



Climate change can affect Africa by causing prolonged periods of drought and desertification. The Nordic Climate Facility has rolled out a wide range of projects to address these challenges.

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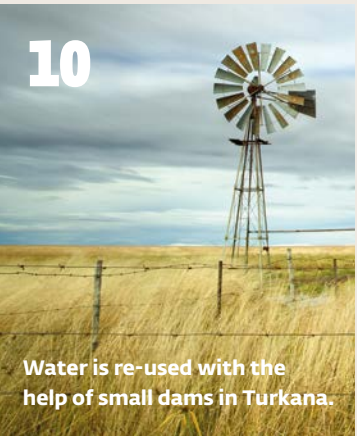
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“The independent evaluation of NCF found it to be a cost effective scheme, which has internationally added value as a rare mechanism combining innovation, leverage and partnership.”

FOREWORD

Nordic Climate Facility: continuation and concrete results



THE NORDIC CLIMATE FACILITY (NCF) provides grant financing with co-financing requirements to encourage and promote technological innovations in areas susceptible to climate change in low-income countries. The Facility targets both private and public organisations with relevant experience registered in Denmark, Finland, Iceland, Norway or Sweden that, in partnership with a local partner, will undertake to implement projects. NCF is based on calls for proposals with one or more broad themes.

NCF is financed by the Nordic Development Fund (NDF) and administered by the Nordic Environment Finance Corporation (NEFCO). Cumulative funding for four NCF call for proposal is EUR 22 million.

The Nordic Climate Facility, NCF, was designed to facilitate the exchange of technology, knowledge, know-how and innovative ideas through partnerships between Nordic and low-income country practitioners in the field of climate change. Its overall activities support and complement the objectives of the Nordic Development Fund (NDF) - the provider of NCF funds - to facilitate greater investments in developing countries to address the causes and consequences of climate change, while at the same time contributing to sustainable development and the reduction of poverty.

The first call for proposals of the NCF was launched in 2009. Since then, three more financing rounds have been organised to bring the number of approved projects to more than 50, with a total value exceeding EUR 20 million. Projects eligible for NDF financing have been implemented or are under implementation in 18 countries in Africa, Asia and Latin America.

Green growth and private sector development have become increasingly important focus areas over the years. Many innovative concepts have been tested and activities expanded. While the balance between climate and development impacts vary from project to project, all 16 NCF projects completed to date show tangible climate and development benefits. This newsletter highlights some of the achievements.

NCF projects focusing on climate change mitigation have typically reduced up to 4,000 tonnes of CO_{2e} annually, but show considerable indirect reduction opportunities via scaling-up and replication potential. Key adaptation benefits of NCF projects are typically linked to ensuring access to safe and affordable water for the beneficiaries. From among the completed projects in various sectors and countries, this newsletter presents three completed water resource related projects in Kenya as examples of NCF projects showcasing safe water supply, water harvesting and water resource management projects.

The three projects show that NCF has succeeded in providing additionality to existing climate financing through supporting new and innovative ideas and concepts, and by leveraging also private co-financing for projects. We believe that NCF serves as a good example of efficient Nordic climate action. NCF is also a good example of co-operation between the two Nordic climate finance institutions NDF and NEFCO.

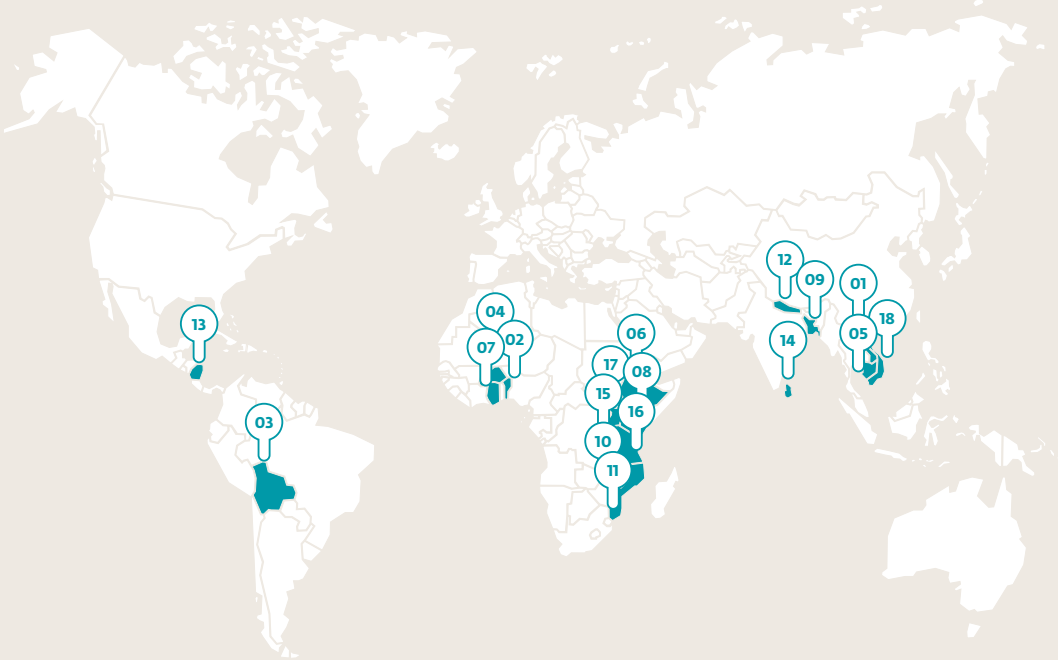
The independent evaluation of NCF, carried out in 2013, found NCF to be a cost-effective scheme, which has internationally added value as a rather rare mechanism combining innovation, leverage and partnership. The evaluation also recommended continuation of the facility. This is a good basis for yet another round for calls for NCF proposals, which we aim to launch in December 2014.



PASI HELLMAN
Managing Director
of NDF and
Chairman of the
NCF Management
Committee

i NCF projects

The map shows the geographical distribution of NCF projects in the first three calls for proposals. Projects have been implemented or are being implemented in 18 countries in Africa, Asia and Latin America.

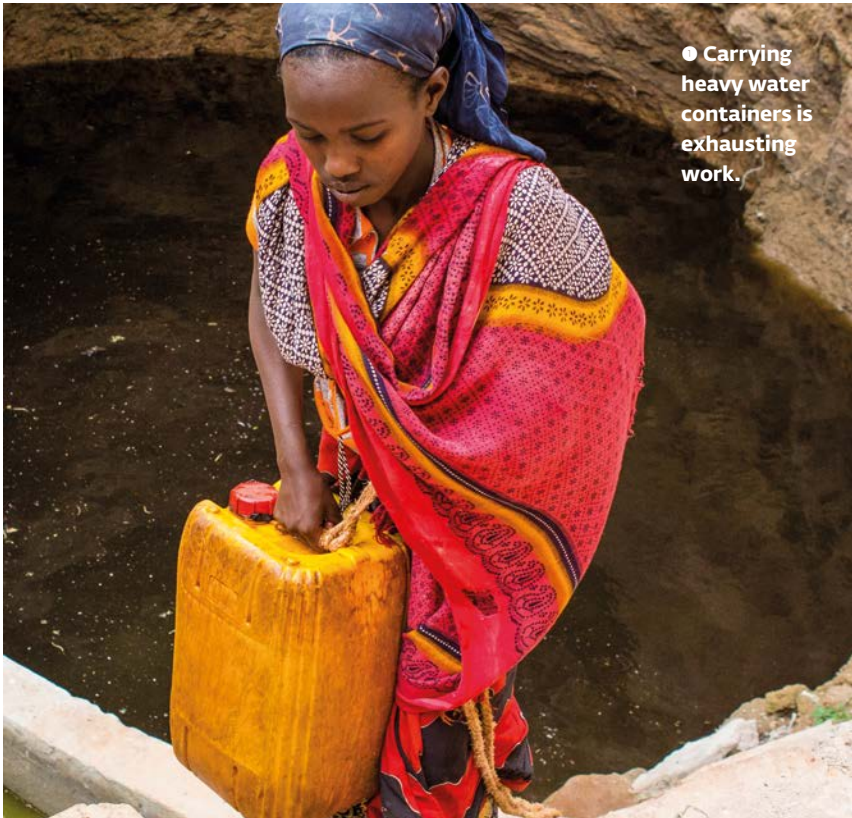


Country	No. of projects*
01 Bangladesh	1
02 Benin	1
03 Bolivia	3
04 Burkina Faso	1
05 Cambodia	2
06 Ethiopia	3

Country	No. of projects*
07 Ghana	4
08 Kenya	8
09 Laos	1
10 Malawi	2
11 Mozambique	1
12 Nepal	2

Country	No. of projects*
13 Nicaragua	1
14 Sri Lanka	1
15 Rwanda	3
16 Tanzania	4
17 Uganda	5
18 Vietnam	2

* inc. some multi-country projects



● Carrying heavy water containers is exhausting work.

PHOTO: MARICHAN/SHUTTERSTOCK.COM

NEW PROJECTS

NCF4 promotes green growth through private sector development

CONTRACT NEGOTIATIONS are now on-going with 12 applicants. The NCF 4 received a total of 96 pre-qualifications, 24 of which were invited to submit a final application. Selected projects show a strong focus on Africa, as has been the case in previous NCF calls. The projects are also equally divided between mitigation and adaptation.

PRIZES

NCF project awarded

THE CDM programme Improved Cook Stoves for East Africa has been awarded as the 2014 Innovative Energy Project. The award is distributed by the Association of Energy Engineers in the U.S. The programme, implemented by the Uganda Carbon Bureau, has received financing from the first NCF Call for Proposals. The project makes improved and energy efficient cook stoves more accessible to low income households by providing distributors access to carbon finance. By making the cook stoves affordable and available to all households across Africa and by supporting the replacement of traditional stoves, the greenhouse gas emissions are lowered and deforestation is reduced.

CASE STUDY

Nordic Working Group for Global Climate Negotiations (NOAK) uses NCF as a case study

THE NORDIC Working Group for Global Climate Negotiations (NOAK) is financing a study on "Nordic Climate Finance Opportunities – the NCF Case Study". The objective of the study is, using some NCF projects as an example, to analyse how Nordic experiences could be further utilized in the general on-going negotiations on pre- and post-2020 climate finance. One of the big questions is how private finance can be tied to public funding structures to ensure

sufficient funding for mitigation and adaptation activities. NCF can provide a valuable example of a mechanism that complements and facilitates private climate financing. Another key issue is technology transfer. Many NCF projects have a clear link to grass-root community level technologies that are at the core of scaling mitigation and adaptation activities in developing countries. Read more on the study on www.norden.org.

Concrete results from Nordic Climate Facility projects in Kenya - solar driven water pumps, trapezoidal bunds and state-of-the-art climate modelling

AN EMPHASIS on Africa, and especially on Kenya, emerged in the first Nordic Climate Facility call. This was apparently due to the close links and co-operation many Nordic stakeholders have in Kenya. Also the theme of the call was spot-on: adaptation and water resources. Arid and semi-arid lands constitute about 80% of Kenya's land, and in 2011 the freshwater resources of Kenya were only 492 m³ per capita accord-

ing to the World Bank. Furthermore, Kenya has high climate variability, which is likely to intensify due to climate change. Access to water is one of the key steps towards development. The three projects featured in the next pages of this newsletter showcase actions to secure water supply, enable water harvesting and enhance water resource management – all crucial in securing access to water in Kenya.



→ Life is centred around fresh water wells on the Kenyan countryside.

Highlights

- More than 15,000 people living in the Isiolo district have now **improved access to safe water** due to LIFELINK technology and 90% of them have **improved knowledge on hygiene and sanitation issues**.
- Niras Natura's project has made a **positive contribution to household income and food security** by constructing 49 trapezoidal bunds (i.e. small dams) and 719 microcatchments reaching out to approximately 13,500 persons including 2,000 school children.
- Orgut's project has resulted in a **detailed Regional Climate Modelling** for the whole of Kenya up to the year 2100.

PHOTO: UNOSR/SHUTTERSTOCK.COM



PHOTO: STEFFEN FORSTER - SHUTTERSTOCK



Communities considered the provision of water through the Lifelink supported system as most effective given that water is among the highest-ranked community need.

1

CASE STUDY

Innovative water technology

The Danish Red Cross teamed up with the Kenyan Red Cross Society and Grundfos from Denmark to install Grundfos Lifelink water supply systems in nine communities in the Isiolo District in north-eastern Kenya. Prolonged droughts had overstretched the communities' water supplies, thus reducing livestock production, creating food insecurity and increasing the incidence of water-borne diseases. A significant percentage of the population is also dependant on food aid.

Lifelink is a novel turnkey water supply solution, which consists of a solar panel driven pump submersed into a borehole. Its uniqueness lies in the payment system developed by Grundfos with the Kenyan mobile company Safaricom: the users tap the water from the automatic water dispenser using a user key. With commonly used mobile phones, the community members can transfer credit to the user

key via a mobile banking system called M-PESA. In order to ensure sustainability, the system is fitted with a surveillance unit that allows remote monitoring of the plant's operation via the internet. The Lifelink concept also includes a service contract, where a local service team is in charge of service and maintenance activities. Maintenance is covered by water payments.

Adaptation to climate change

While for the 15,000 beneficiaries the Lifelink project was about clean drinking water, for NCF the project was first and foremost a climate project. Whilst replacing diesel pumps with solar-driven pumps has created some mitigation impacts, the key purpose of the project was to increase local capacity to adapt to climate change by enhancing access to a safe water resource. Grundfos is guaranteeing the maintenance for 10 years. The project has also been a test-bed for a public-private-partnership between the partners. Installed water systems can pave the way for more public-private-partnerships in development efforts and in combating climate change.



PHOTO: GRUNDFOS HOLDING A/S

←A solar panel driven water pump at work in Isiolo, Kenya.

↔ Soap and water. What a marvellous mixture!

CASE STUDY

Water harvesting for pastoralist communities



PHOTO: SUJI OMENO

Various forms of water harvesting (WH) have been used for centuries mainly in the arid regions of the Middle East to increase crop yields in low-rainfall areas. In Africa, awareness of the potential of WH arose in the 1970s and the first serious attempts at introducing WH techniques were made during the drought of the early 1980s. Conditions deteriorated to a famine covering most of East Africa. Most of these early attempts, however, failed due to not only a lack of technical “know how” but often also because the approach chosen was inappropriate given the prevailing socio-economic conditions.

Appropriate Development Consultants Ltd, ADCL, a local Kenyan firm in cooperation with Niras Natura AB (Sweden) and the National Agriculture and Livestock Extension Programme (NALEP) and Ministry of Water and Irrigation, Kenya, implemented an NCF funded project that developed trapezoidal bunds and micro-catchments at five selected sites in arid and semi-arid areas in Samburu, Mwingi and Isiolo.

ADCL's Moshe Finkel has constructed trapezoidal bunds for decades; in the 1980s he designed and constructed the first bunds in Kakuma and elsewhere in Turkana, Kenya. Twenty-three of the trapezoidal bunds constructed have remained functional for nearly 30 years, producing sorghum, mung beans and cowpeas.

Despite the successes, the technology has not yet really caught on. Bunds are ‘small dams’ constructed to harvest water. The water is stored in the soil profile and the crops are sown within the area of the bund. While the design may appear simple, proper engineering and rainfall/run-off analysis are needed to capture water in an optimal way and to prevent breakages during the rainy season. Besides this, appropriate crop varieties to be cultivated in

the bunds need to be carefully chosen to take into account the variable water level.

Around 48,200 m² of cultivated land

Trapezoidal bunds have mostly been constructed by local people, thus securing local ownership and suitability to the prevailing socio-economic conditions. A total of 49 trapezoidal bunds to harvest water were constructed on communal and private land as well as on school grounds. The bunds correspond to a total area of around 48,200 m² of cultivated land benefitting a total of 13,500 people, including 2,000 school children, with improved household income and food security – key ingredients also for climate change resilience.

↙ **Harvesting the** crop yield in Central Kenya.

↓ **Water pumping** system using wind power in the Kenyan highlands.



PHOTO: FRANCOIS LOUBSER - SHUTTERSTOCK



“I used to walk for an hour and wait to fetch water for another hour, now I use about less than 10 minutes to do all that.”

FEMALE COMMUNITY BENEFICIARY

CASE STUDY

Climate modelling and adaptive capacity

“NCF support has provided intellectual inputs to all levels of water resources management in Kenya. As a result, there is a greater understanding of the implications of climate change and an increased ability of water resource users to plan and implement practical adaptation measures”

JEREMY NOTLEY
ORGUT Kenya

While more scientific evidence is constantly emerging, there are still uncertainties regarding the expected impacts of climate change – especially regionally. The key question ORGUT Consulting AB (Sweden) and their Kenyan office is trying to answer is: What are we adapting to?

ORGUT is not alone. It has teamed up with Water Resource Management Authority, Water Services Trust Fund and a local consulting company, Rural Focus Ltd, to find an answer. Key external expertise has been provided by DHI (Denmark) and the UK Met Office Hadley Centre – one of the leading institutions in climate modelling. The main beneficiaries are Water Resource User Associations, which are voluntary local level associations in charge of the proper management of the scarce water resources in Kenya.

The complex and collaborative project has operated at various levels and resulted firstly in detailed (50 km * 50 km) Regional Climate Modelling for the whole of Kenya up to the year 2100 and Rainfall-Runoff modelling in eight selected catchments. Secondly, the project has provided practical guidelines on adaptation and implemented concrete actions to address climate change in the six sub-catchments to improve their adaptive capacity.

Warmer climate and increased river flows

In line with previous studies, the analysis suggests a general significant warming of the area. The modelling is based on a “business-as-usual” emissions scenario. The increase in temperature – as compared to 1961–1990 – may vary from 0°C to 3°C for the “near future” 2020–2049, while the simulations predict an increase in temperature of 2.5°C to 6°C for the “far future” (2070–2099). A clear gradient seems to emerge between the coast and the western side of the country. Higher temperatures result in increased evapo-

ration and precipitation inland, whereas the coast may be drier. Erratic weather patterns may result in flash floods and recurrent droughts.

Rainfall-Runoff simulations indicate a slight to considerable increase (5–30%) in the annual runoff for 2020–2049 and a very considerable increase (25–60 %) in the annual runoff in the “far future”, with some very erratic flow characteristics in one catchment. The predicted flow increases especially in the “near future” are associated with uncertainty. While the predicted increase in the annual runoff is good news, the future also means a situation where rising temperatures and increased potential evapotranspiration will imply higher water demands and increased water losses. Furthermore, predicted population growth entails increasing demand for water per capita, adding further pressure on the water resources. Thus, the projected increases in annual flow will add to the many measures required to adapt to future pressures on water resources rather than resolve them.

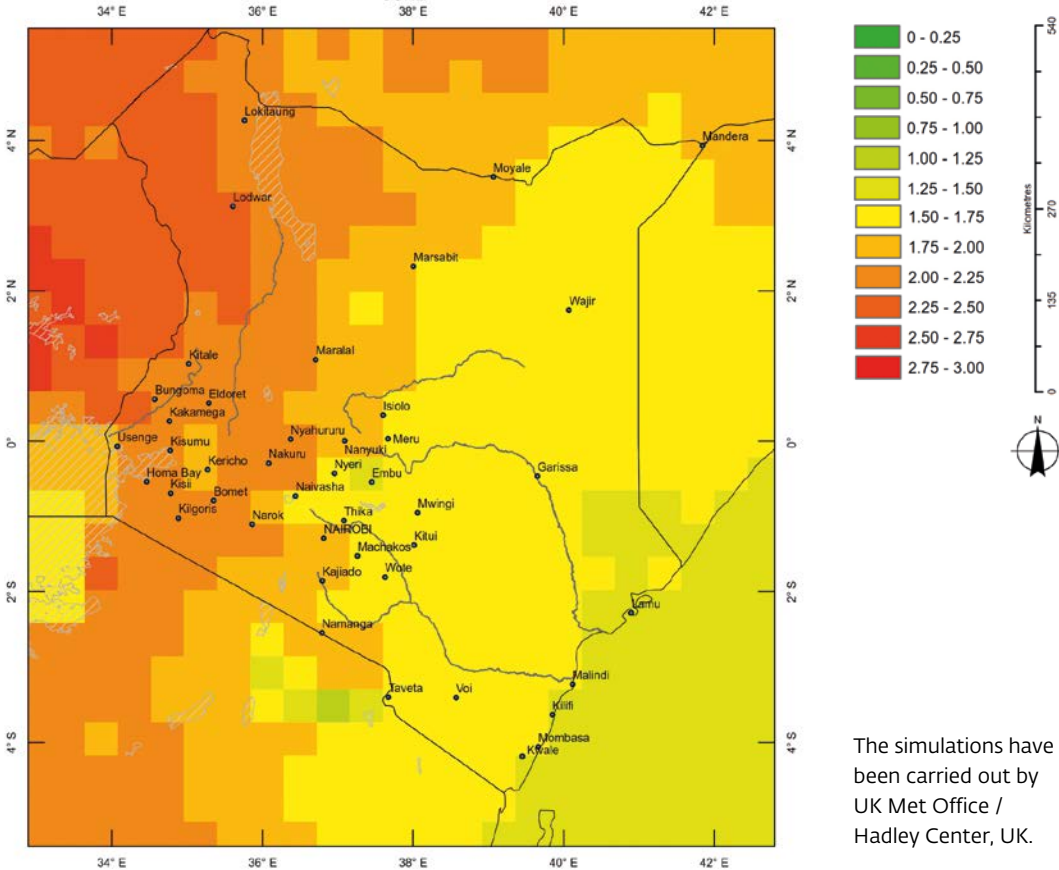
The simulations also predicted a considerable change in the seasonal distribution of the flow, with substantial increase during the winter months making the dry spell between the rains much wetter. This, combined with expected increases in temperature, is expected to have important implications on the agricultural practices in terms of crop selection, growing season and crop water demands. Thus, it has been suggested that collaboration be established with the Ministry of Agriculture on this issue. Furthermore, Water Resources Allocation models have been developed in two pilot catchments comparing present and future development scenarios.



EXAMPLE

Regional climate modelling results for Kenya

Temperature increase years 2020–2049 (“near future”) For the month of June



The simulations have been carried out by UK Met Office / Hadley Center, UK.



“The support we have received has helped us to plan and structure our operations, improve the quality of our activities and manage our financial resources.”

MAR. OCHOLLA ONG'UNBI
Awach Kano Water Resources User Association

Centres of Excellence

The project has not bypassed the vital concrete activities. Six supported local Water Resource User Associations with some 30,000 community members – ‘Centres of Excellence’ – have controlled water abstraction, modified intakes, conducted water abstraction surveys, protected river banks and controlled erosion. Nurseries and fish ponds have also been established among numerous other concrete actions including the mitigation of water resources conflicts – a major challenge in many areas in Kenya. Financial management, governance and transparency issues have also been addressed.

Awach Kano Water Resources User Association near Kisumu is one of the associations supported.

“We face severe problems in the Awach Kano catchment, upstream and downstream issues with erosion problems in the lower catchment. The support we have

received has helped us to plan and structure our operations, improve the quality of our activities and manage our financial resources,” says Mar. Ocholla Ong’unbi, Chairman of the Association.

The project demonstrated innovativeness in terms of knowledge and technology transfer, since it was the first project of its kind to cover all different steps in addressing climate change, including the actual implementation of adaptation measures. It is also worth noting that the NCF project was operated through target country institutions, thus enhancing Kenyan capacity to address climate change. The Water Resource User Associations are permanently established entities and will continue, with support from the Water Resources Management Authority and the Water Services Trust Fund, to address catchment degradation and diminishing resources.

← **The Turkana** region in northern Kenya faced one of the worst droughts in living memory in 2014.



PHOTO: EV THOMAS - SHUTTERSTOCK



PHOTO: KARIM MOSTAFA

↑ **Praising the** access to water.

NDF IS a multilateral development finance institution established by the five Nordic countries. NDF provides grant financing for climate change interventions in low-income countries.

NEFCO IS an international financial institution established by the five Nordic countries. NEFCO finances green growth investments and projects primarily in Russia, Ukraine and Belarus as well as climate projects across the world.

FOR MORE information about NCF visit: www.ndf.fi and www.nefco.org

NCF Newsletter 2014

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Quotations on page 8 and 11, Ecosard Consultants 2013: Community Based Adaptation to Climate Change Project. Evaluation Report.

Design: Nimiö
(www.nimio.fi)

Cover photograph: MShep 2 – iStock

Printhouse: Lönnberg Print Oy, Helsinki 2014

This newsletter has been printed on FSC certified paper.



441 017
Printed matter



PHOTO: SANTOSHA - ISTOCK

The Nordic Climate Facility (NCF) provides support to challenging and innovative projects that will increase low-income countries' ability to mitigate and adapt to climate change.



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