



Annual Report

The co-operation between
NVE and Norad

2005

«Water and energy for a **sustainable** development»

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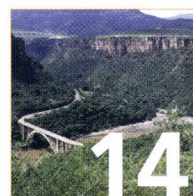
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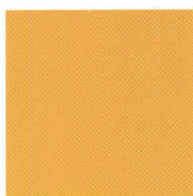
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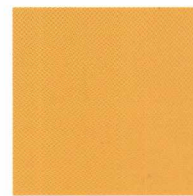
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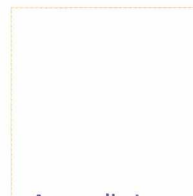
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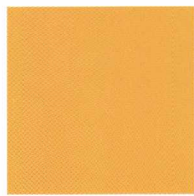


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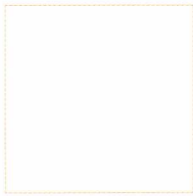


Appendix I
Total invoiced Norad/
Ministry of Foreign Affairs.

Appendix II
Participation in international
research and co-operation with other
international institutions



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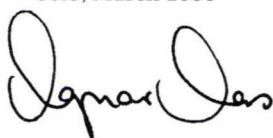
Introduction

The Norwegian Water Resources and Energy Directorate (NVE) has been involved in development assistance financed by Norway through Norad for more than 30 years. The involvement has been within the work areas of water and energy in concrete projects, as well as support to similar government institutions in developing countries. The development assistance is formalised in a co-operation agreement between Norad and NVE. The agreement sets the conditions for advisory services directly to Norad and to the Ministry of Foreign Affairs, as well as the framework for NVE's contracts on institutional co-operation. The present annual report is prepared in accordance with the requirements of the agreement, and shall serve as a basis for an Annual Meeting between Norad and NVE.

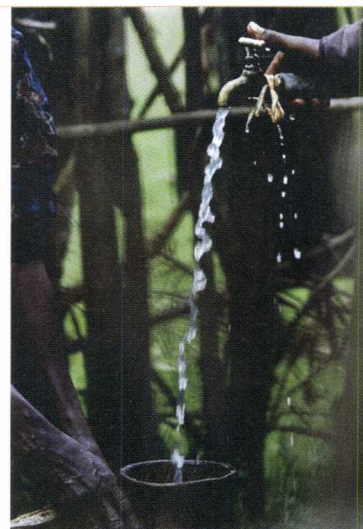
Contributors to NVE's development assistance

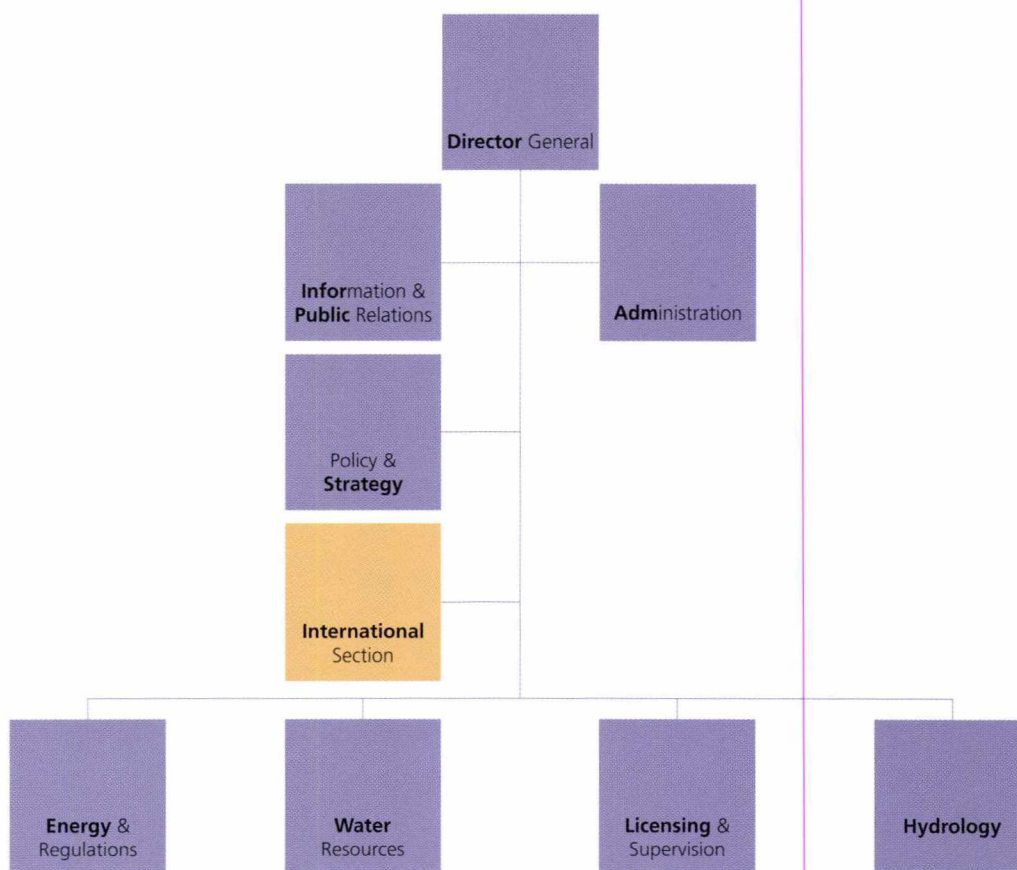
The development assistance is organised and co-ordinated through the International Section, which in 2005, counted 6 persons. The tasks of the International Section are to prepare projects, and to co-ordinate and carry out the required cost and quality control of projects and programmes during execution. Some projects require posting of advisers on location, and resident advisers were in 2005 posted in Angola, Uganda, Mozambique and Timor-Leste. The major part of the professional work was, however, carried out by various staff of NVE, and during 2005 altogether 39 specialists, together with numerous administrative staff were involved in the assistance. In addition, several private consultants and professionals from other directorates and research institutions were sub-contracted to assist NVE in cases where NVE either lacks competence or is temporarily short of capacity.

Oslo, March 2006



Agnar Aas
Director General





Organisation of NVE

Established in 1921, the Norwegian Water Resources and Energy Directorate is a directorate under the ministry of Petroleum and Energy and is responsible for the management of Norway's water and energy resources. Our mandate is to ensure an integrated and environmentally sound management of the country's water resources, to promote efficient energy markets and cost-effective energy systems and to work to achieve a more efficient use of energy. We are Norway's national centre of expertise for hydrology, and we have a central role in the national flood contingency planning. NVE also has the overall responsibility for maintaining national power supplies. NVE is based in Oslo and has five regional offices in Norway and a total of 400 employees.

Contacts in International Section

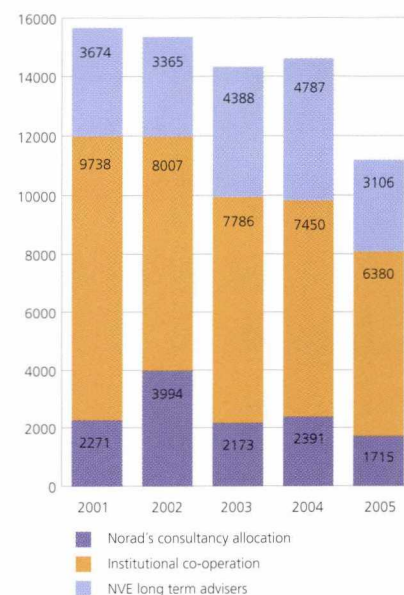
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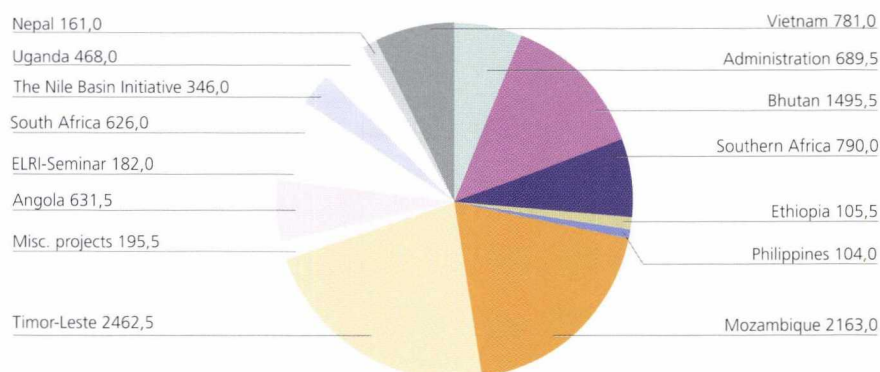


Overview of activities and time consumption

The volume of activities in 2005 was recorded at approx. 8 man years (one man-year being 1400 effective hours). This is somewhat lower than last years 10,4 man years. From the bar diagram it will be seen that all activities have decreased as compared to last year. This is partially due to a long term vacancy, pending recruitment of a specialist, as well as to a reduction in the number of resident advisers.



Recorded man-hours, including resident advisers





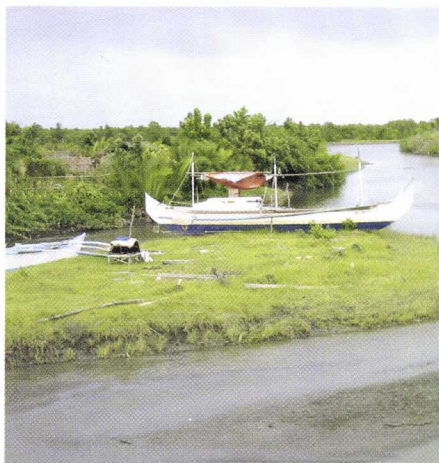
Assignments for **Norad**

The Norwegian Agency for Development Cooperation (Norad) is a directorate under the Norwegian Ministry of Foreign Affairs (MFA).

Norad's most important task is to contribute in the international cooperation to fight poverty.

In February 2004 Norad was reorganized to fulfil a new role and new expectations. Norad will contribute to effective management of development funds and ensure that the Norwegian development cooperation has high quality and is evaluated.

Technical experts from various Norwegian agencies take part in institutional development and cooperation on projects with partners from counterpart agencies in partner countries.



Flood Control Master Plan, Oriental Mindoro, The Philippines

In 2003 the Provincial Government of Oriental Mindoro in the Philippines asked Norad for assistance to develop a "Flood Control Master

Plan for Bucayao and Mag-asawang Tubig (BMT) Rivers", after which Norad requested NVE to assist in the preparation of the Terms of Reference for the project.

ACHIEVEMENT:

→ Completion of Terms of Reference

Ministry of Natural resources and Environment [MONRE], Vietnam

NVE has assisted MONRE in the preparation of a Project Document regarding licensing of hydropower projects in accordance with the new water resources act. The project is a natural follow up of the national Hydropower Plan Study, financed by Norad and Sida, where NVE acts as adviser to the Electricity of Vietnam. During 2005 the Project Document was modified and refined in accordance with discussions held within MONRE and with involved stakeholders.

ACHIEVEMENT:

→ Project Document finalised



ELRI – Seminar on regulation of distribution network

ELRI (Electricity Regulators' Initiative) is a training program for Regulators, primarily from developing countries. The initiative was started in 2002 by the Norwegian regulator (NVE) in cooperation with ECON Analysis and Nordpool Consulting. NVE has cooperation agreements with several regulators in Africa and Asia, and numerous training programs and seminars have been executed under this cooperation. Annual training seminars for regulators have been arranged under the ELRI program since 2002, and the seminar in 2005 was the 4th in the series. The June 2005 seminar focused on economic regulation of

electricity supply. The seminar is an important meeting place for staff from organisations with cooperation agreements with NVE.

In 2005, the seminar was organised in cooperation with ECON Analysis. 23 participants from respectively Angola, Bhutan, Namibia, South-Africa, Tanzania, Timor-Leste and Uganda, representing various institutions and organisations participated in the seminar.

ACHIEVEMENT:

→ Seminar conducted with 23 participants

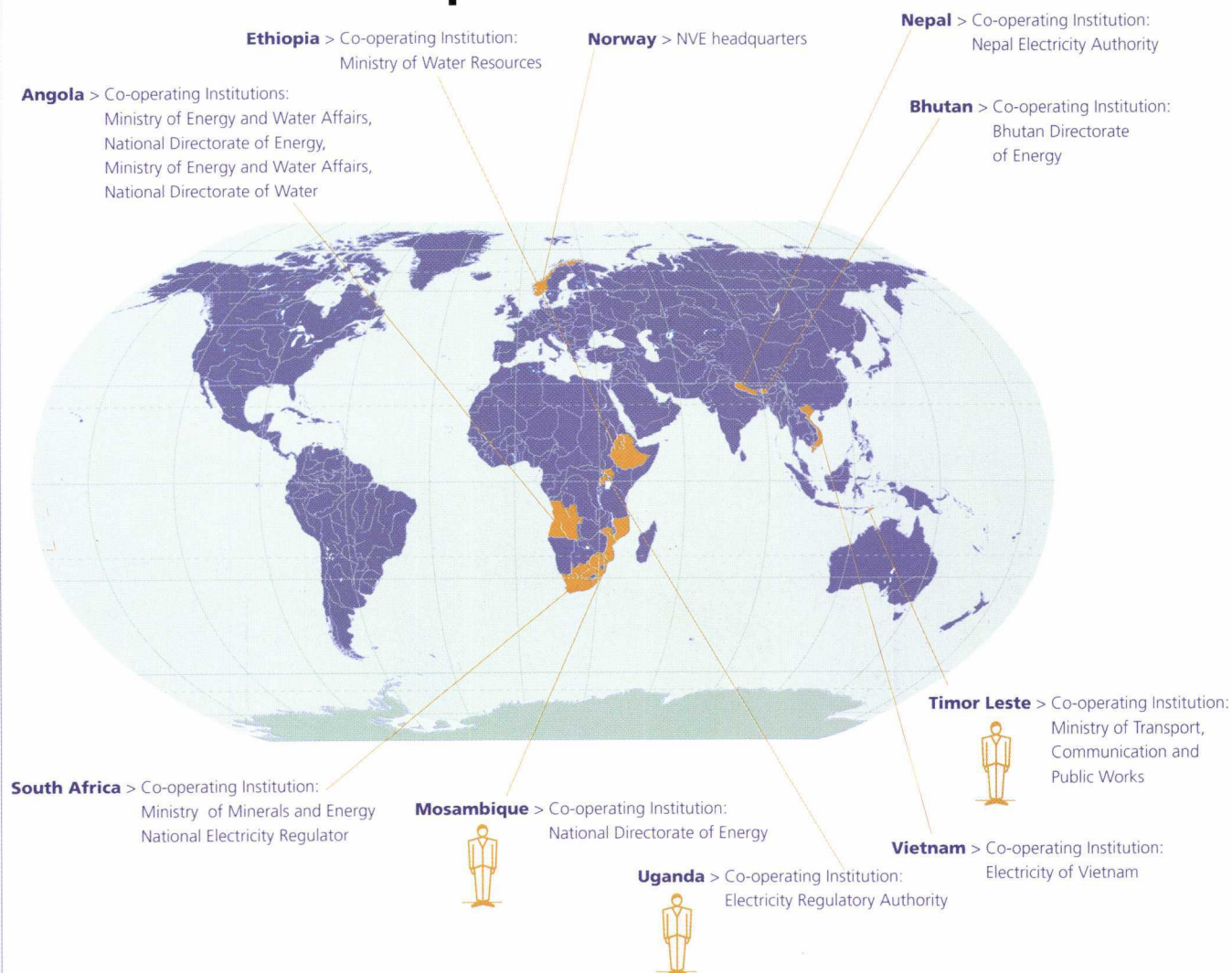
Course on **consultancy engagements**

The course included preparation of Terms of Reference, other bidding documents, the bidding and evaluation process, and contract negotiations. The course was held for project personnel at NVE's co-operating institutions as well as for representatives from co-operating institutions in Timor-Leste and Mozambique.

ACHIEVEMENT:

→ Increased competence for relevant personnel

Institutional co-operation



INSTITUTIONAL CO-OPERATION

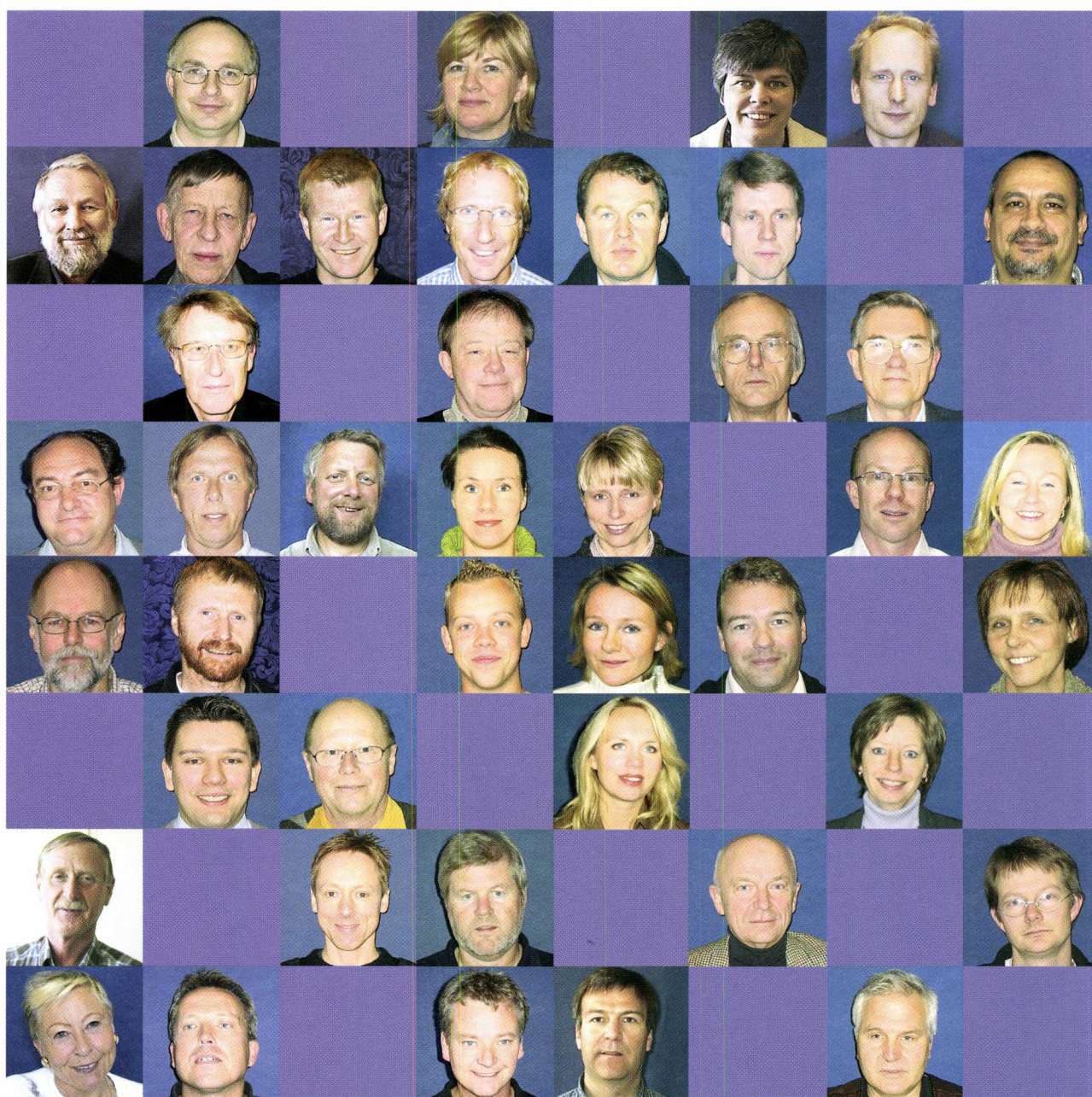
The following Institutional contracts have been in force in 2005

The following Institutional contracts have been in force in 2005				(NOK 1000)	
			Budget for NVE institutional co-operation		
Country	Co-operating institution	Project period	Total budget		
Angola	National Directorate of Energy	2000 – 2004	52,000	4,500	
Angola	National Directorate of Water	2001 – 2004	15,000	7,500	
Bhutan	Directorate of Energy	2003 – 2007	15,000	8,400	
Ethiopia	Ministry of Water Resources	2003 – 2006	40,000	1,300	
Mozambique	Ministry of Energy	1998 – 2005	36,700	17,200	
Nepal	Department of Electricity Development	2004 – 2007	10,000	1,500	
South Africa	Department of Minerals and Energy	2002 – 2005	2,700	0,700	
South Africa	National Electricity Regulator	2001 – 2005	9,400	2,500	
Timor-Leste	Ministry of Natural Resources, Minerals and Energy Policy	2003 – 2009	26,800	12,800	
Uganda	Electricity Regulatory Authority	2001 – 2004	14,500	5,500	
Vietnam	Electricity of Vietnam	2003 – 2006	38,000	1,900	
Regional Cooperation	Regional Electricity Regulators association (RERA)	2003 - 2006	7,500	2,200	
Regional Cooperation	Southern Africa Power Pool (SAPP)	2004 - 2007	35,000	0,950	
TOTAL			302,600	66,950	

The table shows that on average 22 % of the project funds are spent on activities directly linked to institutional co-operation with NVE, which besides the NVE fees and reimbursable expenses, include training in various forms. The remainder, (on average 78 %) is spent on local expenses or assignments of consulting companies, either in direct contract with the co-operating institution or with NVE.

Any changes from 2004 to 2005 regarding the duration of the co-operation or the sums allocated are based on formal addendums to the current agreements.

Contributors to NVE's international co-operation



Here are some of the faces of both specialists and administrative staff who's joint efforts assured the success of the activities.

Angola

Energy Project

The cooperation between the Ministry of Energy and Water and NVE was initiated in 1996, with the aim to strengthen the energy sector. The co-operation between MINEA and NVE was extended by a new contract, signed in August 2000. The work continues into 2006, based on remaining funds.

Main development goals and project objectives

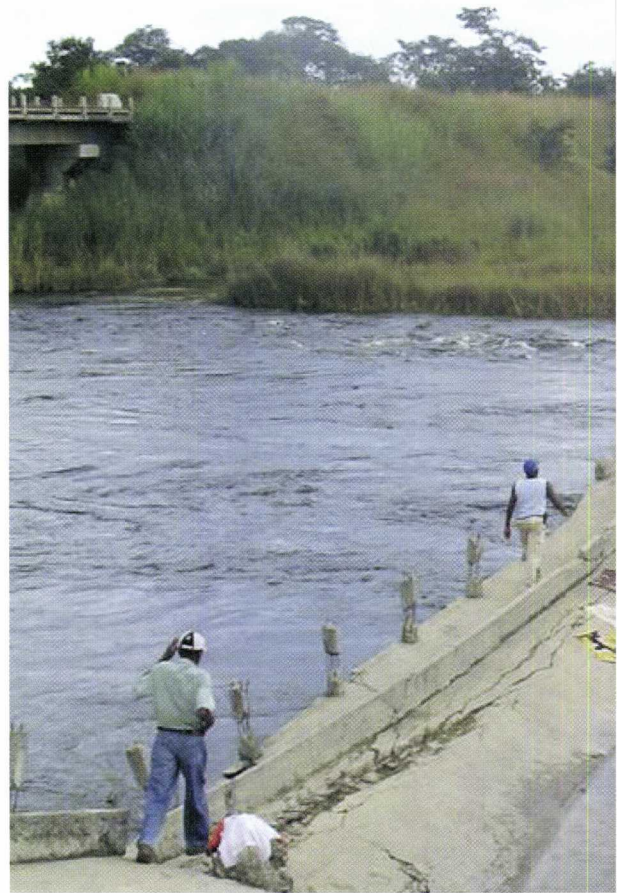
The goal of the Agreement is to promote economic development of Angola through sustainable and efficient use of the country's energy resources, by strengthening the competence and decision making basis of MINEA and Luanda Electric Utility (EDEL). The institutional co-operation includes transfer of know-how to the staff in technical, economic and administrative fields and improving the reliability of electricity supply in the country by making available a fund for purchase of spare parts.

Activities in 2005

The main focus has been training and competence building. Different people from MINEA and EDEL participated in different technical, environmental, administrative and language training courses.

ACHIEVEMENTS :

- Representatives attended the ELRI seminar in Oslo
- Representatives attended ICH's training course in Hydropower and Development
- English training for 20 persons from the staff of DNE
- Assessment of the use of spare parts
- Purchasing of spare parts



Institutional Cooperation with the National Water Directorate [DNA], Angola

After 27 years of civil war from 1975 to 2002 most of Angola's infrastructure and public institutions were in need of rehabilitation and reconstruction. This was also the case for the water sector and the hydrometric network. An improved water resources management will give the country the possibility to better plan the development of the country regarding water supply, irrigation and hydro power development. The National Water Directorate, DNA has received Norwegian support since 2002 through institutional cooperation with NVE. The project period was 2002 to 2005 with a budget of NOK 15 million.

Main development goals and project objectives.

The overall goal is to improve the water sector management in Angola by strengthening DNA institutional capability and capacity through the cooperation with NVE. The institutional cooperation involves a broad based cooperation between the two directorates, with the possibility to utilize advisory services from different departments in NVE. A specific multi-disciplinary NVE Advisory Group for DNA was established for this purpose. The



major component of the support to DNA is the reconstruction of the National Hydrometric Network and hydrological database. Other components are training and skill transfer, rapid water resources and water use assessment and draft regulation based on the new Angolan Water law.

Activities 2005

This is the last year of the project and all the main objectives of the project had been achieved last year. There was still NOK 1.4 Million left of the total budget of NOK 15 million, and some additional activities were carried out for 2005:

→ Training and skill transfer programme

ADCP (Acoustic Doppler Current Profiler) workshop in Luanda by the Portuguese consultant company Vortice. DNA was responsible for planning and implementation.

→ Follow up mission in Hydrological field work training by NVE

Training in the use of GIS Software implemented through Rapid Water Resources and Water Use Assessment in Lisbon for one person from DNA. DNA was responsible for planning and implementation.

ACHIEVEMENT:

- Follow up mission in Hydrological field work training performed in June

→ Hydrometric Network and National Hydrological Database

Quality control of Hydrological data

DNA will continue the work and adapt recommendations given from the NVE report regarding quality control of existing and newly collected hydrological data.

ACHIEVEMENT:

- NVE assistance in quality checking of hydrological data collected from the 11 rehabilitated hydrological stations was performed in March and June

→ Rapid Water Resources and Water Use Assessment

A Workshop was held in Luanda in order to inform all potential stakeholders about the findings and results from the assessment made by Sweco Groener.

ACHIEVEMENT:

- Workshop in Luanda presenting the final report was held in April, about 60 persons from the government, stakeholders and NVE attended

Bhutan

Department of Energy [DOE] Phase II

The phase II programme, started early 2004, and will last until the end of 2007. It carries a total budget of NOK 15.0 million. The overall goal is the development of human resources and capacity building of the energy sector, thereby bringing about efficiency in the sector and providing both the DOE and the regulatory body with the necessary tools for effective and transparent monitoring of the sector. The activities of the programme and the work carried out in 2005 include:

Human resources development

Based on a Training Needs Assessment report, a programme with a budget of NOK 6.5 million was approved in 2004. During 2005 the following training was undertaken:

- Participation in the "International Conference on Headwater Control", Bergen 20-23 June 2005
- Participation in the "Hydropower 05" conference in Stavanger, June 2005
- Approximately 50 short courses related to water and energy were organised in the region.

ACHIEVEMENT:

- Training carried out (as listed above)

Development of the Electricity Regulator

The development of Bhutan Electricity Authority will be met through institutional strengthening projects funded by the Asian Development Bank and Norad. The part funded by Norad started in phase I of the co-operation, and continues in phase II. Under phase II the major components include:

- Principles and procedures for tariff determination
- Model license contracts
- Compliance monitoring system
- Collection system for fees, charges and royalties



During 2005 a report on methods for subsidising the electricity supply was drafted and discussed with BEA and stakeholders, and subsequently redrafted. Towards the end of the year discussions were held regarding licensing and model license contracts.

ACHIEVEMENT:

- Report on methods for subsidising in the electricity supply

Geographical Information System [GIS] for the energy sector

The activity includes the establishment of a GIS section in DOE, including the required hardware, software and training of personnel. During the year the hardware and software were procured and installed at DOE. A workshop with practical training was carried out in October and November.

ACHIEVEMENTS:

- GIS hardware and software procured and installed
- Workshop carried out



← GIS-specialists from NVE together with colleagues from Bhutan

ACHIEVEMENTS:

- Training in the arrangement and operation of new hydrological stations
- Procurement of hydrological equipment completed

Co-ordination and backstopping by NVE

In addition to regular co-ordination internally among NVE personnel and with the DOE co-ordinator, the activity includes cost and quality control, preparation of quarterly reports, assistance to DOE in the preparation of the annual report to Norad – and participation in the Annual Meeting between DOE and Norad.

Management Information System [MIS] for the energy sector

The activity has been postponed until 2006, pending training of DOE personnel.

ACHIEVEMENT:

- Quarterly reports

Further development of the hydro-meteorological network

The work under phase I revealed a need for supplementary hydrological stations to cover tributaries to the main rivers. In contrast to the main rivers, those tributaries are not snow-fed. The stations will provide information for the planning of water supply, irrigation and small hydro projects. Additionally, there was a need to increase the amount of meteorological stations and to upgrade some of the existing stations. Together with DOE personnel, a NVE hydrologist identified locations for 10 new hydrological stations and prepared a report with recommendations regarding the installations and equipment to be procured. Early in 2005 the NVE hydrologist trained DOE personnel in the installation of equipment at one of the new hydrological stations. The specifications for hydrological equipment were completed and procurements arranged by the end of the year.

Ethiopia



Ministry of Water and Resources [MOWR]

The two projects Baro and Karadobi multi-purpose projects are parts of the Eastern Nile Subsidiary Action Programme within the Nile Basin Initiative. Under an agreement between the governments of Ethiopia and Norway signed in June 2003, Norway is financing a feasibility study for the Baro project and a pre-feasibility and feasibility study for the Karadobi project. Both projects are large projects which in addition to hydropower, shall be designed to accommodate other needs, in particular irrigation and flood control. The cost frame of the agreement is NOK 40 million. The Baro project is situated on a tributary to the White Nile, whereas the Karadobi project is located on the Blue Nile.

Under a separate agreement between the countries, NVE shall assist the MOWR who is Client for the two studies. Bidding documents were prepared in 2003 and a contract for the services was signed in May 2004 between the

MoWR and a joint venture of the consulting firms Norplan, Norconsult and Lahmeyer International. In spite of difficult weather conditions at times, most of the studies were completed. It has proved difficult, however, to obtain data from Sudan and Egypt in order to assess the anticipated positive effects related to water availability for irrigation and reduced flooding and siltation problems, as well as various other impacts in these countries. This problem will hopefully be solved early in 2006. NVE commented on progress reports and assisted in solving technical and contractual matters which came up. NVE also participated in the annual project meeting between the governments of Ethiopia and Norway.

ACHIEVEMENTS:

- Comments on contractual matters
- Comments on progress reports

Department of Minerals and Energy [DME]

NVE entered into a contract with DME in February 2002, focusing on capacity building of DME.

The main goal is institution and capacity building, which will enable DME to meet the challenges of the restructuring process in the country.

The project was more or less completed by the start of 2005, and outstanding matters were discussed in a meeting between DME and NVE in February 2005. NVE was involved in the development of a new cooperation project which is expected to start in 2006.

The project includes an overall general business plan and five sub programme business plans, respectively on Energy Regulation, Electricity, Upstream Oil and Gas, Hydrocarbons, and Alternative Energy.

ACHIEVEMENTS:

- Participation by four DME staff members in the ELRI-seminar in Norway in June 2005
- Participation by NVE in the development of a new cooperation programme, including a one-day workshop in Pretoria November 2005, organised by the Department of Minerals and Energy (DME)



↑ Seminar participants

National Electricity Regulator [NER]

The cooperation between NER and NVE started in February 1999, with focus on the development of a regulatory framework to accommodate a restructured Electricity Supply Industry (ESI) in the Republic of South Africa (RSA). NER and NVE entered into a second phase of the cooperation in June 2001.

The main goal is to develop a regulatory framework for the ESI which will enable the NER to comply with its designated role as the national electricity regulation authority. In order to reach this goal the objective of the cooperation is to provide technical assistance to NER and to build competence and capacity through exchange of experience.

The main focus was to implement the reporting system from the utilities to the NER, and to plan and prepare workshops and seminars which has been or will be conducted in Norway and in RSA in 2005 or in January-February 2006.

The annual meeting between NER and NVE was held in Oslo in June 2005. NVE also participated in the development of a new proposed cooperation programme to start in 2006.

ACHIEVEMENTS:

- New reporting system implemented
- Nine participants from NER participated in the ELRI-seminar in Oslo June 2005. The seminar was organised back-to back with the NER – NVE Annual Meeting
- A three-day seminar on the new reporting system was held in Johannesburg November 2005
- Participation in one-day workshop in Pretoria November 2005 on the new cooperation programme, organised by the Department of Minerals and Energy (DME)
- NVE commented on the "Distribution Performance Incentive Draft Report", prepared by NER
- Reporting Seminar organised in South Africa November 2005

Mozambique

Ministry of Energy

Phase 1 of the institutional cooperation between NVE and the National Directorate of Energy (DNE) of the Ministry of Mines and Energy covered the period 1998 – 2002 with a budget of NOK 16.7 million. Phase 2 started in 2002 with a budget of NOK 20 million and was planned to be completed by the end of 2005. However, in early 2005, Mozambique decided to establish a separate Ministry of Energy (ME) with a new structure of Directorates and Departments. Thus, as DNE ceased to exist, NVE continued to cooperate within the new structure of ME. As a consequence of the new structure it became necessary to revise the work plans for the remaining period of Phase 2 based on input from all new directorates. It was also decided to extend the implementation period into 2006, and an Addendum IV to this effect was signed December 19, 2005.

Main development goal and project objectives

The main development goal of the ME/NVE cooperation remained unchanged after the establishment of the new ministry. The goal is an improved management of the energy sector, to promote a positive social and economic development in Mozambique. Thus, the long term objective is to make ME capable of performing as a competent and credible power sector authority.

The short term objectives originally defined for DNE are still valid for ME, although the responsibilities of the Ministry are now wider and include several activities beyond NVE's expertise. In the new structure, National Directorates are created for Electrical Energy, New and Renewable Energy, and Liquid Fuel (downstream), and a new Planning Directorate and a General Inspectorate are established.

Activities in 2005

New priorities after the establishment of the new Ministry of Energy initiated a discussion on how to make the best possible use of remaining funds for institutional cooperation. A major constraint turned out to be the lack of manpower in the new Ministry, with a budget for 2005 allowing only for a modest increase of the number of employees taken over from the previous DNE. However, a recruitment plan was established, aiming to recruit 73 new employees within 2008.

In 2005, for the first time, an integrated training plan covering all main activities was made. Training has been organised as



courses and workshops in Mozambique and Swaziland, and as parts of study tours to Norway and within SADC. Four ME employees are supported by the project for full time studies (management, economy, statistics) at the University of Eduardo Mondlane.

NVE has a resident adviser working with DNE in Maputo, supported by a multidisciplinary advisory group in NVE to secure advisory services from all relevant departments in NVE. Emphasis is given to management and organizational aspects, training, development of a computer network, energy efficiency, and the development of regulations under the Electricity Law (1997). Some inputs have also been given to the restructuring of the energy



↑ NVE's resident adviser at the local market

sector, and the development of a new strategy plan for the Ministry.

The draft regulations on system operation, production, transmission, distribution and supply of electrical energy were again slightly revised, and approved by the Cabinet on October 11, 2005. This constituted a major achievement in the cooperation with NVE. The draft regulation on tariffs is yet to be completed. To speed up the development of new electrical standards, a private consultant will be contracted in 2006.

Some assistance from NVE on system development and maintenance of a local AIRA network took place in 2005. It is expected that further training and maintenance and as well as further development of the network can be provided locally.

Under energy efficiency, there has been a close cooperation with the University of Eduardo Mondlane, and practical work has been performed.

Professionals at the Ministry participated in study tours to Norway to visit NVE and other institutions, participated in the one-week Hydro 05 conference in Stavanger, the three-weeks course on hydropower development and management at the International Hydropower Centre in Trondheim, the eight-week course on energy planning and sustainable development at the University in Oslo, the one week electricity regulatory initiative seminar in NVE, and the PETRAD three weeks downstream course in Stavanger.

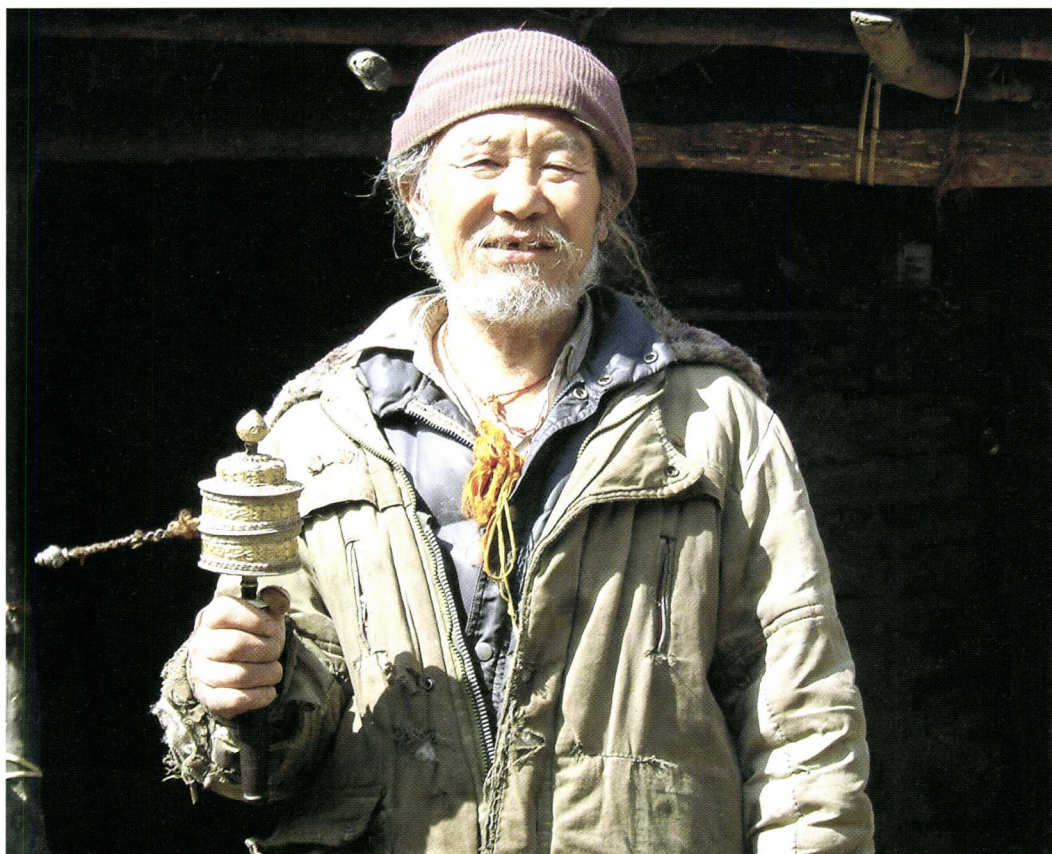
A course on international consultancy contracts was organised in Maputo on October 5-7, and twelve Ministry employees obtained a certificate of participation.

ACHIEVEMENTS:

- The regulations on system operation, production, transmission, distribution and supply of electrical energy were approved by the cabinet
- Further development and maintenance of the Local Area Network in ME were performed
- The Ministry and its provincial staff, were provided with comprehensive training and educational activities on management, accounting, information technology, energy efficiency, system and energy planning, consultancy contracts, and English language, both abroad and in Mozambique
- Energy audits are carried out for two hospitals and one hotel in Maputo, and two reports on previous activities on energy efficiency are prepared



Nepal



Department of Electricity Development [DoED]

The agreement for institutional co-operation between the Department of Electricity Development (DoED) and NVE was signed in December 2004. The Agreement between Norway and Nepal provides financial support for feasibility studies of 5-10 small and medium sized hydropower projects. According to the agreement NVE shall provide technical assistance to DoED in implementing these studies. The studies will be subject to bidding by local Nepalese consulting companies.

Due to political conflicts in Nepal the project is delayed by several months.

Main development goals and project objectives

The goal of the project is to contribute to the economic and social development of the rural areas in Nepal.

The objective of the project is to encourage investors to invest in small and medium size hydropower projects.

The output of the project is the production of up to ten feasibility studies of such quality as required for investment in small and medium sized hydropower plants.

Activities in 2005

The preparation of Terms of References for the first package of three hydropower projects in Nepal was finalised in the beginning of 2005. Four Nepalese consulting companies delivered proposals to the tendering. Technical evaluation of the proposals and training were conducted in Oslo in December 2005.

ACHIEVEMENTS:

- Preparation of Terms of Reference for the first package of three small hydropower plants
- Training of DoED staff in different subjects regarding small hydropower
- Technical evaluation of the proposals



Institutional cooperation with the Ministry of Natural Resources, Minerals and Energy Policy

Timor-Leste solicited Norway's assistance within the power sector in December 2001. NVE made a survey for possible fields for cooperation in 2002, and an institutional contract between Timor-Leste's Ministry responsible for the power sector and NVE, regarding development of the management of the power sector, was signed in February 2003. The total amount provided by Norway for funding of the cooperation is 26,8 mill. NOK for a five year period.

The main goal of the project is to develop the management of the power sector in Timor-Leste. This will be obtained through institution and capacity building within the Ministry and other relevant institutions. A considerable part of the funds is spent on studies and assessments of three hydropower projects, and much of the training of Timorese staff is connected to this activity, comprising theoretical aspects, but even more activities in the field. The other main fields of cooperation are within hydrology and legislation.

The activity level throughout the whole year has been fairly high. In addition to the mentioned training within hydropower, current staff was trained in general administration, accounting, information technology and English language. A number of study tours were arranged in Timor-Leste, to Norway and to Indonesia. In Indonesia, also further training possibilities within the power sector and

hydrology have been investigated. Timorese staff participated in international conferences and courses in hydropower management and development in Norway.

Training was carried out in field hydrology, and workshops were arranged on hydrology and integrated water resources management.

In relation to the aimed development of legal framework, preparatory work relating to collection of relevant information and review of existing law have been carried out. Based on this, Timor-Leste's needs and an appropriate process for further development of the current legal framework have been agreed upon

Based on the mentioned hydropower studies, the construction of a mini hydropower plant is initiated, and a Project Management Unit (PMU) has been established for follow-up of the work in the field.

A core drilling activity is decided to be carried out in order to check rock quality for the Iralalaru Hydropower Project. In conjunction with this activity, training of Ministry staff and lecturers and students from two universities will be provided within both theoretical and field-related aspects.

A number of workshops and public meetings for presentations and discussions of the draft feasibility and environmental studies for hydropower projects under consideration, as well as public meetings related to the implementation of the mentioned mini hydropower plant, have been arranged. These activities have taken place both in the capital and in the current project areas.



ACHIEVEMENTS:

- Increased understanding of the principles and physical aspects of hydropower projects
- Increased skill and understanding within hydrology and the use of hydrological data
- Improved skills within administration, accounting, information technology and English language
- Increased understanding of the value of the environment and mitigation measures
- Creation of an appropriate foundation for further development of current legal framework
- Gained confidence from local people and other stakeholders by transparent processes
- Establishment of international contacts within the sector
- Identification of possibilities for practical and theoretical training in Indonesia within the power sector and hydrology

Uganda



Electricity Regulatory Authority [ERA]

As a result of the Electricity Act approved by the Ugandan Parliament in 1999, ERA was established in June 2000. In March 2001, ERA and NVE entered into an institutional cooperation, planned to last for three years, with a budget of 14, 5 million NOK. Due to various delays, the project will only be finalised in the first half of 2006. The overall goal is to develop the capacity of the public management of the power sector, which again will contribute to the overall development of Uganda. A more specific project objective is the establishment of ERA as an efficient institution which performs in accordance with the Electricity Act.

During 2005, the following activities were carried out:

- Within competence building, ERA-staff attended a NVE-organised power sector seminar in Norway together with participants from other developing countries, followed by training within tariff setting carried out by a Norwegian consultancy firm;
- Retained progress on the development of a light handed regulatory framework for rural electrification;
- Administrative routines relating to internal audit and outsourcing of services were further developed;
- Several consultancy studies on aspects of human resources development, management systems, stakeholder satisfactory survey, power supply operations, and benchmarking of power utilities, were procured and followed up.



ACHIEVEMENTS:

- The ERA-staff's competence was further improved
- Additional legal instruments were approved and made efficient
- Administrative systems and internal manuals were developed and implemented
- Knowledge about power sector operations was increased and stakeholders' opinion on ERA was improved



Electricity of Vietnam [EVN]

Norway and Sweden have provided financial support to Vietnam for the development of the National Hydropower Plan (NHP) Study since 1999. Stage 1, which was completed in 2001, comprised five priority river basins.

The second stage, which deals with the remaining four major river basins and an integration of the stage 1 projects into a national plan, has a cost frame of NOK 19.0 million and SEK 12.7 million. The project will be completed in 2006.

The scope and main objective of the two studies are to prepare preliminary plans for development of the water resources of the country, with respect not only to hydropower, but also other needs - in particular for flood control and irrigation. Thereafter, these projects will be prioritised and made subject to national ranking. Factors such as technical, economic, environmental and social conditions and impacts related to the projects will be taken into account.

Finally, the hydropower projects shall be considered against other forms of energy in a national energy development plan. During 2005 NVE commented upon the phase III report of stage 2, which deals with all hydro

power and multipurpose projects leading to an internal ranking of the projects. A total of twentytwo projects were presented in the phase III report.

In March, NVE conducted a workshop on reservoir sedimentation in Hoa Binh assisted by Norwegian and international experts. The workshop was well attended by professionals from EVN and other institutions related to water resources development.

Furthermore, NVE attended two stakeholders' workshops to observe how projects and their impacts were presented to and discussed with representatives of the local populations, NGOs and other stakeholders. Six persons from EVN participated in the Hydropower 05 conference in Stavanger. NVE assisted EVN in preparing the annual report to Norad and SIDA and participated in the annual meeting between the governments of Vietnam and Norway/Sweden.

ACHIEVEMENTS:

- Comments on the phase III report
- Workshop on reservoir sedimentation

Regional Co-Operation in Africa

Regional Electricity Regulators Association [RERA]

RERA is an association of regulators in the SADC region. At present there are five members, South Africa, Namibia, Zambia, Malawi and Lesotho (from 2005). The objective of RERA is to develop the Electricity Supply Industry (ESI) in the region through enhanced regional integration and trade, and to harmonise and develop a regulatory framework. The RERA – NVE contract was signed in February 2004.

The main goal of the project is to develop a self-sustainable organisation which, through good and professional coordination, can assist its members in the development of a harmonised regulatory and legal framework

After some initial delays in 2004, the RERA secretariat is now to a large degree fully operational in Windhoek, Namibia. Four sub-committees, respectively on Capacity Building & Information Sharing, Legal, Economic/Financial Regulation, and Technical Regulation, were established early in 2005.

NVE is providing the secretariat for two of the sub-committees, the Legal, and the Economic/Financial Regulation, besides assisting and playing an advisory role to the secretariat in Windhoek. NVE participated in the annual meeting between RERA and the Royal Norwegian Embassy in Windhoek in May 2005, and hosted the annual meeting between RERA and NVE in Oslo in June 2005. NVE also participated in the 2nd Annual General Meeting of the RERA Executive Committee in Johannesburg in November 2005.

ACHIEVEMENTS:

- Preparation of two reports by the Economic/Financial Regulation Sub-committee: "Report on Regional Trade and Transmission Pricing" and "Draft Report on Experience and Challenges in Economic Regulation"
- Five persons from RERA participated in the ELRI-seminar in Oslo June 2005. The seminar was organised back-to-back with the RERA – NVE Annual Meeting
- RERA and NVE participated in the three-day seminar on the new reporting system in Johannesburg November 2005
- NVE participated in the Regional Electricity Investment Conference in Windhoek, Namibia in September 2005

Support to the Southern African Power Pool [SAPP]

Twelve of the national power utilities in the SADC-region have established a regional power pool, the Southern African Power Pool, SAPP, with the objective of providing a forum for developing a robust, safe, efficient, reliable and stable interconnected electrical system in the region.

A cost based Short Term Energy Market for the region has been in operation since April 2001, allowing the participants to trade energy on a day ahead hourly basis, in order to take advantage of the short-term surplus of the other participants, and also to profit from its own short-term surplus.

Norway is now providing financial support amounting to NOK 35 mill. to the SAPP, to develop a competitive real time electricity market, based on a technical solution similar to the one implemented in the Nordic countries. A co-operation contract between NordPool Consulting (NPC) and SAPP is established, covering i. a. the preparation of specifications for the trading platform, procurement of the necessary soft- and hardware and the provision of specific advisory services.

A contract has also been entered into between SAPP and NVE, whereby SAPP may call for assistance on any professional issue within NVE's formal responsibilities and competence.

A contract for the implementation of the trading platform is being negotiated between SAPP and NordPool ASA and the negotiations are expected to be completed during January 2006. The start of the Market Trials is planned to take place during the 4th quarter in 2006 and the Market is planned to be opened during the 1st quarter of 2007.

When implemented, the market will be the largest geographical electricity market in the world.



Nile Basin Initiative

The Nile Basin Initiative (NBI) is a co-operation between the ten countries in the Nile Basin with the vision of a cooperation leading to a sustainable development based on sharing of the resources of the Nile. The Nile Basin Regional Power Trade is one of seven projects within the shared vision programme where Norad is the main donor and has the role of Partner Focal Point.

NVE has followed the development of the initiative and contributed with various professional advice since 2000.

Main development goals and project objectives

The assistance from NVE is to support and help the NBI organisations to reach the NBI's goals and objectives. These are described at their web site and quoted as: "To achieve sustainable socioeconomic development through the equitable utilization of, and benefit from the common Nile Basin water resources".

Objectives

1. to develop the water resources of the Nile in a sustainable and equitable way to ensure prosperity, security and peace for all its people
2. to ensure efficient water management and the optimal use of the resources
3. to ensure cooperation and joint action between the riparian countries, seeking win-win gains

4. to target poverty eradication and promote economic integration
5. to ensure that the program results in a move from planning to action

Activities in 2005

NVE participated in several meetings, including meetings in the NBI Technical committee on Power Trade. In January 2005 NVE arranged a one week seminar in Oslo on regional power trade.

ACHIEVEMENTS:

- Planned and implemented a seminar on regional power trade for participants from the Nile countries, Sida and The World Bank
- Initiated the work on developing an institutional cooperation between the PMU on Power Trade and NVE

Planned **activities** 2006



The time expected to be used on projects in 2006 is estimated at 8,5 man-years. An additional 1 man-year is expected for resident advisers, totalling 9,5 man-years. This estimate is based on the schedules of existing projects and assumptions regarding the projects that are in various stages of preparation. The following new projects are foreseen to be started up during 2006:

Vietnam:

Ministry of Natural Resources and Environment (MONRE)

A Project Document, regarding development of licensing procedures for hydro-power projects according to the new Water Resources Act, has been prepared. The project is expected to commence during the first half of 2006. The project is a natural follow-up of the National Hydropower Plan study, where a number of projects are lined up for licensing and subsequent implementation.

The Philippines:

Flood Control Master Plan, Mindoro

The development of a Flood Control Master Plan, for a flood-prone area in the island, will be carried out by NVE with the assistance of local and international consultants.



Mexico:

World Water Forum 4

The World Water Forum is an initiative of the World Water Council that has the aim of raising the awareness on water issues all over the world. As the main international event on water, it seeks to enable multi-stakeholder participation and dialogue to influence water policy making at a global level, thus assuring better living standards for people all over the world and a more responsible social behaviour towards water issues in-line with the pursuit of sustainable development. NVE will, together with other Norwegian institutions and ministries, present the Norwegian water competence as related to development aid.

Uganda:

Ministry of Energy and Mineral Development (MEMD)

A new programme agreement between the governments of Norway and Uganda has been signed, under which NVE will enter into a contract with MEMD to prepare a preparatory programme for new institutional co-operation that will include i.a. a functional analysis of the electricity sector, a capacity building programme and a project document for the new institutional cooperation programme.

Total **invoiced Norad 2005**

Proj.no	Activity	NVE hours	Fee (charged)	NVE exp.	Consultants	TOTAL
32001-A	General assistance	689,50	475 755,00			475 755,00
32001-B	Sad-elec consultancy assistance to NVE				50 000,00	50 000,00
32001-C	Preparation of contract with the Ministry in Uganda	87,00	60 030,00	25 702,00		85 732,00
32001-D	Trainee, Institutional cooperation NER, South Africa			20 620,00		20 620,00
32009	Nile Basin initiative	90,50	62 445,00	45 540,72		107 985,72
32020	Coordination norwegian water expertise	4,00	2 760,00	3 457,41		6 217,41
32046	Visits to NVE	13,50	9 315,00			9 315,00
32054	Phillipines. Flood control.	104,00	71 760,00			71 760,00
32056	Nile Basin Initiative. Trade Seminar	255,50	176 295,00	528 039,60		704 334,60
32057	Vietnam. PD for licensing (MONRE)	92,00	63 480,00	29 692,00		93 172,00
32061	Participation in international conferences	123,00	84 870,00	79 108,15		163 978,15
32062	ELRI-seminar, preparation for 2005	182,00	125 580,00			125 580,00
32063	Dam Safety Regulations, Ethiopia	19,00	13 110,00			13 110,00
32063	World Water Forum	55,00	37 950,00			37 950,00
	TOTAL	1 715,00	1 183 350,00	732 159,88	50 000,00	1 965 509,88

NVE's participation in international research and co-operation with other international institutions

Energy

IEA Wind Energy: Participation in IEA Executive Committee for the Implementing Agreement in the research and development of wind turbine systems.

The Council of European Energy Regulators (CEER):

CEER's main focus is on reducing barriers to cross-border trade and the realisation of an efficient internal market.

The European Regulators' Group for Electricity and Gas (ERGEG):

The ERGEG is an advisory group to the European Commission. Norway and Iceland are observers.

The Forum of Nordic Energy Regulators (FNER):

The mission of the FNER is in co-operation – to actively promote legal and institutional framework and conditions necessary for developing the Nordic and European electricity markets.

Nordic Project on "Climate and Energy" funded by Nordic Energy Research:

The project has the objective of a comprehensive assessment of the impact of climate change on Nordic renewable energy resources including hydropower, wind power, biofuels and solar energy.

The International Council on Large Electric Systems (CIGRÉ):

Exchanges experiences on transmission and generation of electric power. NVE participates in the study committee on environmental questions within CIGRÉ.

NATO; Industrial Planning Committee (IPC):

Ad Hoc Working Group on the Protection of Energy-Related Critical Infrastructure (AHWG), subgroup electricity. The aim of the work group is to examine the electricity infrastructure and resulting vulnerabilities, and to discuss potential preventive and/or consequence management measures, and develop a catalogue of best practices for the protection of electricity-related critical infrastructure.

NEF Nordiskt elberedskap- och säkerhetsforum:

The objective of the forum is to conduct a dialog between the involved parties concerning contingency planning and management in the power sector. NEF deals with issues which are not managed via TSO cooperation through Nordel. The forum consists of the Nordic energy authorities, TSOs and other significant parties of the Nordic power sector.

EU; The European Committee for Standardization (CEN):

Has created a working group (CEN/BT/WG161) on "Protection and Security of the Citizen" as a monitoring and coordination platform for stakeholders. Nine expert groups are currently working, one of them is the expert group "Critical Infrastructure – Energy Supply". The scope of the CEN/CLC Joint Expert group Critical Infrastructure - Energy Supply (within CEN/BT/WG 161) is to identify needs and possibilities for standardisation activities for security and emergency preparedness within energy supply.

Water resources

The Hydrology Department has been an important contributor to the textbook "Hydrological drought" which is a textbook for university students, practising hydrologists and researchers.

EnviSnow: EC-funded project involving 11 partners from four European countries. The aim is to develop and validate new and improved multi-sensor algorithms for retrieval of snow and soil parameters from Earth Observation Data for use in global climate studies and hydrology, in particular runoff and flood prediction.

STREP (Strategic Targeted Research Project) project within the EU's 6th Framework programme, NVE is a participant.

Cooperation with University in Utrecht, the Netherlands, regarding glacier modelling based on meteorological data.

World Glacier Monitoring Service (WGMS), Switzerland: All data sampled from Norwegian glaciers by Hydrology Department is sent to this database.

Global geochemical mapping and sediment-associated flux of major world rivers:

The purpose is to delineate the main features of the natural global distributions of various chemical elements, and to derive estimates of land-ocean fluxes of geochemical elements. The project is organized under the auspices of IAHS/ICCE.

Inventory of historical floods in Scotland and Norway:

A study of historical rainfall floods in Norway and Scotland and the link to the atmospheric circulation. The project provides valuable information to climate change studies.

Member of an WMO working group: National representative in the WMO working group, Gender Focal Point.

United States Geological Survey: Cooperation about development within doppler technology in river measurements.

Sveriges Meteorologiske och Hydrologiske Institut: Field course and research in different techniques for river measurements.

Wasserwirtschaftsamt Kempten, Germany: Exchange program for Hydrologists.

Ott Instruments Germany: Cooperation about logger technology.

Hydrometeorological Institute Serbia and Hydrometeorological Institute Montenegro: Cooperation and projects about Water management in these countries.

CHIN working group: Report on experience from the Nordic countries on Predictions in ungaged basins.

CHIN Nordic Countries: Institutional cooperation regarding all aspects in hydrology.

Deltafix Denmark: Testing and further development of computer program for current meters.

International Commission on Large Dams (ICOLD): NVE has the secretary function for the national committee (NNCOLD). NVE also has representatives in the following ICOLD technical committees: Committee of Governance of Dam Projects; Committee on Dam Safety; European Working Group on Legislation.

NVE is a member of the **European Dam Safety** - Authority Network

Common Implementation Strategy (CIS) for EU's Water Framework Directive (WFD).

NVE contributed actively to

- Steering committee of the strategic working group within CIS on hydro morphology.
- CIS drafting group on methods for applicable cost effective analysis within water management.
- GIS sub group.
- Stakeholders Forum to develop a Flood Action Programme

Interreg projects

- FLOWS
- River Tana

Norwegian-Finnish Trans-boundary Water Commission

International Commission for the hydropower regulation of Lake Inari and River Pasvik.

Honorary posts:

Position in "the Ice committee" in IAHR (International Association of Hydraulic Engineering and Research).

Vice president from 1996, president from 2005 in the **International Commission on Continental Erosion (ICCE)** of the International Association of Hydrological Sciences (IAHS).

Secretary of the **International Commission of Surface Water (ISCW)** i IAHS.

WMO: Hydrological adviser to the Permanent Representative of WMO from Norway.



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