified 18 so-called lead farmers who have been trained in permaculture, a nature-friendly and holistic approach to agricultural production. Also demonstration plots and communal nurseries for sweet potatoes, herbs and spices for learning and seed banks have been established. So far 268 farmers' clubs have been created and efforts are underway to link their small agribusinesses to the markets for sales of organic agricultural products. The project has included collaboration with so-called Village Savings and Loan Clubs (providing financing), and so far 19 agricultural cooperatives have been formed. Also the Ministry of Agriculture in Malawi is involved in the monitoring and in the provision of technical assistance.

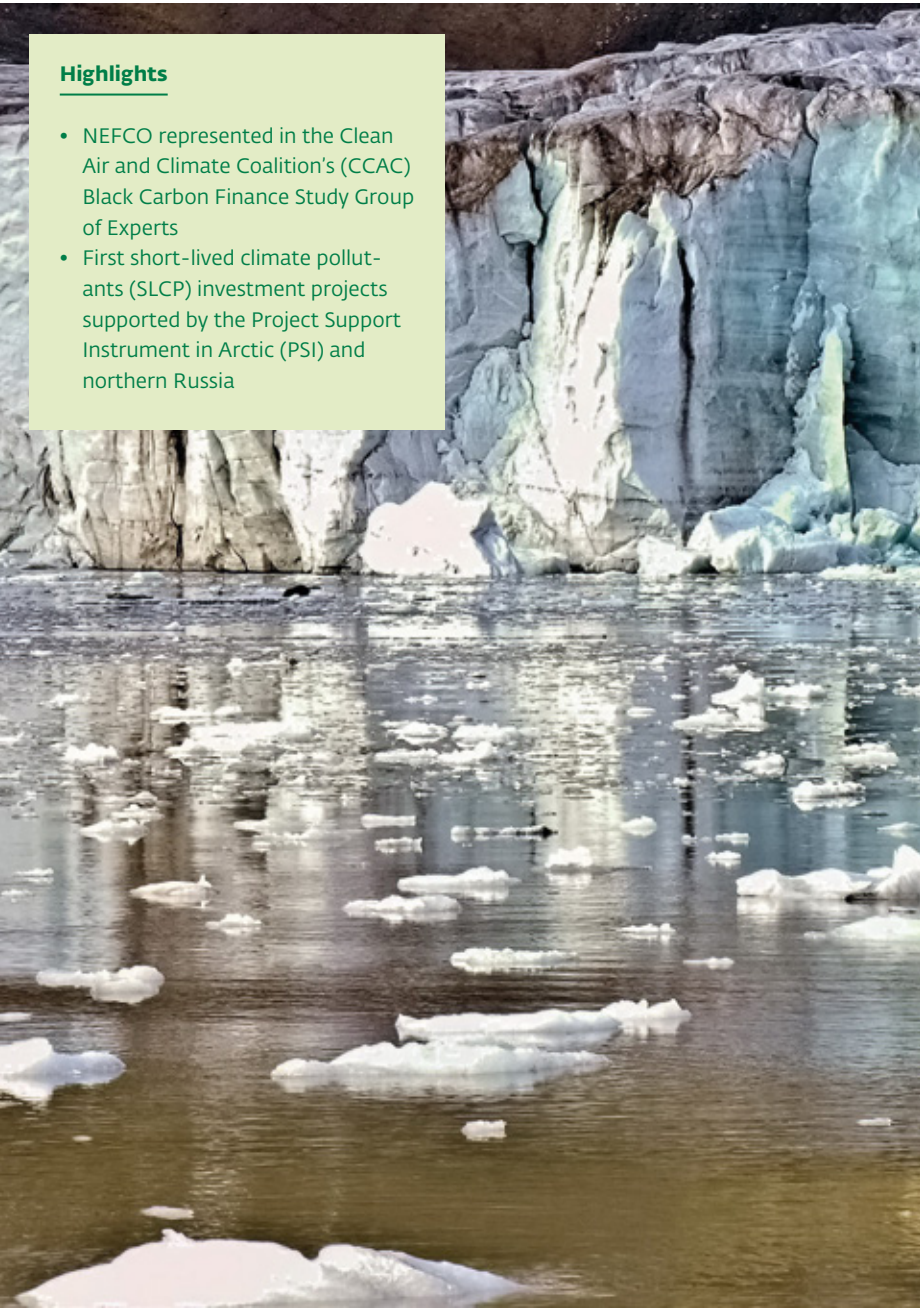


PHOTO: RICAMONDIS/SHUTTERSTOCK

Highlights

- NEFCO represented in the Clean Air and Climate Coalition's (CCAC) Black Carbon Finance Study Group of Experts
- First short-lived climate pollutants (SLCP) investment projects supported by the Project Support Instrument in Arctic (PSI) and northern Russia

Short-lived climate pollutants

Climate and Clean Air Coalition

The CCAC is an international forum whose focus is on methane, black carbon, and HFCs. The CCAC's objectives are to address SLCPs by:

- Raising awareness of SLCP's impacts and the development of mitigation strategies.
- Enhancing and developing new national and regional actions, including by identifying and overcoming barriers, enhancing capacity, and mobilizing support.
- Promoting best practices and showcasing successful efforts.
- Improving scientific understanding of SLCP's impacts and mitigation strategies.

NEFCO joined the CCAC in 2013. NEFCO has also been working for many years with financing issues around SLCPs, particularly black carbon and methane, in the context of its financing of green growth projects dealing

with energy efficiency and cleaner production mainly in Eastern Europe, but also in relation to its funds administration activities involving climate projects across the world. In addition to this NEFCO also administers the PSI and the SLCP Trust Fund for the Swedish Environmental Protection Agency. The purpose of the Swedish SLCP Trust Fund is specifically to contribute to the funding of projects that reduce SLCP emissions impacting the Arctic.

The CCAC Finance Initiative is set up as a global, cross-cutting initiative – compared to the sectorial initiatives such as agriculture, residential and transportation – which seeks to support the design of tailored finance strategies for the aforementioned initiatives and to build knowledge and capacity on finance, and provide outreach for high impact partnerships.

During 2014, NEFCO has further been invited to participate in an associated activity of the CCAC Finance Initiative, the Black Carbon Finance Study Group, which has been tasked with developing and recommending means

by which to catalyse investments in black carbon abatement activities, thereby maximising near term climate and health impacts. This group includes climate science, policy and finance experts and has met twice during 2014 to analyse and prioritise financial opportunities with potential for near term action within the context of CCAC sectorial initiatives. The establishment of this group is as a first measure focused on developing possible interventions in cleaner cooking/heating solutions and diesel vehicles. A report is expected in 2015.

Arctic Council Project Support Instrument (PSI)

The PSI is a financing instrument established for the purpose of mobilising and channeling financing for specific Arctic Council projects which became operational in 2014. The PSI can finance projects, which have been approved by the Arctic Council and are action/investment-oriented. The PSI is to give priority to projects related to pollution prevention, abatement and elimination. Possible PSI support includes financing of the

following measures:

- Project preparation activities, such as project identification and concept development, pre-feasibility studies, feasibility studies, environmental impact assessments, business plans, financing plans, preliminary design, preparation of tender documents tendering and evaluation.
- Specific measures in the implementation phase of pilot and demonstration projects, including supplies of equipment and services.

SLCP, including black carbon are a high priority of the Arctic Council and will therefore also be focus areas of future PSI financing.

The PSI fund has eight contributors and pledgers, namely: Finland, Iceland, NEFCO, Norway, the Russian Federation, the Sami Parliament, Sweden and the United States of America.

The PSI is governed by a PSI Committee (composed of contributor/pledger representatives). Shortly after becoming operational during the spring of 2014, the PSI Committee made its first investment decisions related to the financing of four new climate projects to help reduce emissions of black carbon impacting the Arctic and Northern Russia. These projects will pave the way for the cleaner combustion of diesel, the replacement of fossil fuels with renewable energy, as well as for technical upgrades at diesel power plants in the Murmansk region and the Republic of Karelia. The overall investment budget for these projects is EUR 4.3 million. —



PHOTO: PATRIK RASTENBERGER

Case study



PHOTO: MKANT/SHUTTERSTOCK

Wind-diesel project at tundra collective, Murmansk region — providing cleaner energy for Sámi reindeer herders in Russia

The PSI is financing a US led project of the Arctic Council Expert Group on SCLP aimed at upgrading the energy production for the benefit of a reindeer herding base outside the village of Lovozero, which is located in the Murmansk region of Northwest Russia. The village of Lovozero is largely inhabited by indigenous Sámi reindeer herders. Under the project, a windmill with a capacity to generate 5kW of electricity will be installed, and the current diesel generator will be replaced with a more efficient one, a process which will reduce harmful emissions of black carbon and improve energy safety for the local community. The new diesel-electric generator and the accumulator inverter system will be installed into a mobile container, which will provide power to one of the community's reindeer herding posts outside the village.

Overall, the project will be beneficial to the environment by reducing emissions of black carbon, particulate matters, carbon and sulphur dioxides as well as nitrogen oxides. These emission reductions will also have a favourable impact on the health situation in the local community. —

Highlights

- The NorCaP administered by NEFCO for the Government of Norway to support vulnerable CDM projects, closed its first Call for Proposals (CfP1) resulting in the signing of 10 contracts for the purchase of some 19 million CERs, in Brazil, Chile, Colombia, Mexico and South Africa
- The NorCaP launched a second Call for Proposals (CfP2) jointly with NeCF for the purchase of CERs from CDM projects and Programmes of Activities, including from least developed countries. This procurement is one of only a few presently on-going institutional initiatives in the market globally.
- First deliveries received for the NorCaP from Brazilian and Colombian landfill gas projects. In total, 0.78 million emission reductions were made and delivered to NEFCO's Investors in the form of CERs from the NeCF and the NorCaP in 2014
- The NEFCO JI fund, the TGF is in the process of winding-up, and an overview report on lessons learnt was published in January 2015.

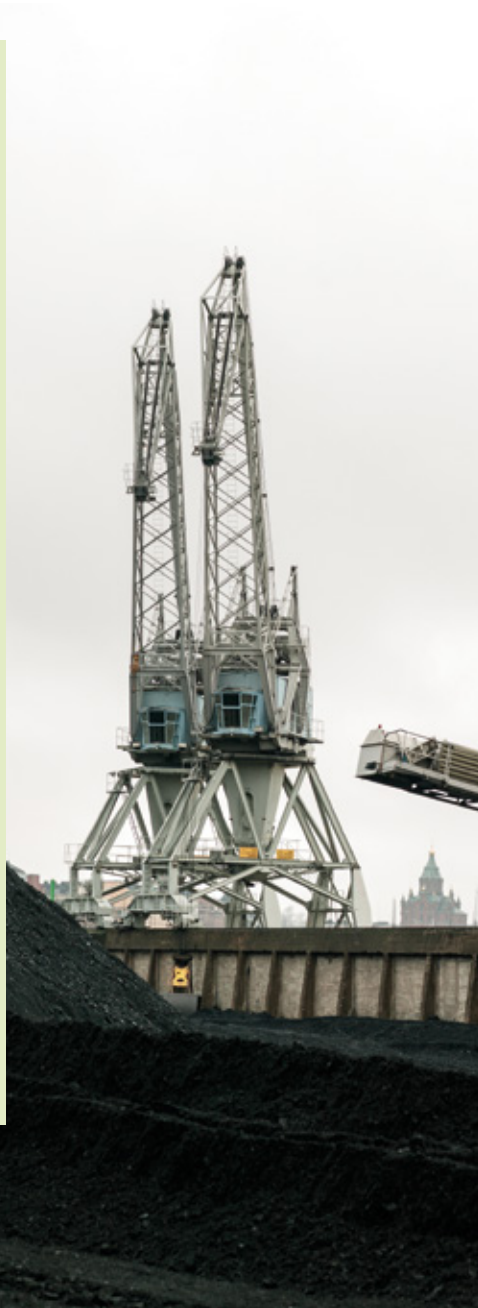
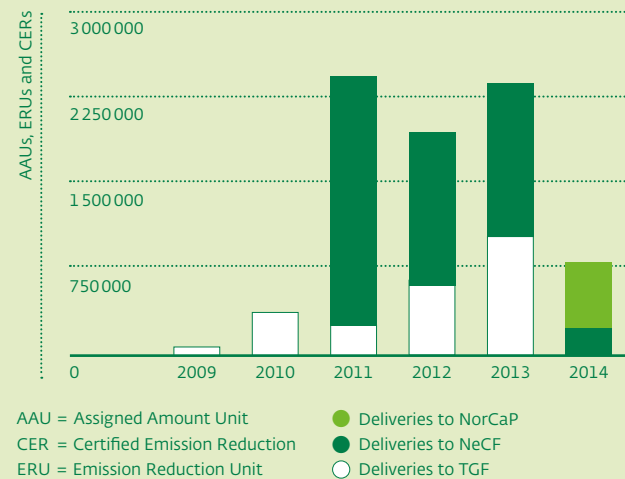


PHOTO: PATRIK RASTENBERGER

NEFCO Carbon Funds (NorCaP, NeCF and TGF)

Since 2004, NEFCO has been an active participant in the carbon market, in alignment with its belief in the concept of market-based approaches as an important mobiliser of international, private sector finance for GHG mitigation. It is now one of the few institutional purchasers remaining in the market, through the NorCaP and NeCF funds. Since the first deliveries in 2009, over 8 million credits have been distributed to Investors in NEFCO's carbon funds.

CFF deliveries



NEFCO Norwegian Carbon Procurement Facility (NorCaP) for vulnerable CDM projects

The NorCaP was established in October 2013 on behalf of the Norwegian government. The principal purpose of this facility is to purchase carbon credits in the second commitment period of the Kyoto Protocol from so-called vulnerable projects. The facility thus seeks through its procurement to ensure the viability of existing CDM projects and their continued emission reductions, by financially supporting sustainable development outcomes associated with the projects it purchase from, and, to the extent possible, maintain MRV capacity in the market.

The NorCaP is wholly funded by the Norwegian government, acting through the Ministry of Climate and Environment, and originates projects through a global, competitive Call for Proposals (CfP) procedure organized by NEFCO.

The NorCaP purchases CERs only from registered projects under the CDM and provided the project is at risk of discontinuation due to the prevailing low CER prices (which fell to near zero and, at the time of writing, remain below the cost of generation and issuance). This includes projects that have stalled, with priority given to projects that can be restarted promptly.

The NorCaP can purchase CERs from all CDM project types with the exception of hydro and wind projects (in countries other than LDCs). Other exceptions are industrial gas-

es, namely trifluoromethane (HFC-23), produced as a by-product of chlorodifluoromethane (HCFC-22), nitrous oxide (N₂O) from adipic acid and coal-based energy production without carbon capture or storage. The fund's target is to procure at least 30 million Certified Emission Reduction Units from eligible project types, and it is expected to reach this target through two CfPs.

Results of CfP1

The first CfP which closed in January 2014, received 232 projects that passed the first screening from 35 countries, in total accounting for 211 million CERs offered. Out of these, 15 projects were selected for detailed due diligence of which 10 were ultimately procured from.

The final, contracted portfolio of the CfP1 is geographically quite diverse, with a strong representation of projects located in Latin America, but does also include projects in Africa. In terms of technology, the portfolio is composed of landfill gas management projects, SF₆ and N₂O Nitric acid projects.

NorCaP Portfolio (CfP1)

Contracted Projects	Host country	Technology	UNFCCC Reference Number	Contracted Volume (mCERs)
Conversion of SF ₆ to the Alternative Cover Gas SO ₂ at Rima Magnesium Production	Brazil	SF ₆ reduction	2486	0.65
N ₂ O emission reduction in nitric acid plant Paulinia, Sao Paolo	Brazil	N ₂ O abatement	1011	0.56
Manaus Landfill Gas Project	Brazil	Landfill gas	4211	1.43
Bundle: Project for the catalytic reduction of N ₂ O emissions with a secondary catalyst at the No. 9 nitric acid plant	South Africa	N ₂ O abatement	1711, 1364	1.05
Catalytic N ₂ O destruction project in the tail gas of the nitric acid plant PANNA 3 of Enaex S.A.	Chile	N ₂ O abatement	1229	1.40
Catalytic N ₂ O destruction project at the new nitric acid plant PANNA 4 of Enaex S.A.	Chile	N ₂ O abatement	5393	0.30
Doña Juana Landfill Gas-to-Energy Project, Bogotá	Colombia	Landfill gas	2554	5.39
Aurá Landfill Gas Project, Belém	Brazil	Landfill gas	888	0.95
Fertinal Nitrous Oxide abatement project	Mexico	N ₂ O abatement	2585	1.09
Caieiras landfill gas emission reduction, Sao Paolo	Brazil	Landfill gas	171	6.05

Case study

Doña Juana landfill gas-to-energy project, Colombia



PHOTO: ASH SHARMA

The landfill site in Bogotá handles approx. 2 million tonnes of household waste per year.

The Doña Juana landfill, located in the District Capital of Bogotá is the principal site for the disposal of the municipal solid waste generated by the 7 million inhabitants of Bogotá, handling an average of 2 million tonnes of household waste per year. The Doña Juana landfill is the largest sanitary landfill in Colombia and one of the largest in Latin America. The project was registered as a CDM project in 2009 and commissioned in the same year. It has been contracted as one of the first projects under the NorCaP.

The project's objective is to maximize the capture of landfill gas (LFG) in currently operational and future land filling zones within the perimeter of the Doña Juana landfill site; and to combust it in order to reduce fugitive emissions of methane. The gas generated by anaerobic waste degradation within the mass of the landfill is a potent greenhouse gas which contributes to global warming and climate change. Before the commissioning of the LFG project, the landfill gas from these areas was vented to the atmosphere through passive gas wells.

The state-of-the-art CDM project has invested around EUR 10 million to date, which includes the following technology and equipment:

- A gas collection pipe network and vertical gas wells
- A pumping system and high temperature enclosed flares
- A gas analyzer room
- A supervisory control and data acquisition system
- A treatment and compression plant
- A reciprocating gas engine for electricity generation
- Latest available gas flaring and energy production technology is installed at the site in Bogotá

The project developer Biogás Doña Juana S.A. expects to reduce GHG emissions in the order of 820,000 tonnes p.a. The NorCaP supports the project since its project's emission reductions have been deemed vulnerable to discontinuation owing to the current near zero carbon price which has resulted in the developer being under severe financial stress in recent years and consequently an imminent risk of the CDM project of being discontinued. With the NorCaP's long term CER purchase secured, Biogás Doña Juana S.A. now seeks to invest further in renewable electricity production at the site, further improving the sustainability of the project.

Preliminary results of CfP2

The second Call for Proposals was launched in September 2014, and closed in December 2014. The CfP2 has received 112 project proposals that passed the first screening from 27 countries, in total accounting for some 107 million CERs offered. This is around half of the project proposals submitted by number and volume compared to CfP1, possibly reflecting the decay in the number of active projects remaining in the market and self-selection by project proponents in response to the price ceiling set out in the CfP2.

An innovative feature of the CfP2 is a set-aside for up to 5 million CERs from LDCs. 9% of the project proposals submitted came from LDCs, an amount which is disproportionately higher than their 1% representation in the general CDM universe of projects.

The CfP2 projects will be evaluated and contracted during 2015, up to the cumulative target of at least 30 million CERs for the facility as a whole.

First NorCaP deliveries received in 2014

The facility has also been able to receive the first credits from two projects located in South America, totalling 0.56 million CERs, in the same calendar year of closing the first CfP. This demonstrates the ability of the market to respond quickly to a price signal. In general terms, it also shows the immediacy of results based financing under an existing CDM instrument, and the near term benefits to the climate system of such actions, particularly in the pre-2020 period.

NEFCO Carbon Fund (NeCF)

The NeCF is a global public-private partnership carbon procurement vehicle which was launched by NEFCO already in 2008 for long-term purchasing of greenhouse gas emission reductions under the Joint Implementation (JI) and the Clean Development Mechanism (CDM) up to 2020. The NeCF is directed at private investors (corporate entities with compliance obligations under the EU Emissions Trading Scheme, or EU ETS) as well as sovereign investors.

Since the price collapse in 2011/12, the NeCF has consolidated its activities and reduced its active procurement. However, in 2014, the NeCF re-opened for new business with Norwegian government funding, to solicit CDM projects in LDCs through joining the NorCaP CfP2.

NeCF public investors

- Denmark
- Industrialisation Fund for Developing Countries (Denmark)
- Finland
- Norway
- Nordic Environment Finance Corporation

NeCF private sector investors

- DONG Energy (Denmark)
- Eesti Energia (Estonia)
- EPV Energy (Finland)
- Electrabel (Belgium)
- Kymppivoima (Finland)
- Vapo (Finland)

Projects

The NeCF has sought to invest in a wide range of greenhouse gas mitigation projects including – but not limited to – renewable energy projects (e.g. biomass, small-scale hydropower and wind), energy efficiency and fuel switching. The portfolio developed to date has fallen almost exclusively into these categories. Projects should be in line with the requirements of the Kyoto Protocol, in particular the fulfilment of the requirements of the CDM Executive Board and JI Supervisory Committee, and the eligibility criteria under the EU ETS.

A Call for Proposals for the NeCF was made jointly with the NorCaP CfP2 in September 2014, seeking new projects located only in LDCs, but with no vulnerability requirement. 44 project proposals which fulfilled the eligibility criteria have been submitted accounting for 15 million CERs offered. The majority of project proposals (68%) are related to renewable energy technologies, primarily solar, biomass and hydro. 18 countries were represented in the submissions.

These selected projects will be contracted during 2015, up to an expected maximum of up to 3 million CERs.

In terms of ongoing activities, during 2014, 216,899 credits were delivered from 7 projects in China and Vietnam. These will be distributed to Investors to meet their compliance needs.

Baltic Sea Region Testing Ground Facility (TGF)

The Testing Ground Facility was a pioneering carbon fund operational since 2004 that had its origins in existing multilateral energy cooperation in the Baltic Sea Region (BAS-REC). The original philosophy of the TGF was to test projects within the Joint Implementation (JI) mechanism and gain experience in what was, at the time, an emerging carbon market. However, by the time the facility started operating and with the subsequent addition of private sector Investors in 2006, implementation of investment projects became more relevant than only “testing” the JI concept (although the name remained). The fund was operational until 2013, whereupon the final deliveries were made, and is currently in the process of being wound up.

A review of the TGF, The Baltic Sea Region Testing Ground Facility – A Pioneering Climate Finance Instrument was published in

January 2015, and is available in hardcopy at NEFCO’s web site (www.nefco.org). The review concludes that the objectives of the original public financing mechanism have been fulfilled, with lessons learnt and returns generated for Investors. More generally, the TGF offers a good example of a type of climate finance instrument that could achieve public policy goals in a post 2015 agreement with absolute emission caps. JI as a baseline and credit system has provided several lessons for a future Paris agreement; the power to incentivise innovation and ultimately capital investment to reach emission reduction goals, cost effectively, with due process and transparency.

The wind power park in Vanaküla (Gambyn), Estonia, generated 52,656 tonnes of emission reduction units by the end of 2012, under the Testing Ground Facility.



PHOTO: PATRIK RASTENBERGER

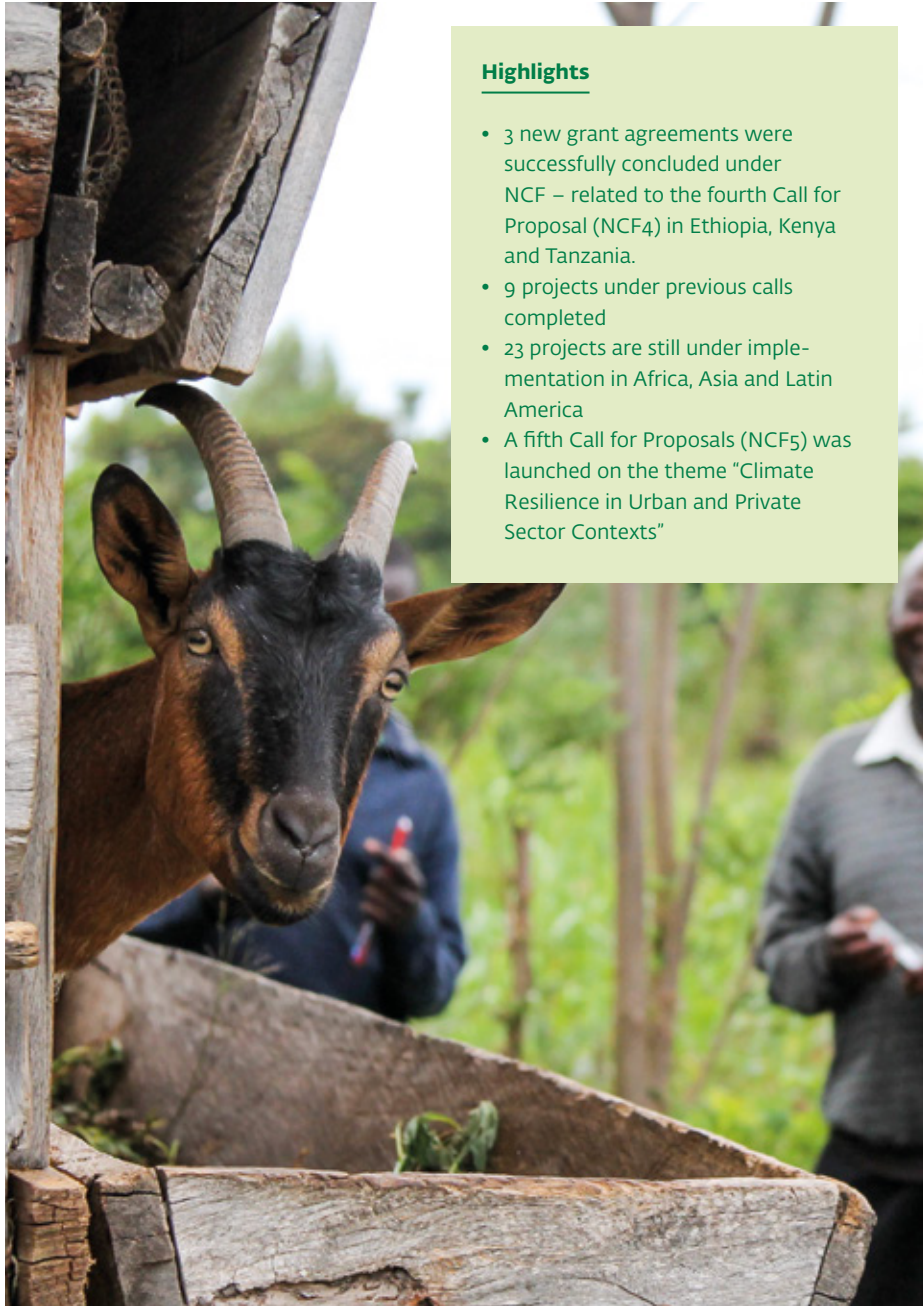


PHOTO: HELI SINKKIO

Highlights

- 3 new grant agreements were successfully concluded under NCF – related to the fourth Call for Proposal (NCF4) in Ethiopia, Kenya and Tanzania.
- 9 projects under previous calls completed
- 23 projects are still under implementation in Africa, Asia and Latin America
- A fifth Call for Proposals (NCF5) was launched on the theme “Climate Resilience in Urban and Private Sector Contexts”

Nordic Climate Facility

The NCF, financed by the NDF and administered by NEFCO, was established in 2009. It aims to promote the transfer of technology, expertise and innovative ideas in low-income countries. The NCF encourages and promotes technological innovation in areas susceptible to climate change such as: energy, transport, water and sanitation, health, agriculture, forestry and natural resource management.

The NCF4 under the theme “Inclusive green growth projects contributing to private sector development” was launched in late 2013 and the evaluation of the proposals was completed in 2014 with 12 project proposals selected for contract negotiations. Three grant agreements were signed under NCF4 by the end of 2014 and negotiations were well under way with the remaining nine projects. The NCF4 especially encourages small investments, and development and testing of concrete concepts relating to climate change and green growth.

A NCF5 was launched in November 2014. The theme of the NCF5 is “Climate Resilience in Urban and Private Sector Contexts” and the deadline for submitting pre-qualification proposals was 30 January 2015.

The NCF operates on a Call basis, with each Call focusing on a specific climate change theme. The five Calls launched so far have attracted a total of 596 applications.

NCF Themes

NCF1: Water resources and energy efficiency (2009)

NCF2: Renewable energy and urban adaptation (2010)

NCF3: Innovative low-cost climate solutions with focus on local business development (2011)

NCF4: Inclusive green growth projects contributing to private sector development (2013)

NCF5: Climate Resilience in Urban and Private Sector Contexts (2014)

On-going and completed NCF projects

Region	Host country for project	Name of project
East Africa	Ethiopia	GHG Mitigation and sustainable development through the promotion of energy efficient cooking in social institutions in Ethiopia
	Ethiopia	Demand Side Management for Climate Change Adaption for the Ethiopian Power Sector
	Ethiopia	Demonstrating the Feasibility of Locally Produced Ethanol for Household Cooking
	Ethiopia	Strengthening resilient and inclusive green growth by advancing clean energy technologies (CET) through business development in the micro finance sector in Ethiopia
	Kenya	Community based adaptation to climate change through environmentally sustainable water resource management in Isiolo District in Kenya
	Kenya	Building Adaptive Capacity to Climate Change in Kenya
	Kenya	Providing Assistance for Design and Management of Appropriate Water Harvesting Technologies in Arid Lands of Kenya
	Kenya	Enhancing Capacity for Adaptation to, and mitigation of, climate change in Kibera, Nairobi
	Kenya	Mount Elgon Integrated Watershed Management Project
	Kenya	Business Development Closing the Rural-Urban Nutrient and Carbon Dioxide Cycles
Latin America	Kenya	Improved water economics within sub catchments of Kenya (IWESK)
	Kenya, Rwanda, Tanzania, Uganda	ADAPTea: Climate Change Adaptation for FAIRTRADE Tea Producers in East Africa
	Kenya, Rwanda, Tanzania, Uganda	Fuel Efficient Stoves in East Africa: Reducing Emissions and Improving Livelihoods
	Rwanda	Karisimbi Geothermal Prospect
	Rwanda and Uganda	Enhancing sustainable energy supply for tea factories in Rwanda and Uganda
	Tanzania	Sustainable charcoal business development
	Tanzania	From Waste to Local Business Development and Vigorous Soil
	Tanzania	Reduction of greenhouse gases and deforestation related to food processing in sub-Saharan Africa
	Uganda	The Bukaleba Charcoal Project
	Uganda	Sustainable renewable energy businesses in Uganda

Region	Host country for project	Name of project
Southern Africa	Malawi	Strengthening the resilience of people living in high risk urban and semi urban areas to weather-related disasters
	Malawi	Mainstreaming climate-smart agriculture in solar irrigation schemes for sustainable local business development
	Mozambique	GIS tool for urban adaptation to climate change and flood risk
West Africa	Benin	Scaling the Solar Market Garden
	Burkina Faso	Ecological Food Processing Unit
	Ghana	Energy efficient recycling of electric and electronic scrap, e-scrap
	Ghana	Biomass Green Briquette Fuel (GBF) Production (BidiePa) under Kitchen Efficiency Programme
	Ghana	Pilot Project: Efficiency Enhancement and Entrepreneurship Development in Sustainable Biomass Charcoaling in Ghana
	Ghana	Rain Water Harvesting (RWH) for resilience to climate change impact on water availability in Ghana
Latin America	Bolivia	Adapting to Climate Change in Bolivian Andean Community Depending on Tropical Glaciers
	Bolivia	Urban and industrial waste to energy – promoting sustainable development in Bolivia
	Bolivia	Financing sustainable energy through remittances flows, Bolivia
	Bolivia	Promoting cañahua in the Andean highland: a highly nutritive crop with a great market potential, adapted to extreme climate conditions
	Nicaragua	Strengthening National Capacities on Energy Efficiency
	Asia	Bangladesh
Cambodia		Cambodian Farmland Carbon (CAFACA) Project
Cambodia and Laos		Scaling up low carbon household water purification technologies in the Mekong Sub Region
Nepal		Promoting Renewable Energy Technologies for Enhanced Rural Livelihoods
Nepal		Developing low community based innovative solutions to mitigate and adapt with climate change while creating viable local business solutions
Sri Lanka		Climate Resilient Action Plans for Coastal Urban Areas
Vietnam		Building technology in urban flood & inundation forecasting to be applied for operational early warning system in the Ha Noi City, Vietnam
Vietnam		Adapting Urban Construction Plans to Climate Change in Vietnam by the use of Strategic Environmental Assessment

Case study

Promoting renewable energy technologies for enhanced rural livelihoods in Nepal



PHOTO: PAMELA WHITE

The replacement of cooking stoves has decreased the indoor air pollution in several villages in Nepal.

The Far Western Region is the least developed region in Nepal. Agriculture, live-stock and non-timber forestry products, particularly high value herbal items, are the main source of living for the people in these mountain districts. Out of the 24 districts in the Far and Mid-Western Regions, about 14 are food deficit districts, depending on external support to feed the population; and most are ranked at the bottom of the Human Development Index. The objective of this NCF project, funded by the NDF, is to reduce greenhouse gas emissions and to improve living conditions, food security and the economic situation of rural people in these remote districts via application of renewable energy technologies.

The project involved the development of improved water mills to grain grinding, husking, oil extraction and electricity production, as well as training and support for the promotion, testing and expanded use of a variety of improved cooking stoves to replace cooking with traditional solid fuels on open fires or traditional stoves which creates high levels of indoor air pollution. The project also supported the introduction of hydraulic ram pumps (Hydram) for small-scale irrigation and drinking water supply in upland areas. Hydram technology is 200 years old and used in many developing countries. In Nepal, however, a breakthrough of this technology is still to come, due to the lack of knowledge and the relatively high investment cost.

The project was implemented by FCG International Ltd, Finland and Centre for Rural Technology, Nepal, and functioned alongside the Rural Village Water Resources Management Project (RVWRMP), funded by the governments of Finland and Nepal. The

project was fully completed in 2014, and the total costs were EUR 465,034, of which NCF provided EUR 341,506, with the balance from local beneficiaries, RVWRMP, and local governments. In addition, there was local additional in-kind contribution from various partners of some EUR 45,000.

A total of 149 improved water mills ; including two with electrification, 6,073 improved cooking stoves for daily use in 40 villages, and 6 hydrams were installed. The project also paid close attention to local support, institutional development and maintenance mechanisms, in order to guarantee sustainability. An operation and maintenance fund is collected for the hydrams and improved water mill electrification. This amount is sufficient for minor repairs and maintenance, but not for re-investment. However, more technologies were installed than planned – partially due to devaluation of the local currency.

From slow initial progress to outstripped demand

Social acceptance of the new technologies was initially considered a risk, although there was a strong believe in the local population eventually would accept the proposed renewable technologies. There were also difficulties to overcome stemming from the remoteness of the locations and from having to find the communities' contribution in poor areas. In some cases there was an ex-



pectation that the measures would be covered 100% through subsidies and this contributed to an initial relatively slow pace of implementation.

In the case of the improved cook stoves, the project has been particularly important. The improved cooking stoves were not initially popular in the hill communities. However, this was addressed by awareness and capacity building efforts. The momentum gradually grew as households began to see the benefits. Two rural municipalities even reached the point that they could declare themselves 'indoor pollution-free' and others are approaching this status. The demand for stoves finally outstripped the possibilities of the project to subsidise their installation, but it is planned that RVWRMP will continue to support this activity. Mainly due to improved cooking stoves that save approximately 40% of firewood, CO_{2e} emissions have been reduced by 17,000 t/a.

Benefits for women and girls

The main project beneficiaries of the project were women and girls, as they spend most time collecting firewood, grinding grains by hand or queueing to use a mill, walking long distances to collect water, and cooking with smoky traditional stoves. The new technologies have also assisted women to be more involved in econom-

ic activities. As they have more time available, are less exhausted by hard physical tasks, and have in some cases also received training to be entrepreneurs, such as improved cooking stoves promoters or commercial vegetable producers. More than 60% of the improved cooking stoves promoters are women and have been able to generate own incomes once in possession of the required vocational skills through training.

As a result of the implemented project more than 60% of those who are promoting improved cooking stoves are women.

PHOTO: PAMELA WHITE



CFF staff

The Carbon Finance and Funds Department operates with eight full-time equivalent staff and, in addition, draws significantly upon the general resources of NEFCO in terms of environmental, technical due diligence and back office/financial administration.

CFF staff during 2014:

Ash Sharma

Vice President, Head of Department (until 31 August 2014, thereafter Special Adviser for Climate Change and Manager, NorCaP)

Helle Lindegaard

Senior Legal Adviser and since 1 September 2014 Vice President, Head of Department

Kari Hämekoski

Manager (TGF, NCF, NeCF)

Maija Saijonmaa

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Abbreviations

BASREC Baltic Sea Region Energy Cooperation

CO₂ Carbon dioxide

CO₂e Carbon dioxide equivalent

CCAC Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants

CDM Clean Development Mechanism

CER Certified Emission Reduction issued in return for a reduction of atmospheric carbon emissions through projects under the Kyoto Protocol's CDM; one CER equals to an emission reduction of one tonne of CO₂

CFF Carbon Finance and Funds at NEFCO

CfP Call for Proposals

COP Conference of the Parties, the United Nations Framework on Climate Change (see UNFCCC) meetings held each year

EU ETS European Union Emissions Trading Scheme

GCF Green Climate Fund

JI Joint Implementation

Kyoto Protocol An international agreement, negotiated in 1997, that set binding targets for industrialised countries to reduce their greenhouse gas emissions before 2012

LDC Least Developed Countries

MINAM Ministry of Environment of the Republic of Peru

MRV Monitoring, reporting and verification

NAMAs Nationally Appropriate Mitigation Actions

NeCF Nordic Climate Facility

NDF Nordic Development Fund

NeCF NEFCO Carbon Fund

NEFCO Nordic Environment Finance Corporation

NorCaP NEFCO Norwegian Carbon Procurement Facility for Vulnerable CDM Projects

NPI Nordic Partnership Initiative on up-scaled climate mitigation actions

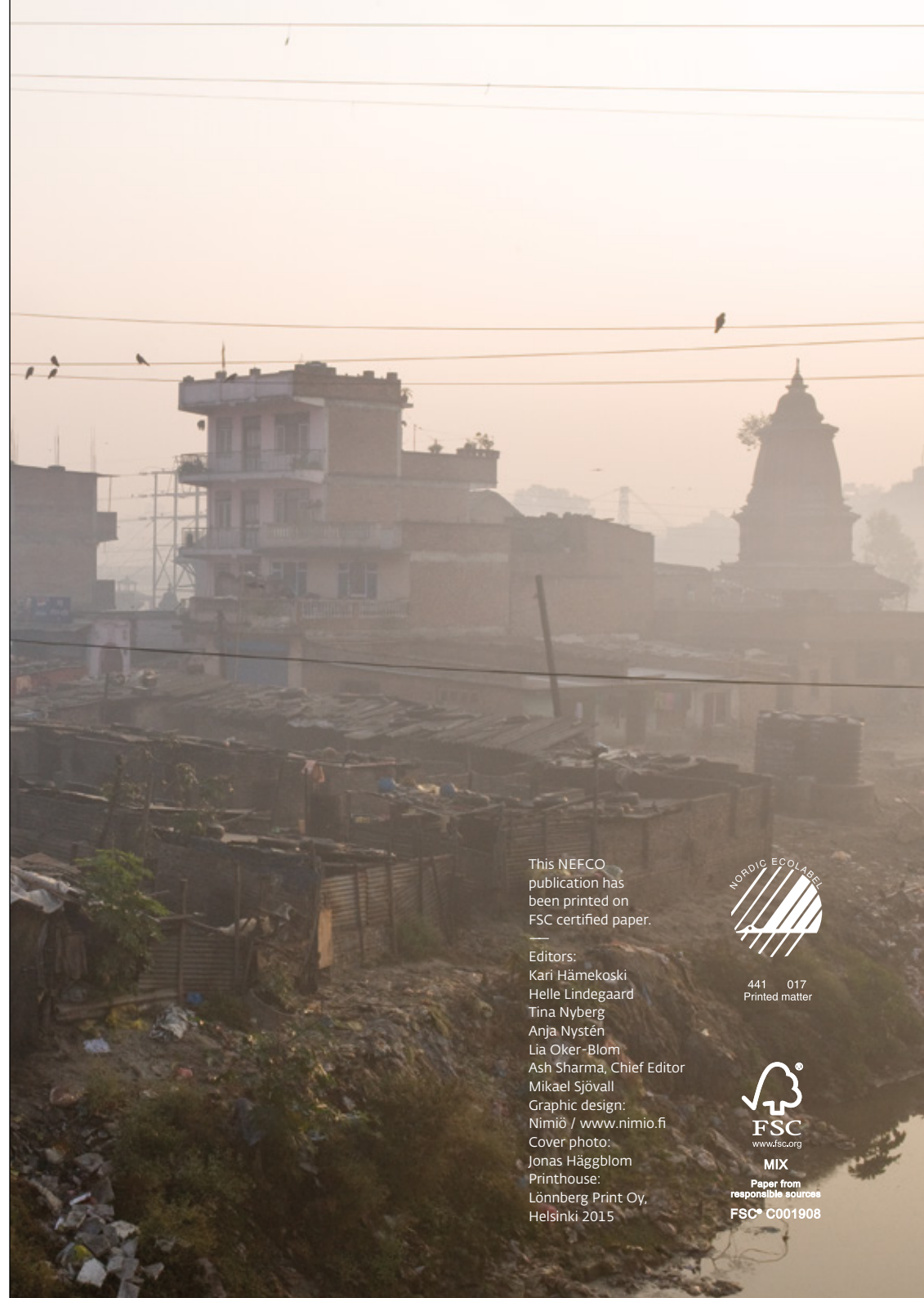
P.A. Per annum

PSI Arctic Council Project Support Instrument

SLCP Short-lived climate pollutants

TGF Baltic Sea Region Testing Ground Facility

UNFCCC United Nations Framework Convention on Climate Change; an agreement signed by 192 countries in 1992 stating that the countries will seek to keep greenhouse gases from becoming dangerous to our climate



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The climate action projects and activities administered and facilitated by NEFCO range from typical mitigation projects based on solid waste management, renewable energy and energy efficiency, to adaptation programmes in areas as diverse as rainwater harvesting in Ghana, low carbon household water purification technologies in the Mekong sub-region and the integration of climate smart agriculture in solar irrigation schemes in Malawi.

The NEFCO Norwegian Carbon Procurement Facility (NorCaP), established by Norway in 2013 with NEFCO as the facility manager, aims to support the climate commitments of the Norwegian state whilst at the same time sustaining some level of demand in the ailing carbon market in parallel with the international negotiations. 2014 has been an excellent year for this facility. From the first Call for Proposals, 10 projects were contracted, for a total volume of some 19 million tonnes of carbon savings, primarily from projects in Latin America, but also in South Africa.

A second Call was launched in September 2014, which included a set aside for projects from Least Developed Countries (LDCs) and received 112 proposals. In addition, the NEFCO Carbon Fund (NeCF), with Norwegian funding, was opened up for LDC projects, and received 44 project ideas.

Good progress is reported for the Nordic Partnership Initiative (NPI) NAMA activity in Peru. A NAMA concept has been elaborated for the Peruvian solid waste sector, and was showcased at the Lima COP20 in December 2014.

