2011

Nordic -Climate Facility-

Fourteen contracts awarded under the Nordic Climate Facility's first call for proposals

The Nordic Climate Facility (NCF) provides grant financing to encourage knowledge transfer and promote technological innovations in areas susceptible to climate change.

Once a year, NCF launches a call for proposals for innovative ideas within specific themes relating to climate change. Financing can be granted to Nordic institutions, organisations, companies, and authorities which have established cooperation with a partner in low-income countries. NCF is financed by the Nordic Development Fund (NDF) and jointly administered with the Nordic Environment Finance Corporation (NEFCO).

The first NCF call for proposals was launched in October 2009. It focused on two themes: water resources and energy efficiency. The response was larger than expected as a total of 138 proposals were received for the pre-qualification phase. Altogether, 33 applicants were shortlisted and invited to present a final proposal. Eventually, a total of 30 high-quality final applications were received. The 14 highest ranking projects were selected for final negotiations. Ultimately, 14 contracts, altogether amounting to approximately EUR 5.5 million, were signed under NCF's first call for proposals. Although the assessment of the final results of the projects for the first call is still forthcoming, the experience of both the proposed projects and the process has been positive. The cooperation between Nordic and local partners seems promising and project implementation is expected to be successful because of the involvement of strong local stakeholders. Furthermore, the projects are likely to create potential for replication and scaling up as innovative solutions and knowledge transfer are well incorporated in the projects' design. The following pages provide an introduction to the 14 awarded projects.

Contracts awarded under NCF's first call

Country	Contract Party
Benin	Naps Systems Oy (Finland)
Bolivia	Diakonia (Sweden)
East Africa	CARE Danmark (Denmark)
Ethiopia	Gaia Consulting Oy (Finland)
Ethiopia	Hifab Oy (Finland)
Ghana	DHI (Denmark)
Ghana	Raw Materials Group AB (Sweden)
Kenya	Danish Red Cross (Denmark)
Kenya	ORGUT Consulting AB (Sweden)
Kenya	Ramboll Natura AB (Sweden)
Kenya	Solvatten AB (Sweden)
Kenya	Vi Skogen (Sweden)
Nicaragua	Motiva Services Oy (Finland)
Uganda	Green Resources AS (Norway)

Photo: Jacob Dall

The Kambi ya Juu community in the Isiolo District in Kenya receives water from the LIFELINK system.

Kenya: Innovative technology increases access to safe water

Prolonged droughts in the Isiolo District in Kenya have put great stress on the communities' water supplies, sharply reducing livestock production, thus creating food insecurity, and increasing the incidence of water-borne diseases. Through close cooperation, the Danish Red Cross, the Kenya Red Cross Society, and the private Danish company Grundfos will increase access to safe water and promote hygiene awareness in the Isiolo District. The objective is to ensure that more than 20,000 people living in the target area will have improved access to safe water and that 90% of them will have better knowledge regarding hygiene and sanitation. In addition, by utilising a modern and innovative technology (LIFELINK), greenhouse gas emissions will be reduced.

Grundfos's innovative LIFELINK system is a proven submersible pump driven by solar panels. The water pump includes a satellite linked to a computer-based system with an integrated communication and surveillance module. This enables the water system to be monitored remotely. The communities will pay for their water via mobile telephones, and the user fees will be used to cover the operation and management costs. The project will pilot nine LIFELINK water systems.

The project will build capacity in the drought-prone Isiolo District so that the communities are better equipped to adapt to the changing climate. In addition, the project has climate change mitigation effects as the innovative technology relies on solar driven energy, substituting the use of fossil fuels.

Kenya: Solar driven water purification in Nairobi slums

Kibera is the largest urban slum in Africa with an estimated population of about 800,000. Similar to other slums the poor households often have no access or insufficient access to safe water. Climate impacts such as floods and drought negatively impact the area's water resources as the water and sanitation infrastructure gets damaged and the water supply contaminated, resulting in reduced water quality and increased water scarcity. This subsequently facilitates the transmission of water-borne diseases. Solvatten is an innovative, but simple technology, which utilises solar radiation (UV and heat) to purify water. Swedish Solvatten AB and the Institute of Environment and Water in Kenya aim to distribute the Solvatten technology to 2,500 households in Kibera, thereby securing 13,000 Kibera residents' access to safe water. The targeted recipients will be vulnerable families, for example those headed by single women, who will receive training in hygiene and sanitation and on how to use the technology.

The technology will increase the households' adaptive capacity and reduce their vulnerability to water-borne diseases. In addition, since Solvatten utilises a renewable energy source, it will function as a substitute for charcoal and kerosene, currently used for heating and water purifying. This will help reduce deforestation, reduce the burning of fossil fuels, and consequently reduce greenhouse gas emissions.

Photo: Solvatten AB

Vulnerable families in Kibera will receive training in how to use Solvatten's technology.

Kenya: Harvesting water in arid lands

Arid and Semi-arid Lands (ASALs) constitute about 80% of Kenya's land area. Even though drought is a recurring feature in these regions, a number of droughts have over the last twenty years degenerated into famine, resulting in loss of life and livelihood opportunities. This situation has led to the need for massive levels of aid, especially emergency food supply. The changing climate increases stress on pastoralist communities living in the ASALs. Ramboll Natura AB from Sweden and the Kenyan Appropriate Development Consultants intend to enhance the pastoralist communities' resilience to climate change. This will be done through the implementation of a combination of modern water harvesting structures, tailor-made agronomical practices, and community development mechanisms. The water harvesting structures will increase efficiency of the use of the scarce rain water resources, thus increasing domestic water supply security even during dry periods. Together with improved cultivation and appropriate crop varieties food and fodder production will increase, subsequently improving the pastoralists' living conditions. The project will help increase pastoralist communities' capacity to withstand and endure changed weather conditions expected due to climate change.

Kenya: Sustainable agriculture

Swedish Vi Skogen and Vi Agroforestry from Kenya will implement a watershed management project in the Mt. Elgon district in Kenya. Mt. Elgon is one of Kenya's five major water sources influencing the Kenyan, the Ugandan and the wider Nile Basin ecosystems, and a source for at least 12 rivers and streams. The Mt. Elgon district's economy primarily depends on agriculture, but the agricultural production is inefficient since it is affected by low land productivity due to decreasing soil fertility, unsuitable agricultural practices and erosion problems. Land use change from forest to agriculture has reduced volume in the downstream water flow creating water stress. The situation may exacerbate as climate change impacts are likely to put the Mt. Elgon district's ecosystem under severe stress.

The project will target 7,000 households and aims to establish Sustainable Agricultural Land use Management (SALM) practices that facilitate households' adaptation to climate change and mitigate land degradation. In addition, they will empower community-based organisations to participate in protection of riverbanks, springs, wells and dams. The SALM practices will focus on agroforestry and tree planting as well as organisational development to ensure the sustainability of the interventions. The SALM practices will also lead to increased CO_2 sequestration in soil and trees, thus mitigating climate change. There are great possibilities to replicate and scale up the project as it will act as a learning ground for governmental and non-governmental actors and farmers in Kenya and in the East African region.

Kenya: Building adaptive capacity in water resource management

Since 2005, ORGUT Consulting AB from Sweden, DHI from Denmark and Rural Focus Ltd from Kenya have supported the Kenyan Water Resource Management Authority (WRMA) through the multi-donor water sector programme. These companies will now together with the Kenyan Water Services Trust Fund implement a project that provides guidance to the WRMA and a number of locally-based Water Resource User Associations on climate change issues.

It is the first project in Kenya where all the different steps in addressing climate change are covered; from Regional Climate Modelling simulations for assessing climate change, to rainfall-runoff modelling for providing estimates of impacts of water resources on a country-wide scale, to the development of adaptation strategies at local and regional level, to the actual implementation of adaptation measures. The project will build WRMA's capacity to adapt to climate change and help ensure that relevant adaptation strategies and measures regarding water resources are implemented in the country.

Photo: Lawrence Thooko

The project will work closely with local Water Resource Users Associations.

Photo: Emmeline Laszlo Ambjörnsson

Farmer Fred Keneroy and his family live on Mt Elgon's South side.
Vi Skogens project will help increase their resilience to climate change.

East Africa: Increasing access to affordable and energy efficient cook stoves

CARE Danmark, the Uganda Carbon Bureau and CARE International in Kenya, Rwanda, Tanzania and Uganda are implementing the only regional NCF project. The project aims to provide households with sustainable access to affordable, clean burning and energy efficient cook stoves. This will be achieved by establishing a Clean Development Mechanism (CDM) Program of Activities (PoA) that will provide stove suppliers with access to the CDM carbon market, and hence funds to initiate and implement improved cook stove projects. Specifically, the project will facilitate the establishment of CDM PoA and support the strengthening of cook stove suppliers in the four countries. The creation of a larger market for improved cook stoves where the customers have the choice to buy new stoves at more affordable prices will help reduce the consumption of non-renewable biomass and consequently increases energy efficiency. By substituting the traditional inefficient cook stove technology with energy efficient stoves the project will improve indoor air quality and reduce the emissions of greenhouse gases thus mitigating climate change. In addition, the reduced consumption of firewood and charcoal will reduce pressure on the natural forests and thus reduce deforestation.

Uganda: Sustainable charcoal

Charcoal is an important energy source for East Africans, vital for the daily household activities of the poorest people. The high demand for firewood and charcoal is the main source of deforestation in Uganda. Currently charcoal production methods are highly inefficient, usually illegal since indigenous forests are being used as raw material, and polluting as methane is emitted. **Green Resources AS** from Norway will together with the local **Busoga Forest Company** install modern, energy efficient, and methane-free charcoal kilns that are capable of producing 7,500 tonnes of sustainable charcoal a year, enough to supply 9,000 households. With the kilns the project intends to more than double the efficiency of traditional charcoal production, implying that less biomass will be required to produce the same amount of charcoal.

The modern kilns will mitigate climate change in a number of ways. Most significantly they will prevent the release of methane from the carbonisation process. Methane is a greenhouse gas with a global warming potential 21 times that of CO_2. It is estimated that the project will save around 15,000 tonnes of CO_2 equivalents a year. The project also ensures that the charcoal will be produced using renewable biomass sources as timber and waste residues from Busoga Forest Company's sustainable plantations will be used. In addition, the country's natural sequestration will be enhanced as Green Resources AS has a policy to plant ten trees for every one harvested. Together this will help reduce deforestation since almost all charcoal in Uganda is currently produced using indigenous forests which are not replanted.

Photo: Gabriela Gonzalez

Care Danmark's project in East Africa will increase consumers' access to affordable and energy efficient cook stoves.

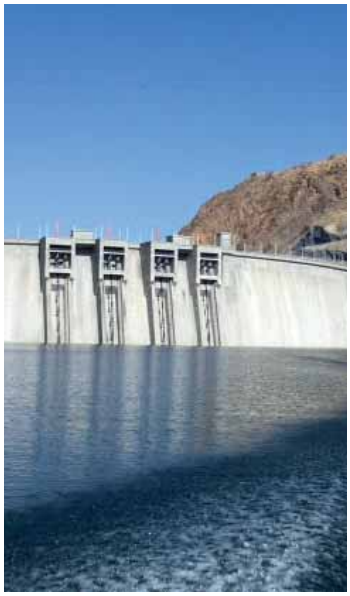
Photo: Kari Hämekoski

Green Resources' project will turn wood waste, from a pole plant in Jinja, Uganda, into charcoal.

Ethiopia: Optimising energy use

The Ethiopian power system is almost exclusively based on hydropower, making the system vulnerable to climate change. Climate change events such as increasing temperatures, droughts and reduced rainfall affect the water availability. This may then reduce and change the flows into the hydropower reservoirs, which can result in reduced power availability and substantial power shortages.

Hifab Oy from Finland and its two local partners the Ethiopian Energy Agency and the Ethiopian Society of Electrical Engineers will develop a comprehensive Demand Side Management (DSM) action plan for the Ethiopian power system. DSM is a mean to optimize the consumers' use of the existing power system. Efficient energy use is an important way to reduce emissions as the reduced consumption will alleviate the pressure on the hydro power system, thereby reducing the risk for power blackouts and the need for petroleum based power backups, thus reducing CO_2 emissions. However, due to lack of information, it is currently impossible to define the most efficient measures to improve energy efficiency, and to apply DSM policy actions in Ethiopia. Therefore, the project will systematically collect end use data from different types of customers in different geographical areas of Ethiopia, and use the database to indentify, evaluate and propose DSM measures for the power sector. The main project output will be a complete assessment of DSM actions and a recommendation of a program of activities for DSM in Ethiopia.



The Tekeze Hydropower dam in Ethiopia.

Photo: Paula Tommila

Gaia Consulting Oy and Ethio Resource Group will implement the only project in Ethiopia that promotes biomass energy efficiency in social institutions, such as schools.

Ethiopia: Energy efficient cooking stoves in social institutions

Cooking in social institutions in Ethiopia is mostly done over open fire using large amounts of wood. Gaia Consulting Oy from Finland and the Ethio Resource Group will implement a project that aims to disseminate and install fuel-efficient stoves in Ethiopia's social institutions, and support the development of a sustainable business model for the promotion of the energy efficient stoves. During the project, 250 energy efficient institutional Rocket biomass stoves will be installed in 100 schools and several universities and correctional facilities in the country. The positive impacts of the Rocket stoves include: less consumption of fuel wood and as a result reduced deforestation and emissions of greenhouse gases, the creation of new businesses for production and installation of the efficient stoves, and reduced fuel expenditure for social institutions. The project will also have health and social benefits as the exposure to indoor air pollutants will be reduced and the use of child labour for fuel collection will diminish.

The project aims to develop a carbon finance strategy to finance continued operation of the stoves, their replacement and to expand the benefits to more schools and other social institutions. Currently, there are no CO_2 mitigation projects in Ethiopia that benefit from carbon finance through the Clean Development Mechanism (CDM) or the voluntary market. Therefore, a carbon finance study will be prepared to find out possibilities for including carbon financing in similar projects in the future. The study will help train Ethiopian experts in the development of small-scale CDM projects.

The project will transfer carbon finance know-how to local stakeholders working in the energy sector in Ethiopia and, in addition, stove technology to commercial stove producers in an effort to expand the stove market throughout the country.

Ghana: Recycling valuable metals from e-scrap

Swedish Raw Materials Group will together with two local partners the Environment Protection Agency and Green Advocacy Ghana, and three Swedish companies Swedish Geological AB, Ericsson AB, and Boliden AB introduce sustainable and energy efficient electric and electronic scrap (e-scrap) recycling methods in Ghana.

The handling of e-scrap in Ghana is typically done by poor people working in the informal sector using simple manual methods, including open burning of flammable e-scrap components, at sites that expose them to hazardous and toxic substances and which pollutes land, water and air. E-scrap is an important source of secondary raw materials since it contains valuable concentrations of metals. Currently only a fraction of the metals are recovered due to inappropriate recycling methods. The extraction of metals from e-scrap requires much less energy than the extraction from virgin ores, e.g. the extraction of the same amounts of metal from secondary raw materials requires, depending on the different metals, between 50 and 90% less energy than the extraction from primary raw materials. The project will, by introducing sustainable e-scrap recycling methods, reduce the climate footprint as more energy efficient processes to extract metals from e-scrap will be used. Furthermore, by establishing more efficient handling and dismantling methods, the project will also improve e-scrap workers health and safety, and alleviate poverty through improved livelihood conditions.

Ghana: Knowledge transfer in the water resource sector

Climate-based contingency planning for adaptation has not received adequate attention in Ghana, thus limiting appropriate practical interventions. To raise awareness of adverse impacts of climate change in Ghana's three northern regions, DANIDA funded a pilot adaptation project from 2009 to 2010 on water storage and conservation, river catchments and floodplain protection, and flood water harnessing together with local communities. DHI from Denmark has partnered up with the Water Resources Commission (WRC) in Ghana to implement most of the outcomes and key recommendations of the DANIDA project. The project's activities have been planned together with the affected people and communities, and will be undertaken by the local communities, the WRC and its grassroots partners.

Knowledge transfer and adaptation learning are central features of the project, as one targets the use of knowledge, skill and local resources to build adaptive capacity. The project is expected to draw on the knowledge of DHI and two other local partners, the Geohydronomics Limited and the Centre for Human & Environmental Security, to assist the WRC in delivering on the first ever practical climate change adaptation project in the water resources sector in Ghana.

Benin: Solar-powered irrigation

The Kalalé District of Benin is typical of the Sudano-Sahel region in that there is no reliable electricity supply and inadequate rain-fed subsistence agriculture. The Solar Market Gardens (SMGs) is a solar-powered drip irrigation system which utilises the sun to pump water into tanks and then, through gravity, feeds the water into low-pressure drip-irrigation systems. Three SMGs were successfully installed in Benin in a previous pilot phase. Now Finnish Naps Systems Oy will, with its local partner the Association pour le Développement Economique Social et Culturel de Kalalé and two other partners the Solar Electric Light Fund and the International Crops Research Institute for Semi-Arid Tropics, implement an eight-SMG installation project in anticipation of subsequent local, regional and widespread replication. This phase will help validate the results achieved in the 3-system pilot phase, which indicated that SMGs improved nutrition and food security, provided increased income, and were economically viable in the middle as well as long term. This second phase will both extend SMG benefits to more people in Kalalé and further position the technology for scaling up.

The project is highly relevant to the country's adaptation needs as conserving surface water in vulnerable villages and promoting renewable energy are priority sectors in Benin's National Adaptation Program of Action. Furthermore, the project has climate change mitigation impacts as solar energy is an alternative to diesel generators.

Photo: Solar Electric Light Fund (SELF)

In a previous pilot phase, three Solar Market Gardens were installed in Benin.

Bolivia: Adaptation strategies for disappearing glaciers

The Bolivian tropical glaciers are essential water resources in the Andes, acting as a buffer resource in the water cycle especially during the dry season. Rising temperatures have led to the retreat of the glaciers, negatively affecting downstream communities through reduced water availability. In the past 30 years, glaciers in the Andean highlands have lost more than 20% of their volume. Trends, forecasts and scenario analysis suggest that climate-related pressures have increased and will continue to increase in the Andes due to climate change, and therefore there is an urgent need for adaptation plans and strategies to deal with expected climate change impacts.

Diakonia from Sweden with its Bolivian office and local Agua Sustentable will implement a project that examines two different glacier dependent Andean areas in Bolivia to evaluate vulnerability to climate stress and climate change between and within the communities in the areas. The objective is to get a complete depiction of gender specific differences and similarities behind the increased or reduced vulnerability, especially related to water use and availability, and to identify the efficiency of already taken autonomous adaptation strategies in both areas. The results will be used to create climate change adaptation strategies and policies in the country, and to replicate and scale up this type of project in other Andean areas.

Nicaragua: Introducing Finnish methods for energy efficiency

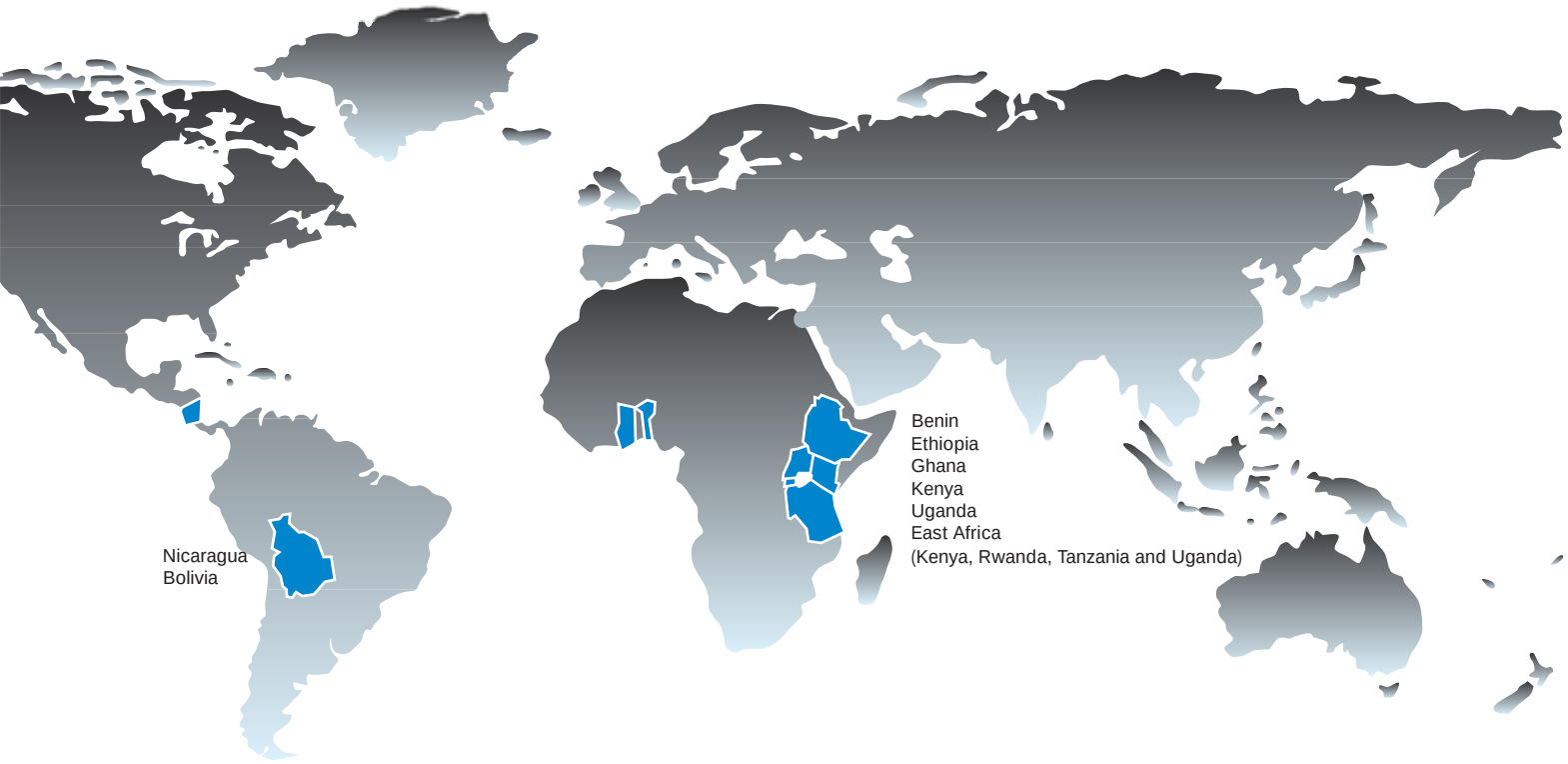
Currently there is no appropriate energy efficiency promotion framework in Nicaragua, a country whose energy sector is highly oil dependent. Motiva Services Oy from Finland and their local partner Cleaner Production Center of Nicaragua will embark on a project that facilitates knowledge transfer in energy efficiency from Finland to Nicaragua. Energy efficiency knowledge transfer means knowhow on both the energy auditing methodology and the whole structure of energy auditing needed for permanent efficient use of energy in a country. The project consists of three main components; capacity building, technical assistance and promotion of energy efficiency. The Finnish model of the whole energy auditing structure will be studied and an adapted version will be suggested to the conditions in Nicaragua. Local governmental organisations will be involved in the work to ensure suitable conditions for future energy efficiency structures. Furthermore, an Energy Efficiency Office will be established and a National Energy Audit program outlined.

By strengthening national capacities for energy efficiency, the project aims to reduce greenhouse gas emissions generated by the industrial and service sectors and improve companies' competitiveness. The project is expected to reduce energy consumption by at least 10% in audited companies and increase industrial productivity.

Photo: Fredrik Svensson, Diakonia

Sajama in Bolivia is one of the glacier dependent areas that will be examined in Diakonia's project.

Nine eligible countries were awarded NCF funding



Outcome of NCF's first call for proposals

Nordic Country	Total Proposals	Short-listed Proposals	Contracts awarded
Sweden	43	14	6
Finland	21	6	4
Denmark	39	8	3
Norway	21	4	1
Iceland	2	1	0
Missing Nordic Partner	12	0	0
Total	138	33	14

Second NCF call launched in October 2010

The second call for proposals was launched in October 2010 with two themes: renewable energy and urban adaptation to climate change.

The call is open until 14 January 2011.

For more information, please visit the links below:

www.ndf.fi **www.nefco.org**

The Nordic Development Fund (NDF)
is a multilateral development finance institution owned by the five Nordic countries. Over the last 20 years NDF has provided soft loans totalling approximately 1 billion euro to developing countries. Starting in 2009, NDF provides grant financing for climate change related interventions in low-income countries. As of October 2010 NDF has approved grant financing to the tune of 64 million euro for 18 climate change projects.
> **www.ndf.fi**

The Nordic Environment Finance Corporation (NEFCO)
is an international finance institution owned by the five Nordic countries. NEFCO primarily finances environmental projects in Russia, Ukraine, Estonia, Latvia, Lithuania and Belarus as well as climate change mitigation projects in developing countries, generating positive environmental effects for the Nordic region. As of October 2010, NEFCO administers environmental investment funds with a total value of 420 million euro.
> **www.nefco.org**

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