



Annual Report 2003

The Cooperation between NORAD and NVE



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Annual report 2003

The Cooperation
between
NORAD and NVE

Introduction

Background

The current Cooperation Agreement between NORAD and NVE is dated 14 April 2000. NVE's commitments according to the agreement are to assist and advise NORAD and the Ministry of Foreign Affairs within the framework of NVE's competence in management of water and energy resources. The agreement primarily covers assignments from NORAD or Ministry of Foreign Affairs to NVE directly, but also gives the framework for institutional contracts between NVE and institutions in partner countries. According to the agreement, NVE shall present an annual report to NORAD in connection with the annual meeting to be held between the two parties.

Staff and contributors

In NVE, the International Section coordinates the work under the Cooperation Agreement. By December 2003, the headoffice staff consisted of only three professionals and one parttime administrative officer, which is less than the number required to cover the estimated contractual obligations. The low number of staff was due to posting abroad of two persons on longterm contracts, and one person on a shortterm assignment at NORAD headquarters.

By December 2003 the staff also included four full time resident advisers, working permanently in cooperating institutions as part of institutional contracts. The four advisers are posted at the Ministry of Energy and Water Affairs in Angola, the Electricity Regulatory Agency of Uganda, the National Energy Directorate of Mozambique, and the Ministry of Transport, Communication and Public Works of Timor-Leste. The services of NVE under the Agreements cover a wide range of activities, and the International Section draws on the full staff of NVE in order to carry out the assignments. About 30 professionals from various NVE departments have been engaged in 2003, producing about 40% of the man-hours recorded at the headquarters. In addition, several private consultants and professionals from other directorates, research institutions, and consultants have been subcontracted in certain specific areas to compensate for lack of NVE capacity in certain periods.



Egil Skofteland



The staff, left to right:

Terje Gimming; Civil Engineer, Coordinator Bhutan, Nepal (Melamchi), Ethiopia

Aud K. Skaugen; Geographer, Coordinator Nile Basin Initiative, Mozambique, Nepal (Upper Tama Koshi)

Egil Skofteland; Head of Section, Hydrologist, Coordinator Angola, Vietnam

Lisbeth Karijord; Administrator/Project Accountant

Rolv Bjelland; Economist, Coordinator South Africa, Namibia

(Alf V. Adeler and Kjell Espen Lier were not present)

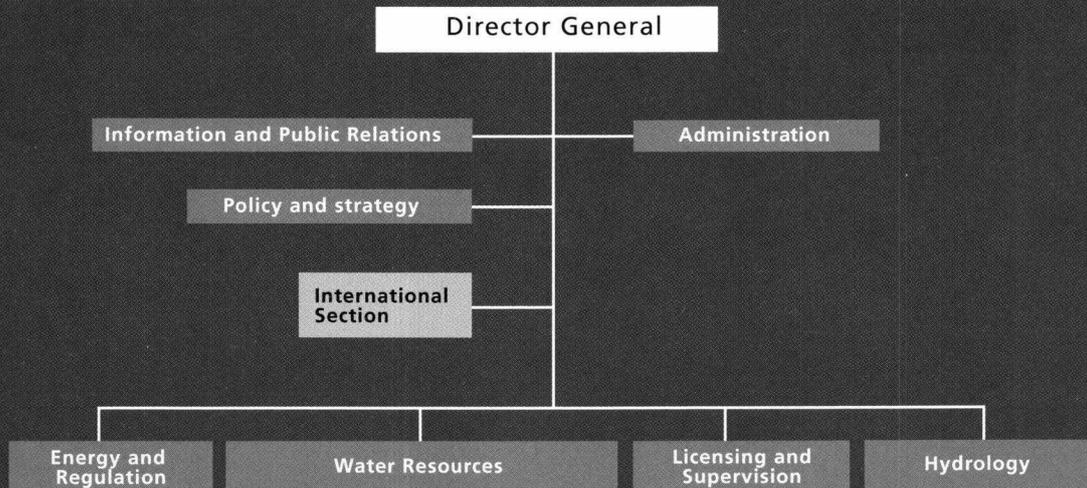
Organization of NVE



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Organization of NVE



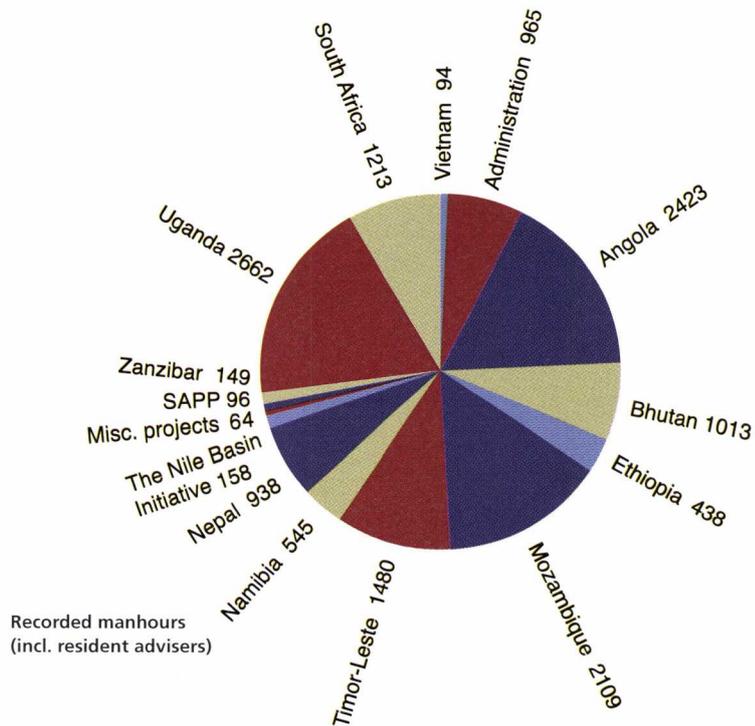
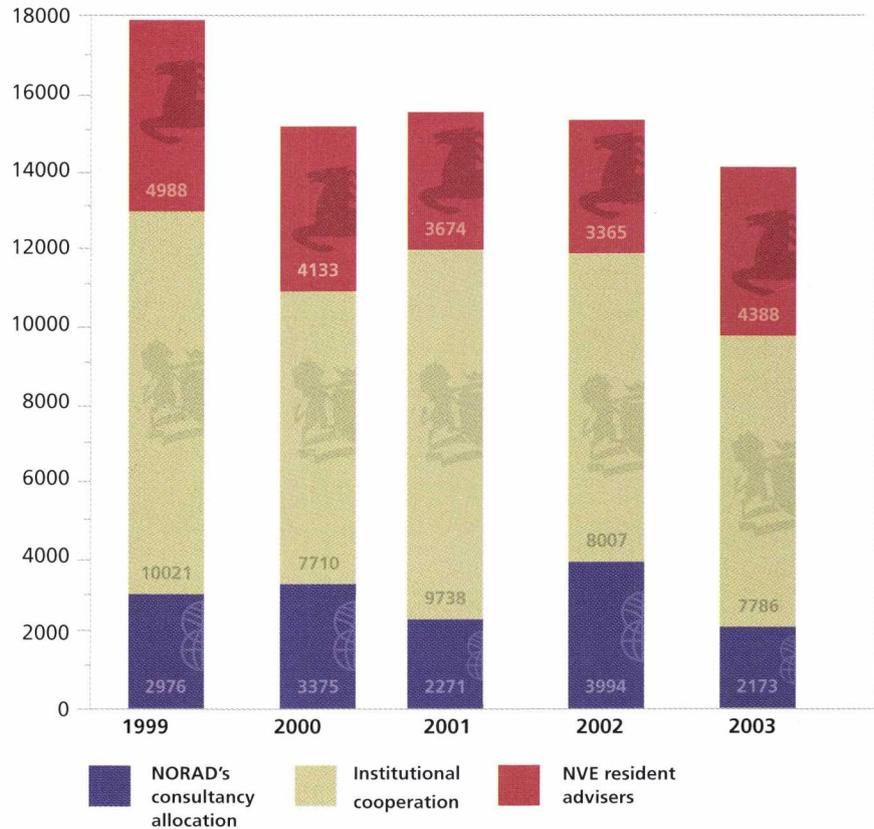
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Overview of activities and time consumption

The volume of activities in 2003 was recorded at about 10.2 man-years (one man-year = 1400 hours net). This is 0.8 man-year less than in 2002, due to a marked decrease of 1.3 man-years spent on direct assignments for NORAD. The number of hours spent on institutional cooperation has been kept at nearly the same level, while the hours generated by resident advisers have increased.

The development of NVE's international cooperation over the last 5 years as illustrated in the figure indicates that the annual level of NVE's international activities has stabilized at about 10–12 man-years.



Assignments for NORAD

Hydropower projects in Ethiopia

As a continuation of an appraisal of in 2002, NVE prepared further comments and advice regarding the scope and planning arrangements for the Baro and Karadobi hydropower projects. NVE was subsequently engaged to visit the project sites together with the Ministry of Water Resources of Ethiopia, which will be the executing agency for the projects, in order to discuss the scope of NVE's services and prepare a contract for institutional cooperation.

Achievement

- Contract for institutional cooperation prepared and signed.

Planning of institutional cooperation between NVE and Department of Electricity Development (DoED), Nepal

Norway has entered into an Agreement with Nepal to provide financial support for feasibility studies of 5–10 small and medium size hydropower projects. In accordance with the Agreement, NVE shall provide Technical Assistance to DoED which is the implementing institution for the studies. The studies will be subject to bidding by local Nepalese consulting



Field visit to the Baro and Karadobi hydropower projects in Ethiopia

companies. An NVE team visited Nepal by the end of the year, and a draft Contract between DoED and NVE was prepared.

Achievement

- Draft Contract between DoED and NVE prepared.

Assistance in the preparation of Project Document for institutional cooperation with Department of Energy (DoE), Bhutan (Phase II)

Following a request from Bhutan for continued institutional support presented at the Annual Meeting between DoE and NORAD in October 2002, NVE assisted DOE in the preparation of a Project

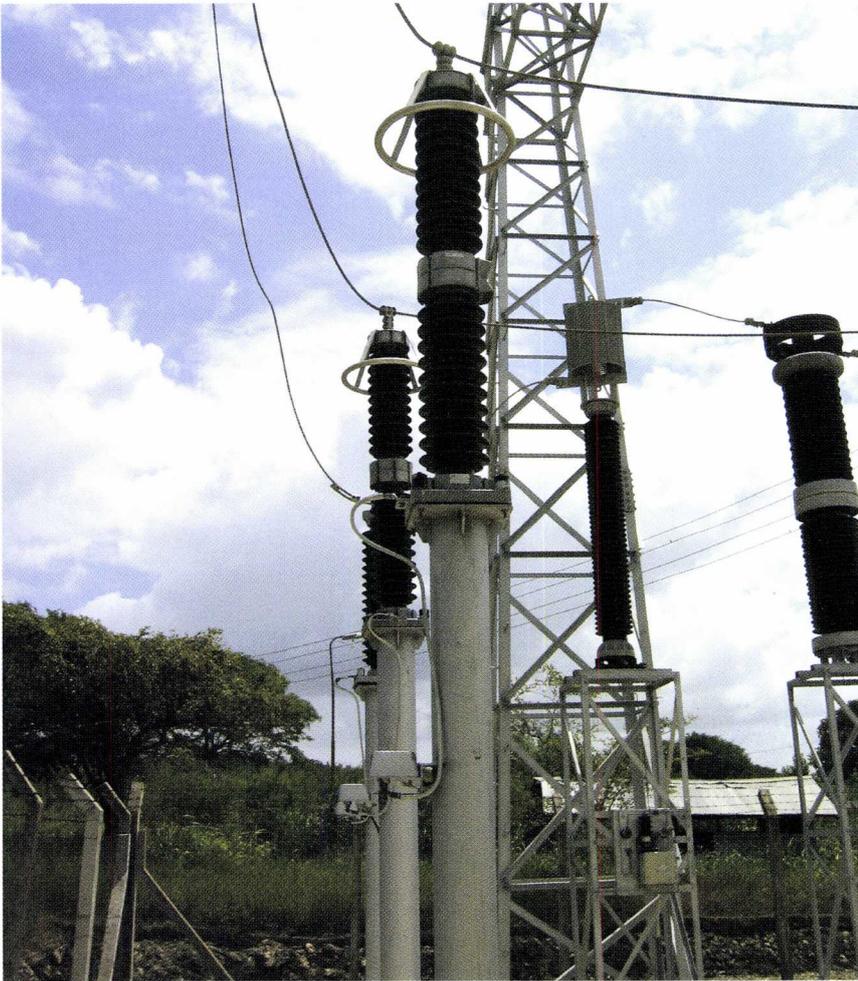
Document for continued support up to the end of 2007.

Achievement

- Project Document completed.

Zanzibar rural electrification project, Phase IV

Up to 1994 NORAD financed three phases of rural electrification on Zanzibar. Due to political unrest, support from Norway and from other western countries was halted. In 2002 NORAD was requested to fund a Phase IV of the project. A project document was prepared by the electricity utility of Zanzibar (State Fuel and Power Corporation), and NVE was requested to assess plans in relation to national development goals,



Substation on Zanzibar



Simple house installation

sustainability of the project, and skills and competence of the utility. NVE headed an assessment team which visited Zanzibar's two main islands Unguja and Pemba in January 2003. It was concluded that rural electrification is substantiated in Zanzibar's development plan and with some support the utility can carry out the project. It was also concluded that the supply situation on Pemba must be strengthened very soon and that planning for additional supply to Unguja must be started. In late 2003 NORAD approved the grant for Phase IV, and the utility has expressed a wish to enter into a 3 year institutional cooperation with NVE.

Achievement

- Assessment report prepared.

Institutional cooperation



Ethiopia
Cooperating Institution:
Ministry of Water Resources

Angola
Cooperating Institutions:
Ministry of Energy and Water Affairs, National Directorate of Energy
Ministry of Energy and Water Affairs, National Directorate of Water
Resident Adviser: **Olav Osvoll**
Hydrologist



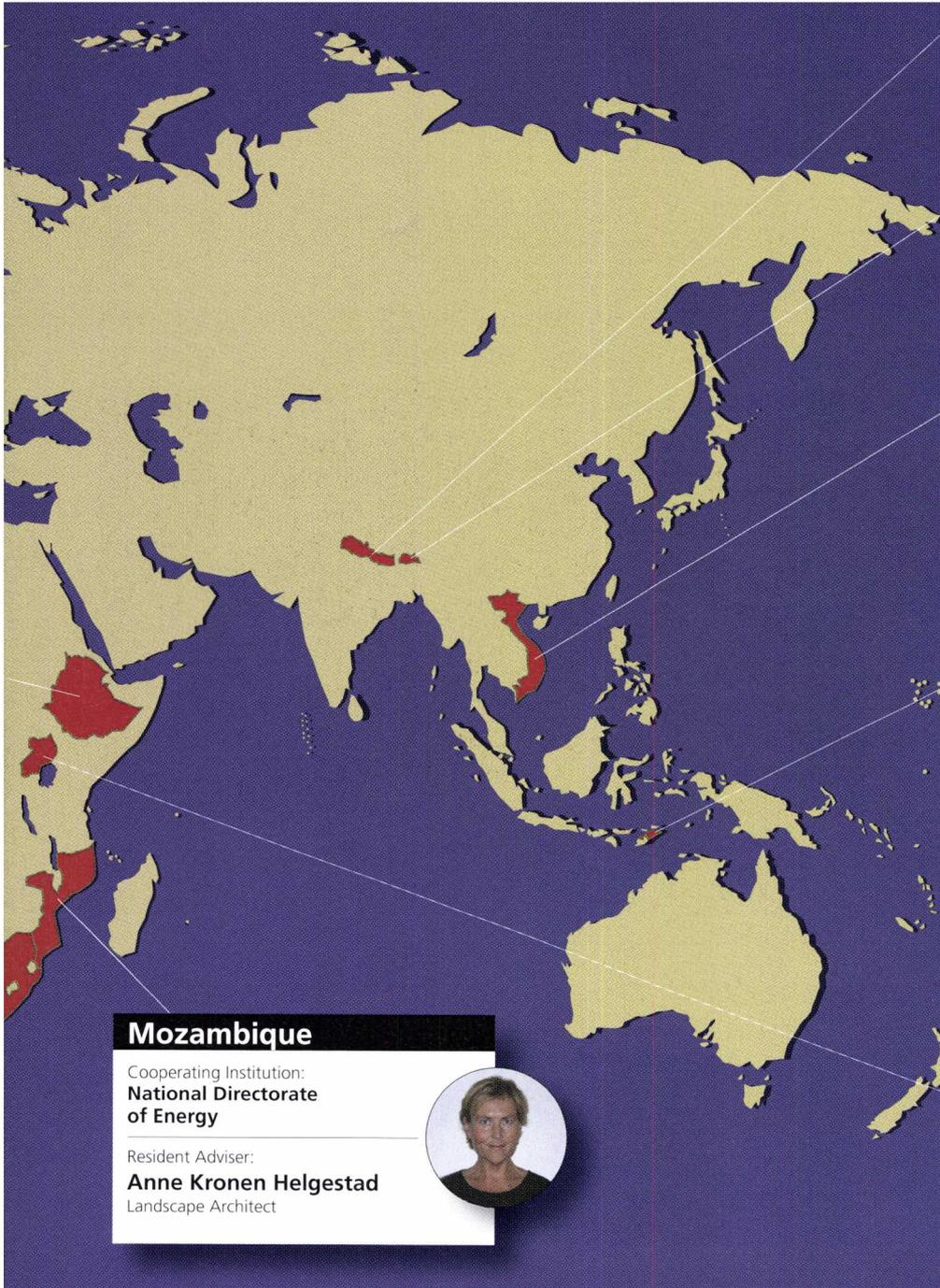
Namibia
Cooperating Institution:
Ministry of Mines and Energy

South Africa
Cooperating Institutions:
Department of Minerals and Energy
National Electricity Regulator

The following institutional contracts have been in force in 2003:

Angola	Ministry of Energy and Water Affairs, National Directorate of Energy	2000-2002	52,000	4,500
Angola	Ministry of Energy and Water Affairs, National Directorate of Water	2001-2003	15,000	7,500
Bhutan	Department of Power (Phase I)	2001-2003	20,000	6,500
Bhutan	Department of Power (Phase II)	2003-2007	15,000	8,900
Ethiopia	Ministry of Water Resources	2003-2006	1,300	1,300
Mozambique	National Directorate of Energy	1998-2005	36,700	13,700
Namibia	Ministry of Mines and Energy	1999-2002	13,600	6,500

Nepal	Nepal Electricity Authority
South Africa	Department of Minerals and Energy
South Africa	National Electricity Regulator
Timor-Leste	Ministry of Transport, Communication and Public Works
Uganda	Electricity Regulatory Authority
Uganda	Directorate of Water Development
Vietnam	Electricity of Vietnam
TOTAL	



Cooperating Institution:
Nepal Electricity Authority

Bhutan

Cooperating Institution: **Bhutan**
Department of Energy (Phase I & II)

Vietnam

Cooperating Institution:
Electricity of Vietnam

Timor-Leste

Cooperating Institution:
**Ministry of Transport,
Communication and
Public Works**

Resident Adviser:
Alf Adeler
Civil Engineer



Uganda

Cooperating Institution:
**Electricity Regulatory
Authority**

**Directorate of Water
Development**

Resident Adviser:
Kjell Espen Lier
Lawyer



Mozambique

Cooperating Institution:
**National Directorate
of Energy**

Resident Adviser:
Anne Kronen Helgestad
Landscape Architect



2003	14,800	0,780
2002-2004	2,700	0,700
2001-2003	9,400	2,500
2003-2009	21,000	7,000
2001-2003	14,500	5,500
2003	0,400	0,400
1999-2003	32,000	5,000
	248,4000	70,780

The table shows that on average 28% of the total project funds is spent on activities directly linked to institutional cooperation with NVE (training, visits/study tours by cooperating institution, NVE fees, etc). The remainder is mainly spent on assignments of consultancy companies, either on direct contract with cooperating institution, or with NVE. In Angola a considerable amount is spent on spare parts to electricity supply companies, hydrometric equipment, and vehicles.

1 The original period of cooperation is often extended, and apart from Nepal (NEA) all listed contracts will continue into 2004.

Institutional cooperation

Angola

Ministry of Energy and Water Affairs (MINEA), National Directorate of Energy (DNE)

The Institutional Cooperation between MINEA through DNE, and NVE, is based on a contract covering the period 2000–2002, which has been extended through 2004.

The Programme includes:

1. Followup of the NESMA (National Energy Sector Management) process, including followup of the MINEA Management Information System (MIS).
2. Institutional strengthening of Luanda Electricity Utility (EDEL), phase 2, implementation of a Strategy Plan (phase 1).
3. Provision of spare parts to Angolan power utilities.
4. English language courses for key personnel in the energy sector.
5. Logistics in Angola.

The cooperation includes shortterm missions to Angola by NVE personnel or by consultants contracted by NVE, and assistance in monitoring consultants and suppliers.

The conditions now seem favourable for a lasting peace,



Rehabilitated hydrometric station, Angola

Achievements

MINEA / DNE

- Department directors at MINEA/ DNE have visited Mozambique to establish contacts with their counterparts in that country for future cooperation.
- The National Director of Energy and one associate have visited NVE and contracted a consultant for followup of the MIS system at MINEA. The consultant has started work in Luanda on the MIS followup project.
- The English language project was successfully completed.
- Two NVE missions to Luanda have taken place to followup ongoing projects and discuss continued cooperation in a possible new programme period. A preliminary Project Document for the proposed programme has been prepared.
- The third year tender process in the spare parts project was completed and deliveries from the contracted suppliers are under way.

Angola contd.

following nearly 30 years of civil war. This will greatly enhance the conditions for the cooperation. Constraints on the national budget has limited the possibilities for strengthening MINEA through recruiting professional staff. There is a great shortage of qualified professionals and at the same time a surplus of unskilled workers. However the staff of DNE was strengthened by 3 professionals in 2003.

Ministry of Energy and Water Affairs (MINEA), National Directorate of Water (DNA)

The National Water Sector Management (NAWASMA) project was started in 2003 as an institutional cooperation between DNA and NVE. The Project Period is 2002–2004 with a budget of NOK 15 million.

The project has three main objectives:

1. A strengthened institutional capability and capacity of DNA through institutional cooperation with NVE.
2. Improved Water Sector legal and institutional framework.

3. A strengthened DNA in the regional cooperation on water resources.

NVE has a Resident Adviser working with DNA in Luanda, providing day to day advisory services and coordinating the cooperation with NVE. The institutional cooperation involves a broadly based cooperation between the two directorates, with the possibility to utilize advisory services from all the different departments in NVE. A specific multidisciplinary NVE Advisory Group for DNA has been established to help in this respect.

A major component of the support to DNA is the reconstruction of the National Hydrometric Network and the hydrological database.

Other components are training and skill transfer, water resources and water use assessment, and the preparation of draft regulations based on the new Angolan Water Law.

The main activities in 2003 included:

- Startup meeting DNA /NVE regarding draft regulations to the Angolan Water Law (February 2003).
- DNA participation in training activities on new technology



Canna originates from the Indian sub-continent, but is frequently seen in many of our cooperating countries in Africa

in hydrometric measurements (Sweden, May 2003).

- NVE mission to DNA to assist in quality check of the National Hydrological Database (October – November 2003).
- Rehabilitation of 5 Pilot Hydrometric stations in Cabiri, Bom Jesus, Porto Quipiri, Cachoeira da Binga, and Quicombo.
- Upgrading of the National Hydrological Database (HYDATA) in Luanda, including training assisted by personnel from the Centre of Ecology and Hydrology, (Wallingford, UK) (March 2003).
- Installation and rehabilitation of 4 SADC HYCOS (Hydrological Cycle Observing System) stations which are a part of the South Africa Development Community station network covering Angola, Namibia, South Africa, Lesotho, Mozambique, Zimbabwe, Zambia, and Malawi.
- Field training in collecting hydrological data from data

Angola contd.

loggers performed.

- Preparation of a programme for training in data collection and data processing.
- Training in basic computer knowledge for office staff.
- Procurement of computer hardware and software, and installation of a Local Area Network and internet/email (February 2003).
- Preparation of Terms of Reference for rapid water resources and water use assessment of Angola. Three Norwegian consultancy companies have been invited to submit proposals early 2004. A midterm review was fielded late 2003 and the report is expected in February 2004.

Achievements

MINEA / DNA

- Review conducted of draft regulations to the Angolan Water Law.
- Various training conducted, including new technology in hydrometric measurements, data collection and processing, and basic computer knowledge for office staff.
- Rehabilitation of 5 pilot hydrometric stations.
- Installation/rehabilitation of 4 SADC HYCOS stations.
- Procurement and installation of computer hardware and software.
- Preparation of Terms of Reference for water resources study.

Bhutan

Department of Energy (DoE) (Phase I)

2003 was the third year of the cooperation programme which has included assistance in the contracting and follow-up of a Consultant to prepare an Integrated Water Resources Management Plan and an updated Power System Master Plan – and institutional activities. Within institutional development the main activities during 2003 have included:

1. Electricity Regulations

Following initial drafts in 2002 and comments by DoE, further drafts have been prepared by NVE and discussed in workshops in January, April and May. The final drafts were submitted on 10 July 2003. Some regulations remain to be prepared, and these will be covered under the phase II programme, starting early 2004.

2. Institutional setup of the new DoE

Following DoE's comments to a desk study at the end of 2002, NVE presented a memorandum with analysis and recommendations for a new institutional setup and functions to be undertaken by the new DoE. The memorandum was discussed with and agreed to by DoE in March 2003.

3. Electricity tariffs and international power trade

Norconsult have carried out this activity under a subcontract with NVE. A second workshop was carried out in January which concentrated on project financing, tariff formulation, and drafting of Power Purchase Agreements. DoE has expressed great satisfaction with this activity.

4. Sediment laboratory

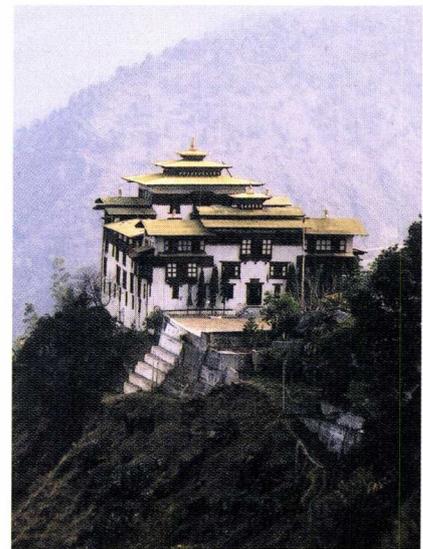
Training and purchase of equipment have been carried out under Norconsult's contract. Some further purchases of equipment have been carried out under the NVE contract.

5. Library and publications

Based on an initial list prepared by DoE and reviewed by NVE, NVE has procured and arranged shipment to Bhutan of books and publications covering the energy and water resources sectors. Furthermore, necessary shelves and cabinets have been procured under this activity.

6. Coordination and backstopping by NVE

This activity includes general coordination and administration of project activities, preparation of quarterly reports and assistance in preparing DoE's reports to NORAD. Also included are review and preparation of comments to



Norconsult's working documents and reports, and participation in workshops where these reports are presented and discussed. Under Norconsult's contract the only remaining work is preparation of final reports for the Water Resources Management Plan and the Power System Master Plan. These reports will be based on the draft reports and comments presented by DoE following workshops where the draft reports were discussed.

There have been no particular problems related to any of these activities. Except for some possible comments to Norconsult's final report, the only remaining work of NVE in 2004 will be preparation of final accounts, invoicing and reporting.

Achievements

- Final drafts of Electricity Regulations.
- Document on institutional setup and functions of the new DoE.
- Equipment for the sediment laboratory procured.
- Books and publications for the library procured.

Department of Energy (DoE) (Phase II)

Following a new Country Agreement signed on 10 October 2003 a contract between DoE and NVE for the phase II programme was signed on 11 December 2003. The programme includes 7 activities as follows:

1. Human resources development
2. Development of the Electricity Regulator
3. Regulations for water structure safety standards and licensing according to the water resources act
4. Geographical Information System for the energy sector
5. Management Information System for the energy sector
6. Further development of the hydrometeorological framework
7. Coordination and backstopping by NVE

The project has duration of 4 years and a cost frame of NOK 15 million. Some initial discussions were held in December 2003 and the project will start in early 2004.



NVE Coordinator meets the regional administrator at Tashigang dzongkhag

Achievements

- Preparation and signing of contract.

Ethiopia

Ministry of Water Resources (MoWR)

During a visit to Ethiopia funded directly by NORAD a contract was signed in September between MoWR and NVE, covering assistance from NVE on the following activities for the Baro and Karadobi hydropower projects:

1. Preparation of bidding documents (Terms of Reference and Request for Proposal)
2. Evaluation of proposals and contract negotiations
3. Advisory services during the study period

Both projects are multipurpose in that they will be designed for irrigation and flood reduction purposes in addition to hydropower. The Baro project is a twostage cascade project with a foreseen installed capacity of 6–700 MW. It is located in the southwestern part of the country on a tributary to the White Nile. The Karadobi project is located on the Blue Nile and will include a large dam with height in the order of 250 m and installed capacity in the range of 12–1500 MW. The Baro study will be carried to a full feasibility level, whereas the Karadobi study will be carried to a prefeasibility level. The studies will be carried

out under one single contract. By the end of 2003 the bidding documents had been prepared and approved by the authorities of Ethiopia, and invitations prepared for international bidding.

Achievements

- Bidding documents prepared and approved.



In this gorge the 250 m high Karadobi dam may be constructed.

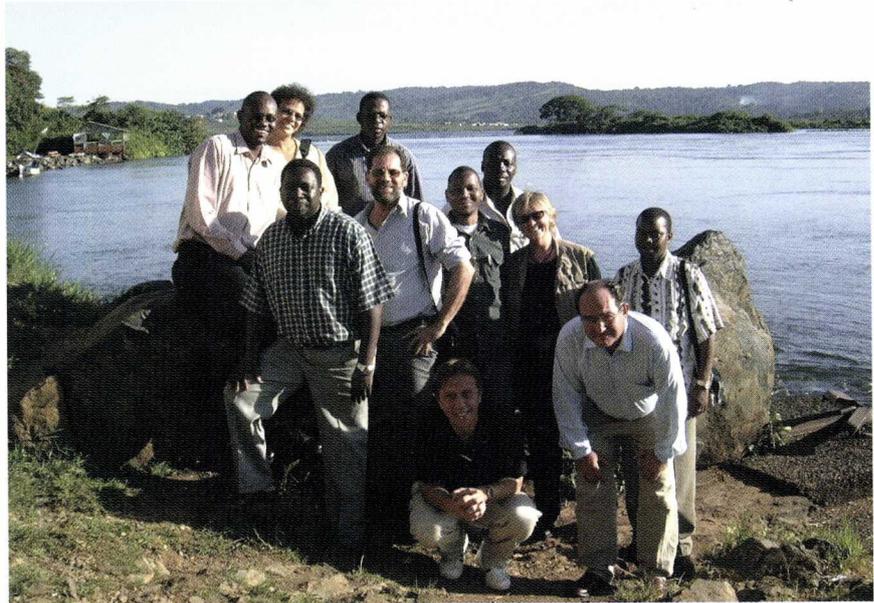
Mozambique

National Energy Directorate (DNE)

DNE has received Norwegian support since 1998 through institutional cooperation with NVE. The overall goal is to improve the energy sector management to promote a sustainable social and economical development in Mozambique, and the objective is to make DNE capable of performing as a credible power sector authority.

Phase 1 covered the period 1998 to 2002 and had a budget of NOK 16.7 million, and phase 2 covers the period 2002–2005 with a budget of NOK 20 million.

NVE has a Resident Adviser working with DNE in Maputo, providing daytoday advisory services and coordinating the cooperation with NVE. The institutional cooperation involves a broad based cooperation between the two directorates, with the possibility to utilize advisory services from all the different departments in NVE. A specific multidisciplinary NVE Advisory Group for DNE has been established in this respect. In addition to regular support directed towards management and organisational aspects, emphasis is given to training of DNE staff; development of IT tools; energy planning; licensing procedures and legal framework.



Visit to the regulatory bodies in Namibia and Uganda by work group on legal framework

The activities in 2003 have included:

Within legal framework and licensing:

- New regulations on System Operation; Production; Transmission; Distribution and Supply of Electrical Energy, and Tariffs, were prepared and are expected to be approved in early 2004.
- A study trip to Uganda and Namibia for the Work Group was arranged in March/April, and NVE's cooperation with the regulatory bodies of Uganda and Namibia was used to facilitate the visits.
- NVE assisted with the Moma power supply project with comments on the different draft Con-

cession Contracts. The Concession Contract is expected to be signed late 2003/early 2004.

- NVE has assisted DNE in preparing TOR and MoU for interested developers of Massingir hydropower project.



NVE was one of the hosts for a football team from Mozambique participating at the Norway Cup

Mozambique contd.

■ Tender and Contract Documents have been prepared for bidding and contracting of private companies to operate, maintain, and expand the electricity supply in three areas north in Inhambane Province. The Contract negotiations with the successful bidder were finalised in December. Signing of the Concession Contract is expected early in 2004.

Energy Planning and Efficiency:

■ In February, a delegation from the Energy Efficiency Department and the Energy Planning Department visited Kenya to learn about the Industry Energy Efficiency Network, and in August a seminar on the same topic was arranged in Maputo with invited speakers from Kenya and Norway. In December, a new contract with the University Eduardo Mondlane was signed on technical assistance connected to training and performance of energy audits in the industry.

Information Technology:

■ Computer hardware and software have been purchased and installation of a Local Area Network and internet/email has started. The implementation phase will start in 2004 and include user training and onsite support from NVE.

Achievements

DNE

- New electricity regulations; study trip to the regulatory bodies in Uganda and Namibia.
- Assistance regarding concession contract for Moma power supply project and preparation of TOR and MoU for possible development of Massingir hydropower project.
- Preparation of tender and contract documents for private operation of electricity supply in three areas.
- Visit to Kenya regarding Industry Energy Efficiency and holding of seminar on this topic in Maputo.
- Procurement and starting up of the installation of computer hardware and software.
- Various training and education, including English language, management and accounting, IT technology, management of rural electricity supply systems including licensing and environmental management.

Training and education:

- English language training for 18 staff members has been performed at the British Council.
- Two staff are undertaking long-term training in Management and in Accounting.
- Training activities have been undertaken partly in Norway, partly in Mozambique on Local Network Management.
- Management of isolated systems, licensing and in Rural Electrification and Environmental Management, the latter also with participants from Angola.

Namibia

Ministry of Mines and Energy (MME)

The cooperation between MME and NVE started in 1994 and the collaboration has also included assistance to the Electricity Control Board (ECB) after it was established in July 2000. The objective of the cooperation has been the establishment of relevant legislation and institutional framework and training of staff. The cooperation is in the last phase and is expected to end during 2004.

Achievements

- Further development of the legal framework through the resident adviser.
- Organization of a wind power seminar in Windhoek, March 2003.
- Assistance in development of management information system.
- Arrangement of a training course for MME/ECB personnel in Oslo, June 2003.
- Further development of the technical and financial reporting from utilities in Namibia to ECB.

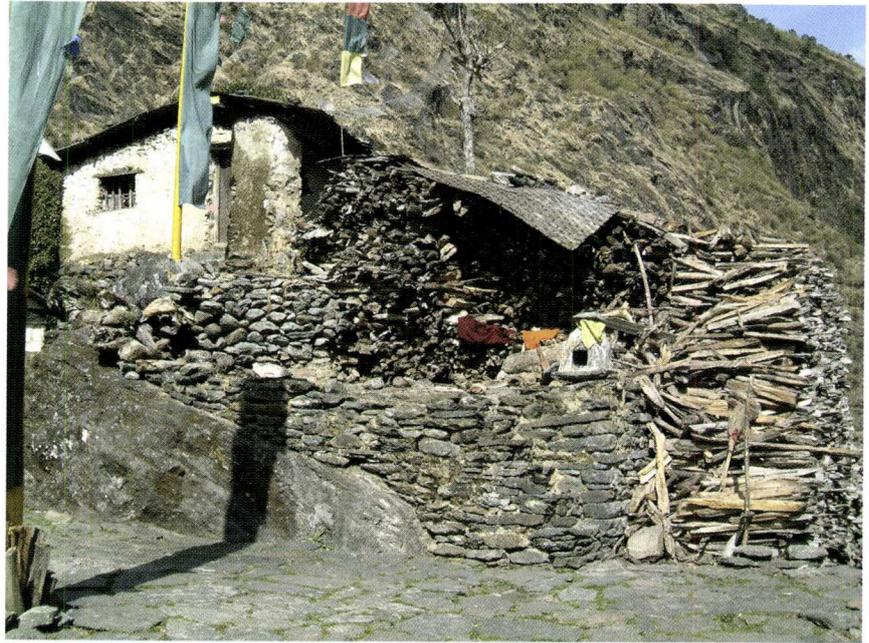


Himba woman. The Himba people live along the Cunene watercourse along the border with Angola

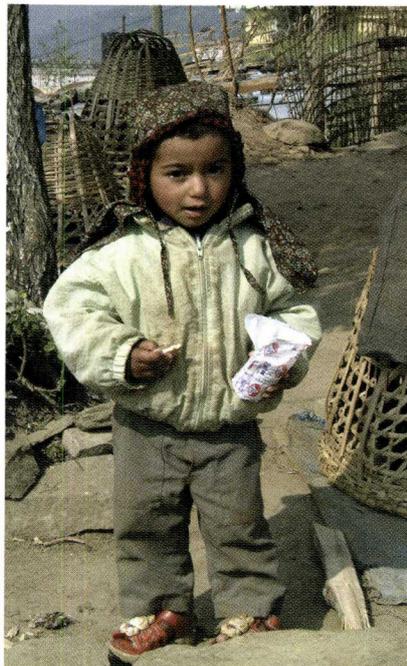
Nepal

Nepal Electricity Authority (NEA)

Based on an institutional contract between, NVE assisted NEA in the bidding and evaluation process for the feasibility study of Upper Tama Koshi Hydropower Project. This hydropower project is planned as a runofriver scheme, and the weir site will be located some 8 km south of the NepalChina border in eastern Nepal. The drainage area is mountainous and includes glaciers and glacial lakes. According to previous studies, the project will have a design flow of 39.6 m³/s, a gross head of 758 m, and the installed capacity of the project is expected to be 250 MW. The bidding for the feasibility study was international, and five proposals, involving altogether 11 different companies, were received on the deadline of 1 September 2003. The proposals were in general of a very high standard. The evaluation process was finalised in mid September, with Norconsult AS as the winner. NVE also attended and assisted in the contract negotiations between NEA and Norconsult AS.



From village being affected by the Upper Tama Koshi project



A boy met on the way to the Upper Tama Koshi site

Achievements

- The completion of the bidding and evaluation process in September 2003, allowing the consultant to start work on the feasibility study late 2003.

South Africa

National Electricity Regulator (NER)

The cooperation agreement with NER in South Africa has been in operation since February 1999. The activities have focused on development of a regulatory framework to accommodate a restructured electricity supply industry. NER and NVE entered into a second phase of the cooperation in June 2001. The objective of the programme is to provide technical assistance to NER and transfer of skills.

In 2003 the main activities have included:

- Development of a reporting system from the utilities to the regulator. Both a Norwegian consultant and a consortium of consultants from South Africa have been contracted to develop the system. In addition to visits of NVE personnel to NER, two NER delegations have visited NVE in connection with this assignment.
- Development of an appropriate Multi Market Model and assessment of regulatory impacts.
- A seminar on regulation of grid activity was arranged for 5 NER staff in Oslo in June 2003.
- NVE and a contracted media expert arranged a media training

seminar for NER in Pretoria in November 2003.

- Further development of tariffs and regulations through meetings between professional staff in NER and NVE.

Department of Minerals and Energy (DME)

NVE's contract with DME was signed in February 2002. The contract focuses on capacity building of DME to meet the challenges of the foreseen restructuring process in South Africa.

In 2003 the cooperation has focused on training. Part of the training has taken place in South Africa, and personnel from DME participated in the seminar on network regulation in Oslo in June 2003.

Preparations have been made to undertake a strategic review of the power sector reform process in South Africa, and to provide an evaluation of whether alternative models would be more in line with the Government's objectives. Norwegian consultancy expertise is contracted for the assignment, but the mission has been postponed until 2004.

Achievements NER

- Development of reporting system to be used by the electricity utilities.
- Development of Multi Market Model.
- Seminars on regulation of grid activity and media handling conducted.

Achievements DME

- Training on regulatory aspects conducted.
- Preparations for a strategic review of the power sector reform process.

Timor-Leste

Ministry of Transport, Communication and Public Works (MTCPW).

The bilateral Agreement between TimorLeste and Norway regarding assistance in developing the management of the power sector in TimorLeste was signed 3 and 4 February 2003. An Institutional Cooperation Contract between MTCPW and NVE regarding institutional strengthening of the power sector in the country was signed 18 February 2003, with an addendum of 8 July 2003. The Contract was signed for two phases, the first phase (max. NOK 6 mill) should be completed no later than 31.12.2004, and the second (max. NOK 15 mill) no later than 31.12.2009. NVE assisted during the preparation of the mentioned agreement and contract, and the first phase started immediately after the contract was signed. The following took place during 2003:

- NVE assisted MTCPW and Electricidade de TimorLeste (EDTL) to prepare Terms of Reference and Letter of Invitation for Feasibility Studies for 3 hydropower projects in TimorLeste in March/April 2003.

- Evaluation of bids and contract negotiations were carried out in Norway in June. The successful consultant, the Joint Venture Norconsult/Norplan mobilized in August, and progress has been according to schedule.

- An NVE resident adviser took up position in TimorLeste from 13 October 2003 for a period of 2 years. Some training has been carried out concerning establishment of hydrological gauging stations.

- In November, the Director of EDTL and the resident adviser participated in the ICH conference Hydro Africa 2003, and later in a special arranged programme concerning the water management in the Pangani River basin, Tanzania's experience with the management contract for Tanesco, and with prepayment meters.



Gauging station, Timor-Leste



Achievements

- Preparation of TOR and Letter of Invitation for study of 3 hydropower projects. Evaluation of consulting proposals and assistance in contract negotiations.
- Recruitment and placement of an NVE resident adviser with MTCPW.
- Participation by MTCPW director at Hydro Africa Conference 2003 in Arusha and study trip on various topics in Tanzania.

Uganda

Electricity Regulatory Authority (ERA)

In 2001 NVE and ERA initiated a 3-year institutional cooperation to establish ERA as an efficient and credible electricity regulator. The cooperation includes assessment of the regulatory framework, training of ERA personnel and development of legal instruments. NVE has had a resident energy advisor at ERA since 2001. Since it was established in 2001, ERA has developed its organisation to be a professional regulator that performs its duties regarding licensing, tariff setting, etc. Today ERA has a well qualified staff of 15 – 20 persons.

Directorate for Water Development (DWD)

DWD, under the Ministry for Water, Lands and Environment,



A district office of Uganda Electricity Distribution Co.

is establishing a new division for the licensing of water works. Although the legal framework in Uganda is fairly well developed on these issues, there is still a need for certain clarifications, as well as guidelines, good practices, monitoring routines, etc. NVE has therefore signed a contract with DWD in order to assist this new

division in its efforts to establish licensing procedures for large hydraulic works, such as hydropower plants. A team from NVE visited DWD in May 2003, and obtained information on services and assistance needed. A draft project document was finalised by August 2003, and several activities were suggested.

Achievements

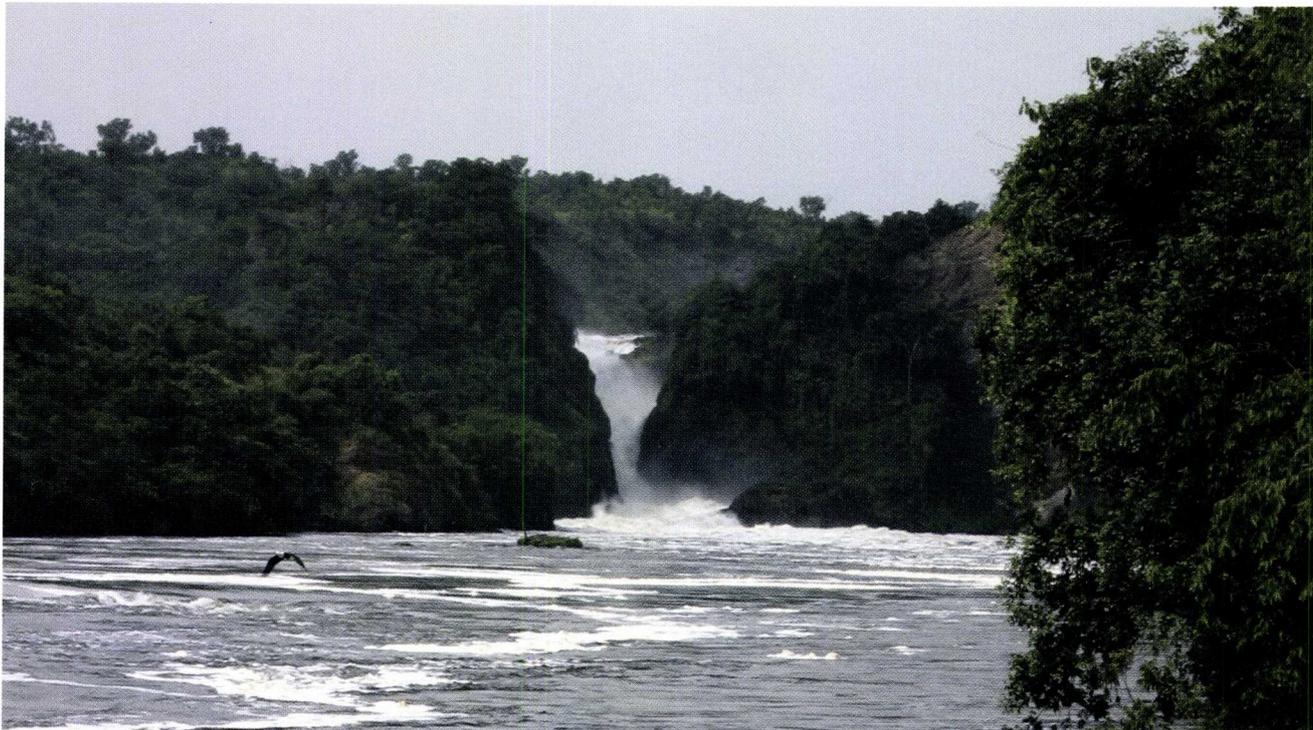
ERA

ERA

- licensed two existing small hydro-power stations to sell power to the main grid;
- granted a licence to an isolated power system in the West Nile;

- undertook an annual tariff adjustment of the three main power companies in Uganda;
- passed and put into force a Primary Grid Code, Quality of Service Code, Electricity Safety Code, a Tariff Code and Installation permit regulations;

- drafted a simplified regulatory framework for isolated systems; and
- undertook an extensive training programme for its staff, and a large number of training activities have taken place, in Uganda, Norway and other countries.



Murchinson Falls, Uganda

Amongst others, there is a need for improved definitions of what kinds of minor actions and works may be exempted from permits, as well as checklists for standard conditions and charges. The new division also needs to introduce an awareness programme on the need to apply for permits, and to establish and implement monitoring routines. The suggested programme comprises an extensive capacity building and training component.

Achievements DWD

- A seminar on Norwegian licensing procedures was held at the DWD premises in May 2003.
- A draft project document has been produced. Uganda's legislation on water resources and its usefulness for licensing major hydraulic works has been evaluated by NVE lawyers and a separate report has been produced on this topic.



ERA visit to Tanzania

Vietnam

Electricity of Vietnam (EVN)

Since April 1999 Norway and Sweden have provided financial support to Vietnam for the development of a National Hydropower Plan (NHP) Study. NVE provided technical support to EVN through a contract on institutional cooperation, and a Swedish/Norwegian Consortium the Consultant consisting of SWECO International (leading), Statkraft Grøner and Norplan provided the consulting services. Stage 1 comprising the five priority river basins with respect to hydropower was completed in December 2001. These rivers account for about 70–75% of the estimated total exploitable hydropower in Vietnam. EVN is the Client and is responsible for the implementation of the study. With the assistance of NVE, a comprehensive Project Document for a Stage 2 of the Study was prepared in 2002. The main objective of Stage 2 is to complete the Study to cover the whole country by examining the remaining 4 main river basins with attractive hydropower potential. Crossborder issues will be given particular attention. In September 2002, Vietnam officially requested Norway and Sweden to fund NHP Stage 2 with approximately NOK 30 mill. over a period of 2 years. The EVN/NVE

institutional cooperation is proposed to continue, and the consulting service is proposed to be provided by the same consortium as in Stage 1.

Towards the end of 2003, the Client's contracts with both NVE and the Consultant were extended by two years to cover the completion of Stage 2 of the Study, financed by Norway and Sweden. The commencement date of Stage 2 will be 13 January 2004.

Achievements

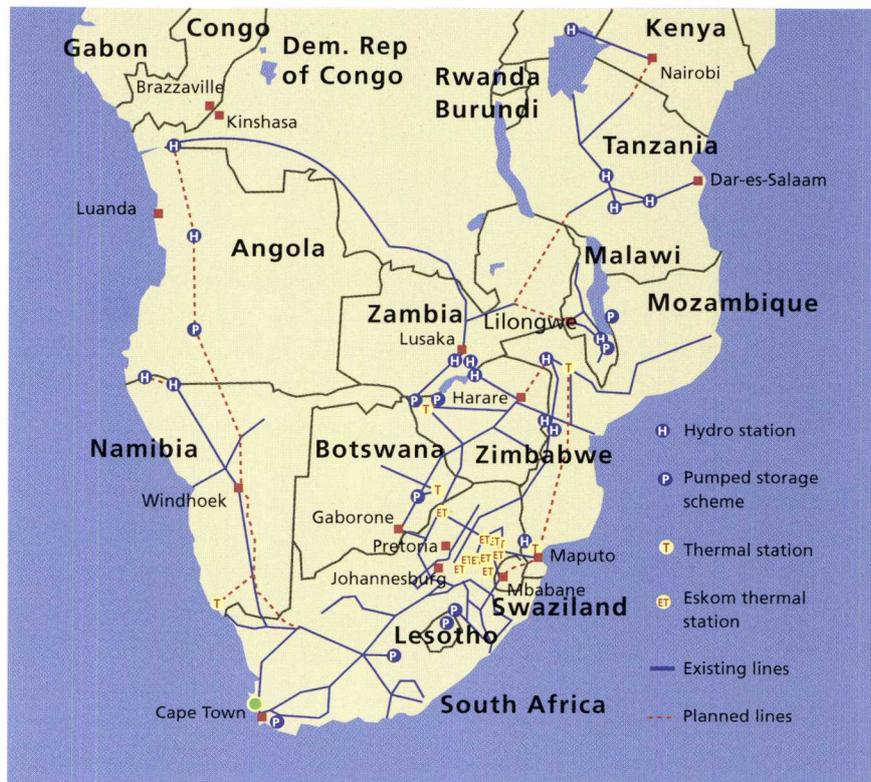
- Assistance in the negotiations for extended services of the Consultant.
- Completion of Addendum no. 2 of the EVN/NVE Contract.

Regional cooperation in Africa

Regional Electricity Regulator's Association (RERA)

RERA is an association of Regulators in the SADC region. The objective of RERA is the development of the Electricity Supply Industry in the region through enhanced regional integration and trade, and to harmonise and develop a regulatory framework. An agreement between NORAD and RERA for Norwegian assistance was signed in October 2003. RERA and NVE have further prepared a contract for technical support to RERA. The 2-years contract is expected to be signed in early 2004. It will have the following main components:

1. Assistance to establish the RERA secretariat in Windhoek
2. Coordination and harmonisation of the regulatory framework
3. Coordination of the legal framework
4. Approaches and models for restructuring distribution
5. Coordination and harmonisation of guidelines for ring fencing and reporting



Southern African Grid (traced from SAPP annual report)

Support to the Southern African Power Pool (SAPP)

12 of the national power utilities in the SADC region have established a regional power pool, the Southern African Power Pool, SAPP. The objectives of SAPP are to provide a forum for developing a robust, safe, efficient, reliable and stable interconnected electrical system in the region, harmonise interutility relationships, coordinate the development and enforcement of common regional standards; measure and monitor

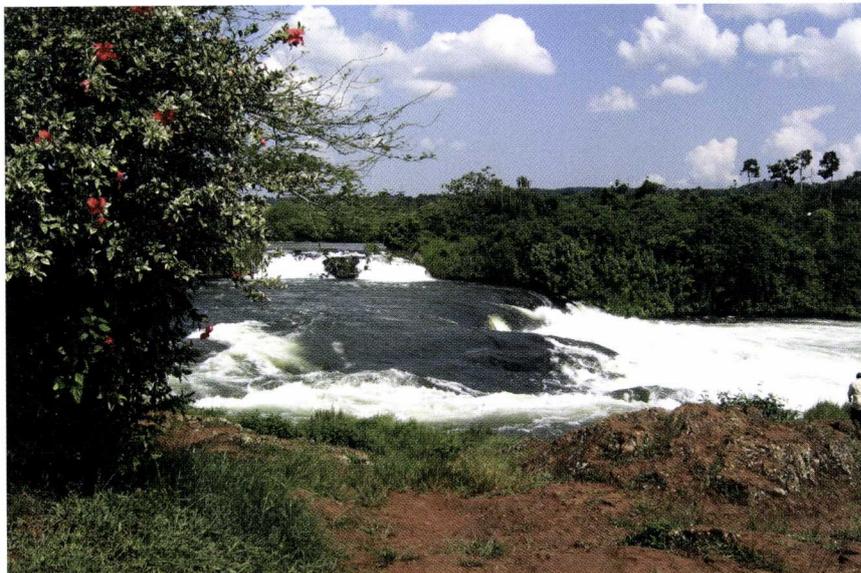
systems performance and finally facilitate the development of regional expertise through training programmes and research.

A Coordination Centre, SAPPCC, has been established in Harare, Zimbabwe, with the main function of implementing SAPP objectives, provide a focal point for SAPP activities, monitor the operations of SAPP-transactions between the members, carry out technical studies to evaluate the impacts of future projects on the operation of the pool and coordinate the training of member's staff to

improve the region's knowledge of power pool operations. The Centre shall also provide power pool statistics and maintain a pool database for planning and development.

SAPP has now embarked on a process to develop the present cooperative pool into a competitive real time electricity market trading both physical and financial contracts. Within such a structure the customer in the market has a real option to choose supplier. In implementing the transition, SAPP has decided to opt for a solution similar to the one implemented in the Nordic countries and NORAD has agreed to provide financial support amounting to NOK 35 mill. for this purpose.

A cooperation contract was signed in January 2004 between SAPPCC and the consultancy branch of the Nordic Power Pool, Nord Pool Consulting (NPC). The cooperation will include preparation of specifications for the trading platform, procurement of the necessary software and hardware, preparation of rules and provisions for the operation of the market, identification and procurement of appropriate power system analysis software and hardware as well as definition of the minimum telecommunication requirement for the operation of a reliable spot market.



Bujagali Falls, the Nile River

A contract has also been signed between SAPP and NVE where the NVE involvement will mainly be linked to assisting SAPP in contract negotiations with NPC, monitoring and overseeing the implementation of the cooperation contract with NPC in order to ensure that the goals and objectives are achieved, assist SAPP in reviewing reports, proposals etc. prepared by NPC, participate in defined project and progress meetings, provide assistance to SAPP on any professional issue within NVE's formal responsibilities and competence as and when required by SAPP as well as any other tasks/activities of cooperation as may be agreed upon in the Annual Meeting referred to in the Agreement.

Nile Basin Initiative

The Nile Basin Initiative was started in Dar es Salaam in 1999. It is led by a Council of Ministers consisting of Ministers responsible for water resources in the 10 Nile countries. The Nile Basin Regional Power Trade is one of

seven projects within the shared vision programme where NORAD is the main donor and has a role of Partner Focal Point.

NVE has through 2003 acted as adviser to NORAD on professional matters connected to the Power Trade project. An NVE representative participated in and reported from the first meeting between ministers responsible for electricity in the Nile-countries, in Dar es Salaam, May 2003. In this meeting the "Dar es Salaam Declaration on Power Trade" was signed, approving the implementation of the project. NVE has also provided written comments on terms of reference for a study of a power trade programme for Egypt, Sudan and Ethiopia.

Other assignments

Dam Safety Inspection Course

A Dam Safety Inspection Course was arranged in Oslo 15–19 September 2003 by NVE and Torblaa a.s. 11 participants from Uganda (7), Bhutan (3) and Ethiopia (1) attended the course. They represented 8 different institutions in their countries. The Course had a duration of 5 days, Three days of theory and exercises at NVE headquarters in Oslo, and two days practical training and inspection of different types of dams in the area around Lillehammer, some 200 km north of Oslo. The course gave a useful introduction to some important elements of dam safety inspections and safety procedures, and it is planned to organize a similar course in 2004.

The 3rd World Water Forum and Ministerial Conference

The 3rd World Water Forum was held in Kyoto, Osaka and Shiga (Japan). Over 24,000 participants from 182 countries attended the sessions. The key issues addressed revolved around balancing increasing human requirements for adequate water supplies and



Participants on tour to the western coast of Norway

improved health and sanitation with food production, transportation, energy and environmental needs. There is a broad agreement that solutions to global water problems will require more effective governance, improved capacity and adequate financing.

The Ministry of Petroleum and Energy, NVE and NORAD presented the Norwegian history in the use of the water resources for economic development and how experiences are used in development cooperation. The keynote speaker was the Norwegian Minister of Petroleum and Energy, Mr. Einar Steensnæs.

A Ministerial Conference was held concurrently. NVE participated in the official Norwegian delegation, which was led by the Minister of Development, Ms. Hilde Frafjord Johnson.

Seminar on regulation of network

A seminar on regulation of network was arranged in Oslo in June 2003. The seminar was mainly held for institutions with institutional cooperation with NVE, but was also open for other participants.

The seminar had 20 participants from 5 countries and various organisations. It was arranged in cooperation with the Norwegian consultancy companies, ECON and Nordpool Consulting. A similar seminar is planned in June 2004 (web site: www.elri.org) with focus on:

1. Restructuring of distribution;
2. Private sector participation in the electricity sector; and
3. Regulatory approaches to promote rural electrification.

Capacity building in Information Technology (IT), communication and media relations in Africa

IT Projects in Namibia, Mozambique and Uganda

NVE is currently participating in three projects linked to the development of an IT infrastructure in public institutions in Namibia, Mozambique and Uganda. The assistance has concentrated on analysis of present needs for technology solutions, advisory consultations, and some practical assistance in the implementation of solutions. In all projects emphasis has been put on the involvement of local suppliers of services and equipment to ensure that the local institutions have readily available support for their IT solutions. In general the impression is that the personnel involved in these projects in the local institutions are motivated and interested in improving and expanding their IT solutions.

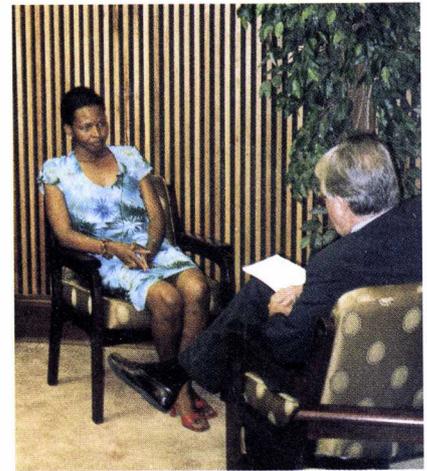
Formulating an IT strategy in Namibia

As part of the cooperation between the Ministry of Mines and Energy (MME) in Namibia and NVE, an evaluation of needs and a formulation of an IT strategy have been carried out by the local affiliate of an international consulting firm. The strategy gives general guidelines for choice of IT solutions. The role of NVE has been to give advice on the practical

choices of systems and methods of implementing the strategy. This has been done in close cooperation with the IT staff of MME. The Ministry has already a significant infrastructure and competence to utilize IT. An important part of the co-operation has been to ensure that local IT staff can be involved in the choice of technological solutions and that they can get some inspiration for further development of IT systems. There has been an interest in developing database applications to support administrative tasks in the Ministry. This work continues locally in the MME and could be a subject for further cooperation.

Developing IT-network infrastructure in Mozambique

A project for developing an IT network infrastructure in the Direcção Nacional de Energia (DNE) was initiated in 2003. The network will be developed on the basis of existing client computers connected to a centralized network using terminal-server technology. The project is lead by a Norwegian consultant. NVE has contributed in the initial phase in choosing technology and will in 2004 cooperate on installation, configuration, and training.



Interview situation in the Ministry of Minerals and Energy in South Africa

Restructuring existing IT network in Uganda

In Uganda NVE has carried out an evaluation of present IT use in the Electricity Regulatory Authority (ERA) in order to develop an IT strategy. There is an existing network with certain services already in function. NVE has proposed to restructure it so as to make the services more efficient and expand the functions of the network. Technical personnel from NVE will visit ERA to participate in this restructuring, and ERA personnel will visit NVE for further training in systems administration.

Communication and Media Relations

Within the framework of NVEs institutional contracts with Namibia and South Africa, NVE has contributed to capacity building in communication and media relations. Since 1999 six seminars have been held in the Ministry of Mines and Energy in Namibia, Ministry of Minerals and Energy and the National Electricity Regulator in South Africa.

Communication policy plan In Namibia

NVE personnel have developed a communication policy plan for the Ministry of Mines and Energy. This was done by involving managers in all four directorates in workshops and seminars. One central element in the process was to establish a central information unit and to train the person who was assigned the role of press relations officer within the Ministry.

Media handling and crisis communication were central issues in the seminars. Both the Minister, the Vice Minister and all the directors were involved in the training. Also some of the directors from the National Power Company, NamPower, participated.

Similar seminars in media handling have been arranged for the Ministry of Minerals and Energy and the National Electricity Regulator in South Africa.

Democracy and transparency

The seminars in media handling are based on introductions and discussions on topics like information and democracy, transparency in governmental bodies, information challenges in the energy sectors and characteristics of modern mass media.

Television interviews in a realistic setting are an essential part of the seminars. This means that all the interviews are carefully prepared on basis of information from policy papers, strategies, and topical issues relevant for the person interviewed. The television training has been conducted by an adviser from NVE and a private media consultant in cooperation with local broadcast camera teams.

The seminars have been well received and will be offered to other countries as well.

Comments on NVE's cooperation with NORAD and partner institutions

Cooperation with NORAD

The cooperation with NORAD has been carried out without any major difficulties. The general assistance to NORAD in 2003 was recorded at about 1000 hours spent on reporting accounts to NORAD, preparation of new projects, visits of delegations, and part of the administration of the International Section.

Also the cooperation with the Norwegian embassies has in general been smooth, and in several cases the initiative for NVE's involvement in projects has originated in recommendations from the embassies.

Cooperation with partner institutions

Substantial results have been achieved in the cooperation with partner institutions in developing countries, but also some problems have occurred. The most common problem is that planned activities have been delayed for different reasons. Sometimes our partners have problems to fulfil the obligations of the contracts because of the working condition and available human resources. In some cases the payment of NVE's invoices have been extremely late.

Cooperation with other institutions

On a case by case basis, NVE has frequent contacts with other Norwegian directorates, research institutions and universities. NVE is assisting The Directorate for Nature Management in its cooperation with Ministry of Population and Environment in Nepal. NVE is a member of the board for the International Centre for Hydropower (ICH) and is actively contributing to ICH's initiatives towards developing countries. NVE was represented in the Organizing Committee for the ICH Conference Hydro Africa 2003, arranged in Arusha, Tanzania 17-19 November 2003. The Conference had around 150 participants from 28 countries, about half of the participants from Africa. The Conference highlighted issues of major interest and importance to the hydropower industry, and emphasised on topics of priority to the African hydropower sector. Several of the papers were prepared and presented by NVE personnel.

Planned activities 2004

The expected time consumption at NVE headquarters in 2004 is estimated to be 8–9 manyears (one manyear=1400 net hours). An additional 3–4 manyears will be produced by the longterm resident advisers, giving a total of 11–13 manyears. This estimate is based on existing commitments laid down in the current institutional contracts, and new activities as discussed with NORAD. Ten Contracts with institutions in 8 countries in force in 2003 will continue into 2004, and 3–5 new contracts as listed below are expected to be signed in 2004.

The following new projects/activities are foreseen in 2004:

1. SADC: An association of electricity regulators, RERA, in the SADC region was established in October 2002 in Windhoek. An institutional cooperation between NVE and RERA starting in 2004 is being planned.

2. A contract is expected to be signed between NVE and the Southern African Power Pool (SAPP).

3. NVE is planning to organize a seminar on Regulation of Network Services and Restructuring in Oslo in June.

4. Malawi: NVE will organize

a mission in early 2004 to investigate the reasons behind a hydro-power station accident in 2003.

5. Sri Lanka: NVE will organize a mission in early 2004 to identify possible Norwegian assistance within the energy sector.

6. Nepal: A contract is expected to be signed between NVE and Department of Electricity Development on technical assistance connected to feasibility studies of small and medium sized hydro-power projects.

7. Uganda: Institutional cooperation between NVE and Ministry of Energy and Mineral Development (MEMD) is being planned, with the objective to strengthen the capacity of MEMD to fulfil its new role (strategy development, financial analyses, enforcement and monitoring of regulations, negotiation of power contracts, etc).

8. Zanzibar: A contract is expected to be signed between NVE and State Fuel & Power Corporation on Technical Assistance on a rural electrification programme.

9. Nile Basin Initiative, Regional Power Trade Project: A possible cooperation with the

Project Management Unit in Dar es Salaam will be looked into, and a seminar in Oslo on power trade for participants from the Nile countries is being planned.

10. Courses on integrated water resources management, consultancy engagements, and dam safety are being planned.

11. NVE's cost estimation manuals for hydropower development to be adapted for international use.

Appendix

Table 1: Total invoiced NORAD / Ministry of foreign Affairs assignments

Based on invoices 1-4 quarter 2002, all in NOK

Proj.no	Activity	NVE hours	Fee (charged)	NVE exp.	Consultants	TOTAL
32001	General assistance	841,50	568 012,50	0,00	0,00	568 012,50
	Vietnam.National Hydropower Plan	0,00	0,00	45 236,00	0,00	45 236,00
	Seminar re. Regulation	113,50	76 612,50	0,00	0,00	76 612,50
	Wave Power	10,00	6 750,00	0,00	0,00	6 750,00
32009	Nile Basin initiative	157,50	106 312,50	33 616,00	0,00	139 928,50
32020	Coordination of Norwegian Water Institutions	9,00	6 075,00	0,00	0,00	6 075,00
32031	Timor Leste	260,00	175 500,00	0,00	0,00	175 500,00
32034	Presentation of Norwegian Water Institutions	0,00	0,00	22 978,29	0,00	22 978,29
32036	Uganda. Technical Assistance to Directorate of Water Development	16,00	10 800,00	0,00	0,00	10 800,00
32037	Zanzibar, Rural Electrification	149,00	100 575,00	418 195,73	0,00	518 770,73
32039	Ethiopia. Feasibility Study	53,00	35 775,00	0,00	0,00	35 775,00
32040	Namibia. Rural Electricity Supply	6,00	4 050,00	0,00	0,00	4 050,00
32041	Southern African Power Pool (SAPP)	96,00	64 800,00	49 404,00	350 000,00	464 204,00
32042	Bhutan. Project Document	82,50	55 687,50	36 109,50	0,00	91 797,00
32043	Albania. Assistance regarding selection of consultant to water supply in Burell	37,50	25 312,50	0,00	0,00	25 312,50
32047	Ethiopia. Preparation of contract between MOWR/NVE	156,50	105 637,50	73 683,42	0,00	179 320,92
32048	Nepal. Assistance to Department of Electricity	167,00	112 725,00	81 558,90	0,00	194 283,90
32049	Sri Lanka. Assistance to the Energy Sector	12,00	8 100,00	0,00	0,00	8 100,00
32050	Malawi. Power Station Accident	6,00	4 050,00	0,00	0,00	4 050,00
	TOTAL	2 173,00	1 466 775,00	760 781,84	350 000,00	2 577 556,84

Table 2: Total invoiced institutional contracts

Based on invoices 1-4 quarter 2002, all in NOK

Proj.no	Cooperation institution	NVE hours	Fee (charged)	NVE adviser	NVE exp.	Consultants	TOTAL
32501	Angola. Ministry of Energy and Water Affairs, Energy sector	395	266 625,00	0,00	84 041,94	90 200,00	440 866,94
32536	Angola. Ministry of Energy And Water Affairs, Water Sector	628	423 900,00	1 069 779,60	830 574,26	12 950,00	2 337 203,86
32532	Bhutan Phase I. Department of Power	906	611 550,00	0,00	528 855,34	423 501,45	1 563 906,79
32539	Bhutan. Training	0	0,00	0,00	174 572,16	0,00	174 572,16
32541	Bhutan Phase II. Department of Power	24,5	16 537,50	0,00	0,00	0,00	16 537,50
32503	Ethiopia. Ministry of Water Resources	71,5	48 262,50	0,00	33 636,73	0,00	14 625,77
32540	Ethiopia. Ministry of Water Resources	157,5	106 312,50	0,00	33 526,96	0,00	139 839,46
32513	Mozambique. National Directorate of Energy	709,5	478 912,50	718 811,28	414 958,93	100 200,00	1 712 882,71
32506	Namibia. Ministry of Mines and Energy	539	363 825,00	95 952,43	209 532,16	197 231,00	866 540,59
32035	Nepal Electricity Authority	770,5	520 087,50	0,00	262 596,33	0,00	782 683,83
32519	SouthAfrica. National Electricity Regulator	1072	723 600,00	0,00	334 842,69	219 721,00	1 278 163,69
32534	SouthAfrica. Department of Mineral and Energy	74,5	50 287,50	0,00	182 340,64	109 700,00	342 328,14
32537	SouthAfrica. Association of Electric Regulators (RERA) in SADC*	66	44 550,00	0,00	11 088,97	0,00	55 638,97
32538	Timor Leste. Ministry of Transport, Communication and Public Works	915,5	617 962,50	197 735,08	459 089,04	0,00	1 274 786,62
32530	Uganda. Electricity Regulatory Authority	881,5	595 012,50	592 486,43	354 168,82	76 806,00	1 618 473,75
32036	Uganda. Directorate of Water Development	481,5	325 012,50	0,00	74 420,06	0,00	399 432,56
32518	Vietnam. Electricity of Vietnam	94	63 450,00	0,00	0,00	0,00	63 450,00
	TOTAL	7 786,50	5 255 887,50	2 674 764,82	3 920 971,57	1 230 309,45	13 081 933,34

* Agreement not signed





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