

# 10



CLEAN ENERGY  
FOR DEVELOPMENT  
INITIATIVE  
**ANNUAL REPORT  
2010**



# // IMPORTANT FOCAL POINTS FOR THE CLEAN ENERGY FOR DEVELOPMENT INITIATIVE



Norway has a long tradition providing development aid within the fields of energy, with a particular focus on hydro power. In 2007 Norway launched the Clean Energy for Development Initiative, with the core goals to increase access to clean energy and at the same time reducing emissions of greenhouse gasses, in order to contribute to sustainable economical development and poverty reduction. The initiative is carried out in co-operation with several Norwegian institutions and organizations.

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# PREFACE

// There is an urgent need for energy in the world today. In its World Energy Outlook 2010, the International Energy Agency estimated that 2.7 billion people lack access to modern energy services. Yet, global energy resources are more than adequate to meet the world's energy demands. The energy deficit is unsustainable and unacceptable.

Energy decisively impacts most aspects of human welfare, including productivity, health, education and the environment. The goal of eradicating extreme poverty and hunger cannot be met without significantly improving poor peoples' access to energy.

Norway has extensive experience in the management of both renewable and fossil energy sources. It is in order to share this experience that we have made energy a priority of Norwegian development assistance. Through the Clean Energy for Development Initiative and the Oil for Development programme Norway provides assistance to developing countries on natural resource management. I believe our assistance contributes substantially to improving our partners' energy access and petroleum management.

This annual report presents some of the activities and key achievements of the Clean Energy for Development Initiative in 2010. Through this initiative we intend to assist developing countries, at their request, in their efforts to provide increased access to renewable energy at an affordable price based on the long-term management of natural resources and efficient energy use. The initiative also aims to contribute to sustainable economic and social development in selected partner countries and to international efforts to reduce greenhouse gas emissions.

To achieve the overall goal of the initiative, Norway focuses its efforts on projects/programmes where we can offer expertise and/or make a difference in mobilising private investments, contributing to rural electrification, and strengthening relevant official institutions in our partner countries. In addition to our bilateral efforts in the field of clean energy, Norway collaborates with other development partners, with regional and multilateral institutions and non-governmental organisations. Ensuring access to energy services will need significant efforts from private sector actors. We therefore believe that local and international private investors are crucial for economic development to take place.

The Clean Energy for Development Initiative is an important part of the overall Norwegian effort to fight poverty in our partner countries. Support to clean energy will continue to be a priority in Norwegian development assistance.

**Erik Solheim**  
*Minister of the Environment  
and International Development*  
Oslo, May 2011

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# HIGHLIGHTS 2010

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## // TANZANIA

A 73 kilometre submarine cable from Tanga to Pemba was opened in June 2010, providing the island with a population of approximately 400,000 people, with a stable and reliable energy supply. Norway contributed NOK 300 million to the project.

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## // LIBERIA

In 2010, Norway finalised agreements on restoring electricity services throughout Liberia's capital Monrovia over the next 5 years. With annual support of about NOK 80 million Norway will likely be the largest bilateral contributor to the Liberian energy sector. The innovative management contract for Liberia Electricity Corporation, financed by Norway, is already yielding results with the company, turning a loss into a profit within the first 6 months of the contract.

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## // NEPAL

Norwegian support to the Alternative Energy Promotion Centre contributed to minigrid (micro-hydro) electrification of 17,000 households, household installation of 80,000 solar home systems and 90,000 improved cooking stoves.

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## // REGIONAL COOPERATION – STATNETT IN EAST AFRICA

Through the twinning arrangements between Statnett and its counterparts in Uganda and Tanzania (and Kenya currently in the planning phase), a forum for dialogue between the three countries has been initiated. Increased dialogue and interaction has led to improved regional co-operation.

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## // ENERGY AND GENDER, TANZANIA

The Embassy provided support for a project promoting gender balance in the energy sector. The project includes professional training and empowerment of female engineers to confidently hold positions and manage professional responsibilities within government, industry and business.

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## // CLIMATE

Norad provides support for development of Clean Development Mechanism (CDM) projects. Twelve PDDs (Project Design Document) have been developed as a result of the support, and a further 16 are under development. CDM registration and follow up of implementation of the investment projects will be expected in the years to come. About half of the projects supported are related to energy, while the majority of the rest are in the forestry and agro-industrial sectors.



# THE CLEAN ENERGY FOR DEVELOPMENT INITIATIVE

// Acknowledging that access to energy is a necessity in the fight against poverty and a prerequisite for economic development, the Clean Energy for Development Initiative was launched in 2007 with the following overarching goal:

*"To increase access to clean energy at an affordable price based on the long-term management of natural resources and efficient energy use. It is also intended to contribute to sustainable economic and social development in selected partner countries and to international efforts to reduce greenhouse gas emissions."*  
(Clean Energy for Development Initiative – Policy Platform)

Increased focus on energy issues and its importance in the climate agenda, coupled with a significant increase of funds allocated to energy related activities within Norwegian development aid, required better coordination of Norwegian efforts. The Clean Energy for Development Initiative brought this about. Although the Initiative is fairly new, Norway has been providing energy related development assistance for decades, and is a sought after partner in many of its cooperating countries.

The Clean Energy for Development Initiative encompasses various programmes and initiatives of different sizes and focuses within clean energy. It is organised under the auspices of the Section for International Development Policy at the Ministry of Foreign Affairs. The Section's energy policy director, together with the Secretariat in Norad, serve as important focal points for the overall coordination of the Initiative. Decision making and responsibility for the budget lines remain within the different appropriating units of the Ministry of Foreign Affairs, embassies, Norad and Norfund<sup>1</sup>.

The Initiative refers to everything that Norway does within clean energy in its development cooperation, and this report aims to illustrate the endeavours during 2010. The Norwegian effort is mainly focused towards areas where we believe Norway can make a difference and have a special expertise to offer. Increased focus on results management in development cooperation, has led the Initiative to begin a process of identifying a clear results framework for its activities.

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<sup>1</sup> The division of labour between these partners will be briefly introduced in the final chapter of the report on key implementing partners.

### // Results management in the Norwegian Clean Energy for Development Initiative

Results management is a priority within Norwegian development cooperation. Results management is important to ensure and communicate the effects of development programmes/projects and to develop best practice systems. Projects and programmes develop results management systems and logical models to create a basis for evaluating effects of the intervention; this is also the case for projects that fall within the Clean Energy for Development Initiative.

The various programmes and activities under the Clean Energy for Development Initiative is reviewed and assessed regularly. Reviews of smaller scale are undertaken throughout the projects cycles as part of their results management systems, while larger scale assessments are undertaken in a more strategic manner. In late 2007 a comprehensive report on overall Norwegian support to energy was released, and lessons learnt from this were taken onboard in the Clean Energy for Development Initiative. Another example of assessments and reviews that provide the Clean Energy for Development Initiative with valuable input are the three country studies undertaken in Uganda, Mozambique and Nepal in 2010. These studies looked into the possibility for leveraging private investments within the energy sector.

However, measuring effects on an aggregated level is challenging. In 2010 the work started to develop a better basis for tracking the overall impacts and outcomes of the Clean Energy for Development Initiative.

The Initiative works through various channels, and utilise various means and tools to reach Norwegian goals. Energy Norway is one actor receiving funds through the Clean Energy for Development Initiative;

### ENERGY NORWAY

#### – THE ENERGY AND DEVELOPMENT PROJECT

In 2009 Energy Norway (Energi Norge) launched a three year project on Energy and Development, with the aim to engage the commercial sector for a longer term involvement in developing countries. Energy Norway is a trade organisation representing around 270 Norwegian partners with various energy related businesses/activities. Some of the key achievements under this project:

>> Production of a compendium introducing a list of international standards for environmental and social performance in renewable energy projects to guide industrial investors.

>> Carrying out a study to identify key success factors and challenges for commercial clean energy investments in developing countries, based on project proponents experience with a sample number of projects. Norad commissioned the study as an in-kind contribution to the project.

>> Organisation of a dialogue between industry, civil society and government representatives on international standards and best practice to achieve sustainable hydropower development, including issues such as indigenous peoples, benefit sharing, human rights, national and international law, environment, anti-corruption and transparency.

Read more about Energy Norway and the Energy and Development project on: [www.energinorge.no](http://www.energinorge.no)

The private sector is another important partner, instrumental in reaching the goals set forth in the Initiative;

#### // Engaging the private sector

At the current time, 1.4 billion people live without access to electricity, and in order to overcome the major challenges of ensuring global access to electricity services, public-private partnerships are essential. Public and donor funds will not be able to finance the significant amounts needed to boost the energy sector development alone.

*“There is broad agreement that without private sector involvement, it is not possible to mobilize sufficient capital to finance required investment in Africa. A condition for increasing clean energy production, particularly in Africa, will therefore require that public authorities and/or development partners contribute to construction costs...”*

*“The Norwegian contributions will be relatively small compared with energy sector investment requirements. It will therefore be of critical importance to utilize Norwegian resources in a catalytic manner and ensure synergies with other initiatives.”<sup>2</sup>*

*(Clean Energy for Development Initiative- Policy Platform – 11/2007).*

In 2010 Norad published a report analysing and taking into account some of the bottlenecks currently hindering private investments in clean energy projects in developing countries; “Leveraging Private Investment to Clean Energy Projects: A Guidance Note for Norwegian Development Assistance”<sup>3</sup>. The report has a threefold purpose:

- I. Serve as a basis for an ongoing dialogue with stakeholders regarding the potential implementation by Norway of new clean energy Public Financing Mechanisms,
- II. Serve as a documentation of the process, approach and findings of the consultant team in arriving at a set of proposals regarding future of Norwegian efforts to mobilize private investment in clean energy in developing countries, and
- III. Serve as guidance to Norad and Ministry of Foreign Affairs staff in navigating the complexities of supporting Public Private Partnerships for the implementation of clean energy.

As noted, this is an ongoing process, and the Clean Energy for Development Initiative is constantly trying to find ways to promote and include private sector involvement in the Norwegian efforts, by using the existing tools – or through defining new ones.

#### NORFUND

Norfund is the commercial investment instrument in Norwegian development aid, with the following mandate: “to fight poverty and to create sustainable development by investing in profitable businesses in developing countries”<sup>4</sup>.

Norfund operate in Southern- and Eastern Africa, Central America, and Southeast Asia, in some of the poorest countries in the world. These areas are often connected with risk and reluctance in relation to private companies making investments. Norfund is active in these regions providing equity, directly to companies or indirectly through various funds, and also provides loans to companies willing to undertake investments. Through its investments, and transferring of knowledge and technology Norfund contributes to reduce poverty and promote economic development in these countries.

In 2010 Norfund was allocated NOK 665 million of the total Norwegian development aid budget. Furthermore in 2010 NOK 285 million were invested or financially committed by Norfund to energy projects.

In 2010 NOK 61.1 million of Norfund’s portfolio was disbursed to SN Power AfriCA<sup>5</sup>, NOK 8.7 million to the clean tech fund “Evolution one” and NOK 11.6 million was disbursed to renewable energy grant facilities. In addition, during 2010 Norfund signed agreements totalling NOK 332 million for upcoming investments in renewable energy projects.

Read more about Norfund on [www.norfund.no](http://www.norfund.no)

<sup>2</sup> See: [www.regjeringen.no/nb/dep/ud/dok/rapporter\\_planer/planer/2007/ren\\_energi\\_utviklingsarbeidet.html?id=489316](http://www.regjeringen.no/nb/dep/ud/dok/rapporter_planer/planer/2007/ren_energi_utviklingsarbeidet.html?id=489316) Translated by author, 6 May 2011.

<sup>3</sup> See [www.norad.no/en/Tools+and+publications/PublicationsPublication+Page?key=197936](http://www.norad.no/en/Tools+and+publications/PublicationsPublication+Page?key=197936)

<sup>4</sup> [www.norfund.no/index.php?lang=en](http://www.norfund.no/index.php?lang=en)

<sup>5</sup> For more information on SN Power (Norfund owns 40 % of SN Power) and SN Power AfriCA see: [www.snpower.com](http://www.snpower.com)

### // Institutional cooperation

In order to reach the goals set forth in the Clean Energy for Development Initiative Norwegian funds are often utilised to assist in developing a well functioning framework of institutions, policies, rules and regulations etc. in the energy sector. Capacity building and institutional strengthening is therefore of great significance for the overall Norwegian energy efforts. In several of the countries where Norway engages in the energy sector we depend on assistance and expertise from some key partners to support the capacity building and institutional strengthening activities.

Norad has entered into a framework agreement with the Norwegian Water Resources and Energy Directorate (NVE), to draw upon NVE's extensive competence and experience within energy and water resource management in our dialogue with partners institutions in developing countries.

Statnett, the Norwegian Transmission System Operator, is another key partner. NVE and Statnett are essential in implementing the Clean Energy for Development Initiative. They contribute with expertise in their field and are sought after partners when it comes to institutional cooperation. The International Centre for Hydropower (ICH) also holds a strong position as a capacity building institution in the field of developing clean energy projects. Other key partners and their contribution to the Clean Energy for Development Initiative will be introduced later.

### // Cross-cutting issues

The Clean Energy for Development Initiative aims to integrate various cross-cutting issues in all its programmes and activities. Anti-corruption, environmental issues, social and human rights, gender, indigenous peoples' rights etc. are dealt with at different levels and at different stages.



Preparing the foundation for Garuai hydro power station

Photo: Ken Opprann

Investments in energy projects are important for development. However, many components might threaten the projects' sustainability. To ensure sustainability the projects need to balance commercial interests with social and environmental safeguards. Construction projects will often create new dynamics and affect the local population on areas such as land acquisition, resettlement and land use. Projects may lead to destruction of natural habitats and cultural property, and indigenous people may be affected. Migrant workers might pose a challenge as their presence can lead to increased disease infection rates (Sexually Transmitted Diseases and HIV/Aids) and pressure on local public services. Further, it is acknowledged that corruption and misuse of resources are risk factors when initiating new cash flows.

Through the Norwegian support to the abovementioned Energy and Development program Norad takes part in a dialogue on sustainable energy investments. Together with representatives from private sector active in the energy sector, NGOs and government issues regarding sustainable energy investments are discussed, with particular focus on indigenous people's rights, benefit sharing, human rights, national and international law, corruption, transparency and environment etc.

In relation to environment, the Initiative's Policy Platform stresses that there is a need to operationalise the goals of the Government's Action Plan for Environment in Development Cooperation<sup>6</sup> from 2006. The Clean Energy for Development Initiative is therefore a way to fulfil this task within the clean energy sector.

The social context in relation to energy, looking at different end users of energy sources and how access to electricity affects men and women differently, is of great importance. In 2010 there has been an increased focus on gender issues in the Oil for Development Programme<sup>7</sup> and the Clean Energy for Development Initiative:

## **GENDER**

Gender mainstreaming in the Oil for Development Programme and the Clean Energy for Development Initiative is the systematic process of integrating the different needs, interests and priorities of men and women in policies and activities of institutions in the energy sector. The process implies the use of gender analysis, development of gender strategies and action plans, establishing gender disaggregated data and baselines, adjusting energy program result matrixes as well as documentation of results of activities targeting gender equality.

The focus on women's rights and gender equality continues to be weak especially in the energy sector.

Norad has entered into a 3 year framework agreement with Energia – a leading international network on gender and sustainable energy, that works to create an institutional base for mainstreaming gender into the energy sector in developing countries. Energia produced a progress report and toolkit with suggestions on how to target gender entry points in the Oil for Development and Clean Energy for Development Initiative.

Development of a strategy for gender mainstreaming in energy programs was initiated and will be finalised in 2011. This is the first strategy Norad has developed for gender mainstreaming in a sector. In addition Norad, together with NVE, started the planning of a gender and energy seminar, targeting female participants from NVE's partner institutions in the countries where NVE has contributed with capacity building activities. The seminar will be held in 2011. A background paper for the upcoming World Development Report 2012, focusing on gender, has been written. The paper is an in-depth discussion on the cultural and institutional factors which affect the use and outcome of different technologies and the implications such factors may have upon policy.

<sup>6</sup> [www.regjeringen.no/upload/UD/Vedlegg/Utvikling/ActPlanEnv.pdf](http://www.regjeringen.no/upload/UD/Vedlegg/Utvikling/ActPlanEnv.pdf)

<sup>7</sup> The Oil for Development Programme is a Norwegian initiative to: "assist developing countries, upon their request, in their efforts to manage petroleum resources in a way that generates economic growth and promotes the welfare of the whole population in an environmentally sustainable way" ([www.norad.no/en/Thematic+areas/Energy/Oil+for+Development/Oil+for+Development.127154.cms](http://www.norad.no/en/Thematic+areas/Energy/Oil+for+Development/Oil+for+Development.127154.cms)). Read more about this programme at [www.norad.no](http://www.norad.no).

## // Financial overview

The various activities under the Clean Energy for Development Initiative are financed from different budget lines under the Development Assistance Budget. Most importantly of these are the allocations from the Ministry of Foreign Affairs to the different embassies with a clean energy portfolio.

There has been a steady increase in funds allocated to clean energy activities during recent years, both within multilateral and bilateral development assistance. Total bilateral spending in 2010 was just above NOK 700 million. In addition to this there is the funds allocated to Norfund, which in 2010 amounted to NOK 285 million.

In addition to the bilateral efforts, Norway provides significant funds to clean energy through various multilateral channels. In 2010 approximately NOK 156 million was allocated to energy through multilateral channels. However, overall Norwegian support through multilateral channels is often given as core support, not earmarked for specific sectors. In addition, Norwegian funds might be reported as support to environment although significant shares of the support might be channelled to energy related activities (energy being a sub category). This implies that the figure mentioned above, and the figures illustrated below, represent an underestimation of the total Norwegian development assistance to clean energy activities.

Figure 1 illustrates bilateral assistance to clean energy over the period 2005 to 2010. The increased allocation to clean energy over the years is clearly visible, as is also the importance of funds invested by Norfund within the Clean Energy for Development Initiative. During the 6 year period from 2005 until 2010 a total of approximately NOK 5.7 billion was allocated bilaterally to development cooperation on clean energy.

Figure 2 illustrates the division of funds allocated through Bilateral vs. Multilateral channels over the period from 2005 to 2010. In light of the above elaboration it is again stressed that the multilateral portion is significantly underestimated. However the figure shows a general trend of increased support to energy also in the Norwegian support to multilateral efforts.

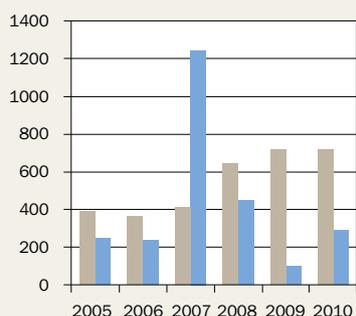
Figure 3 shows development assistance to clean energy by type of assistance. The core of the Norwegian support is directed towards energy policy and administrative planning, power generation (renewable sources) and electricity transmission and distribution. Continued focus on support to these sectors over the years are a result of this being areas where Norway holds special expertise, and where it is believed that Norwegian support can contribute to making a difference. Support to energy policy and administrative planning is furthermore believed to be important for creating a framework in which the energy sector can prosper, and for attracting private investments.

Figure 4 illustrates how the Norwegian assistance is distributed between regions covered by the Clean Energy for Development Initiative. Remaining allocations are illustrated as 'global'. Africa is the biggest recipient of Norwegian development assistance within clean energy.

Figure 5 illustrates the division of funds allocated to the seven core countries in the Clean Energy for Development Initiative. Tanzania was the country receiving the largest allocation of funds in 2010.

**Figure 1**

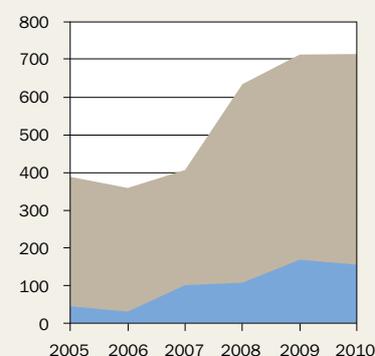
Bilateral assistance to clean energy in NOK million over the period 2005-2010



● Development Assistance excl Norfund (mill NOK)  
● Norfund (mill NOK)

**Figure 2**

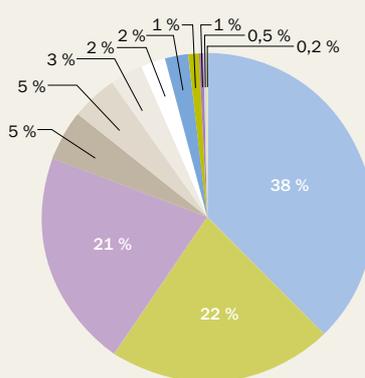
Bilateral vs. multilateral assistance to clean energy over the period 2005-2010 (excluding investments through Norfund)



● Other excl Norfund  
● Multilateral institutions

**Figure 3**

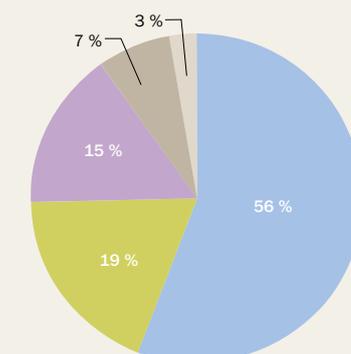
Assistance to clean energy in 2010 by type of assistance (excluding investments through Norfund)



● Electrical transmission/distribution – 38 %  
● Power generation/renewable sources – 22 %  
● Energy policy and administrative planning – 21 %  
● Hydro-electric power plants – 5 %  
● Energy education and training – 5 %  
● Oil-fired power plants – 3 %  
● Solar energy – 2 %  
● Biomass – 2 %  
● Energy research – 1 %  
● Wind power – 1 %  
● Power generation/nonrenewable sources – 0,5 %  
● Gas distribution – 0,2 %  
● Gas-fired power plants – 0 %  
● Geothermal energy – 0 %

**Figure 4**

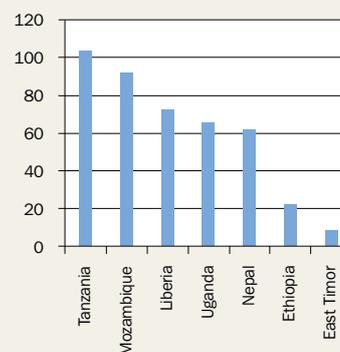
Assistance to clean energy by region in 2010



● Africa – 56 %  
● Asia – 19 %  
● Global – 15 %  
● Europe and Eurasia – 7 %  
● Latin America – 3 %

**Figure 5**

Assistance to clean energy in priority countries in 2010 in NOK million (excluding investments through Norfund)



## // Structure of the report

As noted above, this report aims to illustrate the Norwegian efforts within clean energy in 2010. The report is divided into different sections, trying to separate the various efforts and parties through which funds were channelled.

The report starts out with an introduction of Norwegian bilateral efforts, and first introduces the seven core cooperating countries. Thereafter the other development aid recipient countries with a clean energy portfolio are introduced.

Next the report introduces the regional efforts receiving Norwegian funds. Following from this is the multilateral organisations and institutions administering Norwegian clean energy funds. Finally, the report gives an introduction of the key implementing partners. Here one can also find a more insightful elaboration on the division of labour and the different roles and responsibilities among – and within those actors with budgetary responsibilities within the Clean Energy for Development Initiative.

Read more about the Clean Energy for Development Initiative on [www.norad.no](http://www.norad.no)



Photo: Ken Opprann

# BILATERAL COOPERATION

// Bilateral cooperation in the Clean Energy for Development Initiative is particularly focused on areas where there is a demand for Norwegian expertise, and where it is believed we can make a difference.<sup>8</sup>

In core countries, the bilateral cooperation is extensive and covers many areas within the energy sector. The core countries for bilateral cooperation within the Clean Energy for Development Initiative are: Ethiopia, Liberia, Mozambique, Nepal, Tanzania, Timor-Leste and Uganda. There are historical and political reasons why these countries are core countries; however they have some of the following features in common:

>> Cooperation within energy has been ongoing for some time, and agreements entered into are of long term perspective;

>> the Norwegian support is focused towards contributing to sustainable environmental and social management of natural resources, and reduced emissions;

>> the support contributes to increased access to renewable energy, and promotion of clean energy technologies for households; and

>> the support aims to leverage commercial investments in order to transfer competence and capital

In addition to these core countries, Norway has programmes with other (non-core) countries that vary in content and size. In some of these countries, Norway promotes private sector development by supporting projects initiated by private actors.

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<sup>8</sup> In 2010 a dialogue was initiated on reviewing the Norwegian criteria for the bilateral support within the Clean Energy for Development Initiative.

# BILATERAL COOPERATION CORE COUNTRIES

Ethiopia

Liberia

Mozambique

Nepal

Tanzania

Timor-Leste

Uganda



The Blue Nile

Photo: David A. Wright

In Ethiopia the national level of electrification stands at 14 % while for urban areas it is more than 40%. Annual per capita consumption is approximately 100 kWh.

Development of clean energy sources is an important element in the Clean Energy for Development Initiative, and Norway has long supported the development of hydropower resources in Ethiopia. Developing Ethiopia's hydropower resources is crucial to underpin the country's overall economic development and industrialization efforts, and make the development sustainable. Ethiopia and Norway both have large hydropower potentials, and as Norway's potential is substantially developed Norwegian support can assist Ethiopia do the same through sharing experience from this development.

In late 2009 Norway entered into a new agreement with the Ethiopian government to finance the feasibility, environmental and social studies for the Mandaya and Beko-Abo Multipurpose projects in the Blue Nile basin. The Ministry of Water and Energy is entrusted with the position of Executing Agency for the Norwegian sponsored feasibility studies. The agreement includes capacity building and technical assistance within the Ministry through an institutional cooperation with the Norwegian Water Resources

and Energy Directorate. Long term management of natural resources and development of a well functioning framework for the energy sector makes this agreement highly relevant for the Clean Energy for Development Initiative. The bilateral agreement has allowed for a complementary study of flows and sediment transports, to be measured during the 2008, 2009 and 2010 flood seasons. It is the intention that this data should be made available to the feasibility studies.

In conjunction with the above Norway also entered into an agreement with the Eastern Nile Technical Regional Office (ENTRO) on technical support to facilitate regional consultations and information sharing between the three Eastern Nile countries – Egypt, Sudan and Ethiopia – in relation to the feasibility studies for the Mandaya and Beko-Abo multipurpose projects, and to ensure coordination between ENTRO's Joint Multipurpose Program (JMP) and the feasibility studies.

The Norwegian support to the East African Power Pool (EAPP) Coordination Centre and Independent Regulatory Body (IRB) is administered by the Norwegian Embassy in Ethiopia. This project will be introduced in the chapter on regional cooperation.

# ETHIOPIA // ONGOING PROJECTS

16



ETHIOPIA



#### OFFICIAL NAME

Federal Democratic Republic of Ethiopia

#### CAPITAL

Addis Ababa

#### HEAD OF STATE

President GIRMA Woldegiorgis

#### HEAD OF GOVERNMENT

Prime Minister MELES Zenawi

#### POPULATION

85,237,338 (July 2009 est.)

#### ELECTRICITY CONSUMPTION

3,264.GWh (EEPCCO 2010 strategic planning and programming report)

#### ELECTRICITY PRODUCTION

3,981GWh (EEPCCO 2010 strategic planning and programming report)

#### NUMBER OF CUSTOMERS

1.89 million

#### CURRENT INSTALLED CAPACITY

2,100 MW

## // FEASIBILITY STUDIES FOR THE BEKO-ABO AND MANDAYA

### MULTIPURPOSE PROJECTS WHICH COMPRISE:

>> Pre-feasibility study of Beko-Abo (which will most likely continue to a full technical feasibility study of Beko-Abo if recommended by the pre-feasibility study)

>> Full technical feasibility study of Mandaya

>> Full environmental and socio-economic impact assessment by an independent consultancy team.

>> Capacity building program NVE and Ministry of Water and Energy (MoWE): Project Management Support & Procurement Support & Capacity building

### OBJECTIVES

The objectives of the feasibility studies are to enable the Ethiopian government to make informed decisions on future multipurpose development as well as to enable the region to prioritise future developments on the Blue Nile.

### COOPERATING INSTITUTIONS

>> Ministry of Finance and Economic Development, as a signatory.

>> Ministry of Water and Energy (MoWE), as an implementer.

>> Eastern Nile Technical Regional Office, as regional facilitator.

>> NVE for the capacity building and technical assistance to Ministry of Water and Energy.

### PROJECT PERIOD

2009–2012

### TOTAL BUDGET

NOK 135.3 million

### DISBURSED IN 2010

NOK 20.6 million

## // CAPACITY BUILDING PROGRAM NVE AND MINISTRY OF WATER AND ENERGY (MOWE): PROJECT MANAGEMENT SUPPORT & PROCUREMENT SUPPORT & CAPACITY BUILDING

### OBJECTIVES

The objective of the project is capacity building of and support to the executing agency MoWE in:

i) Implementation of two feasibility and EIA/SIA studies, and;

ii) Capacity Building of MoWE in project management and procurement and hydrological services.

**COOPERATING INSTITUTIONS**

>> Ministry of Water and Energy (MoWE)

>> NVE for capacity building and technical assistance to Ministry of Water and Energy

**PROJECT PERIOD**

2010–2012

**TOTAL BUDGET**

NOK 17.5 million

(Part of the 135.3 million budget for the “Feasibility studies for the Beko-Abo and Mandaya” project)

**DISBURSED IN 2010**

From the Embassy: Included in the NOK 20.6 million (disbursed under the “Feasibility studies for the Beko-Abo and Mandaya” project)

From Norad: 1.3 million NOK

**// TECHNICAL SUPPORT TO EASTERN NILE TECHNICAL REGIONAL OFFICE (ENTRO) TO FACILITATE CONSULTATIONS AND REGIONAL ACTIVITIES FOR THE FEASIBILITY STUDIES OF MANDAYA AND BEKO ABO MULTIPURPOSE PROJECTS**

This project comprises three major components, each having their specific tasks.

1. Overall coordination of activities for Eastern Nile Technical Regional Office (ENTRO) technical support;
2. Data collection and information exchange
3. Regional consultation, capacity building, and institutional strengthening

**OBJECTIVES**

Ensure linkage and synergy between the Feasibility Study of Mandaya and Beko Abo and the Joint Multipurpose Program 1 Identification (JMP1 ID) for consensus in regional cooperation among the three Eastern Nile countries.

**COOPERATING INSTITUTION**

>> Governments of Ethiopia, Sudan and Egypt

>> Consultants procured for feasibility studies

>> The Joint Multipurpose Project implemented by ENTRO

**PROJECT PERIOD**

2009–2012

**TOTAL BUDGET**

NOK 6 million

**DISBURSED IN 2010**

NOK 553,000

**KEY ACHIEVEMENTS****IN ETHIOPIA 2010**

The technical and EIA/SEIA consultancy firms signed independent contracts with the MoWE;

Technical documents (draft Inception report and draft pre-feasibility Study report of Beko Abo, draft inception report and draft EIA/SE/A of Mandaya) were submitted by the respective consultancy firms and commented upon;

NVE and MoWE signed an institutional cooperation agreement for capacity building and technical assistance

Sediment and flood data secured.

A workshop was organised by MoWE and NVE and capacity needs assessed and identified;

ENTRO effected the procurement of project staff and technical consultants



Mt. Coffee hydropower station

Photo: Tor Morten Sneve, Norad

According to a recent World Bank study, Liberia is probably the country with the lowest access rate to a public electricity network in the world (currently less than 1%). Norway is committed to supporting the rebuilding of the power sector in Liberia, which was decimated during the civil wars from 1989 to 2003. In 2010, Norway finalised agreements which will likely make it the largest bilateral contributor to restoring electricity services throughout the capital Monrovia over the next 5 years, with about NOK 80 million per year. The centre piece of this support is the 5-year management contract for the Liberian Electricity Corporation (LEC), and Manitoba Hydro International was selected as Operator from July 1st, 2010. The contract has enabled Norway and other donors to cooperatively work towards Liberia's goals by channelling significant investment contributions to the sector so as to enable an increase in connections from some 2,500 today to well over 35,000 in 2014. Liberia has ambitious plans concerning renewable energy production and Norway's contribution to strengthening and extending the network is an essential component to realizing these ambitions.

More broadly, the power sector in Liberia is still very small and Norway is now involved in nearly all aspects of the sector's development, supporting the following activities:

- >> Critical generation and distribution installations through the Monrovia "Gaps" Project, which should allow for some 3,500 new connections.
- >> The Management Contract.
- >> A program agreement committing up to NOK 189 million over 5 years to the implementation of LEC's investment plans has been signed, with first disbursements already made.
- >> An institutional program between NVE and Ministry of Lands, Mines and Energy (MLME) (2010 to 2015)

The overall energy programme in Liberia targets many important elements of the Clean Energy for Development Initiative; access to clean energy, pro-poor approach, gender mainstreaming, long term management of natural resources, well functioning and transparent framework for the energy sector and sustainable economic and social development.

# LIBERIA //

## ONGOING PROJECTS



### LIBERIA



**OFFICIAL NAME**  
Republic of Liberia

**CAPITAL**  
Monrovia

**HEAD OF STATE**  
President Ellen JOHNSON SIRLEAF

**HEAD OF GOVERNMENT**  
President Ellen JOHNSON SIRLEAF

**POPULATION**  
3,441,791 (July 2009 est.)

**ELECTRICITY CONSUMPTION**  
23 GWh (2010 est)

**ELECTRICITY PRODUCTION**  
29 GWh (2010 est)

**NUMBER OF CUSTOMERS**  
2,403 (Oct 2010)

**CURRENT INSTALLED CAPACITY**  
9 MW (Oct 2010)

### // MANAGEMENT CONTRACT FOR LIBERIAN ELECTRICITY CORPORATION (LEC) & SUPPORT TO THE ASSOCIATED 5-YEAR INVESTMENT PROGRAM

#### OBJECTIVES OF THE PROJECT

The overall objective of this support is to put in place an international operator who will manage LEC for 5 years and thereby:

>> Establish LEC as a competent, professional, financially robust and responsible electric utility.

>> Significantly improve electricity services throughout Monrovia, reduce sector costs and thereby electricity prices, and enable LEC to effectively manage donor contributions so as to achieve at least 30,000 new connections.

#### COOPERATING INSTITUTIONS

>> Ministry of Lands, Mines and Energy and Liberian Electricity Corporation

>> International Finance Corporation

#### PROJECT PERIOD

2010–2015

#### TOTAL BUDGET

NOK 260 million

#### DISBURSED IN 2010

NOK 10 million

### // MONROVIA GAPS PROJECT

#### OBJECTIVES OF THE PROJECT

The overall objective of the project is to improve access to electricity among the residents of Monrovia, as well as the overall performance of the Monrovia grid, and thereby LEC. Additionally, the project should improve safety through installing street lights, and reduce the use of costly and environmentally damaging small diesel generators.

#### COOPERATING INSTITUTION

Liberian Electricity Corporation

#### PROJECT PERIOD

2009–2011

#### TOTAL BUDGET

NOK 82 million

#### DISBURSED IN 2010

NOK 55 million

## // INSTITUTIONAL COOPERATION BETWEEN MLME AND NVE 2010–2015

### OBJECTIVES OF THE PROJECT

The overall goal of the institutional cooperation is to contribute to the economic and social development of Liberia. This will be approached by helping to develop skills at monitoring and managing water and energy resources through capacity building at the Ministry of Lands, Mines and Energy.

### COOPERATING INSTITUTIONS

>> Ministry of Lands, Mines and Energy

>> NVE

### PROJECT PERIOD

2010–2015

### TOTAL BUDGET

NOK 51 million

### DISBURSED IN 2010

NOK 380 000

### KEY ACHIEVEMENTS IN LIBERIA 2010

All agreements concerning the 5-year power sector support program to Liberia have been signed and are now operational and Norway is likely to emerge as the largest single donor in the sector during the period.

Manitoba Hydro, in a joint venture with Kenyan Power and Light Corporation, took over full management of LEC when the Management Contract commenced in July 2010. A consulting company was recruited to assist the Board of LEC.

Immediate and significant improvements realised during the first 6-months of the Management Contract on the full range of KPIs for LEC, as well as the cash flow position of the company. Procurement processes have been initiated which should allow LEC to connect more than 10,000 new customers during 2011.

3MW of new generation were commissioned in December, which is now providing desperately needed power to Monrovia. Additionally, 100 solar street lights have been installed to illuminate the highway to the airport.

Key planning and inception activities concerning the institutional cooperation between MLME and NVE have been initiated.

It is widely recognised that the Norwegian contributions have been and continue to be instrumental to the signing and future implementation of the hydro electric project Mt. Coffee and/or other more efficient renewable energy solutions.



Transmission line between Swaziland and Mozambique

Photo: Hans Terje Ylvisåker, NVE

In Mozambique only 13 % of the population has access to electricity (approximately 20% of the urban population and 2% of the rural). The country's hydropower resources are significantly undeveloped. If used to increase production, hydropower development may contribute to poverty reduction through modernisation, industrialisation, increased revenues from power exports, and better employment opportunities. More immediate benefits are electrification of social infrastructure such as schools, hospitals and street lights, as well as increased access to electricity for the large share of the population who at present rely on traditional biomass which has detrimental effects on health and limited development potential. Sustainability is, however, a challenge due to low tariffs and low purchasing power among domestic clients. The number of large customers is presently not high enough to make it possible to establish sustainable cross-subsidy schemes.

Mozambique is one of Norway's main development partners within the field of clean energy. In 2010 five main projects were under implementation in Mozambique. In addition a preparatory phase for scaling up support for off-grid clean energy was started, including solar, mini hydro and wind.

The Norwegian assistance aims to increase the electrification access rate and support national goals of sustainable exploration of Mozambique's renewable energy resources. This is done by supporting infrastructure, improving the

legislative framework and increasing the implementation capacity of governmental institutions. More focus has, over recent years, been on the productive use of electricity and its use as a means to achieve economic growth and create employment. Electrification, long term management of natural resources, improving the legal energy framework and energy efficiency are important elements of the Norwegian Clean Energy for Development Initiative. In 2010 bilateral energy assistance to Mozambique amounted to NOK 95 million. In addition, Norwegian assistance was channelled through multilateral organisations such as the African Development Bank and the World Bank.

In Mozambique, Norway also provides significant support through the Oil for Development Programme. It is believed that this dual role, with support and dialogue both within clean energy and Oil for Development, leads to important synergies and mutual benefits in the Norwegian cooperation with Mozambique.

Through Norad's frame agreement ENERGIA was engaged to develop a gender mainstreaming strategy in the energy cooperation with Mozambique. Needs and possibilities for strengthening gender mainstreaming within the Oil for Development and Clean Energy for Development Initiative cooperation with Mozambique were assessed and a targeted programme of support will be suggested in 2011.

# MOZAMBIQUE //

## ONGOING PROJECTS

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### MOZAMBIQUE



**OFFICIAL NAME**  
Republic of Mozambique

**CAPITAL**  
Maputo

**HEAD OF STATE**  
President Armando GUEBUZA

**HEAD OF GOVERNMENT**  
Prime Minister Aires Bonifacio Ali

**POPULATION**  
21,669,278 (July 2009 est.)

**ELECTRICITY CONSUMPTION**  
10,610 GWh (2007 est.)

**ELECTRICITY PRODUCTION**  
15,910 GWh (2007 est.)

**NUMBER OF CUSTOMERS**  
736,084 (EDM)

**CURRENT INSTALLED CAPACITY**  
EDM: 207 MW (hydro: 110 MW,  
Jet A1: 17 MW, diesel: 74 MW, gas: 6 MW)

HCB: 1920 MW (hydro)

### // INSTITUTIONAL CAPACITY BUILDING IN THE MINISTRY OF ENERGY

#### OBJECTIVES

>> Increase the impact of national energy policies by pro-actively guiding the sector.

>> Enhance the planning and regulatory functions for the power, downstream hydrocarbon and overall bio-fuel sectors as well as for the renewable energy sector, increase processing capacity, and also create the legal and socioeconomic framework to enable the sector to grow.

>> Strengthen the ability to plan for larger investments and negotiate with investors.

>> Enhance the efficiency and effectiveness of the ministry in performing its ancillary internal functions.

#### COOPERATING INSTITUTION

Ministry of Energy

#### PROJECT PERIOD

2007–2011

#### TOTAL BUDGET

NOK 30 million

#### DISBURSED IN 2010

NOK 5.4 million

### // TECHNICAL ASSISTANCE TO ELECTRICIDADE DE MOÇAMBIQUE

#### OBJECTIVES

The objective of the technical assistance is to strengthen Electricidade de

Moçambique's capacity to develop, structure, finance, promote and implement large power generation and transmission projects.

#### COOPERATING INSTITUTION

Electricidade de Moçambique

#### PROJECT PERIOD

2008–2010 (A no cost extension approved for 2011)

#### TOTAL BUDGET

NOK 13 million

#### DISBURSED IN 2010

The project is in a concluding phase, with no disbursements in 2010

### // CABO DELGADO ELECTRIFICATION PROJECT

#### OBJECTIVES

The objective of rural electrification is to contribute to socio-economic development in rural areas by promoting infrastructure improvements and stimulating economic and social activities in districts and local communities.

#### COOPERATING INSTITUTION

Electricidade de Moçambique

#### PROJECT PERIOD

2006–2010  
2010–2011 (Addendum I)

#### TOTAL BUDGET

NOK 200 million  
NOK 30 million (Addendum I)

#### DISBURSED IN 2010

NOK 54.2 million  
NOK 27.0 million (Addendum I)

### // GURUE-CUAMBA-LICHINGA TRANSMISSION SYSTEM

#### OBJECTIVES

Assist Electricidade de Moçambique with construction and development of the Gurué-Cuamba-Lichinga transmission line, and distribution lines around the same cities.

#### COOPERATING INSTITUTIONS

Electricidade de Moçambique  
Co-Financing with Sweden

#### PROJECT PERIOD

2002–2010

#### TOTAL BUDGET

NOK 189.1 million (Norway) and SEK 120 million (Sweden).

#### DISBURSED IN 2010

No disbursement in 2010, however concluding activities were undertaken.

### // MARRUPA-CUAMBA-MECANHELAS ELECTRIFICATION PROJECT

#### OBJECTIVES

Enhance economic and social development in Niassa Province, by giving households, enterprises and business increased access to electricity, as well as by improving quality of life in local communities by providing a reliable electrical power supply for public administration and services.

#### COOPERATING INSTITUTIONS

Electricidade de Moçambique Co-Financing with Sweden, with Norway acting as lead donor.

#### PROJECT PERIOD

2007–2010 (No cost extension into 2011)

#### TOTAL BUDGET

NOK 41 million (Norway), and SEK 52 million (Sweden) by 2008

#### DISBURSED IN 2010

The project is in a concluding phase, with no disbursements in 2010

### // SUPPORT TO THE NATIONAL ENERGY FUND (FUNAE)

#### OBJECTIVES

In the initial phase this is a consultancy meant to analyze FUNAE's capacity to implement off-grid rural electrification projects and where needs are identified provide capacity building. Depending on the conclusions and recommendations of the consultants the Embassy will consider entering into a long term agreement with FUNAE for off-grid energy.

#### COOPERATING INSTITUTIONS

National Energy Fund (FUNAE)

#### PROJECT PERIOD

2010–2011

#### TOTAL BUDGET

NOK 3 million for the initial phase

#### DISBURSED IN 2010

NOK 1.5 million

#### KEY ACHIEVEMENTS IN MOZAMBIQUE 2010

Strategic Plan for organisational change and staffing in the Ministry of Energy developed and approved by Minister.

Technical Assistance to Electricidade de Moçambique initiated (EDM).

The Rural Electrification Programme in Cabo Delgado including transmission and electrification is finalised. Macomia sub-station is completed, only the staff housing and minor works remain for completion.

Grid extension to the districts Mecanhelas, Metarica, Maua and Marrupa in Niassa province.



Andhi Kola hydropower station

Photo: Øivind Johansen, OED

Nepal has large undeveloped hydro power resources (more than 80,000 MW). About 55 % of the population still has no access to electricity, and in the rural areas the electrification level is less than 10%. Nepal's energy cooperation with Norway aims at accelerated hydropower development and access to rural poverty oriented sustainable energy, highly important elements in the Clean Energy for Development Initiative's approach.

To develop large hydroelectric projects, Nepal needs to attract foreign investors. The Norwegian commercial energy sector is represented in Nepal through SN Power and BKK<sup>9</sup>, which are the major shareholders of Himal Power Limited (HPL) together with the national Butwal Power Company (BPC). HPL has successfully operated the 60 MW Khimti Hydro Power plant since the commissioning in 2000. The shareholders of HPL are planning to develop the 68 MW Kirne project. Commissioning may be before the summer of 2013. In addition, SN Power is also planning to develop the 880 MW/2,800 GWh Tamakoshi III project together with Tata Power. Investment costs will be in the order of NOK 6.5 billion. Commissioning will be in 2018 at the earliest. For both projects progress depends on a transmission solution and a Project Development Agreement (PDA) with the Government of Nepal.

The bilateral energy assistance to Nepal includes i) government to government cooperation, ii) education and research and iii) NGOs/private sector. In 2010 a new energy strategy was prepared. The main focus of future energy cooperation will be on using bilateral aid to strategically

leverage private sector hydro power investments through support to transmission infrastructure and institutional capacity building projects.

In 2010 the bilateral aid, including assistance through the NGO channel, amounted to approximately NOK 59 million, mainly targeting rural energy. Together with Denmark (lead donor) and Germany (and the UK from 2011), Norway supports off-grid electrification through micro-hydro, solar home systems and more efficient cooking stoves in remote areas through the Alternative Energy Promotion Centre (AEPC), which is a state agency. Norway is financing more than 40 % of the total programme budget. Norwegian support to the AEPC amounted to NOK 50 million in 2010, including an extension of the agreement with the purpose of addressing gender equality and social inclusion more systematically. Women and people from socially excluded groups will be trained to qualify for income-generating activities.

Grid electrification/community development projects supported by Norway are implemented by independent power producers such as HPL and BPC. The major capacity building projects supported by Norway are assistance to energy sector education at universities and at research level. Norway also cooperates with the Department of Electricity Development under the Ministry of Energy, in preparing hydro power feasibility studies for schemes that later are to be transferred to private developers. In addition, bilateral assistance provided support to the Independent Power Producers Association in Nepal (IPPAN).

<sup>9</sup> For more info on BKK see: [www.bkk.no/?l=en](http://www.bkk.no/?l=en)

# NEPAL // ONGOING PROJECTS



## NEPAL

**OFFICIAL NAME**

Federal Democratic Republic of Nepal

**CAPITAL**

Kathmandu

**HEAD OF STATE**

President Ram Baran YADAV

**HEAD OF GOVERNMENT**

Prime Minister Jhalnath Khanal

**POPULATION**

29.0 million (July 2010 est.)

**ELECTRICITY CONSUMPTION**

2,600 GWh (2009 est.)

**ELECTRICITY PRODUCTION**

2,243 GWh (2007 est.)

**NUMBER OF CUSTOMERS**

1,874,275

**CURRENT INSTALLED CAPACITY**

698 MW

### // ENERGY SUPPORT AND ASSISTANCE PROGRAMME (ESAP) OFF-GRID ENERGY SOLUTIONS

**OBJECTIVES**

The immediate development objective of EASP is to improve the living conditions of the rural population by enhancing their energy access with solutions that is efficient, environmental friendly and socially justifiable.

**COOPERATING INSTITUTION**

Alternative Energy Promotion Centre

**PROJECT PERIOD**

2007–2012

**TOTAL BUDGET**

NOK 125 million

**DISBURSED IN 2010**

NOK 27.6 million

### // ADDENDUM TO EASP (GENDER EQUALITY AND SOCIAL INCLUSION)

**OBJECTIVES**

The Development Objective of the Addendum is the same as the development objective of ESAP (see above).

The Immediate Objective of the Addendum is: Gender and Social Inclusion in implementation and operation of Mini Grid and Improved Water Mills.

**COOPERATING INSTITUTION**

Alternative Energy Promotion Centre

**PROJECT PERIOD**

2010–2012

**TOTAL BUDGET**

NOK 22.4 million

**DISBURSED IN 2010**

NOK 22.4 million

### // RURAL ELECTRIFICATION AND MITIGATION (INCLUDING COMMUNITY DEVELOPMENT)

**OBJECTIVES**

>> Mitigation component: increase access of the targeted population to economic and social activities, leading to a balanced and sustainable socio-economic growth and well being.

>> Rural electrification component: use electricity to improve living standards and to enhance socioeconomic activities.

**COOPERATING INSTITUTION**

Butwal Power Company

**PROJECT PERIOD**

2006–2011

**TOTAL BUDGET**

NOK 12.8 million

**DISBURSED IN 2010**

NOK 2.7 million

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**// KHIMTI NEIGHBOURHOOD AND DEVELOPMENT PROJECT (GRID ELECTRIFICATION AND COMMUNITY DEVELOPMENT)**

**OBJECTIVES**

Increase the living standards and potential of people living in the project area.

**COOPERATING INSTITUTION**

Himal Power Limited

**PROJECT PERIOD**

2007-2011

**TOTAL BUDGET**

NOK 19.6 million

**DISBURSED IN 2010**

No disbursement in 2010, however activities were ongoing.

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**// SMALL HYDROPOWER FEASIBILITY STUDIES**

**OBJECTIVES**

Contribute to economic and social development in rural areas.

**COOPERATING INSTITUTIONS**

>> Government of Nepal

>> NVE

**PROJECT PERIOD**

2004-2012

**TOTAL BUDGET**

NOK 10 million (some of these funds were reallocated in 2010)

**DISBURSED IN 2010**

NOK 1.2 million

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**// RENEWABLE NEPAL**

**OBJECTIVES**

The purpose of Renewable Nepal is to build applied research capacity at Nepalese universities and research institutions that can serve the Nepalese energy industry. Renewable Nepal is based on the model of Research Council of Norway's "Reenergi"<sup>10</sup> programme.

**COOPERATING INSTITUTIONS**

>> Kathmandu University

>> Sintef Energy Research AS

**PROJECT PERIOD**

2009-2013

**TOTAL BUDGET**

NOK 8,430,000

**DISBURSED IN 2010**

NOK 1.47 million

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**// HYDRO LAB PHASE II**

**OBJECTIVES**

Support Hydro Lab so it will become a centre of excellence in water resource development in steep sediment-loaded rivers with focus on hydraulics and sediments.

**COOPERATING INSTITUTIONS**

HYDRO LAB TVT. LTD.

**PROJECT PERIOD**

2006-2013

**TOTAL BUDGET**

NOK 6.5 million

**DISBURSED IN 2010**

NOK 1 million

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**// TURBINE LABORATORY AT KATHMANDU UNIVERSITY**

**OBJECTIVES**

Build applied research and development capacities at Nepalese universities in order to serve the industry and private sector system analysis.

**COOPERATING INSTITUTION**

Kathmandu University

**PROJECT PERIOD**

2009-2011

**TOTAL BUDGET**

NOK 4.6 million

**DISBURSED IN 2010**

NOK 900,000

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<sup>10</sup> For more information on this program refer to [www.forskningssradet.no/reenergi](http://www.forskningssradet.no/reenergi)

## // FEASIBILITY STUDY FOR A TWINNING ARRANGEMENT BETWEEN NEA AND STATNETT

### OBJECTIVES

To examine to what extent there is a basis for long term cooperation between Nepal Electricity Authority (NEA) and Statnett.

The twinning arrangement will provide assistance to NEA in different areas to improve its capability and capacity (issues on transmission capacity development, transmission system operation, strengthening of the capability and capacity to participate in regional power cooperation and increasing NEA's capacity in power system analysis).

### COOPERATING INSTITUTIONS

>> Nepal Electricity Authority (NEA)

>> Statnett

### PROJECT PERIOD

2009–2011

### TOTAL BUDGET

NOK 1.5 million in 2009. Extension of the feasibility study is in progress

### DISBURSED IN 2010

NOK 1.5 million.

### KEY ACHIEVEMENTS IN NEPAL 2010

During 2010 SN Power made progress with the 880 MW/2.7 TWh Tamakoshi III project. Further progress depends on conclusion on the transmission evacuation solution and the signing of a Project Development Agreement with the Government of Nepal.

Norwegian support to the Alternative Energy Promotion Centre contributed to mini grid (micro hydro) electrification of 17,000 (6,000) households, and household installation of 80,000 (43,000) solar home systems and 90,000 (60,000) improved cooking stoves. (2009 numbers in brackets). In November 2010 an addendum to the present agreement was made in order to qualify women and people from socially excluded groups for income-generating activities.

In 2010 1,900 new households (aggregated more than 4,000) and small industries were connected to the grid in the electrification and community development project undertaken by Butwal Power Company. More than 400 women have received vocational training or have been assisted in establishing enterprises.

In the electrification and community development project undertaken by Himal Power Limited, the distribution system was completed in 2010. Almost 4,000 households and enterprises will thus be electrified when the 0.4 MW Halluwa Khola mini hydro plant in commissioned by mid 2011. The project has also contributed to improved sanitation (more than 1,600 toilets supported), drinking water supply and irrigation. In total more than 120 enterprises have been supported. The project has established more than 600 community organisations with 14,000 members, out of whom 7,000 are women.



Turbine at Gariuai hydropower station

Photo: Tor Morten Sneve, Norad

Norway has since 2002 supported the electricity sector in Timor-Leste through institutional cooperation, expanding power production capacity, management support, electricity metering and billing, rehabilitation of the electricity grid, development of a small scale hydropower scheme and planning of a medium scale hydropower project. These are all important elements of the Clean Energy for Development Initiative's approach.

Timor-Leste has a national electrification level of about 20 %, but it is estimated to be less than 10 % in rural areas. The cooperation with Norway has had an institutional component and a technical/commercial component. The goal of the former is to assist in developing the management of the hydro power sector in Timor-Leste through an institutional cooperation arrangement with NVE, and the goal of the latter was to establish a viable economic basis for electricity supply in the country through support to Electricidade de Timor-Leste (EdTL) and the introduction of an effective revenue collection system.

Norway has financed a feasibility study including environmental impact assessment and tender documents for a 28 MW run-of-the-river hydro power plant at Iralalaru in the eastern part of Timor-Leste and an associated 132 kV transmission line to Dili. The Gariuai mini hydro power plant has also been constructed and was commissioned in November 2008. After short term operation Gariuai was unfortunately damaged by an unforeseen land-slide in 2009, which dislocated sections of the penstock. Efforts to assess the damage and remedial action have been conducted in 2009 and 2010, and the plant is scheduled to be operational again in August 2011.

The long-term cooperation on energy and water resources has had a profoundly positive impact on Timor-Leste's ability to manage and develop its resources in these fields. An agreement between Timor-Leste and Norway on continuing institutional cooperation was signed in September 2009, with a purpose to significantly improve efficiency and effectiveness of the water resources and power management in Timor-Leste by 2014. This will be achieved through improving legal frameworks, capacity building, hydrological and meteorological mapping and a hydropower master plan. The cooperation will strengthen the National Directorate of Water Resource Management, State Secretariat for Energy Policy and the National Directorate of Environment. Feasibility studies for two hydropower schemes (Maliana and Atsabe) will be conducted. A scholarship program for postgraduate and undergraduate students has been established and successful candidates have been identified. A national hydrological network comprising approximately 30 rainfall stations is in operation and the office of the National Directorate of Water Resource Management manage the largest collection of rainfall data in Timor-Leste. The Norwegian contribution to the cooperation is NOK 50 million over the period 2009 to 2014.

In Timor-Leste, Norway also has ongoing activities and dialogue within the Oil for Development Program. It is believed that this dual role, with support and dialogue both within clean energy and Oil for Development, will lead to important synergies and mutual benefits in the Norwegian cooperation with Timor-Leste.

# TIMOR-LESTE // ONGOING PROJECTS



## TIMOR-LESTE

**OFFICIAL NAME**

Democratic Republic of Timor-Leste

**CAPITAL**

Dili

**HEAD OF STATE**

President Jose RAMOS-HORTA

**HEAD OF GOVERNMENT**

Prime Minister Kay Rala Xanana GUSMAO

**POPULATION**

1,066,582 (Preliminary results census 2010)

**ELECTRICITY CONSUMPTION**

120 GWh

**ELECTRICITY PRODUCTION**

130 GWh

**NUMBER OF CUSTOMERS**

30,000 (2010 est.)

**CURRENT INSTALLED CAPACITY**

41 MW

### // INSTITUTIONAL COOPERATION WITHIN THE POWER SECTOR, PHASE THREE

**OBJECTIVES**

The overall goal of phase three of the programme is to contribute to the economic and social development of Timor-Leste.

The purpose of phase three of the programme is to improve significantly the general efficiency and effectiveness of power and water resource management in Timor-Leste by 2014.

**COOPERATING INSTITUTIONS**

>> Ministry of Infrastructure

>> NVE

**PROJECT PERIOD**

2009–2014

**TOTAL BUDGET**

NOK 50 million

**DISBURSED IN 2010**

NOK 8.2 million

## **KEY ACHIEVEMENTS IN TIMOR-LESTE 2010**

The hydrological network in Timor-Leste is now considered by NDWRM and NVE to be sufficient, and regular data collection and reporting is now efficiently handled by NDWRM.

NDWRM has been given the mandate to develop a draft Water Resource Law for Timor-Leste and requested NVE for legal assistance. A consultant was procured and the NDWRM staff actively participates in the process which will ensure a high degree of ownership and further ensure the WRL incorporates local needs.

>> Draft Feasibility Report for Atsabe was finalised in November. Hydropower Master plan is carried out by Norplan with involvement of assigned counterparts from State Secretariat for Energy Policy and NDRWM.

>> Formal and informal training carried out as planned. The English skills for those participating in English courses have improved significantly and have further strengthened the communication between NVE and partner institutions.

>> Human Capacity Working Group established with members from all partner institutions and scholarship for under-graduate and graduate studies published. Many applicants show great interest in scholarships in the areas of energy

>> Gariuai repair work is being carried out in close cooperation with NDWRM and has given valuable experience to all involved parties.

>> Coordination between NVE and NDRWRM for programme activities has improved significantly during 2010. Requests from either side are followed up and decision taken in due time for implementation of project activities.



The president of Zanzibar H.E Amani Abeid Karume (centre) officially opened the Pemba cable on June 3 2010

Photo: Inger Anette Sandvand Dahlen, Norad

In Tanzania less than 15 per cent of the population is connected to the national grid, and the access to electricity in rural areas is estimated to only 2 %. The country has an electricity deficit, resulting in rationing. Despite the large hydro power potential and other renewable energy resources in Tanzania, the development of new sites is currently not keeping track with the increasing local demand.

Norway has been involved in the building of several of the existing hydro power stations in Tanzania, with the last one, Kihansi, currently providing Tanzania with more than 20 per cent of their produced electricity. Norway will continue to contribute to increased generation of renewable energy and has supported studies of several small potential hydropower sites.

A 73 kilometre submarine cable from Tanga to Pemba was opened in June 2010, providing the island of about 400,000 people with a stable and reliable energy supply. Norway contributed NOK 300 million to the project, making it one of the largest Norwegian grants to an energy project ever. The remaining 100 million NOK was paid by the Government of Zanzibar and The Union Government. The cable has replaced three old diesel generators and has a capacity of up to 25 MW, meeting the expected demand for 20-25 years to come.

Norway has furthermore supported projects aiming to increase the access to electricity. The last phase of a rural electrification project at Unguja and Pemba was finished in 2010. Based on the positive experience with rural

electrification at these two Zanzibari islands, the Embassy now considers supporting the Rural Energy Fund, which facilitates the provision of modern energy to rural areas in mainland Tanzania.

Tanzania Electric Supply Company Limited (TANESCO), which is responsible for the electricity supply at mainland Tanzania, applied in 2009 for institutional cooperation with the Norwegian company Statnett, and the first activities under this programme took place in 2010. The aim is to allow TANESCO to tap into Statnett's long experience in energy transmission through workshops, training and technical assistance.

Norad provided support for Project Design Document (PDD) development of three Clean Development Mechanism (CDM) projects in Tanzania in 2010; Sao Hill Charcoal Project, Sao Hill Pellet/briquette Project and Mwanza Landfill Project. These projects are under implementation and the CDM registration and following implementation of the investment projects will be expected in the years to come.

The overall energy support in Tanzania targets many important elements of the Clean Energy for Development Initiative; access to modern energy services, development of clean energy resources, pro-poor approach, gender mainstreaming, long term management of natural resources, well functioning framework for the energy sector, reduced greenhouse gas emissions and sustainable economic and social development.

# TANZANIA // ONGOING PROJECTS

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**OFFICIAL NAME**  
United Republic of Tanzania

**CAPITAL**  
Dodoma

**HEAD OF STATE**  
President Jakaya MRISHO KIKWETE

**HEAD OF GOVERNMENT**  
President Jakaya MRISHO KIKWETE

**POPULATION**  
41,892,895 (July 2010 est.)

**ELECTRICITY CONSUMPTION**  
3,539 GWh (2009)

**ELECTRICITY PRODUCTION**  
4,530 GWh (2009)

**NUMBER OF CUSTOMERS**  
868,953

**CURRENT INSTALLED CAPACITY**  
1,077 MW

## // ELECTRIFICATION PEMBA – IMPLEMENTATION PHASE, SUBSEA CABLE

### OBJECTIVES

The purpose of the project is to have a least cost reliable supply of electricity on Pemba meeting demand for 20-25 years to come.

### COOPERATING INSTITUTION

The Revolutionary Government of Zanzibar

### PROJECT PERIOD

2008–2011

### TOTAL BUDGET (Norwegian)

NOK 300 million

### DISBURSED IN 2010

NOK 58.8 million (project finalized in 2010)

## // ZANZIBAR EMERGENCY POWER SUPPLY

### OBJECTIVES

Provision of a 25 MW power generation back-up facility as a response to a power crisis at Unguja.

### COOPERATING INSTITUTION

The Revolutionary Government of Zanzibar

### PROJECT PERIOD

2010

### TOTAL BUDGET (Norwegian)

NOK 24 million. The project was co-financed by DFID and Sida with 3.0 million USD and 4.5 million USD respectively. Norway acted as the lead donor.

### DISBURSED IN 2010

NOK 23.4 million (project finalized in 2010)

## ELECTRIFICATION ZANZIBAR PHASE IV

### OBJECTIVES

Electrification of villages on the two main islands of Zanzibar, Unguja and Pemba.

### COOPERATING INSTITUTION

The Revolutionary Government of Zanzibar

### PROJECT PERIOD

2007–2010

### TOTAL BUDGET

NOK 45 million

### DISBURSED IN 2010

NOK 3.1 million

## // INTEGRATED MODERN ENERGY SERVICES FOR SUSTAINABLE DEVELOPMENT AND POVERTY REDUCTION PROGRAMME (IMESPORE)

### OBJECTIVES

Facilitate up-scaling of access to sustainable energy technologies and services.

### COOPERATING INSTITUTION

Tanzania Traditional Energy Development and Environment Organisation (TaTEDO)

**PROJECT PERIOD**

2007–2010

**TOTAL BUDGET**

NOK 10 million

**DISBURSED IN 2010**

NOK 3.6 million

**// SUPPORT TO FEMALE ENGINEERS****OBJECTIVES**

The development objective is:  
To contribute to sustainable socio-economic development in Tanzania by promoting gender balance in professional training, and empowering women engineers to confidently hold and manage professional responsibilities in government, industry and business.

**COOPERATING INSTITUTION**

Engineers Registration Board

**PROJECT PERIOD**

2010–2015

**TOTAL BUDGET**

NOK 11.5 million

**DISBURSED IN 2010**

NOK 940,000

**// NORWEGIAN SUPPORT FOR IMPLEMENTATION OF SMALL HYDROPOWER PROJECTS IN TANZANIA****OBJECTIVES**

The objective of these studies is to assess four small hydropower projects and recommend one or two for further implementation based on their feasibility. The projects have all previously been studied at a reconnaissance/prefeasibility level:

>> Pinyinyi hydropower project in the Ngorongoro district of Arusha region.

>> Mtambo hydropower project in the Mpanda district of Rukwa region.

>> Nzowwe hydropower project in the Sumbawanga district of Rukwa region.

>> Kwitanda hydropower project in the Tunduru district of Ruvuma region.

Some further studies were necessary on the two sites which were recommended for feasibility study level; Nzowe and Pinyinyi.

**COOPERATING INSTITUTION**

Rural Energy Agency

**PROJECT PERIOD**

2009–2011

**TOTAL COMBINED BUDGET**

NOK 1.5 million

**DISBURSED IN 2010**

NOK 770,000

**// SUPPORT FOR THE DEVELOPMENT OF BIOFUEL FRAMEWORK****OBJECTIVES**

To strengthen the policy, legal, regulatory and institutional framework to support the biofuel industry development.

**COOPERATING INSTITUTION**

Tanzania's Ministry of Energy and Minerals (MEM)

**PROJECT PERIOD**

2009–2011

**TOTAL BUDGET**

NOK 11 million. The project is co-financed with Sweden, acting as the lead partner (providing SEK 12 million). Total budget is USD 4 million.

**DISBURSEMENT IN 2010**

No disbursement was undertaken in 2010, however project activities were carried out (financed by a disbursement undertaken in 2009 upon signing of agreement).

**// MAKAMBAKO WIND PARK****OBJECTIVES**

Feasibility study for a possible establishment of a 100 MW wind park in Makambako.

**COOPERATING INSTITUTIONS**

>> Sino-Tan Renewable Energy Limited

>> Norsk Vind Energi AS, Stavanger

**PROJECT PERIOD**

2006–2010

**TOTAL BUDGET**

NOK 1.1 million (50 % of approved project budget)

**DISBURSED 2010**

NOK 500,000

**// CAPACITY BUILDING IN OPERATION AND MAINTENANCE****OBJECTIVES**

Assistance to Tanesco in the preparation of a programme document for operation and maintenance of hydropower plants in Tanzania

**COOPERATING INSTITUTIONS**

Tanesco and NVE

**PROJECT PERIOD**

2009 – 2011

**TOTAL BUDGET**

NOK 1.4 million

**DISBURSED IN 2010**

NOK 980,000

**// INSTITUTIONAL CO-OPERATION BETWEEN TANESCO – STATNETT****OBJECTIVES**

To achieve a customer-oriented and improved transmission system operator, single buyers function and improved corporate efficiency.

**COOPERATING INSTITUTIONS**

TANESCO and Statnett

**PROJECT PERIOD**

2009–2014

**TOTAL BUDGET**

NOK 37 million (NOK 22 million for phase I and NOK 15 million for optional phase II)

**DISBURSED IN 2010**

NOK 1.9 million

**KEY ACHIEVEMENTS IN TANZANIA 2010**

Subsea cable to Pemba opened, replacing old diesel generators.

Increased use of efficient wood fuel stoves.

Training and workshops held under the TANESCO-Statnett twinning agreement.

Studies of small hydro projects finalised.

Feasibility study for a possible wind farm finalised.

Entered into an agreement to register and support /coach female engineers



Nalubaale hydropower station

Photo: Tor Morten Sneve, Norad

In Uganda, the electrification level remains less than 10 % in total and only 6 % for the rural population. Development of electricity infrastructure is a priority for the Government of Uganda.

Energy is a key area of cooperation between GoU and Norway. Since 1995 Norway has contributed approximately NOK 50-60 million annually to the power sector, thus financing or co-financing more than 25 projects. The major contribution includes investments in national power infrastructure such as power production, transmission and distribution lines as well as support to capacity building in key partner institutions. Increasing the access to electricity and improving the capacity of the energy sector framework are important elements in the Clean Energy for Development Initiative, and will be crucial in underpinning the country's overall social and economic development and industrialisation efforts.

The Embassy has developed a strategy for the continued energy cooperation with Uganda. The strategy is based on national development priorities, coordination with other donors and an evaluation of the value added provided by

Norwegian support. Mobilisation of commercial investments and increased access to energy through direct support for energy infrastructure are key focus areas in the strategy, which gives priority to the following areas of support:

- >> Development of transmission system infrastructure with national and regional significance.
- >> Feasibility studies and other support for commercial large scale hydropower investment.
- >> Rural electrification investments.

Institutional capacity building of the Uganda Electricity Transmission Company (UETCL) is supported through an ongoing twinning arrangement with Statnett. In addition Norad has provided support to a pilot project for Jathropa oil and briquettes test production and a feasibility study for hybrid solar energy solutions.

In Uganda Norway also provides significant support through the Oil for Development Programme. It is believed that this dual role, with support and dialogue both within clean energy and Oil for Development, leads to important synergies and mutual benefits in the Norwegian cooperation with Uganda.

# UGANDA // ONGOING PROJECTS



## UGANDA



**OFFICIAL NAME**  
Republic of Uganda

**CAPITAL**  
Kampala

**HEAD OF STATE**  
President Lt. Gen. Yoweri Kaguta MUSEVENI

**HEAD OF GOVERNMENT**  
President Lt. Gen. Yoweri Kaguta MUSEVENI

**POPULATION**  
34,612,250 (March 2011 est.)

**ELECTRICITY CONSUMPTION**  
2,550 GWh (Jan 2011 est.)

**ELECTRICITY PRODUCTION**  
2 260 GWh (Jan 2011 est.)

**NUMBER OF CUSTOMERS**  
391,788 (Aug 2010)

**CURRENT INSTALLED CAPACITY**  
621 MW

### // UETCL CAPACITY BUILDING TWINNING UETCL – STATNETT PHASE II

#### OBJECTIVES

Contribute to the provision of sufficient and sustainable electricity to Uganda and the region. Make UETCL more efficient in its function both as a single buyer and as a transmission system operator in fulfilling its public service obligations.

#### COOPERATING INSTITUTIONS

>> UETCL

>> Statnett

#### PROJECT PERIOD

2009–2011

#### TOTAL BUDGET

NOK 14 million

#### DISBURSED IN 2010

NOK 8.4 million

### // FEASIBILITY STUDIES OF SIX RURAL ELECTRIFICATION PROJECTS

#### OBJECTIVES

Facilitate the required feasibility studies and tender documents as a basis for further development of the six rural electrification projects.

#### COOPERATING INSTITUTION

Rural Electrification Agency

#### PROJECT PERIOD

2009–2011

#### TOTAL BUDGET

NOK 5 million

#### DISBURSED IN 2010

NOK 3.9 million

### // IMPLEMENTATION OF TWO RURAL ELECTRIFICATION PROJECTS

#### OBJECTIVES

The Purpose of the Project is to achieve an improved livelihood for 1700 households through access to electricity in rural areas through construction of distribution grid in Myanzi to Kiganda: Muhanga via Kisiizi to Kyempene

#### COOPERATING INSTITUTION

Rural Electrification Agency

#### PROJECT PERIOD

2010–2012

#### TOTAL BUDGET

NOK 35.1 million

#### DISBURSED IN 2010

NOK 20 million

### // FEASIBILITY STUDY OF THE KARUMA INTERCONNECTION PROJECT

#### OBJECTIVES

Enable the Government of Uganda to prepare for the financing and construction of the Karuma interconnection transmission line project

#### COOPERATING INSTITUTION

UETCL

#### PROJECT PERIOD

2008–2011

#### TOTAL BUDGET

NOK 14.6 million

#### DISBURSED IN 2010

NOK 12.2 million

## // FEASIBILITY STUDY OF A TRANSMISSION LINE, HOIMA-KAFU

### OBJECTIVE

Contribute to increasing the electrification level in Uganda and to improving the opportunities for increased social welfare, education, health and income generation.

### COOPERATING INSTITUTION

UETCL

### PROJECT PERIOD

2010–2011

### TOTAL BUDGET

NOK 7 million

### DISBURSED IN 2010

NOK 3.6million

## // FEASIBILITY STUDY OF ISIMBA HYDROPOWER PROJECT

### OBJECTIVE

Contribute to increasing the electrification level in Uganda and to improving the opportunities for increased social welfare, education, health and income generation. Furthermore, to facilitate the required planning process and prepare documents for construction tendering.

### COOPERATING INSTITUTION

Ministry of Energy and Mineral Development

### PROJECT PERIOD

2009–2011

### TOTAL BUDGET

NOK 18 million

### DISBURSED IN 2010

NOK 14 million

### KEY ACHIEVEMENTS IN UGANDA 2010

Uganda investment & business opportunities presented in private sector seminar in Uganda in November 2010. The seminar was jointly organised with INTPOW<sup>11</sup> with active participation from Norwegian and Ugandan energy companies, public sector and research institutions.

Feasibility studies of six rural electrification grid extension projects finalised. Projects will when constructed increase access to electricity and contribute to sustainable economic and social development.

Construction of two rural electrification projects in western and south-western Uganda started. The extension of the distribution grid to unelectrified areas will provide opportunities for increased access and contribute to sustainable economic and social development for up to 1700 households.

Feasibility study for Isimba Hydro-power Plant (100 MW) begun. When developed, the Isimba project will contribute to increased access to clean energy at an affordable price based on the long-term management of natural resources. It is also intended to contribute to sustainable economic and social development.

Capacity building within UETCL in the areas of finance, transmission infrastructure, regional cooperation, and information management.

Dialogue with Ministry of Energy continued with objective to extend the project pipeline to:

>> Establishment of a programme framework for total future energy cooperation

>> Construction of a transmission line in western Uganda; Nkenda-Hoima

>> Construction of six rural electrification projects

>> Feasibility study of a regional interconnection transmission line Uganda-DR Congo.

>> Statnett – UETCL twinning phase III – potential regional project with Kenya and Tanzania

<sup>11</sup> INTPOW ([www.intpow.no](http://www.intpow.no)) is a non-profit organisation and established in cooperation between the Norwegian Authorities and the Norwegian renewable industry business.

# BILATERAL COOPERATION NON-CORE COUNTRIES

Afghanistan	Nicaragua
Armenia	Nigeria
Azerbaijan	The Palestinian Territory
Bangladesh	Philippines
Bhutan	South Africa
Brazil	Sudan
China	Tajikistan
Eritrea	Ukraine
Georgia	Uzbekistan
Ghana	Vietnam
India	Zambia
Indonesia	
Kazakhstan	
Kyrgyzstan	
Kenya	
Laos	
Montenegro	

## // AFGHANISTAN

In 2010 Norway supported two energy related projects in Afghanistan.

### SERENA HOTEL

Through Norwegian support Serena Hotel was connected to Kabul's electricity grid to achieve access to cleaner and more affordable electricity. An investment was made in a new power cable with sufficient capacity to connect other interested parties at a later stage. The project was implemented in 2009 by Norfund.

The Norwegian support amounted to NOK 1.76 million disbursed in 2010.

### NATIONAL ENERGY POLICY

In 2010 the Afghan Minister of Mines requested Norway to provide technical assistance and support to the development of a Comprehensive National Energy Policy. A dialogue was initiated based on the mentioned request, and a ToR drafted, and put out for tender. No disbursement was made during 2010, however the technical experts have been procured<sup>12</sup>, and the activities under this initiative are anticipated to start in the first half of 2011.

In Afghanistan, Norway also has ongoing activities and dialogue within the Oil for Development Program. The technical assistance mentioned above will also benefit this cooperation, and it includes an element on assessment and planning for a gas transmission and distribution network in some northern provinces of Afghanistan.

<sup>12</sup> IPAN – International Petroleum Associates Norway AS; [www.ipan.no](http://www.ipan.no)

## // ARMENIA

### PREPARING BANKABLE CDM HYDROPOWER PROJECTS

Norway supports the development of small scale hydropower in Armenia by providing training and technical assistance in the preparation of feasibility studies and communication with financing institutions (Phase 2 of a program initiated in the end of 2008). The project is implemented by Norsk Energi<sup>13</sup>, and NOK 250,000 was disbursed in 2010.

## //AZERBAIJAN

### CDM PROGRAM OF ACTIVITIES FOR REDUCING GREENHOUSE GAS EMISSIONS

In Azerbaijan Norway supported the establishment of a structure for CDM Program of Activities (PoA) in the public sector, increase the awareness and skills within the Designated National Authorities (DNA) and local stakeholders on possibilities of CDM PoA. The project was implemented by Energy Saving International (ENSI)<sup>14</sup> in cooperation with Norsk Energi. The total budget amounted to NOK 1.2 million, whereby all was disbursed in 2009; however activities carried on into 2010.

### INDUSTRIAL ENERGY EFFICIENCY AND CLEANER PRODUCTION

This project aims at strengthening the capacity of the industry in Azerbaijan with regard to energy efficiency and environmentally friendly production, and to establish a commercially viable CPEE Centre. The project is implemented by Tekna<sup>15</sup>, and NOK 2.2 million was disbursed in 2010.

<sup>13</sup> [www.energi.no](http://www.energi.no)

<sup>14</sup> [www.ensi.no](http://www.ensi.no)

<sup>15</sup> [www.tekna.no](http://www.tekna.no)

## // BANGLADESH

### A HIGH LEVEL OVERVIEW – COMMERCIAL AND STRATEGIC OPPORTUNITIES FOR THE DISTRIBUTION AND USE OF LIQUEFIED NATURAL GAS IN BANGLADESH

In 2010 the Norwegian Embassy sponsored a study undertaken by Det Norske Veritas (DNV)<sup>16</sup> Clean Technology Centre in collaboration with Innovation Norway<sup>17</sup>, Singapore Office. Total cost of the study was estimated to be NOK 100,000. The Embassy paid NOK 70,000 to DNV. The rest was shared by DNV/ Innovation Norway. Final report was received in November 2010.

### SOLAR POWER PLANT

– **SOLØR BIOENERGI HOLDING AS**  
Norway has supported a feasibility study to map all relevant technical and commercial aspects related to establishment of a solar power plant in Bangladesh (in cooperation with Renewable Energy Corporation ASA). The study was supported with NOK 150,000 (60% of approved budget), and completed in 2010.

### GREEN TELECOM BASE-STATIONS – SCATEC SOLAR

Support for a feasibility study for an investment programme replacing fossil fuel (diesel) with solar energy at telecom base stations in Bangladesh. The study was approved for support of NOK 445,000 (50% of approved budget) and conducted in 2010.

<sup>16</sup> [www.dnv.com](http://www.dnv.com)

<sup>17</sup> [www.innovasjon Norge.no](http://www.innovasjon Norge.no)

### TRAINING IN CONNECTION WITH EXPORT CONTRACT

Norad supports two projects related to training in connection with export contracts to Gopalganj and Faridpur in Bangladesh. Total support is NOK 1.3 million, no disbursements were made in 2010.

### // BHUTAN

In 2010 Norway supported institutional cooperation programmes within the Department of Energy and Department of Geology and Mines in Bhutan. Both departments are administered by the Ministry of

Economic Affairs in Bhutan and are important to the economic development of Bhutan. The Norwegian assistance to Bhutan's energy sector goes back for more than 20 years, and today the export of electricity to India is lifting more and more of its population out of poverty.

### INSTITUTIONAL DEVELOPMENT AND CAPACITY STRENGTHENING – DEPARTMENT OF ENERGY

In two separate Bilateral Agreements from May 2008, Norad is supporting the institutional development and capacity strengthening of the electrical sector in Bhutan, as well

as the country's "Advanced Hydro-power Development Program" which is part of Bhutan's current 5-year plan of economic development for the country. This support is the latest in a series of bilateral agreements through which Norway has enabled Bhutan to first map and thereafter be in a position to develop its hydro-power resources for the economic benefit of the nation.

The low population and modest degree of energy intensive development of Bhutan, imply a limited domestic demand and a slow growth in industrial/commercial electricity demand.

Transmission lines evacuating power from the Chutra power station in Bhutan

Photo: Ken Opprann



With its relatively large hydropower potential, much of the generated electricity can be exported to neighbouring India in the foreseeable future. This has two distinct advantages: i) Bhutan will be able to make revenue from its natural resources; ii) India will be helped to reduce its dependence on fossil fuels.

The “Strengthening of the energy sector” project is a 3 year (2008-2011) institutional cooperation between the Department of Energy, Ministry of Economic Affairs, and NVE. NVE provides support for institutional strengthening and human resources development within the electricity sector, particularly for regulation and hydro meteorological services and studies of effects of climate change on hydropower flows. The total budget is NOK 15 million, whereof NOK 4.2 million was disbursed in 2010.

The goal of the project is accelerated development of the hydropower resources of the country, thereby leading to socio-economic development and poverty reduction. Furthermore, to ensure the required regulatory capacity to allow the growth of the power sector in an orderly and cost effective manner, and thereby to support the accelerated hydropower development strategy of the 10th “Five year plan” for Bhutan.

NVE is also working with the Department of Energy on the “Accelerated hydropower development programme”, where NVE supports reconnaissance surveys for the remaining listed sites under the power system master plan and pre-feasibility studies of project sites including environmental studies. The total

budget is NOK 15 million, NOK 4.9 million was disbursed in 2010.

Some of the key results from this cooperation are:

>> Strengthening of the Bhutan Electrification Authority which has become an autonomous electricity regulator body during the course of the cooperation

>> Improvements to the hydro-meteorological and river sediment data collection and analysis capacity

>> Regional cooperation within low flow hydrology and the effects of climate change on Himalayan rivers

>> Prefeasibility studies of two hydropower project sites and reconnaissance studies of 15 previously unvisited hydropower project sites from the Power System Master Plan of Bhutan including environmental studies.

#### **INSTITUTIONAL DEVELOPMENT AND CAPACITY STRENGTHENING – DEPARTMENT OF GEOLOGY AND MINES**

The “Management of the risks that natural hazards represent to new infrastructure development in Bhutan” is a 3 year (2008-2010) project with a total budget of NOK 6 million. NOK 700 000 was disbursed in 2010. The Norwegian Geotechnical Institute (NGI) performs capacity building in the Department of Geology and Mines as well as with stakeholders.

#### **// BRAZIL**

##### **FECLA ENERGIA**

In 2010 Norad financed part of a feasibility study for the CDM-project Fecula Energia in Brazil. The project

focus on reforestation as well as growing and processing of palm oil on deforested areas. The total budget for the feasibility study is NOK 4.14 million of which Norad will provide NOK 1.24 million.

#### **// CHINA**

Clean energy support to China is focused on energy efficiency improvements, aiming at contributing to reach the Chinese Government’s target of improved energy efficiency in production, and reducing emissions of greenhouse gases. The support is given through the following institutions and projects:

>> IFC – China Utility Based Energy Efficiency Financing programme (CHUEE).

>> Innovation Norway – Energy Management programme targeted at industry and construction/building

>> NHO – Energy Management programme in cooperation with China Enterprise Confederation

>> Dalian Economic and Technological Development Area in cooperation with Norwegian ENSI to establish a centre for energy efficiency in the industrial area of Dalian.

>> The University College in Narvik in cooperation with Reinertsen AS and Chinese partners in Inner Mongolia: Green Energy Solutions in buildings

The projects are together contributing to increasing awareness and improving knowledge of technologies and solutions to enhance energy efficiency in industry, construction and management, of housing and

larger buildings. The strengthening of the financial sector's capacity to finance energy efficiency is seen as a complementary development, making it possible to translate the improved knowledge into concrete energy efficiency improvement measures. The projects being realised as a result of these projects contribute to substantial reductions in Chinese greenhouse gas emissions.

The total Norwegian support to these projects is NOK 52.6 million, whereof NOK 15.3 million were disbursed in 2010.

## // ERITREA

In 2010 a team of experts visited Eritrea to undertake a mapping of Eritrean energy needs and assess potential Norwegian support to develop wind or solar power in Eritrea. A report was finalised and shared with the Norwegian Embassy in Asmara and the Ministry of Energy and Mines. The total budget of NOK 236,000 was disbursed in 2010.

## // GEORGIA

### ATTRACTING INVESTMENTS TO LARGE SCALE HYDROPOWER DEVELOPMENTS

Norway provided support to the Georgian government to attract large scale investment into hydropower assets through the tender of the Mtkvari cascade, the preparations of two pre-feasibility studies and a capacity building component for the energy sector in Georgia. This capacity building project was implemented by Econ Pöyry AS<sup>18</sup>, and NOK 2 million was disbursed in 2010.

### CDM PROGRAMME OF ACTIVITIES FOR GREENFIELD HYDROPOWER PROJECTS

The goal is to provide assistance with the development of small, mini- and micro greenfield hydropower projects in rural areas of Georgia by setting up a CDM Programme of Activities and providing manuals, tools and templates for following a step-by-step project development process. The project is being implemented by Norsk Energi, and NOK 1.7 million was disbursed in 2010.

### HYDROPOWER DEVELOPMENT FEASIBILITY STUDY

With support from Norad, Nord-Trøndelag Elektrisitetsverk<sup>19</sup> has carried out feasibility studies in two rivers in Georgia, with the aim to plan and construct new power plants in the country. There was no disbursement in 2010.

## // GHANA

### ESTABLISHMENT OF NATIONAL DAM SAFETY UNIT (NDSU)

Dams impose a risk as dam breakage can cause serious damage to life, property and environment. In Ghana there is no single authority responsible for the safety of dams, and the need for a centralised body set up to ensure that dam safety procedures are in place for all dams is therefore apparent. The three major owners of dams of significant height and/or reservoir volume in Ghana, the Volta River Authority (VRA), the Ghana Water Company Ltd. (GWCL), and the Ghana Irrigation Development Authority (GIDA), administer some 30 dams. An additional 1,500 smaller dams built for local water supply or irrigation purposes are owned by local authorities.

NVE was engaged by Norad (2008) to assist the Water Resources Commission (WRC) formulate a Project Document for the establishment of an authority responsible for dam safety. By the end of the Project of three years duration, it is expected that an independent NDSU has been established in Ghana. NVE's inputs have been covered by special funding from Norad, and NOK 876,000 was disbursed in 2010.

The institutional agreement between NVE and WRC was signed in December 2010 and the programme was officially established. Some activities were started early in 2010 with special approval from Norad while awaiting the final Project Document approval. A workshop in Accra, for the three Technical Committees took place in February 2010 as a follow-up to the 1st workshop in Swedru in December 2009.

## // INDIA

Climate change, Environment and Clean Energy are priority areas of cooperation between India and Norway. The aim is to establish partnerships between government, the private sector and research institutions within these fields.

### SOLAR-BASED RURAL ELECTRIFICATION OF 30 VILLAGES IN FOUR INDIAN STATES

Norad is supporting the implementation of a project for solar energy based electrification of 30 villages. Cooperating institutions are Scatec Solar AS, Scatec Solar India Pvt Ltd, Ministry of New and Renewable Energy and India Renewable Energy Development Agency. The project aims at

<sup>18</sup> www.econ.no

<sup>19</sup> www.nve.no



Beneficiaries of solar-powered electricity in India

Photo: Scatec Solar AS

developing viable business models for increased private investments in rural electrification using solar energy. The energy provided by the project is currently being used by the population in 28 villages. In some villages, the energy is also used to improve or create entrepreneurial activities and small-scale business.

It is expected that the project will contribute to the implementation of India's National Solar Mission, as well as give input to further policy development in the field. The project is providing valuable experience and input to the Clean Energy Initiative's ongoing efforts to identify appropriate business and financing models for private investment in rural electrification. The total Norwegian support is

NOK 16 million, of which NOK 10.8 million were disbursed in 2010.

Some of the key initial results of this project are:

>> increased income generation and productivity enhancement, improvement in education, health and hygiene, communication and female empowerment.

>> The project provides examples of functional organisational models implemented at the grass root level.

>> A Financial Advisory Group (FAG) is established and operational, hereunder utilising data collected from the project to analyse performance, scrutinise business models and further

develop new financial incentive schemes for village electrification.

#### **BIOCO<sub>2</sub> – USE OF SOLAR ENERGY TO PRODUCE RENEWABLE HYDROGEN AND CAPTURE CO<sub>2</sub>**

This project is a three year cooperation between Indian Institute of Technology (Karagpur), Uppsala University and Bioforsk with a total budget of NOK 12.35 million. The short-term goal is to establish a scientific and technological platform for the development of new, commercially competitive and environmentally friendly hydrogen production systems by converting solar energy to hydrogen (H<sub>2</sub>) gas using photosynthesis in algae, combined with capture of CO<sub>2</sub> from flue gas.

The project, in an integrated manner, uses different areas of algae technology to capture CO<sub>2</sub> and produce renewable bio energy in a biological process that produces hydrogen directly from solar energy. The potential for subsequent reuse of the green algal and cyanobacterial biomass obtained during the process is being explored for various industrial applications, such as health food, aquaculture/animal feed, fertilizer, etc. NOK 2.5 million was disbursed in 2010.

#### **BUSINESS PARTNERSHIP FUND FOR PRO-POOR RENEWABLES**

This project works towards the establishment of a fund which will use public funding to leverage substantial additional private finance for off-grid renewable deployment in the poorest Indian states, as well as promote the development of cost-effective and near-commercial business models for scaling up of pro-poor renewable energy in isolated rural areas. The project will be funded in cooperation with the Ministry of New Renewable Energy and the UK's Department for International Development.

The proposed fund design will be consistent with the concept of low-carbon advance market commitments, with a focus on measures with climate and pro-poor benefits; output-based support mechanisms of pre-specified duration; and market-based incentives to increase demand and enable the leverage of private funds. To this end, the proposed fund would support a wide range of measures to deliver electricity from renewable sources to households in rural India. Eligible measures would span a number of technologies, business models, scales of operation, and energy services.

#### **TERI FRAMEWORK AGREEMENT**

In 2008 a framework agreement was signed with The Energy and Resources Institute (TERI) regarding cooperation between Indian and Norwegian research institutions related to climate change and clean energy. The total budget amounts to NOK 60 million, out of which NOK 8.5 million was disbursed in 2010.

The objective of the Framework Agreement is to address knowledge gaps in three strategic areas: i) Clean energy, ii) Climate change and iii) Energy security and climate change. It aims at contributing to the implementation of the Indian National Action Plan on Climate Change, greater knowledge of climate change impacts on India and contribution to a multi-lateral approach on energy security and climate change. The Framework Agreement also promotes dialogue among stakeholders, building their capacity and catalyzing actions.

Of the three main themes in the Framework Agreement, one is related to clean energy. Under this theme a multi-disciplinary, collaborative research on innovation to bring clean energy for livelihood generation of Indian rural communities spread across four geographical and demographic regions is taken up. The research agenda on this theme has two important dimensions. While the first dimension of the innovation focuses on the use of latest technological and scientific know-how in designing, developing, customising and testing technologies to meet specific end-use applications within rural communities, in reliable and cost effective manner, the second dimension focuses on how communities associate themselves with the newly introduced technologies and accept/

enhance the uptake of the energy services for their socio-economic benefit and transition to sustainable development practices.

#### **// INDONESIA**

The Norwegian development cooperation with Indonesia focuses on democracy, energy and fisheries.

#### **BARON TECHNOPARK RENEWABLE ENERGY PROJECT**

The goal of this project is to build a research and utilisation model for electricity generation technologies using renewable energy sources. Norway is supporting the project with NOK 6.5 million over a period of 3 years, 2009–2012. The contract has been signed with the contractor and construction is ongoing, NOK 1.9 million was disbursed in 2010.

#### **TANKA/MANIPI**

Tinfos AS and KF Fjellsikring AS have established a private company in Indonesia, under the name of PT .Sulawesi Mini Hydro Power. A mini hydro-power plants generating and distributing power to the local community will be opened in March 2011. The project is called Tanka/Manipi and has an installed power of 10 MW. The project is financed by private funding. An annual power generation is estimated at 44 GWh. The company also started a capacity building programme, with the aim of transferring know-how and training local employees on all levels. Norad financially supported this training programme with NOK 480,000, of which NOK 240,000 was disbursed in 2010. The programme was finalised in 2010. A new hydro-power development project in South Sulawesi with up to 120 MW is underway and is managed by the same investors.

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## // KAZAKHSTAN

### REDUCED EMISSIONS IN THE PETROLEUM SECTOR

In Kazakhstan Norway supports the establishment of a state-of-the-art system for monitoring, reporting and verification of greenhouse gas (GHG) emissions. The projects includes identification and analyzes of costs efficient emission reduction opportunities, support on environmental regulation of flaring and leakages of gas. NOK 800,000 was disbursed in 2010, and the implementing partner is Carbon Limits AS<sup>20</sup>.

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## // KYRGYSTAN

### FEASIBILITY STUDY

The Kyrgyz Government requested support for preparation of feasibility studies for two hydro power projects which includes a total of seven hydro power stations. The projects are medium scale. Implementing partner is Norconsult AS<sup>21</sup>, and NOK 2 million was disbursed in 2010.

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## // KENYA

### FEASIBILITY STUDY – BIOMASS TO POWER

Norad supported a feasibility study on biomass to power, performed by the African Green Energy and Engineering Research Centre. The support amounted to NOK 847,000 of which NOK 593,000 was disbursed in 2010.

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## // LAOS

Norad has been providing support to the energy sector in Laos since early 2000.

## RURAL ELECTRIFICATION PROGRAM

The Rural Electrification Program is supported by the World Bank and has been implemented in cooperation with Ministry of Energy and Mines and Electricite de Laos. It has been supported through a mixed credit financing of a physical investment component, finalised in 2009, and is currently supported through technical assistance for capacity building. There were no disbursements in 2010. The program has contributed to increasing the access to energy to 70% of the population (2010), and aims at contributing to reaching a target of 90% in 2020.

## HYDROPOWER DEVELOPMENT – XESET II

Norway supported the major hydro-power construction project Xeset II has been supported with NOK 9 million, of which NOK 1.1 million was disbursed in 2010. The support has been highly appreciated by the country, and a new request for support to two major hydropower construction projects is currently under appraisal.

## MIXED CREDITS

One mixed credit project supporting private investment in a small hydro-power project of 8 MW was granted in 2008, and construction is likely to begin during 2011. Norpower AS is the partner, and the project is funded through Eksportfinans (Total budget of NOK 38 million), however no disbursement has been made yet and the project is still under planning.

## LULUCE PROJECT – PDD DEVELOPMENT

The Luluce project aims at mitigating Green House Gases (GHG) and reducing poverty in relation to an

environment that enables active participation of rural communities in an array of climate change mitigation activities. This will be primarily achieved by compensating for GHG emission through implementing of a rubber based agro-forestry system, with food crops and other related programmes. Supporting sustainable agriculture will lead to a substantial reduction in poverty among marginalised communities in Pakkading District, Bolikhamsay Province. Norad supports the project with NOK 205,000 for development of a PDD for CDM approval, there was no disbursement in 2010.

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## // MONTENEGRO

### FEASIBILITY STUDY

The public utility EPCG has opened for a joint venture with Nord-Trøndelag Elektrisitetsverk (NTE) for development and modernisation of two existing hydro power plants. In 2010 Norad provided support for a feasibility study on upgrading of these power plants, and NOK 471,000 was disbursed in 2010. The reconstruction will start during 2011, and will increase the total production with approximately 80 %.

## STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENT FOR DETAILED SPATIAL PLAN FOR HYDRO POWER PROJECTS (HPPS) ON THE MORACA RIVER

The Norwegian Ministry of Foreign Affairs provided support to Montenegro's Ministry of Spatial Planning and Environment (MSPE) for technical assistance with the preparation of the SEIA for the Moraca River HPPs. The support of NOK 0.5 million financed assistance from NVE in procurement

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<sup>20</sup> www.carbonlimits.no

<sup>21</sup> www.norconsult.no



of consultants' services and quality assurance of the process and the report, and NOK 270,000 was disbursed in 2010. The assistance is part of the bilateral cooperation between Norway and Montenegro.

#### // NICARAGUA

Initial talks with the Ministry of Energy regarding further possibilities of cooperation within the field of clean energy were conducted. However, due to the closure of the Embassy in Managua the initiative was aborted.

#### **DEVELOPMENT OF SMALL HYDRO-ELECTRIC PLANTS FOR PRODUCTIVE USE IN OFF-GRID ZONES**

The project aims at contributing to reducing poverty levels in rural communities. It has shown a positive link with the previous phase, reducing the risk level of a delayed start and execution, common in these types

of programs. The project will be implemented by the Ministry of Energy and the funds will be channelled through UNDP.

IDB has approved funds for the programme, in addition to those approved by Norway, Cosude (Switzerland) and the Government of Nicaragua. The total budget is USD 27 million and the Norwegian contribution is NOK 60 million, out of this NOK 15 million was disbursed in 2010.

This project has led to strong UNDP ownership of the Small Hydro-Program and this is a positive sign, considering that the follow-up of the Program by Norway will be transferred to the Embassy in Guatemala. The program has reported encouraging implementation of the 2010 annual plan, and the construction of hydro-electric plants will be initiated in the first half of 2011.

#### **LA CAMPANA WIND POWER PROJECT (PREVIOUSLY LAS BRISAS)**

Norad has provided support to the La Campana project, targeting project planning, facilitating financial closure and licenses approval for the construction of a 40 MW wind power project in the Rias region of Nicaragua. Norad will support the project with a total of NOK 6 million, half of this amount was disbursed in 2010.

#### // NIGERIA

#### **PRE-STUDY REHABILITATION HYDROPOWER STATIONS**

Norad supports a pre-study for rehabilitation of three existing hydropower stations in Nigeria. The total support from Norad will be NOK 347,000, nothing was disbursed during 2010.

#### **CDM PROJECTS ON FLAIRING**

Flaring of gas from oil refineries etc. has a considerable climate effect. Norad supports a CDM project on

flaring in Nigeria, aiming to revise and develop the already existing CDM methodology. The support will be NOK 648,000, nothing was disbursed during 2010.

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## // THE PALESTINIAN TERRITORY

Norway's energy assistance to the Palestinian territory started after the 1993 Oslo Accords. Norway has financed a substantial part of the electricity infrastructure in the West Bank and Gaza, including repairs after the actions of war.

### **PALESTINIAN ENERGY SECTOR ASSISTANCE PHASE V**

In September 2008 Norway and the Palestinian Authority signed an agreement on Norwegian support to the project "Palestinian Energy Sector Assistance Phase V", worth NOK 105 million. In February 2009 an addendum to that agreement was signed where the Ministry of Foreign Affairs agreed on behalf of Swedish International Development Co-operation Agency (Sida) to administer a Swedish grant of SEK 30 million to Phase V. In 2010 NOK 23.6 million was disbursed.

The project aims at:

>> Remedying current system deficiencies.

>> Improving service delivery and public accountability.

>> Laying down the legal, institutional, economic, financial and technical basis for efficient system development.

>> Finalising the necessary power infrastructure to meet the growth of demand up to 2020.

Some of the key achievements experienced in the sector in 2010:

>> Net lending, i.e. Palestinian Authority's fiscal burden stemming from the electricity sector, has been reduced from USD 240 million to USD 120 million.

>> Four substations are operational and most of the connection points with Israeli Electricity Corporation (IEC) are transferred to these substations.

>> The Palestine Energy Regulation Commission (PERC) and the Palestinian Transmission Company PETL are established and functioning according to their tasks as stated in Palestinian Electricity Law.

>> Installation of pre-paid meters and the establishment of northern and southern distribution companies help ensure the sustainability and commercialisation of the electricity services.

>> Extensions and upgrades to the electricity system have enabled the PEA to connect 99 % of households.

>> The number of consumers has increased from 432,888 in 2007 to 480,717 in 2010.

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## // PHILIPPINES

### **FLOOD CONTROL MASTER PLAN FOR BUCAYAO AND MAG-ASAWANG TUBIG RIVERS**

Since 2007 Norad has provided support to the provincial government of Oriental Mindoro for development of a "Flood control master plan". The plan was presented to the provincial government in 2010, with

recommendations for implementation of flood protection measures. NVE is the coordinator with overall responsibility for execution of the project and the total Norwegian support is NOK 4.3 million, out of which NOK 1 million was disbursed in 2010.

### **IMPROVEMENT OF THE FLOOD FORECASTING AND WARNING SYSTEM FOR MAGAT DAM AND DOWNSTREAM COMMUNITIES**

In November 2010 NVE and Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) started an institutional cooperation project for rehabilitation and upgrading of the flood forecasting and warning system for the Magat Dam and its downstream communities. Norad supports the project with NOK 10.7 million, and key activities will include restoration and enhancement of the hydrometric network for real time data collection, establishment of a decision support system for the operation of Magat Dam, and the enhancement of a public information drive within the flood prone areas. Training is an essential part of the whole project. No disbursements were made in 2010.

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## // SOUTH AFRICA

### **POLICY RESEARCH AND CAPACITY DEVELOPMENT PROGRAMME**

In October 2006 NVE entered into a new contract with the Department of Minerals and Energy (DME) based upon a previously signed Memorandum of Understanding between the South African and Norwegian governments in 1996. The cooperation programme was intended to commence in 2006, partly based on the outcome of the earlier cooperation, including the role played by

the Norwegian Petroleum Directorate (NPD). NVE was called upon to serve as the Norwegian Coordinator for four of the Norwegian supported sub-programmes; Electricity, Energy Regulation, Alternative Energy and to a smaller extent, the Hydrocarbons sub-programme. NPD primarily provided support to the Upstream Petroleum sub-programme.

The Programme's Final Report was presented in May 2010 and included a review of the Programme since inception in 2006. No disbursement was undertaken in 2010.

#### **PV SOLAR MARKET ASSESSMENT**

In 2010 Norad provided support to Scatec Solar<sup>22</sup> to perform a PV Solar Market assessment in South Africa. The budget amounted to NOK 500,000, all disbursed in 2010.

#### **// SUDAN**

##### **MULTI-DONOR TRUST FUND / NATIONAL SUDAN**

Norway supports the Multi-Donor Trust Fund (MDTF/National)<sup>23</sup>. The MDTF supports the Community Development Fund (CDF), and one of the activities of the CDF is the Solar Electrification Program, performing rural electrification through solar energy technology.

#### **// TAJIKISTAN**

##### **TAJIKISTAN/AFGHANISTAN CROSS BORDER ENERGY COOPERATION**

Extension of an 8 km power line which is now supplying over 500 households, 25-30 shops, 5 government offices, a clinic, a school and an international organisation.

The extension will connect additional villages in Afghanistan to the Tajik-based substations in Porshinev and Khorog. It will promote additional energy cooperation between the regions and as a result should also increase regional economic activity. The quality of life will increase while dependence on fossil fuels for lighting and cooking purposes will be reduced. It also includes construction of a mini-hydro in Sharisabz village of Afghanistan. NOK 2.2 million was disbursed in 2010, and the implementing partner is Aga Khan Development Network<sup>24</sup>.

##### **DEVELOPMENT OF THE SMALL SCALE HYDROPOWER SECTOR**

In cooperation with the Ministry of Energy and Industry and other relevant stakeholders Norway provided support for building of sustainable capacity in Tajikistan. The work focuses on further developing the small hydro power sector, including establishment of a local focal point of expertise. Econ Pöyry AS is the implementing partner, and NOK 4 million was disbursed in 2010.

#### **// UKRAINE**

##### **EDUCATING ENERGY- AND ENVIRONMENTAL EXPERTS IN INDUSTRY AND PUBLIC SECTOR**

New Energy Performance AS<sup>25</sup> is establishing a Master's program in the field of energy efficiency at Ivano-Frankivsk University targeting public officials and the private sector. NOK 426,000 was disbursed to the project in 2010.

##### **ENERGY EFFICIENCY AND ENVIRONMENTAL IMPROVEMENTS**

The goal of this project is to increase

knowledge in the public sector with respect to energy efficiency in buildings, industry and schools, so that European Union environmental standards can be met. The project is being implemented by Reinertsen AS<sup>26</sup>, Tekna<sup>27</sup> and the Friends of the Earth Norway<sup>28</sup>. In 2010 NOK 1.8 million was disbursed to the project.

##### **SUSTAINABLE CAPACITY BUILDING FOR CLIMATE CHANGE MITIGATION**

Capacity building within the field of energy efficiency and climate change, particularly related to the Kyoto Protocol and the JI-mechanism and Green Investment Scheme. The project is implemented by Norsk Energi<sup>29</sup>. NOK 1.6 million was disbursed in 2010, out of the total budget amounting to NOK 3.9 million.

#### **// UZBEKISTAN**

##### **ENERGY EFFICIENCY CAPACITY BUILDING**

In Uzbekistan, Norway supports the development of tailored capacity building programmes supporting improved energy efficiency, coordinated with programmes and plans of other international organisations. The work includes organising energy efficiency seminars and University guest lectures. The implementing partner is ENSI – Energy Saving International AS<sup>30</sup>, and NOK 640,000 was disbursed in 2010.

#### **// VIETNAM**

The history of cooperation between Vietnam and Norway goes back for more than 40 years. In 2010 Norway supported one clean energy project in Vietnam;

<sup>22</sup> www.scatec-solar.com

<sup>23</sup> Total Norwegian support to the MDTF fund from 2005 until 2011 amounts to NOK 570 million. The funds are not earmarked, and it is therefore difficult to specify how much of the funds utilized within clean energy.

<sup>24</sup> www.akdn.org

<sup>25</sup> www.nepas.no

<sup>26</sup> www.reinertsen.no

<sup>27</sup> www.tekna.no

<sup>28</sup> www.naturvernforbundet.no

<sup>29</sup> www.energi.no

<sup>30</sup> www.ensi.no



Jharkhand, India – Silk-weaving

Photo: Scatec Solar AS

#### **FORMULATION OF PROCESSES AND CAPACITY BUILDING PACKAGE ON LICENSING WATER RESOURCES EXPLOITATION AND UTILISATION FOR HYDROPOWER**

The project is a four year institutional cooperation project between Department of Water Resource Management, Ministry of Natural Resources and Environment (MONRE), and NVE. NOK 25,000 was disbursed in 2010.

The objective of the project is to contribute to the sustainable, environmentally as well as socially sound management of water resources and the development of hydropower projects in Vietnam by:

>> Establishing an efficient and transparent system for licensing

hydropower projects and other kinds of reservoirs including multipurpose reservoirs

>> Building adequate competence of personnel involved in the licensing process through various forms of training.

Some of the key achievements of the cooperation in Vietnam:

>> Skills on hydropower licensing are increased through:

- > One workshop on hydropower licensing guidelines
- > One study tour to Norway for 6 high-level leaders from MONRE
- > Staff training, particularly on hydropower licensing

>> NVE assistance on four actual hydropower licensing cases in Vietnam

>> Facilitating contact and cooperation between ministries that will last beyond the project

#### **// ZAMBIA**

Norad provided support to SN Power Africa for preparing a feasibility study of hydropower in Zambia. The support amounts to around NOK 600,000, but there were no disbursements in 2010.



Photo: Ken Opprann

# REGIONAL COOPERATION

// Norway provides direct financial and technical support to regional energy cooperation. Some of the areas wherein the Norwegian support has been focused are energy planning, in example through development of master plans, assistance to the establishment and institution building of power trade organisations and power pools, and the promotion of regional expansion of infrastructure.

These projects are expected to contribute to long term management of natural resources, improving access to electricity, well functioning frameworks for the energy sector and sustainable economic and social development.

A recent example of regional cooperation has come out of the twinning arrangement and cooperation between the Norwegian Transmission System Operator (Statnett) and its counterparts in Uganda, Tanzania and Kenya (in the planning). Creation of a dialogue forum between the three neighbouring Transmission System Operators has led to improved regional collaboration and coordination. In the following the various regional organisations and projects receiving Norwegian funds will be introduced.

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## // CONSUMER UNITY AND TRUST SOCIETY, CENTRE FOR COMPETITION, INVESTMENT AND ECONOMIC REGULATION

With the support of Norad, the Consumer Unity and Trust Society, Centre for Competition, Investment and Economic Regulation (CUTS C-CIER) has undertaken an initiative in Nepal, Bangladesh, and two states of India (West Bengal and Rajasthan). Over two years (2008 to 2010) CUTS C-CIER will build the capacity of consumer groups and civil society organisations in action oriented research, and advocate with policymakers and regulatory agencies to effect pro-consumer changes in the regulatory and policy processes governing the electricity market.

In 2010 Norad contributed NOK 300,000 to the project that was completed in December 2010. This project is being followed up by Norad.

For further reference and documentation:  
[www.cutsccier.org/resa/pdf/RESA\\_Project\\_Evaluation\\_Report.pdf](http://www.cutsccier.org/resa/pdf/RESA_Project_Evaluation_Report.pdf)

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## // THE COORDINATION CENTRE OF SOUTHERN AFRICAN POWER POOL

Southern African Power Pool (SAPP) was created with the primary aim of providing reliable and affordable electricity supply to the consumers of the SAPP members. The aim was to improve the efficiency in the production of energy and thereby also have a positive impact on the environment.

The members of SAPP have undertaken to create a common market for electricity in the SADC region and to let their customers benefit from the advantages associated with this market.

Since 2003, Norway has provided NOK 35 million for support to the Coordination Centre of Southern African Power Pool (SAPP - CC). The aim was to develop a competitive electricity market in the SADC-region. Parallel to this, Sweden provided financial support worth SEK 10 million for a project on long term transmission pricing and ancillary services market development.

Norway also contributed NOK 2.5 million to SAPP - CC for updating the Pool Plan for the SADC-region ranking the available transmission and generation projects on a least-cost regional basis. The main study was financed by the World Bank.

The Norwegian and Swedish support has been well coordinated and in December 2006 SAPP -CC requested an extension of joint Norwegian and Swedish financial support for the implementation of the competitive market. After a long appraisal process, the project was launched in 2009 with Norway as lead donor. The ongoing project will be introduced in the following:

### // Implementation of a competitive electricity market in Southern Africa

The objective with this Norwegian and Swedish funded project is to implement a competitive electricity market where existing national utilities, IPPs, Independent Transmission Operators and big end users will participate in trading. The main cooperating institution is SAPP-CC, and the project period runs from 2009 until 2011. The total budget for the project is NOK 22.5 million (Sweden SEK 12 million), and in 2010 NOK 2.4 million was disbursed under the Norwegian support. This project is being followed up by the Norwegian Embassy in Maputo.

The key achievement of the project in 2010 was launching of the competitive electricity market.

For further information on the SAPP see:  
[www.sapp.co.zw](http://www.sapp.co.zw)

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## // THE EAST AFRICAN COMMUNITY

The East African Community (EAC) is the regional inter-governmental organisation of the Republics of Kenya, Uganda, the United Republic of Tanzania, Republic of Rwanda and Republic of Burundi with its headquarters in Arusha, Tanzania.

The EAC is committed to engaging EAC Partner States in an initiative to scale up access to modern energy services to meet the Millennium Development Goals. A regional strategy on scaling up access to modern energy services has been developed.

The Strategy has four key Targets, which were approved by EAC Energy Ministers in August 2005, to be fulfilled by 2015, in line with the MDG framework in Scaling-up Access to Modern Energy Services that include:

>> provide access to modern cooking practices for 50 % of the population that currently uses traditional cooking fuel;



Preparing new poles for power lines

Photo: Ken Opprann

>> provide access to reliable electricity for all urban and peri-urban poor;

>> provide access to modern energy services for all schools, clinics, hospitals and community centres; and

>> provide access to mechanical power for heating and productive uses for all communities.

The regional strategy is a key factor in achieving a synergy that will accelerate achieving MDGs in the Partner States.

Implementation of the strategy started with the recruitment and reporting of the Project Development Officer on 1st June 2010 after securing funding from the Norwegian Ministry of Foreign Affairs. The main purpose of this job is to secure planning, coordination and monitoring of EAC activities for implementation of the Regional Strategy on Scaling-up Access to Modern Energy Services as well as serving as a link between the EAC Secretariat and Development Partners and the Private sector. In addition secure

coordination of the strategy implementation activities with the Nile Basin and Great Lakes Initiatives and other regional cooperation arrangements in Eastern Africa. The ongoing project will be introduced in the following:

**// Support to develop a regional strategy on scaling up access to modern energy services (the strategy) – Recruitment of a project development officer**

The EAC Energy Access Strategy aims to encourage EAC Partner States to scale up access to modern energy services to ensure that at least half of the EAC population has access to modern energy services by 2015. In order to achieve this it was necessary to strengthen the EAC secretariat with a project development officer. An agreement was entered into with the EAC, for a project with a three year timeline from 2009 – 2011. The total budget is NOK 1.73 million. No disbursement was made in 2010; however the project activities were ongoing. This project is followed up by the Norwegian Embassy in Dar es Salaam.

Key achievements of the project in 2010 include:

- >> Project development officer recruited.
- >> Capacity building programme for the scaling up strategy has been developed and initiated which includes regional and national activities
- >> Partner States are implementing several programmes at the national level to increase access to modern energy services using different energy sources, technologies and financing models. A situational analysis was done on a country by country basis.

For more information on the EAC see:  
[www.eac.int](http://www.eac.int)

#### OPERATIONALISATION OF EASTERN AFRICA POWER POOL COORDINATION CENTRE AND INDEPENDENT REGULATORY BODY

Countries in East Africa have been planning, developing and implementing their power systems in isolation and with the view to satisfying only growth in the national demand, although with some limited bilateral power exchange agreements between some countries in the region. During the last decade there has been a growing political interest in scaling up regional integration.

The Eastern Africa Power Pool (EAPP) was formed in February 2005 to contribute to power systems interconnection in the Eastern Africa Region, so that optimal power resources are used to provide adequate, secure and affordable electricity to the population of the Region by pooling together all available energy resources in the Region in a coordinated manner.

In November 2008, the permanent EAPP Secretariat EAPP-PS requested assistance from the Norwegian Embassy in Dar es Salaam. The agreement was signed between the Eastern Africa Power Pool and the Norwegian MFA in November 2009. The ongoing project will be introduced in the following:

#### //EAPP capacity building to operationalize the EAPP-coordination center (CC) an independent regulatory body (IRB)

The main objective of this project is to operationalise the EAPP Coordination Centre and Independent Regulatory

Body by 2012 to facilitate efficient power trading in the region when the critical mass of regional interconnection projects has been realised. The permanent EAPP Secretariat (EAPP – PS) is the main cooperating institution, during the three year project (2009-2011). The project has a total budget of NOK 15 million, of which NOK 3.1 million was disbursed in 2010. The project is being followed up by the Norwegian Embassy in Addis Ababa.

The project's key achievements in 2010 include:

- >> The procurement process for the Co-ordination consultant and the Procurement consultant was finalised and the consultants started their work in 2010.
- >> The procurement of Management consultant and Database consultant is about to be finalised and the consultants are expected to report to EAPP from February/March 2011.
- >> The staff for the CC (three persons) in place. The staff for IRB (three persons) expected to be in place by January 2011.
- >> Training activities in progress, most of the planned training activities will be conducted in 2011 as the agreement on training services was signed with ENERGINET-DK in January 2011.

For more information on the EAPP see:  
[www.eappool.org](http://www.eappool.org)

#### NILE BASIN INITIATIVE

The Nile Basin Initiative (NBI) is a partnership initiated and led by the Nile riparian states that seeks to develop the river in a cooperative manner, share substantial socioeconomic benefits and promote regional peace and security.

The NBI began with a dialogue among the riparian states that resulted in a shared vision to “achieve sustainable socioeconomic development through the equitable utilisation of, and benefit from, the common Nile Basin water resources.” It was formally launched in February 1999 by the water ministers of nine countries that share the river: Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda, the Democratic Republic of Congo (DRC), as well as Eritrea as an observer. From its beginning the Nile Basin Initiative has been supported by the World Bank<sup>31</sup> and by other external partners, among others Norway, with a total

<sup>31</sup> [www.worldbank.org](http://www.worldbank.org)

financial contribution of approximately NOK 200 million. The riparian countries have yet to agree on a political agreement (Comprehensive Framework Agreement) regarding the establishment of a Nile Commission to administrate the joint management of the Nile water resources.

Cooperative water resources management is complex in any international river basin. In the Nile Basin, which is characterised by water scarcity, poverty, a long history of dispute and insecurity, rapidly growing populations and demand for water, it is particularly difficult.

Norway contributes with core support to the NBI through the Nile Basin Trust Fund (NBTF), chaired by the World Bank. In 2010 the Norwegian contribution amounted to NOK 12.3 million. Through this fund, support is channelled to various projects and investment programmes. Some of these, Shared Vision Projects (SVP), Institutional Strengthening Project, the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) or the Eastern Nile Subsidiary Action Program (ENSAP), have activities within the energy sector.

Besides the core support to the NBTF, Norway also provides additional funds to other NBI activities/projects, some of these will be introduced below:

**// The Nkenda (Uganda) – Bunia (Democratic Republic of Congo) transmission line**

This is one of the NBI and NELSAP initiated transmission projects. This interconnection line is part of the overall regional system plans, which also include Tanzania, Burundi and Rwanda. The planning of the line enables cooperation between countries and will eventually introduce the possibility of cross-border trade. No agreement has been signed for this project, however substantial dialogue has taken place, and Norway has indicated its intention to support the feasibility study. The project is being followed up by the Norwegian Embassy in Kampala.

**// The Kenya – Tanzania interconnector**

Another prioritised regional transmission line is the interconnection between Kenya and Tanzania. A feasibility study for this project was undertaken in 2002 and recommended the construction of a 330 kV single circuit line between Nairobi and Arusha. This line was expected to link the region with the Southern African Power Pool (SAPP) through another 330 kV transmission line between

Tanzania and Zambia. Dry hydrological conditions resulting in serious power deficits made financiers reluctant to fund the project, and it was put on hold.

New developments led to the revival of this interconnection project, and in 2010 an agreement to support a revision and upgrading of the 2002 feasibility study was signed between NELSAP and the Norwegian Embassy in Tanzania. The budget of the project is NOK 24 million, whereof NOK 8.3 million was disbursed in 2010.

**// Rusumu Falls hydroelectric and multipurpose development project**

Together with the World Bank and Sweden Norway supports an ongoing feasibility of the Rusumu Falls Hydroelectric and Multipurpose development project. The objective of the project is: 'to provide multi-purpose use of water and energy resources with investment in sustainable livelihoods in the project area (Rwanda, Burundi and Tanzania)'. The Norwegian contribution amounts to NOK 10 million. No disbursement was made in 2010 due to delays; however the project activities were ongoing. This project is being followed up by the Norwegian Embassy in Kampala.

Key achievements towards the NBI in 2010 include:

>> Agreements signed with the consultants and the Feasibility study of the Kenya – Tanzania Interconnector

>> Detailed design and Preparation of Tender Document & Environment and Social Impact Assessment and Resettlement Action Plan of the Kenya – Tanzania interconnector commenced.

For more information on the Nile Basin Initiative see: [www.nilebasin.org/newsite](http://www.nilebasin.org/newsite)

**THE PROGRAMME FOR BASIC ENERGY CONSERVATION (PROBEC)**

ProBEC was established in 1990 and has been supported by Norway since 2008. The purpose of the programme is to improve the quality of life of poor people in the region through increased access to energy in a socially – and environmentally friendly manner. The programme is a regional initiative involving the countries in Southern – and Eastern Africa.

Currently the programme is managed by the Norwegian embassy in Maputo. The programme has been supported by several European countries and the Norwegian contribution has been NOK 25 million in the period 2008-2010. No disbursement was undertaken in 2010, however activities under this support was ongoing.

For more information about ProBEC see:  
[www.probec.org](http://www.probec.org)

### SOUTH AFRICAN DEVELOPMENT COMMUNITY

In order to implement the South African Development Community (SADC) Common Agenda, SADC and International Co-operating Partners (ICPs) have developed a new SADC/ICP Partnership. This new partnership, as outlined

in the Windhoek Declaration (April 2006), and it aims at an effective dialogue and cooperation between SADC and ICPs within various sectors and areas.

Despite being rich in primary energy resources, the SADC region experiences a power shortage. Furthermore about 80 % of the region's population use various forms of biomass very inefficiently. Against this background, there is a substantial involvement from various ICPs in energy related projects. To pursue this task the SADC Energy Thematic Group (ETG) was established.

SADC designated Norway as lead ICP in energy in January 2007, and the Norwegian Embassy in Maputo took the lead on the Norwegian side. Based at the Embassy in Maputo, a senior energy expert has been assigned to



Cooking on traditional charcoal ovens

Photo: Hans Terje Ylvisåker, NVE

the secretariat in the period from 2008 to 2010. Norway will continue the support for the secretariat in 2011, but then with short term consultancies. Ongoing projects are introduced in the following paragraphs:

#### // **New SADC/ICP partnership**

Norway provided assistance through a coordinator based at the Norwegian Embassy in Maputo. SADC is the main partner in this project, with a time line from 2008–2010 for this project. The main objectives for the assistance of the Coordinator were to assist SADC with facilitating the co-ordination of ICPs involved or interested in activities within the energy sector. The main objectives of the project are:

>> to assist SADC in facilitating the co-ordination of ICPs involved or interested in activities within the energy sector;

>> to strategically advise the SADC Secretariat and other SADC structures on the various ICPs' comparative advantages and individual ICP priorities of support to the sector;

>> to maintain a continuous dialogue and flow of information between SADC and ICPs on regional energy issues

The SADC ETG is the main instrument to meet the objectives of the project.

The Norwegian funds, amounting to NOK 2.5 million per year, have been used to cover the salaries and subsistence allowance for a full time energy coordinator based in Maputo, professional backstopping and contingencies.

#### // **Kafue Gorge training centre**

Norway received an application from the regional training centre Kafue Gorge Training Centre (KGTC) in Zambia for expansion of the centre's activities. The KGTC is an important training centre in the SADC region, and the application was evaluated by the regional adviser in Maputo. The application was later turned down. The Cooperation between KGTC and International Centre for Hydropower (ICH) in Norway on regional training courses continued in 2010 and ICH recently entered into a new agreement with KGTC to hold annual regional training sessions.

Key achievements in 2010 are:

>> Support for and strengthening of, information exchange among the ICPs.

>> Identification of areas where coordinated ICP initiatives can make a significant contribution to address SADC's energy challenges.

>> ICP cooperation to fund new initiatives to develop renewable energy and energy efficiency programmes.

>> Dialogue and strategic support to the SADC Secretariat.

>> The Coordinator has interacted closely with SADC and associated institutions, to support and facilitate various initiatives supporting and developing SADC's energy strategy.

>> Participation in this project has strengthened Norway's position within energy in the region. The role as lead ICP has provided access to decision-making forums, hence offering an opportunity to enhance beneficial energy solutions in the region.



# MULTILATERAL COOPERATION

Within the Clean Energy for Development Initiative it is believed that channelling support through various multilateral channels will lead to a value added in reaching the goals set for the Initiative.

Norwegian support to multilateral institutions includes both core support and more energy sector specific support to programmes within clean energy. In 2010 around NOK 156 million of the Norwegian development assistance to clean energy was allocated to multilateral institutions. In addition some of the support provided through multilateral channels is categorized as support to environment, even if the support also covers activities within energy<sup>32</sup>.

The following chapter seeks to present the total Norwegian clean energy support channelled through multilateral institutions.

>> United Nations

- > UN-Energy
- > UNDP
- > UNEP
- > UN-Habitat
- > UNIDO

>> World Bank Group

- > NTF-PSI
- > SREP
- > CCS
- > CARBON FUNDS
- > ESMAP

>> Asian Development Bank

>> African Development Bank

>> Multilateral organizations

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<sup>32</sup> A rough estimate indicates that the total support is approximately NOK 250 million if all energy related activities supported by Norway through multilateral institutions were included.

## UNITED NATIONS

Norway is a strong supporter of the United Nations (UN) and is one of its most important contributors. There are many organisations within the United Nations that deal with clean energy, but none that have energy as a sole focus area. The most important UN organisations that Norway contributes to that have a clean energy portfolio are UNDP, UNEP, UNIDO and UN-Habitat.

### // UN-Energy

After the World Summit on Sustainable Development, UN-Energy, an inter-agency mechanism on energy was established. UN-Energy's task is amongst others to promote system-wide collaboration in the area of energy, with a coherent and consistent approach. In 2007 Kandeh Yumkella was elected as Chair. Dr. Yumkella is the Director General of UNIDO (United Nations Industrial Development Organisation). To promote policy coherence and operational cooperation within the UN-System, UN-Energy has created three thematic clusters: the Energy Access cluster, the Renewable Energy Cluster and the Energy Efficiency cluster. In addition to joint publications UN-Energy has in 2010 been working with a compilation of all UN-activities within the field of energy, a strategy forward for UN-Energy and a knowledge network.

For more information refer to:  
[www.esa.un.org/un-energy](http://www.esa.un.org/un-energy)

### // UNDP

UNDP is the United Nation's development network and links and coordinates global and national efforts to reach the Millennium Development Goals. Access to environmental and energy services for the poor is one of several focus areas of UNDP.

UNDP focuses both on upstream activities, for example policies needed to support energy options for sustainable development, and on downstream activities concentrated on integrated energy solutions addressing social, economic and environmental objectives to address poverty and promote sustainable development.

In 2010 Norway contributed approximately NOK 2 billion through UNDP. During the last three years Norway has been the main donor to UNDP's Thematic Trust Fund for

Energy and Environment (EE TTF) with a total support of NOK 69 million for 2008 to 2010.

The Energy Access Program is funded through the EE TTF. The overarching goal of the program is to strengthen capacities of the developing countries in expanding access to modern energy services for the poor.

The Energy Access Program has also assisted national counterparts in their efforts to mainstream energy issues into national development strategies by developing a catalogue of policy notes, guidelines, tools, and other resources which are currently available.

For more information see:  
[www.undp.org](http://www.undp.org)

### // UNEP

The United Nations Environment Program (UNEP) has identified six cross-cutting thematic priorities.

These thematic priorities are, in alphabetical order:

- >> Climate change;
- >> Disasters and conflicts;
- >> Ecosystem management;
- >> Environmental governance;
- >> Harmful substances and hazardous waste;
- >> Resource efficiency – sustainable consumption and production.

Norway has actively worked for a non-earmarking of the support to UNEP, and has therefore allocated its support along with the organisations own thematic priorities. In 2010, Norway contributed NOK 100 million through the frame agreement with UNEP. This contribution was disbursed on the different thematic priority areas as follows: Climate change (22 %); Disasters and conflicts (5 %); Ecosystem management (18 %); Environmental governance (23 %); Harmful substances and hazardous waste (13 %) and Resource efficiency (9 %) <sup>33</sup>.

UNEP's work within energy falls within the Climate Change priority area. The goal of UNEP's Energy Branch is to bring the environmental dimension into energy sector decisions, with a focus on reducing emissions of greenhouse gases. The energy branch works with the following areas: mobilising finance, energy efficiency, renewable energy, transport and bio-energy.

<sup>33</sup> The last 10 % is reserved for emerging issues, to be agreed upon between UNEP and Norway.

UNEP is actively engaged in producing information and sharing knowledge about various aspects of financing climate change mitigation and adaptation. One report drafted in 2010 is:

>> Towards a Green Economy. Pathways to sustainable and poverty eradication (a synthesis for policy makers). This report makes an economic and social case for investing two per cent of global GDP in greening ten central sectors of the economy, including energy, in order to shift development and unleash public and private capital flows onto a low-carbon, resource-efficient path.

For more information see:  
[www.unep.org](http://www.unep.org)

#### // UN-Habitat

The United Nations Human Settlements Program, UN-HABITAT, is the United Nations agency for human settlements. It is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

Access to Clean Energy and Energy Efficiency is part of the agenda in UN-HABITAT's work towards the goal of "Cities without slums". UN-HABITAT has both a normative and an operational function.

Norway contributed with NOK 79 million to UN Habitat frame agreement and Program agreement in 2010.

An example of UN-Habitat's work within the field of Clean Energy in 2010 is the "Cities and Climate Change Initiative" – Energy efficiency in building(s).

For more information see:  
[www.unhabitat.org](http://www.unhabitat.org)

#### // UNIDO

The United Nations Industrial Development Organisation (UNIDO) is a specialised agency of the United Nations. Its mandate is to promote and accelerate sustainable industrial development in developing countries and economies in transition.

UNIDO focus on three main thematic areas to achieve its goals:

- >> Poverty reduction through productive activities
- >> Trade capacity –building
- >> Energy and Environment

In 2010 Norway contributed with NOK 9.53 million to UNIDO. Norway's contribution to UNIDO's work within clean energy in 2010 was concentrated to the support of a National Cleaner Production Centre in Sri Lanka, which Norway has supported since it was established in 2001. The objective of the support to NCPC has been to contribute to sustainable development by promoting and building capacities on cleaner production methods and policies.

For reference and more information see:  
[www.unido.org](http://www.unido.org)

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#### WORLD BANK GROUP

The World Bank supports developing countries' efforts to provide cleaner and reliable electricity services to households and businesses through its financing instruments, policy advice, partnerships, and knowledge transfer. In the fiscal year 2009/2010 (ending in June) World Bank Group financing for low carbon energy activities (including all forms of renewable energy, energy efficiency as well as policy loans and institutional capacity building in these areas) exceeded USD 5.5 billion. This was 62% more than the previous year. Low carbon financing represented more than 42% out of total energy financing in 2009/10, up from 36% five years earlier.

Norway provides co-financing to the World Bank's work with energy related issues through the Norwegian Trust Fund for Private Sector and Infrastructure (NTF-PSI), Scaling-up Renewable Energy in low income countries (SREP), Carbon Capture and Storage capacity building (CCS), Carbon funds, the Energy Sector Management Assistance Program (ESMAP) and the International Development Assistance (IDA).

For more information on the WB group see:  
[www.worldbank.org](http://www.worldbank.org)

#### //Norwegian Trust Fund for Private Sector and Infrastructure

Around NOK 20 million is allocated annually through NTF-PSI for freestanding activities, all of which goes to clean energy projects with the exception of NOK 5 million that is allocated to Petroleum Governance. There was no Call for Proposal during 2010.



The NTF-PSI energy portfolio includes the following clean energy projects:

>> IFC Private Equity Clean Energy: aims to support private equity funds to access clean energy projects through advisory services and a series of knowledge products.

>> Lighting Africa web portal: the web portal is the central vehicle and platform for the management and implementation of Lighting Africa, an innovative joint IFC-World Bank program that aims to increase access to modern energy services to the poorest of the poor in Africa via a market-based approach.

>> The Bosnia Herzegovina integrated water energy development study: the objective is to pilot for the Yrbas River in Bosnia and Herzegovina and overarching plan for multi-purpose water resource development using the river basin as the basis for planning, and to provide pre-investment analytical support.

#### // **Scaling-up renewable Energy in low income countries (SREP)**

Scaling-up renewable energy in low income countries (SREP) is one of the sub-funds under the Strategic Climate Fund (SCF). SREP is part of the Climate Investment Funds (CIF), handled by the World Bank in cooperation with the other regional multilateral development banks.

Norway is providing a total of NOK 150 million over four years in support for the program, which focuses on a small number of low income pilot countries to promote alternatives to traditional fossil fuel, by demonstrating that renewable energy like sun-, wind-, thermal-, bio fuel and hydro-power (up to 10 MW) can cover access to energy needs, both for households and as basis for income generating activities. The program addresses policy and the enabling environment in the energy sector as well as investments, which will be the substantial part, on the basis of clean energy sector investment plans, SREP reached more than its target funding level of USD 250 million in 2010 and started its operations at the end of the year 2010.

The Steering committee of SREP has equal representation of donors and partners. This is a new form of governance structure, used in the CIF climate funds, and it is seen as a possible model for the future Green Climate Fund. Norway has a seat in the SREP Steering Committee. The first group of pilot countries are Ethiopia, Kenya, Mali, Honduras, Nepal and Maldives. The program is highly requested by developing countries who want to be among the pilots. Another group of six is lined up to start implementing as soon as more funds are available.

#### // **Carbon capture and storage capacity building (CCS)**

A new World Bank trust fund for capacity building on carbon capture and storage was set up in December 2009 as a

result of cooperation between Norway, the World Bank and the Global CCS Institute in Australia. Norway is the largest donor with a contribution of NOK 53 million. The Global CCS Institute in Australia is also a supporter to the fund.

The trust fund will facilitate inclusion of CCS options into low-carbon growth strategies and policies developed by national institutions and supported by World Bank Group in developing countries.

The fund received requests from 12 developing countries in 2010 and aims at starting the implementation of all or the majority of the country and regional projects in 2011.

#### // Carbon funds

The World Bank has pioneered carbon finance, and this area of operations has bloomed into a number of special purpose funds. Norway is currently participating in the Prototype Carbon Fund (PCF) and the Forest Carbon Partnership Facility.

Norway supports the capacity building part of the Carbon Partnership Facility for infrastructure (post 2012). This program builds a partnership between future carbon sellers in developing countries with future buyers, thus guaranteeing a deal for both seller and buyer. The idea is that this instrument may give incentives to investors and planners to ensure that big infrastructure projects on the drawing table to day, (which will have an impact on emissions for years to come), are designed with the cleanest possible technology, knowing that the avoided carbon emissions may be sold. The capacity building component supports developing countries in identifying suitable projects.

The Prototype Carbon Fund (PCF) became operational in April 2000. As the first carbon fund, its mission is to pioneer the market for project-based greenhouse gas emission reductions while promoting sustainable development and offering a learning-by-doing opportunity to its stakeholders.

The PCF has been structured as a public-private partnership of six governments and 17 companies. From its inception, the PCF has followed three primary strategic objectives:

>> High-quality emission reductions to show how project-based greenhouse gas emission reduction transactions can promote and contribute to sustainable development and lower the cost of compliance with the Kyoto Protocol.

>> Knowledge dissemination to provide the parties to the United Nations Framework Convention on Climate Change (UNFCCC), the private sector, and other interested parties with an opportunity to "learn-by-doing" in the development of policies, rules, and business processes for the achievement of emission reductions under CDM and joint implementation.

>> Public-Private Partnerships to demonstrate how the World Bank can work in partnership with the public and private sectors to mobilise new resources for its borrowing member countries while addressing global environmental problems through market-based mechanisms.

#### // The Energy Sector Management Assistance Program (ESMAP)

The Energy Sector Management Assistance Programme (ESMAP) is a global, multidonor technical assistance program aimed at promoting environmentally sustainable energy solutions for poverty reduction and economic growth. Eleven bilateral donors and the World Bank provide grant funding for ESMAP.

In 2010 Norway contributed NOK 4.5 million, or approximately 8 % of the program's total budget of USD 9.1 million. It is managed by the Energy, Transport and Water Department of The World Bank Group.

Since its establishment in 1983, ESMAP has been helping low- and middle-income countries find environmentally sustainable energy solutions that support economic growth and reduce poverty. Current actions are guided by ESMAP's Strategic Business Plan 2008–13, which identifies three priorities: energy security, energy access, and climate change.

With infrastructure financing reduced as a result of the global recession, many low-income countries are struggling to meet rising demand for energy services. At the same time, climate change presents new challenges to generate energy from low-carbon sources and assess climate impacts on energy systems, while also using energy more efficiently.

Over the past year, ESMAP has focused on building longer-term strategic partnerships with countries and regions to achieve "win-win-win" energy solutions that are pro-poor, pro-growth, and climate-resilient. This requires innovation, results-orientation and responsiveness to client countries, which have been the hallmarks of ESMAP's work.

#### Results and impacts on activities carried out in 2010:

>> ESMAP has supported more than 200 analytical and advisory activities, with about USD 50 million in grants disbursed.

>> Seventy ESMAP activities have contributed to the identification and design of about USD 16 billion in World Bank Group financing.

>> ESMAP activities have underpinned scale-up programs for concentrating solar power in the Middle East, North Africa and in India and for wind in Mexico, several Investment Plans for the Climate Investment Funds, and transformative country sector dialogues in China, Egypt, India, the Philippines, Turkey, and Vietnam.

>> ESMAP has supported Lighting Africa which has transformed the market for off-grid lighting products and assisted in the development of sector-wide investment prospectuses in Rwanda and Kenya that mobilized over USD 1 billion for the two countries' energy access programs.

>> Over 30 countries developed energy strategies, policies, sector institutions, new legislation and regulations based on analyses and recommendations provided by 38 distinct ESMAP activities.

>> In 40 countries, ESMAP's support strengthened capacity to implement national programs, improve energy sector performance and governance, increase access to reliable modern energy services, and speed up renewable energy deployment as well as energy efficiency investments.

>> ESMAP has pioneered planning tools for low carbon and climate resilient energy sector development, as well as a computer-based diagnostic tool for city authorities to assess energy efficiency performance and prioritize energy efficiency investments.

For more information on ESMAP see:  
[www.esmap.org/esmap](http://www.esmap.org/esmap)

#### // International Development Association

In Mozambique Norway has entered into an agreement with the International Development Association (IDA), and established a trust fund to finance transmission projects of regional importance. The fund has a budget of NOK 500 million for the period 2008-2013. The implementation

rate has been slow as no agreement has been reached between Mozambique and Malawi on the planned inter-connection. Only 19 of the planned 500 million have been disbursed in 2008-2010. The overall objective of the fund is to increase the availability and reliability of low cost, environmentally friendly electricity in the region, thereby increasing the competitiveness of industry, fostering economic growth and decreasing poverty. No disbursement was undertaken in 2010.

The support to IDA is administered by the Norwegian Embassy in Maputo.

For more information on the IDA see:  
[www.worldbank.org/ida/africa/index.html](http://www.worldbank.org/ida/africa/index.html)

#### ASIAN DEVELOPMENT BANK (ASDB)

The Asian Development Bank (AsDB) Strategy 2020 identifies energy as a core operational sector for poverty reduction. The aim of AsDB is to invest 2 billion USD in clean energy annually by 2013. In 2010 USD 1.76 billion was invested in clean energy, which is expected to result in additional 1,871 MW of renewable energy generation capacity, 3,246 GWh electricity savings per year, and annual greenhouse gas emission reductions of 13 million tons carbon dioxide equivalent. Investments in access-to-energy projects exceeded USD 950 million, from USD 418 million in 2009. The investment will provide access to electricity and modern fuels for 1.5 million households, adding to 1.27 million households connected during 2003-2009.

AsDB uses various financing instruments to support clean energy projects. This include grant funding for studies and project preparation, lending and risk enhancement, up-front purchase of certified emission reduction credits, regional private equity funds and donor funded grant components of investments to buy down the cost of projects. In the same way as the World Bank, the AsDB has created carbon funds; Asia Pacific Carbon Fund and Future Carbon Fund.

Clean Energy Financing Partnership Facility (CEFPF) was established in 2007 with the goals of increasing energy security among AsDB's developing member countries and assisting them in the ongoing transformation for their economies to low carbon development. The facility supports projects that deploy new clean energy technology, lower barriers in adopting clean energy technologies, increase



Photo: Keri Opprann

access to clean and efficient energy for the poor and technical capacity programs for clean energy. From 2009 the facility also supports carbon capture and storage (CCS). To date projects supported by CEFPF have contributed to leveraging USD 1.1 billion in clean energy investments over the AsDB's ordinary financing mechanisms. Norway has supported the CEFPF with 30 million NOK (2007-2009).

In 2003 the Conflict-Affected Areas Rehabilitation Project (CAARP) was established. This programme aims to support an extensive rehabilitation program for the conflict-affected areas in the region with emphasis on infrastructure rehabilitation and basic needs at the community level as well as emerging gender and health issues in these areas. Under this programme a sector programme on Power and Electrification was initiated. In 2010 NOK 5.3 million was disbursed to various energy activities in the region under this initiative.

Key activities and results in 2010:

>> Support to 34 projects which are estimated to mitigate 5.1 million ton CO<sub>2</sub>/year and generate 6.1 terawatt-hours (TWh) of energy savings.

>> 28 of the projects supported in 2010 contributed to the deployment of new technologies

>> CEFPF's total project allocations of USD 35.8 million have leveraged USD 547.8 million clean energy investments.

For more information on the AsDB see:  
[www.adb.org](http://www.adb.org)

### AFRICAN DEVELOPMENT BANK (AFDB)

The African Development Bank (AfDB) was established in 1964 to help development efforts on the African Continent. In 2010, Norway supported the African Development Bank with NOK 500 million, in addition to NOK 160 million to the Congo Basin Forest Fund. Norway also provided technical assistance on CDM awareness, project identification and development for the Bank.

The AfDB is committed to supporting Africa's move toward climate resilience and low carbon development. A "Clean Energy Investment Framework for Africa" was established in 2008, and the "Climate Change Risk Management and Adaptation Strategy" the following year. Recent years have

seen growth in the Bank's engagement in regional energy operations and Public Private Partnerships (PPPs) energy investments. The AfDB also has a "Financing Energy Services for Small-scale Users (FINESSE) in Africa" program to assist African countries in generating a pipeline of investment projects in renewable energy and energy efficiency. The Climate for Development in Africa (ClimDev-Africa) is a joint initiative of the African Development Bank, the Commission of the African Union and the United Nations Economic Commission for Africa. It aims to ensure that reliable, useful and useable climate related data are generated and made widely available to policy makers, policy support organisations and the general population on the continent. It also seeks to increase the capacity of end-users, particularly national development policy-makers, to be able to mainstream climate change into development plans on the continent.

One goal of the AfDB is to expand access to international climate change financing, in part through implementing the Climate Investment Funds (CIF) in the form of grants, concessional loans and risk mitigation instruments.

The African Development Bank provides advisory and technical support to The New Partnership for Africa's Development (NEPAD) and prepared an infrastructure short term action plan.

In 2010, Norway contributed with NOK 7.5 million to NEPAD-IPPF. The NEPAD-IPPF assists African countries, the regional economic communities and related institutions to prepare high quality and viable regional/continental infrastructure projects and programs, and in-country projects with a regional/continental outlook, develop consensus and broker partnerships for their implementation with the long term goal of reducing Africa's marginalisation by ensuring sustainable regional economic development and integration through cooperation among African countries, donors and the private sector.

For more information see:  
[www.afdb.org/en](http://www.afdb.org/en)

## MULTILATERAL ORGANISATIONS

### // Global Environmental Facility (GEF)

Established in 1991, the Global Environmental Facility (GEF) is today the largest funder of projects to improve the global environment. As an independent financial organisation, the GEF provides grants to developing countries and countries with economies in transition for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer and persistent organic pollutants. The GEF covers the incremental costs of achieving global environmental benefits. Biodiversity and climate change each receive approximately 1/3 of GEF funds.

The GEF has allocated USD 9.2 billion, supplemented by more than USD 40 billion in co-financing, for over 2,700 projects in around 165 developing countries and countries with economies in transition. Through its Small Grants Programme (SGP), the GEF has also made more than 12,000 small grants (totalling almost USD 500 million) directly to non-governmental and community organisations.

Norway has contributed an annual sum of NOK 57 million to GEF-4 (2006-10), representing 1.44 % of contributions to the GEF Trust Fund. For GEF 5 (2010-14), Norway has increased its contribution by 65 % to a total of NOK 376 million. In addition, NOK 40 million is allocated to the Least Developed Countries Fund (NOK 25 million) and the Special Climate Change Fund (NOK 15 million). Both these funds were created in 2001 as GEF-managed funds under the Climate Convention with a particular focus on adaptation.

As an operating entity of the United Nations Framework Convention on Climate Change's (UNFCCC) financial mechanism, the GEF has supported climate change mitigation efforts in developing countries during the past 20 years in close cooperation with recipient countries and the ten GEF agencies. The GEF's work on climate change has maintained a strong focus on the transfer of environmentally sound technologies, closely allied with the UNFCCC's technology transfer framework. Total investment of USD 3.1 billion has leveraged an additional USD 19.9 billion in co-financing.

GEF's climate change mitigation strategy during GEF 5 consists of six objectives. The first focuses on innovative, emerging low-carbon technologies at the stage of market

demonstration or commercialisation where technological push is still critical. The second through fifth objectives focus on technologies that are commercially available but face barriers and require market pull to achieve widespread adoption and diffusion. The last objective is devoted to supporting enabling activities and capacity building under the Climate Change Convention.

For more information see:  
[www.thegef.org/gef](http://www.thegef.org/gef)

#### **// The Renewable Energy and Energy Efficiency Partnership (REEEP)**

The Renewable Energy and Energy Efficiency Partnership (REEEP) was established alongside the 2002 world summit on sustainable development in Johannesburg. Since 2004 the International Secretariat has been situated in Vienna, Austria. REEEP partners are governments, private companies and international organisations.

REEEP's overarching goals are to:

- >> Reduce greenhouse gas emissions.
- >> Deliver social improvements to developing countries and countries in transition, by improving the access to reliable clean energy services, and by making renewable energy and energy efficiency more affordable.
- >> Bring economic benefits to nations that use energy in a more efficient way and increase the share of indigenous renewable resources within their energy mix.

REEEP works to achieve these goals by

- >> Initiating and funding projects that:
  - > assist governments in creating favourable regulatory and policy frameworks
  - > promote innovative finance and business models to activate the private sector
- >> Facilitating networking through specific sub-networks
- >> Disseminating and replicating learning

Norway is REEEP's 2nd largest donor. Since 2006, Norway has supported REEEP with a total of NOK 51.1 million, and REEEP has supported 129 projects in 56 different

countries. The 8th programme cycle will support another 30 projects funded or co-funded by Norway, and implementation of these will start in July 2011. There was no call for proposals in 2010.

In 2010 REEEP had ongoing projects in Algeria, Brazil, China, Ghana, India, Lesotho, Mexico, Mozambique, the Pacific Island countries, South Africa, Sub-Saharan Africa, Tunisia and Uganda. Examples of REEEP projects funded by Norway are:

#### ***Combined legislative and financial mechanisms for solar water heater mass rollout in South Africa***

Supporting South African provincial and local governments in moving solar water heater legislation forward, and to continue the development of a combined framework of legislation, sound business models and additional government support to promote the large-scale rollout of solar water heaters in South Africa. The cooperating partner is Sustainable Energy Africa.

#### ***Carbon financing for energy efficiency in Indian small and medium enterprise (SME) clusters***

To work with one SME cluster as a pilot, to explore options for financing energy efficiency equipment by pooling the cluster's demand and using a carbon financing mechanism, and then to disseminate this model to other nearby clusters. The cooperating partner is Alliance to Save Energy.

For more information on REEEP see:  
[www.reeep.org](http://www.reeep.org)

#### **// Global Energy Efficiency and Renewable Energy Fund (GEEREF)**

Together with the EU and Germany, Norway has contributed to the establishment of an innovative fund for energy efficiency and renewable energy known as Global Energy Efficiency and Renewable Energy Fund (GEEREF).

GEEREF is a Public Private Partnership (PPP) and aims to accelerate the transfer, development, use and enforcement of environmentally sound technologies for the world's poorer regions, helping to bring secure, clean and affordable energy to local people.

Norway has committed NOK 80 million over 4 years. In 2010 Norway contributed NOK 20 million to the fund. GEEREF is structured as a Fund-of-Fund, and invests in

private equity funds that specialise in providing equity finance to small and medium-sized project developers and enterprises.

GEEREF will typically invest tickets below GBP 10 million (approximately NOK 90 million), a market niche usually ignored by private investors and international finance institutions. Geographically, GEEREF targets funds in the African, Caribbean and Pacific region, non-EU Eastern Europe, Latin America and Asia. GEEREF is advised by the European Investment Bank Group (European Investment Bank and the European Investment Fund).

Since 2009 GEEREF has undertaken five investments in the following private equity funds: ([www.geeref.com/pages/home](http://www.geeref.com/pages/home)).

>> The Renewable Energy Asia Fund aims to invest into renewable energy projects in their development stage and help them transform into operating projects. The Fund will specifically focus on operationally and economically mature technologies which are best placed to help Asia bridge its current electricity supply and demand gap (primarily with wind, small hydro and solar energy).

>> The Evolution One Fund will invest in sustainable energy projects in Africa. It is managed by Inspired Evolution Investment Management which is positioned to lead cleantech investments in southern Africa - taking first mover advantage in emerging clean technology and environmental markets.

>> Barefoot Power is a social enterprise supplying low-cost solar equipment to off-grid populations (currently using kerosene lamps) in Uganda, Kenya, Papua New Guinea, Vanuatu and several ACP countries.

>> DI Frontier Market Energy and Carbon Fund is a private equity fund focusing on investments in renewable energy and energy efficiency infrastructure projects in Eastern Africa. The fund aims at 8 to 12 investments ranging from USD 3 to 10 million, mainly through equity.

>> CleanTech Latin America Fund II is a projected USD 150 million private equity fund focusing on clean technology and renewable energy infrastructure in Latin America and the Caribbean. The targeted sectors are renewable energy, energy efficiency, climate and environmental projects and transport efficiency, with the envisaged portfolio size averaging between 8-12 projects.

#### // **Hydropower Sustainability Assessment Forum, International Hydropower Association (IHA)**

The International Hydropower Association (IHA) addresses the role of hydropower in meeting the world's growing water and energy needs as a clean, renewable and sustainable technology. The Hydropower Sustainability Assessment Forum (HSAF or "the Forum") is a collaboration of representatives from different sectors who aim to develop a broadly endorsed sustainability assessment tool to measure and guide performance in the hydropower sector.

The Forum's work centres on the IHA's Sustainability Assessment Protocol (2006). It is determining the relevant issues to be included in the assessment protocol and the measurement approach for each of these issues. The work plan involves input from experts on key hydropower sustainability themes, on-ground assessments of schemes, workshop sessions focused on the protocol, and input from open consultations and key stakeholder reference groups. The Forum seeks at all times to operate with transparency, good will and by consensus.

The governments of Germany, Iceland and Norway are the main sponsors of the Forum, with financial contributions also coming from IHA, The Nature Conservancy, World Wildlife Fund and the World Bank plus significant in kind contributions from the industry.

The aspiration of the forum is that a revised hydropower sustainability assessment protocol will reflect a broadly endorsed view of what sustainability means in practice for the hydropower sector and provide a practical measurement tool that can be implemented across a range of contexts.

It is also the aspiration of the forum that the protocol will be adopted and used by the hydropower industry. In addition it is an aim that the protocol will be more widely used by companies, governments, financial institutions and other stakeholders to improve decision-making relating to proposed hydropower developments; identify, manage and mitigate risks; guide development of new projects in a sustainable way, taking environmental impacts into consideration; and assess and improve the performance of existing operations.

Upon comprehensive consultation and after trials, the soliciting of views and inputs from non-industry sectors as well as the hydropower industry, the revised Hydropower

Sustainability Assessment Protocol was signed off by the Hydropower Sustainability Assessment Forum (HSAF) and formally adopted by IHA in 2010. By adopting the Protocol, IHA is encouraging all members to review and consider application of the Protocol, become a Sustainability Partner, and become a member of the IHA Sustainability Network. A number of Sustainability Partners has been secured, including Norwegian Statkraft SF.

HSAF partners intent to continue the multi-stakeholder partnership with a permanent and broadened governance structure for the use and continued revision and refinement of the sustainability Protocol.

For more information on IHA see:  
[www.hydropower.org](http://www.hydropower.org)

#### // Nordic Development Fund (NDF)

The Nordic Development Fund (NDF) is the joint development finance institution of the five Nordic countries; Denmark, Finland, Iceland, Norway and Sweden. A new mandate was given to the Fund in 2009 to provide grant financing for climate-related interventions in low-income

countries using the reflows of previously provided development credits. NDF finances projects mainly in cooperation with other development financing institutions.

NDF finances projects which aim to mitigate climate change or assist partner countries to adapt to impacts of climate change. Mitigation projects are typically projects related to energy production and use. They mainly deal with energy efficiency, renewable energy and waste-to-energy.

Since June 2009 NDF has approved financing of 21 climate change projects with a total value of approximately USD 96 million. The projects are almost equally divided between adaptation (44%) and mitigation (40%), with 16% covering both areas. The approved projects are located in low-income countries in Africa (46%), Asia (31%), and Latin America (23%) The annual emission reductions as a result of projects approved by NDF in 2010 are estimated to exceed 3 million tons of CO<sub>2</sub>.

NDF's energy sector interventions under the new climate change mandate are listed below.

Country/Region	Project	NDF Financing (USD million)	Lead Agency/Partner
Global	Nordic Climate Facility	15.4	Nordic Environment Finance Corporation
Global	ProClimate Facility	12.8	Nordic Environment Finance Corporation
<b>Africa</b>			
Uganda	Modern Energy Packages	3.9	WB
Rwanda	Solar Water Heaters	5.1	WB
Ghana	Landfill Gas Capture	2.6	WB
Benin	Modern Energy Project	1.9	WB
Senegal	Biomass	3.9	WB
<b>Asia</b>			
Regional (Asia)	Mekong Energy Partnership	3.9	Finland
Regional (Asia)	Climate-Friendly Bioenergy	4.0	ADB
<b>Latin America</b>			
Regional (Central America)	GreenPyme: Energy Efficiency in SME's	2.8	Inter-American Investment Corporation
Nicaragua	National Renewable Energy Program	5.8	IDB
Honduras	Indigenous Peoples and Climate Change	4.5	IDB

For more information on the NDF see: [www.ndf.fi](http://www.ndf.fi)



Photo: Ken Opprann

# KEY NORWEGIAN PARTNERS AND PROGRAMMES

// In order to ease the understanding of how the Clean Energy for Development Initiative is organised, who are at play, and how responsibilities are divided among those with budgetary responsibilities a brief introduction to the various parties are given here. First there is an introduction of the Ministry of Foreign Affairs, the Embassies and Norad. Thereafter the other key implementing partners are introduced;

## MINISTRY OF FOREIGN AFFAIRS

The Ministry of Foreign Affairs (MFA) has the overall responsibility for all Norwegian development aid. The Ministry, through the department of Regional Affairs and Development, Section for International Development Policy has the overall responsibility for the Clean Energy for Development Initiative. Some of the efforts within the Initiative are directly funded through the Ministry, as for example the overall support to Norfund and to the different multilateral organizations, wherein some of the support is channelled to energy projects (as introduced in the previous chapter).

Furthermore the Ministry allocates funds over the bilateral development aid budget to the various embassies with development aid portfolios.

For more information on the Ministry refer to: [www.mfa.no](http://www.mfa.no).

## THE EMBASSIES

In line with the above, the Embassies with development aid portfolios are therefore given the responsibility to allocate funds to various sectors and programmes, guided by the overall policy for the Norwegian development aid and the guidelines in the annual appropriation by the Parliament (St.Prop. 1).

Through a close dialogue with the Ministry of Foreign Affairs and Norad (providing technical advice), the embassies enter into agreements of support to various projects, after a systematic process of assessing the various proposals for support received by the embassies. The embassies therefore have an important role in defining which areas to support, and through which partners.

In the Policy Platform for the Clean Energy for Development Initiative seven main cooperation countries are identified, and the embassies in these countries therefore has



an important role in following up and promoting activities within clean energy.

Norway has more than 100 diplomatic and consular missions located all over the world, and all of these have their own websites.

For more information see:  
[www.norway.info](http://www.norway.info)

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## NORAD

Within Norad three different departments are directly involved in the Clean Energy for Development Initiative. The Energy department is divided into the Oil for Development programme and the Energy, Water and Infrastructure section; the latter functions as the Secretariat for the Clean Energy for Development Initiative. The Energy Department has a technical advisory responsibility towards the MFA and the Embassies, and only a limited budgetary responsibility within the Initiative.

Department for Private Sector Development and Environment (Avdeling for Næringsutvikling og Miljø) aims to stimulate private sector development in developing countries, and offers financial assistance and guidance to private companies. Support is usually in the form of support to pre/feasibility studies, capacity building, pilot projects and CDM project development etc.

The department has the budgetary responsibility for mechanisms and budget lines for private sector development and trade. In 2010 the Department for Private Sector Development and Environment disbursed a total of NOK 374 million to various projects, out of which NOK 45 million were directed at 50 different projects within the energy sector. Some of these have been introduced in the previous chapters of this report.

Department of Civil Society (Avdeling for Sivilt Samfunn) administers all the Norwegian support channelled through Non Governmental Organisations (NGOs), Norwegian and International. In 2010 a total of NOK 1.9 billion was disbursed, through 14 different budget lines to various NGOs from the Department of Civil Society. The support to NGOs with activities within clean energy will be introduced shortly.

Furthermore other departments in Norad are also more indirectly involved in the Clean Energy for Development Initiative, providing quality assurance, undertaking evaluations, advising on cross-cutting issues and other technical advice. The department for Higher Education and Research is another important actor within Norad, with responsibility for programmes focusing on research and higher education sometimes with clean energy as an integrated theme. These will be introduced towards the end of this chapter.

For more information see:  
[www.norad.no](http://www.norad.no)

Norfund is also given budgetary responsibility for funds allocated over the Norwegian Aid budget and is introduced below;

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## NORFUND

Norfund is a development finance institution that serves as an instrument of Norway's development aid. Through investment in profitable companies and the transfer of knowledge and technology, it contributes to reducing poverty and to economic progress in poor countries. In 2010 Norfund made 11 % return on its capital investments<sup>34</sup>. An important element of Norfund's investments is the leveraging effect. Norfund operates in countries often connected with risk and reluctance for investments by private investors/actors. A decision by Norfund to invest in a project is often what ensures profitability of the project. The Norfund investment is therefore crucial as it leads other investors to make decisions on provision of debt financing, equity etc.

Norfund wishes to contribute to the realisation of renewable energy projects to create a basis for growth and improved living conditions in developing countries. Ongoing projects (examples of relevant activities):

>> In Uganda, the Bugoye hydropower plant was opened in October 2009. The plant has an installed capacity of 13 MW and estimated annual production of 82 GWh. The plant is owned jointly by Tronder Energi and Norfund. The Norwegian Ministry of Foreign Affairs (MFA) has also contributed directly with financial support to the project. When in full production, and through the Clean Development Mechanism (CDM), it is estimated that the power plant will

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<sup>34</sup> This number is slightly higher (13% overall) if one looks at the return on capital investments since Norfund was established in 1996.

result in an annual emissions reduction of 54,300 tonnes of CO<sub>2</sub>. The project was registered as a CDM project in December 2010.

>> In late 2010 Norfund invested in the Interact Climate Change Fund (ICCF). This is a cooperative financing mechanism between the European development finance institutions (including the European Investment Bank) to provide financing to projects in developing countries that deliver climate benefits. The financing mechanism has a total capital of EUR 300 million available, i.e. approximately USD 385 million.

>> The establishment of SN Power AfriCA was completed in 2009 and further capitalized in 2010. The company, which will focus on Africa and Central America, is owned by SN Power, Norfund, TrønderEnergi and BKK. Many possibilities for engagement in the regions have been analyzed and it is expected that the first investments will be done in the course of 2011.

>> Several of SN Power's construction project reached operational stage in 2010. The 46 MW Totoral wind project in Chile was officially opened, as were the two hydropower projects, La Higuera and La Confluencia in Chile (311 MW together). In addition, the Allain Duhangan hydro power project commenced operations, although the project will not run at full capacity until later in 2011 when the second tunnel is complete. Good progress continues to be made on the rehabilitation of the hydropower assets in Philippines, and upgrades are being implemented at other operational plant in both Philippines and India. The Khimti hydropower plant in Nepal celebrated 10 years of operations.

>> Sadly a fatality occurred at the Allain Duhangan project in India in early 2010, despite this health and safety performance indicators at the site (and other SN Power projects) improved considerably over the year. This improvement reflects the range of measures put in place by SN Power over the past two years.

For more information on Norfund see:  
[www.norfund.no](http://www.norfund.no)

## THE NORWEGIAN WATER RESOURCES AND ENERGY DIRECTORATE (NVE)

The Norwegian Water Resources and Energy Directorate (NVE) is responsible for ensuring an integrated and environmentally sound management of Norway's water and energy resources. In addition to its domestic responsibilities, NVE has more than 30 years of experience in cooperating with developing countries, both through the United Nations but also directly as part of Norway's bilateral development cooperation within the field of clean energy. NVE's development cooperation work is managed by the International Section. Their main tasks are project preparation and cost and quality controls on projects and programmes during implementation. Most of the professional work is carried out by staff from the various technical departments and sections of NVE. In 2010 the work undertaken by NVE within the Clean Energy for Development Initiative amounted to 10 man years.

Due to NVE's extensive knowledge and expertise in the field of water and energy resources, they are sought-after partners for institutional cooperation.

NVE's work within the Clean Energy for Development Initiative in 2010 involved activities in Bhutan, Ethiopia, Bulgaria, Montenegro, Ghana, South-Africa, Tanzania, Vietnam, Nepal, Timor-Leste and Liberia. These activities are documented under each country NVE is involved in.

For more information on NVE see:  
[www.nve.no](http://www.nve.no)

## THE NORWEGIAN TRANSMISSION SYSTEM OPERATOR (STATNETT)

Statnett is responsible for coordinating electricity generation and consumption, offering access to the power transmission grid on equal terms to all market participants, developing and maintaining the Norwegian main transmission grid.

Because of Statnett's expertise from long-term, hands-on experience as a Transmission System Operator they offer advisory and consultancy services related to all important aspects of running a modern utility and grid operator. Statnett has expertise on technical, organisational and market-oriented solutions as well as all training aspects necessary for both domestic and regional grid development and system operation.

Due to Statnett's extensive knowledge and expertise in this field, they are sought-after partners for institutional cooperation. Statnett's work within the Clean Energy for Development Initiative in 2010 involved activities in Tanzania, Uganda, and Kenya. These activities are documented under each country Statnett is involved in.

For more information on Statnett see:  
[www.statnett.no](http://www.statnett.no)

### GUARANTEE INSTITUTE FOR EXPORT CREDITS (GIEK)

The Norwegian Guarantee Institute for Export Credits (GIEK) is the central governmental agency responsible for providing guarantees and insurance for export credits. GIEK's goals are to promote Norwegian export and investments abroad by offering guarantees that cover commercial and political risk. GIEK also offer credit insurance through its wholly owned subsidiary, GIEK Credit Insurance. GIEK has three different active guarantees schemes

>> General guarantee scheme with a ceiling of NOK 110 billion.

>> Building loan guarantee scheme with a ceiling of NOK 6.5 billion.

>> Guarantee scheme for developing countries (LDC scheme) with a ceiling of NOK 3.15 billion.

GIEK's guarantee ceiling includes issued and pledged guarantees. As of 31.12.2010, the following was committed within the total limit of the guarantee schemes: general guarantee scheme NOK 76.9 billion, building loan guarantee scheme NOK 0.6 billion, guarantee scheme for developing countries NOK 0.7 billion. GIEK has several guarantee products. The most used are:

- >> Buyer credit (export credit)
- >> Supplier credit guarantees
- >> Byggelångaranti (for shipyards in Norway)
- >> Bond guarantees
- >> Investment guarantees



### //GIEK and clean energy projects in developing countries

GIEK's LDC scheme covers projects in the least developed countries, but there has been little demand for GIEK's guarantees from Norwegian companies involved in clean energy projects. The projects in which GIEK has been involved have mainly been within hydropower. In these cases GIEK has provided investment guarantees that cover political risk on equity/loan from Norwegian companies to the project or on loan from bank/financial institution to the project. In cases where there are substantial Norwegian exports to the project, GIEK may provide export guarantees. This type of guarantee can cover both political and commercial risk.

For more information on GIEK see:  
[www.giek.no](http://www.giek.no).

### EKSPORTFINANS

Eksportfinans ASA finances projects in more than 50 countries, covering a wide range of export industries. In 2010 the lending institution established a new strategic business area to provide long-term debt financing to companies and projects within renewable energy, environment and infrastructure.

Eksportfinans recognises the strong potential of the green sectors. These markets have seen tremendous growth, with worldwide investments in renewable energy projects having quadrupled in the past five years.<sup>35</sup>

Based on strong credit ratings, Eksportfinans provides competitive long-term debt financing for both government-supported and commercial terms to foreign buyers of Norwegian goods and services. Additionally, the lending institution offers loans to Norwegian companies for foreign investments, acquisitions and other international expansions as well as general corporate financing. Eksportfinans also supports projects linked to Norwegian ownership interests. Security for Eksportfinans loans must be provided by the Norwegian Institute for Export Credits (GIEK) and/or commercial banks approved by Eksportfinans.

Among the renewable energy projects Eksportfinans financed in 2010 were solar parks in the Czech Republic developed and constructed by Scatec Solar, REC's production

facility in Singapore and Hydroenergi deliveries to a small-scale hydro power project in Turkey. A total of NOK 2.5 billion NOK was disbursed during the course of the year to renewable energy projects and companies, accounting for 7 % of all disbursements. There were no new loans within the sector disbursed to projects in developing countries. The lending pipeline included several projects in these geographies however.

Eksportfinans is owned by Norwegian and Nordic banks (85%) and the government of Norway (15%).

For more information on Eksportfinans see:  
[www.eksportfinans.no](http://www.eksportfinans.no)

### INTERNATIONAL CENTRE FOR HYDROPOWER (ICH)

The International Centre for Hydropower (ICH) is a non-profit organisation based on institutional membership among international companies and organisations that are active in all aspects of hydropower generation and supply. The purpose of ICH is to raise the standards of competence of industry personnel, promote the industry and work for a sustainable development.

The ICH offers training in order to contribute to sustainable development of hydropower resources. The courses are built around the overarching concepts of the planning, construction and operation of hydropower facilities as part of a mixed energy system as well as multipurpose projects. The courses deal with questions related to current international trends in the restructuring of the power sector focusing on economic and financial questions, climate change and environmental and social issues.

Norad has since 1997 supported the International Centre for Hydropower (ICH) courses on hydropower development and management and issues related to environmental and social aspects, economics and financing, legal frameworks, dam safety and other areas, including conferences and workshops. Norad is in process of entering into a new long-term cooperation agreement with ICH on providing support for its courses. The ICH is considered to play an important role in Norway's Clean Energy for Development Initiative.

<sup>35</sup> In fact, figures Eksportfinans have access to show that globally more is now invested in renewable electricity production than in thermal power generation like coal and gas power plants.

The overall goal of the ICH's activities covered by the cooperation agreement with Norad is to raise the competence of personnel involved in the hydropower sector and increase awareness of social and environmental impacts to ensure sustainable development.

The ICH is based in Norway, but an increasing proportion of its course activities are taking place in developing countries through cooperation with local actors. The ICH runs core courses (normally one week or three weeks) and tailored courses for a specific region (normally one to two weeks). Since 2007 an annual course has been offered in Guatemala with topics tailor-made for the Central-American region, and from 2011 annual courses will be offered in Zambia and Nepal in cooperation with local partners. In 2010 total support to ICH amounted to NOK 7 million.

For more information on ICH see:  
[www.ich.no](http://www.ich.no)

## NON-GOVERNMENTAL ORGANISATIONS

Norad supports both national and international organisations and networks working with civil society in developing countries. In 2010 a total of NOK 1.9 billion was disbursed, through 14 different budget lines to various NGOs. Around 100 Norwegian organisations were supported.

At least NOK 17 million of the support to civil society in 2010 was channelled to clean energy activities. This is a conservative estimate as there are funds to clean energy activities channelled through NGOs that are reported as support for other purposes, such as environment.

Some of the most relevant organisations working on energy projects are introduced below, though there might be other energy initiatives/activities supported that are not presented here.

**// Norwegian Mission in Development (Bistandsnemnda)**  
 Norwegian Mission in Development is an umbrella organisation currently having 17 member organisations. Development activities are carried out by the individual member organisations. Within the field of clean energy Norwegian Missionary Society (NMS) has been particularly active in promoting biogas systems in China. The programme has been very successful in reducing the labour burden for women.

There are concrete plans to establish a similar programme in Madagascar based on the experience from China. In 2010 about NOK 340 000 was disbursed to this project.

### **// Norwegian Church Aid (NCA) (Kirkens Nødhjelp)**

Norwegian Church Aid (NCA) is an independent humanitarian and ecumenical organisation with headquarters in Oslo, Norway. NCA works to uphold people's basic rights around the world and to save and protect lives and develop sustainable living conditions for the world's poorest and most vulnerable people.

NCA has been engaged in clean energy projects in 9 different countries of which Afghanistan is the most prominent with a large programme for rural solar electrification and micro hydro power. Over the last few years around 10,000 homes have gained access to renewable energy. Other clean energy activities in partner countries include building biogas plants, promoting energy-efficient stoves and cultivating of *Jatropha Curcus* and subsequent establishing of small scale oil processing facilities.

NCA has established cooperation with relevant resource organisations that are providing technical assistance and expertise to the various local initiatives. Among them are TERI and Barefoot College in India and the Norwegian institutions ZERO and Energigården.

NCA has plans for considerable expansion of its activities within clean energy in the next Norad agreement period.

For more information on NCA refer to:  
[www.kirkensnodhjelp.no/en](http://www.kirkensnodhjelp.no/en)

### **// ARC-Aid**

ARC-Aid is an idealistic, independent humanitarian organization working towards poverty eradication and sustaining peace.

Since 2007 Norad has supported the ARC-Aid foundation project "FabLab" in Kisumu, Kenya. The FabLab centre offers courses, workshops and other assistance for job creation as well as skills development for practical solutions through renewable energy. With a total budget of NOK 1.2 million the centre has been provided with equipment and support for training activities to promote innovation and entrepreneurship, particularly within clean energy and

water. The centre targets students, craftsmen, teachers and ordinary families, and ARC-Aid reports that the target group has a steadily increasing knowledge of product development and technical equipment.

ARC-Aid was also provided support for a preproject for enlarging the technical high school Kisumu Polytechnic, the "Solar Energy and Environmental Technology Education Program (SEETEP)". The purpose of the project was to improve local competence on environmentally friendly technology, enabling Kenya to develop and maintain its resources and installations on solar power and water technology. In 2010 a total of NOK 900 000 was disbursed to the Arc Aid projects.

For more information on ARC-Aid or the FabLab project refer to:

[www.arc-aid.no](http://www.arc-aid.no) or [www.arc-kenya.org/aro](http://www.arc-kenya.org/aro)

#### // World wildlife fund (WWF)

WWF is one of the largest environmental organisations in the world, having currently more than 1,300 WWF conservation projects underway around the world. WWF combines their work on climate challenges and conservation of biological diversity with the need for development of sustainable energy solutions.

WWF initiated a preproject on Clean energy in 2010 supported by Norad. The project aims at contributing to sustainable solutions for increased access to modern energy services in developing countries. NOK 90 000 was disbursed in 2010 to this initiative. The pre-project activities focused on Uganda and Mozambique, and showed a need for capacity building and involvement of the civil society. With competence, capacity and well developed local and regional networks WWF is working on strengthening civil society's ability to participate in national planning processes and to impact on potential energy projects in a sustainable way. Based on the preproject WWF will implement a 3 year program on clean energy.

For more information on WWF refer to:  
[wwf.panda.org](http://wwf.panda.org)

## HIGHER EDUCATION AND RESEARCH

### //EnPe Master Programme

Norad's Master Programme for Energy and Petroleum was launched in 2009. This is, as the name suggests, a joint support programme for petroleum and renewable energy related higher education. The programme aims to contribute to the education of staff in the energy and petroleum sectors through building capacity at the Master level in higher education institutions (HEI) in the South.

The programme is managed by the Norwegian University of Science and Technology (NTNU) and a separate Programme Board. HEI in the South and in Norway submit joint project proposals to the Programme Board, which decides on project funding.

The objectives of the EnPe programme are:

- >> To support the development of Master programmes at HEI in the South through close collaboration with HEI in Norway in accordance with national needs
- >> To achieve, in a longer term perspective, sustainable capacity of institutions in the South to provide the national work force with adequate qualifications within selected academic fields of study of relevance to the energy and petroleum sectors
- >> To stimulate South-South-North cooperation through support to the development of regional Master programmes
- >> To enhance gender equality in all programme activities
- >> To strengthen and further develop the competence of Norwegian HEI to integrate global as well as developmental perspectives in their professional work

The first allocations were made in December 2009, and as of January 2011 there are currently 9 different programmes running with support from EnPe. This includes programmes in Africa, Asia and South America and involves the major academic institutions within energy and petroleum in Norway.



Photo: Ken Opprann

**// Norad's programme for master studies (NOMA)**

Norad's programme for master studies was established to support the development and operation of Masters programmes in developing countries through cooperation between higher education institutions in Norway and in its partner countries. The programme's goal is to educate employees in the public and private sectors and in non-governmental organisations in Norwegian partner countries.

Energy is one of the priority areas of the programme. An example of a Master's programme selected for funding for the programme cycle 2010-2013 is the Masters programme in renewable energy systems at Makerere University in Uganda in cooperation with the Norwegian University of Science and Technology.

**// The Norwegian programme for development, research and education (NUFU)**

The Norwegian Programme for Development, Research and Education's (NUFU) goals are to support the development of sustainable capacity and competence for research and research based higher education in developing countries relevant to national development and poverty reduction, and to contribute to enhanced academic collaboration in the South and between the South and North.

In the current programme cycle (2007-2011) a few projects within the field of clean energy are receiving funding from NUFU. One project example is the cooperation between The Eduardo Mondlane University in Mozambique and the Norwegian University for Science and Technology on small scale concentrating solar energy systems.





Design: Agendum AS   
Cover photo: Ken Opprann  
Editing: Multiconsult AS/Norplan  
Print: Rolf Ottesen AS  
No. of copies: 1900  
June 2011  
ISBN: 978-82- 7548-576-0

