



# Annual Report 2000

The Cooperation between the Norwegian Agency  
for Development Cooperation (NORAD)  
and the Norwegian Water Resources and Energy  
Directorate (NVE)



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Norwegian Water Resources and Energy Directorate

2000

## Annual Report 2000

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The implementation of the National Hydropower Plan in Vietnam, where NVE is involved through an institutional cooperation agreement, is expected to have serious consequences for the ethnic minorities living in the mountains - where most dams will be located.

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# 1. Summary

## 1.1 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 advice NORAD and the Ministry of Foreign Affairs (MFA) in their work within the framework of NVE's competence within management of water and energy resources. The agreement covers primarily assignments from NORAD or MFA to NVE directly, but gives also the framework for institutional agreements between NVE and institutions in cooperating 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.

## 1.2 Staff and Participants

In NVE, the work under the Cooperation Agreement is coordinated by the Section for International Development Cooperation. By March 2001, the staff includes six full time professionals and one administrative officer. A staff of this size has been found necessary to meet the increasing number of assignments, especially the increasing number of institutional agreements.

In March 2001 the staff also includes three full time resident advisers, working permanently at cooperating institutions as part of the institutional agreements. The three advisers are posted at the Ministry of Mines and Energy in Namibia, the Palestinian Water Authority in Palestine and the Electricity of Vietnam.

The services of NVE under the Agreement covers a wide range of activities, and the Section for International Development Cooperation draws on the full staff of NVE in order to carry out the assignments. More than 21 professionals from other NVE departments have been engaged in 2000, producing about 18 % of the man-hours recorded<sup>1</sup>. In addition, several private consultants and professionals from other directorates, research institutions and consultants have been sub-contracted in certain specific areas and to compensate for lack of NVE capacity in certain periods.

## 1.3 Activity Level and Time Consumption

The volume of activities recorded in man-hours doubled from 1996 to 1999, and there was a minor decrease in 2000. The total volume in 2000 was recorded at 11 man-years, a decrease of 2 man-years from 1999. 51 % of the hours worked was used on institutional co-operation. 2 man-years were spent on direct assignments for NORAD and did not vary much from 1999. Institutional cooperation decreased with about 2 man-years.

The expected time consumption for 2001 is 17 man-years<sup>2</sup>, and is based on existing commitments laid down in the running institutional agreements, and information discussed with NORAD in a planning meeting on 1 February 2001. The expected increase of activities is mainly a consequence of a foreseen increase in activity in institutional co-operation.

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<sup>1</sup> Excluding the hours recorded for long-term resident advisers.

<sup>2</sup> One man-year = 1400 hours

Experience from the previous years indicates that the planning routine gives a higher estimation of future work than what is actually recorded during the year. One of the reasons for this is due to *inter alia* delay in the initiation of planned work from the co-operating institutions. It is therefore reason to believe, that time consumption for 2001 will be in the range of 14-15 man-years.

#### **1.4 Achievements**

NVE and NORAD have agreed that hours charged to the general administrative activity shall be reduced, by directing more of the administrative time directly on the institutional cooperation. This has been very successful, and NVE has reduced this with approximately fifty percent from one man-year in 1999 to half a man-year in 2000. This is according to the agreed plans. We now believe that a reasonable level for general administrative activity has been reached and the reduction is not expected to continue in 2001.

The majority of the institutional cooperation has been running broadly according to the plans. In Ethiopia the activity has been stopped for long periods due to the war activities.

In Palestine the use of NVE experts to assist in such fields as legislation, management and water policy issues have been discussed between Palestinian Water Authorities (PWA) and NVE, and assistance on water legislation has been initiated by PWA. For the last quarter the Intifada has caused further delays in the activities.

In Bosnia the completion of the electricity legislation where delayed partly due to the work on electricity policy initiated by the World Bank and partly due to the complicated political situation.

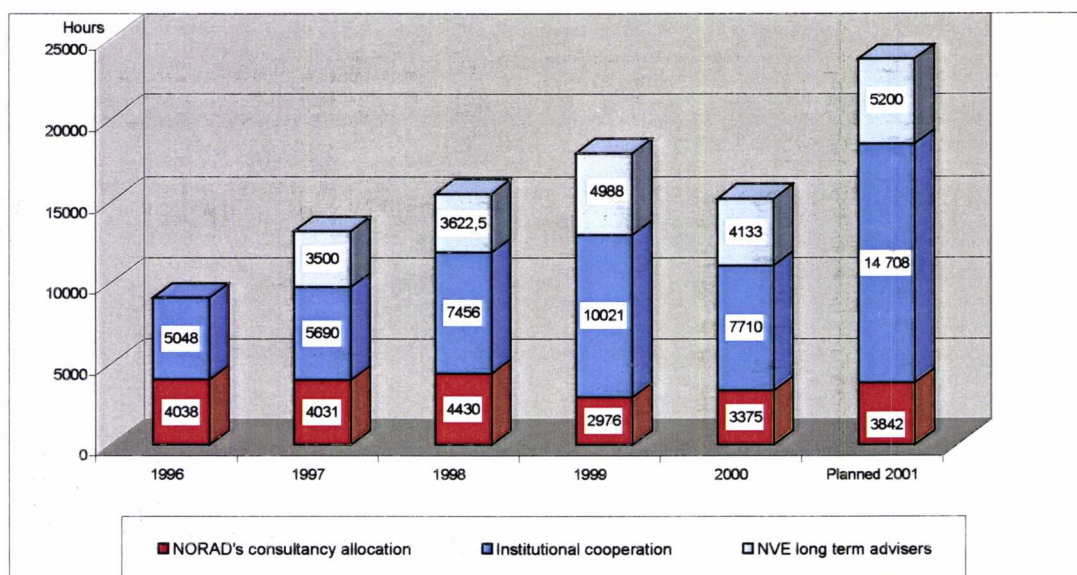
The course in "Integrated Water Management in Developing countries" started up in 2000. The cooperation and relevance of the assistance to developing countries from the three Norwegian water institutions, Norwegian Pollution Control Authority (SFT), Directorate for Nature Management (DN) and NVE were very fruitful in developing the course.

Several examples of the activity within the framework of the Cooperation Agreement between NORAD and NVE have been presented in articles in NVE's magazine "Vann og Energi" in order to disseminate information about NVE's international cooperation.

NVE arranged in May a workshop with actual stakeholders to give comments to the report from the World Commission on Dams, WCD. The result was presented to WCD by NVE in Cape Town in June, and was important input to the final report from WCD.

## 2. Overview of Activities and Time Consumption in 2000

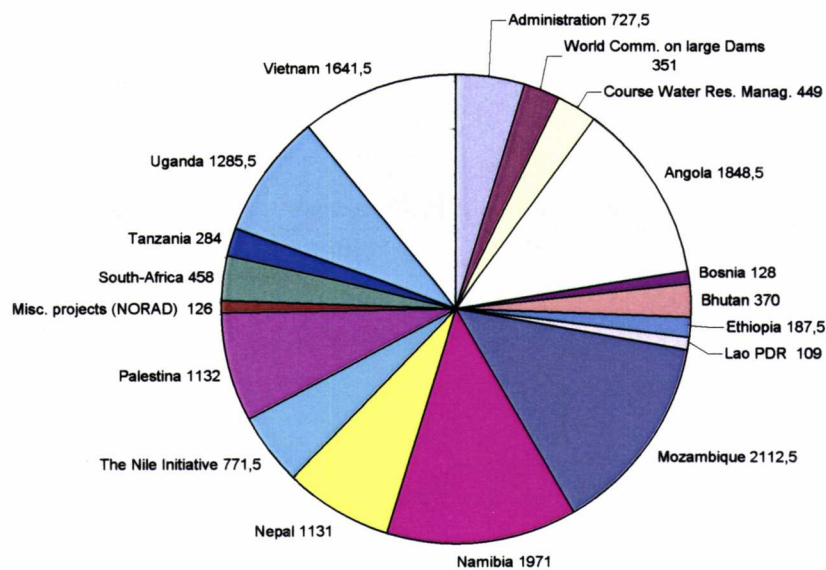
The following figure shows the development of NVE's international cooperation over the last five years and the planned level of activity for 2001:



The activity has increased significantly from 1995 to 1999, but decreased in 2000. As can be seen from the bars the changes in activity are mainly connected to the activity on institutional cooperation and long term advisers. In addition to the delay in the initiation of some of the planned work from cooperating institutions, some decrease was due to a reduction and changes of the NVE staff. The activity is expected to increase in 2001, resulting in total estimated man-hours of 23 750.

The NORAD consulting allocation increased from 1999 and seems to have stabilised on a level of about 3500 man-hours per year.

The following figure shows the distribution on countries' activities of NVE's recorded man-hours (including long term advisors) under the Cooperation Agreement in 2000:



In 2000 the cooperation with Mozambique on the energy sector has been the project with the highest recorded man-hours, followed by Namibia, Angola, Vietnam, Uganda, Palestine and Nepal. New activities were launched in 2000 by new contracts in Angola.

### 3. Assignments for NORAD

An overview of the time consumption and cost for all engagements for NORAD is given in Appendix A, Table A-1. It shows that a total of NOK 2,4 mill. was invoiced NORAD.

A considerable number of assignments have been carried out in 2000, either on direct request from NORAD, or on request from institutions via NORAD. Only the more time consuming assignments are reported in the following.

#### **Nile Basin Initiative**

The Nile Basin Initiative (NBI) is a cooperation 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. NVE was invited by the Ministry of Foreign Affairs to cooperate on the development of a possible contribution from Norway to the Nile Basin Initiative. In 2000 NVE participated in several meetings, including two meetings in the NBI Working Group on Power Trade in the Nile Region. The activities in 2000 confirmed that the Nile countries and the WB would like to see Norway involved in particular within the Power Forum project and Water Resources Project. The cooperation will continue in 2001 as technical advisor to NORAD.

#### ***Achievements***

NVE has contributed to the discussions in the Ministry of Foreign Affairs on how Norway could best contribute to NBI. NVE has also taken part in meetings of the Working Group on Power Trade in order to contribute to the project concept paper for the power trade project, and to the water resources management project.

#### **Lower Kihansi Hydropower Project**

This is a high head hydropower project located around 440 km southwest of Dar es Salaam. The project utilises a net head of 853 m, up to now the highest head in Africa for hydropower projects. The first phase was completed first half of 2000, and included 3 turbines with a total capacity of 180 MW. The main consultant is Norplan.

The project was completed at a time where the demand for electricity was critical, and the project saved expenses for expensive, imported diesel to run dieselturbines etc. This also gained the environment, because of less emission from the thermal units.

In March, NVE attended the semi-annual meeting for the project. NVE also assisted in preparation of documents regarding the meeting and the follow up documents after the meeting, and participated in the site visits. Advisory services were provided during the discussions and the site visits. NVE also participated in other meetings with the World Bank, Ministry of Energy and Minerals, and Tanesco in Dar es Salaam concerning this project and the energy situation and policy in general.

NVE made an evaluation of the plans to install two more turbines in Kihansi, as peaking reserve.

### ***Achievements***

All the necessary documents for the meeting and site visit for the Kihansi project were prepared in due time before the semi-annual meeting, and all documents for the follow up of the project were prepared. Necessary contact with institutions involved in the energy sector was maintained.

Evaluation of plans for two new turbines as peaking reserve at Kihansi was carried out, and recommended.



*Fig.1: Dam at intake, Lower Kihansi*

### **Conference on Licensing Procedures for Electric Power Development and Environmental Management in Tanzania**

Together with the Ministry of Energy and Minerals, NVE arranged a conference on licensing procedures for electric power development and environmental management in Iringa 4<sup>th</sup> to 7<sup>th</sup> October 1999. The 31 persons that attended the conference came from Tanzania, Uganda, Zambia and Norway.

Work with the Proceedings from the Conference, and the final accounts were carried out during the first part of year 2000. The Conference was carried out within the budget and with the expected results.

### **Mozambique, Conference on Hydropower and Environment**

National Directorate of Energy (DNE) in Mozambique and NVE planned to arrange a conference on Hydropower Development and Environmental Management in Mozambique in February 2001. Much of the preparations were made the last months of year 2000. A report from the conference will be written in the NVE Annual Report for next year.

### **Course in Water Resources Management in Development Cooperation**

NORAD has initiated a discussion with NVE on how Norwegian water institutions could improve the relevance and quality of their assistance to developing countries. This has been followed up by NVE, the State Pollution Control Authority (SFT) and the Directorate for Nature Management (DN) with the objective of identifying means to better cooperate and thus increase the relevance and quality of the contributions to water resources management

in cooperating countries. The cooperation has been very successful with very positive approach from all three institutions.

### ***Achievements***

The cooperation with SFT, DN and NORAD was successful in the development of the course on Integrated Water Management in Developing countries. NVE had the responsibility in developing and implementing the course. The course was arranged in December and will continue in 2001. Participants from different private and public water institutions met and gave important and relevant input to the course.

## **World Commission on Dams**

NVE was all through the year 2000 involved in work for the World Commission on Dams (WCD) and participated in meetings both with the Ministry of Foreign Affairs and NORAD. In May, NVE called for a workshop with the actual stakeholders in Norway, and prepared comments to the draft report from WCD. The comments, and an introduction to the Norwegian licensing procedures, were presented by NVE to WCD in Cape Town in June.

### ***Achievements***

The comments from NVE to WCD were important input for the work of WCD with its final report, and NVE got a very positive feedback from WCD on its work.

## 4. Institutional Cooperation

The following institutional agreements have been in force in 2000:

Country	Cooperating institution	Period	Budget NOK
Angola	Ministry of Energy and Water Affairs, Energy Sector	1996-1998	13,800,000
Angola	Ministry of Energy and Water Affairs, Energy Sector	2000-2002	52,000,000 <sup>1</sup>
Bosnia	Federal Ministry of Energy, Mining and Industry/ Ministry of Energy and Mining	1999	2,000,000
Ethiopia	Ministry of Mines and Energy, Energy Department	1996-2000	3,780,000
Ethiopia	Ministry of Water Resources	1996-1999	6,300,000 <sup>2</sup>
Laos	Ministry of Industry and Handicraft	1997-1999	2,000,000
Mozambique	National Directorate of Energy	1998-2001	16,700,000 <sup>1</sup>
Mozambique	Technical Unit for Implementation of Hydropower Projects	1999-2000	155,000
Namibia	Ministry of Mines and Energy	1999-2002	13,600,000 <sup>1</sup>
Nepal	Melamchi Water Supply Development Board	1998-2001	2,500,000
Palestine	Palestinian Water Authority	1998-2001	9,600,000 <sup>1</sup>
South Africa	National Electricity Regulator	1999-2000	4,500,000
Uganda	Ministry of Energy and Mineral Development	1997-2000	5,600,000
Uganda	Assistance to Uganda Electricity Board	1999-2000	2,200,000
Vietnam	Electricity of Vietnam	1999-2001	4,000,000
Zambia	Training Program for ZESCO	1999-2001	1,000,000

Furthermore, a new institutional agreement with the Ministry of Energy and Water Affairs, National Directorate of Water in Angola has been under preparation since 1999. This agreement has an estimated budget of about 16 million NOK for the period 2001-2004.

<sup>1</sup>Including sub-projects implemented by consulting firms.

<sup>2</sup>Agreement to be prolonged to then end of 2002

## **4.1 Angola**

### **Institutional Cooperation with the Ministry of Energy and Water Affairs (MINEA)**

#### **Agreement between MINEA and NVE 1996-1998.**

Work continued into 2000 based on remaining funds. The budget was exhausted in the second quarter, but credit extended by NVE permitted continuity in the co-operation until new budgets for the new program became available in the fourth quarter. The work included preparation for the new energy program 2000-2002 and work on a strategy plan for the strengthening of MINEA. The program under this Agreement is described in Annual Report 1999. MINEA has issued a final report to NORAD in the fourth quarter.

#### **Contract between MINEA and NVE 2000-2002.**

The Institutional Co-operation between MINEA and NVE was extended by a new contract, signed in August. It is financed by an Addendum to the Agreement between Norway and Angola on Technical Assistance to the Electricity Sector in Angola, 1996-1998, signed in July. The Contract covers an energy program, planned for the period 2000-2002 and is financed by a budget of NOK 52 million. The goal of the Agreement is to promote economic development of the country through sustainable and efficient use of the country's energy resources. The purpose is to strengthen the competence and decision making basis at MINEA and Luanda Electric Utility (EDEL) through transfer of know-how to the staff in technical, economic and administrative fields and to improve the reliability of electricity supply in the country by making available a fund for purchase of spare parts. The Energy Program includes seven projects:

1. Follow-up of the NESMA (National Energy Sector Management) process, including follow-up of the MINEA MIS system.
2. Institutional strengthening of EDEL, phase 2, implementation.
3. Assistance in preparing ToR and tender documents regarding the rehabilitation of the Cazenga substation in Luanda.
4. Provision of spare parts to Angolan power utilities.
5. English language courses for key personnel in the energy sector.
6. Program administration and co-ordination- NVE.
7. Logistics in Angola.

NVE personnel conducted four short-term missions to Angola in 2000. Activities included assistance in start-up preparations for the new projects, documentation for the Annual Meeting in March and work on a strategy plan for institutional strengthening of

MINEA/DNE, based on the new Statutes for MINEA, approved by the Council of Ministers in 1999. The Strategy Plan includes a recruiting and training plan for MINEA personnel as well as the creation of a Regulating Agency.

Norplan has been contracted to prepare a plan for the follow-up of the MINEA /MIS project. The main emphasis of the plan will be to organise and implement effective and efficient data collection routines and to establish a maintenance program for the computer system (financed under the NESMA project).

A contract was signed by EDEL and Oslo Energi Konsult/Norplan in September for the implementation of the strategy and action plan for strengthening of EDEL, prepared in co-operation between EDEL and Norconsult under the 1996-98 Energy Program. The Project, with a budget of NOK 18.2 million will be started up in early 2001.

The first tender offer for spare parts for Angolan Utilities, financed by the Spare Parts Fund (3 year budget: NOK 21 million) was sent out to supply companies in early November. Contracts for delivery will be signed in early 2001.

Norconsult has prepared tender documents for the rehabilitation of Cazenga substation. The tender process is not started, pending final decision on financing.

The Human Resources Department at MINEA is preparing plans for implementation of a scholarship program (part of the NESMA project) aimed at improving the professional capacity of MINEA/DNE and for implementation of the English language training of Angolan energy sector executives. These activities will be started up in the second quarter of 2001.

### ***Achievements***

The legal framework and institutional structure in the electricity sector in Angola are now decided: The General Electricity Act and the Public Enterprises Act, both adopted in 1995 define the main principles for activities in the Electricity Sector. Administrative Regulations for the sector, based on the new acts were approved by the Council of Ministers during the first half of 2000. New Statutes for MINEA and the electric utilities ENE and EDEL were adopted by the Council of Ministers during 1999. New Boards of Directors have been appointed for ENE and EDEL, and new Directors General were appointed for the two utilities during 1999. A Regulating Agency for the Electricity Sector has been approved by the Council of Ministers and will be created in 2001. What remains is institutional strengthening. This work will be the main activity in the co-operation both at MINEA and at EDEL during 2001.

### ***Major Difficulties***

The renewed outbreak of the civil war in late 1998 is a major problem because of reduced motivation and enthusiasm on the part of the Angolan counterparts and reduced resources allocated by Angola to the program. All the activities have taken place in Luanda, where security so far has been satisfactory. The war effort also has delayed important decisions by the Council of Ministers on important issues in the energy sector, such as the appointment of a commission to supervise development of energy policy. The lack of capacity of qualified personnel at MINEA and the electric utilities to follow up the Program on the Angolan side is a major problem. Capacity building should precede training programmes.

### **Preparatory work for institutional cooperation, DNA (NAWASMA)**

The NAWASMA program will be implemented through a separate agreement between the National Directorate of Water and NVE. The program did not start in 2000, but hopefully will the agreement be signed in 2001.

#### ***Achievements***

A Project Document for the proposed new co-operation programme in the water sector has been drafted.

## **4.2 Bosnia**

Since July 1999 NVE has been involved in cooperation on the development of new energy legislation for Bosnia Herzegovina. NVE's contracts for the cooperation are with the Ministry of Energy and Mining on Republic Sprska and the Ministry of Energy, Mining and Industry in the Federation of Bosnia and Herzegovina. In 2000 NVE has arranged one workshop with each of the two Task Forces that have been established as our counterparts in Republic Sprska and the Federation of Bosnia and Herzegovina respectively. The NVE team has also met once with the committee that has been established for the drafting of a state act on energy. In addition there has been discussions by e-mail and telephone on the draft legislation. According to the work plan and the contracts the draft acts were supposed to be completed by the end of 1999. This target could be met, and we discussed final drafts at a workshop in December 1999. The World Bank, however, decided in November 1999 to invite a UK company, NERA, to develop an energy policy for BiH. It was therefore agreed to postpone the final discussions of the draft acts until after the completion of the policy.

#### ***Achievements***

NVE has assisted the Task Forces in Republic Sprska and the Federation of Bosnia and Herzegovina to arrive at draft electricity laws. Due to new initiatives by the World Bank the finalisation has been delayed.

## **4.3 Bhutan**

NVE has an institutional cooperation agreement with the Department of Power (DoP) in Bhutan in connection with the Feasibility study of the Mangdechhu Hydropower plant. The draft report for the technical/economical study was presented in May 1999, and NVE examined and commented on the draft study. Following the final report on the technical/economic study it was agreed to update the EIA study. NVE took part in the presentation of the final EIA study in Bhutan in March 2000

Department of Power has expressed interest in continuation of the cooperation, and NVE was contracted by NORAD to assist DoP in drafting a request for further support from Norway on water and energy. This mission took place in May/June 2000.

## ***Achievements***

NVE has given input to the discussion of the content of the updating of the Environmental Impact Assessment. The feasibility study on the Mangdechhu project is successfully completed. NVE has also been giving advice on the following up of the Mangdechhu project.

## **4.4 Ethiopia**

### **Institutional Cooperation with the Ministry of Water Resources (MoWR)**

The Institutional Agreement between the Ministry of Water Resources of Ethiopia (MoWR) and NVE was signed 22<sup>nd</sup> May 1996, with an Addendum of 24<sup>th</sup> February 1997. The objective of the project is to improve quality and efficiency of data collection, handling and analysis in hydrology sector.

NVE participated at the third annual meeting for the project the 11<sup>th</sup> April 2000 in Addis Ababa. The meeting concluded that the project seemed to have been a successful project compared to the objectives, but it has been too many delays, especially concerning the procurement services. Activities for the remaining period were agreed upon.

No computers nor programs were purchased in 2000 and therefore no training on different programs were carried out in Ethiopia.

The head of Hydrological Studies Department attended in May a NVE prepared training program in Norway within telemetry, equipment, sediment problems, ground water programs, draught and climate changes.

According to the present plans, the wide-area network will be installed in June 2001. Subsequently the training on flood forecasting model and HYDATA model can commence.

The progress of the project has been severely hampered because of the war between Ethiopia and Eritrea. Besides all the Norwegian bilateral funds to the countries were frozen from mid year 2000. This is one of the main reasons for the delay of the progress for this project.

The project was restarted after the Norwegian ban on the assistance was lifted in April 2001. An Addendum to the Agreement between NVE and MoWR has then to be signed for the continuation of the project, and the project may be completed at the end of 2001, at the earliest.



*Fig.2: Children in Ethiopia collecting water in a traditional way*

Payment of invoices for the project has been delayed, and NVE has outstanding invoices for a considerable amount.

### ***Achievements***

For the year 2000, the Annual Meeting was carried out as planned.

Offers for purchase, installation and training of the data systems HYDATA and NAM Mike 11 have been received.

Offers for the purchase and installing of a wide area network at the Hydrological Studies Department are received.

Training on telemetry, equipment, sediment transport, ground water programs, drought and climate changes has been carried out.

### **Institutional Cooperation with the Energy Department (ED) of Ministry of Mines and Energy (MME)**

The Institutional Agreement between ED and NVE was signed in June 1996 with the ultimate objective to strengthen the institutional capability of ED, and to transfer knowledge and experience to the Ethiopian electricity subsector through the preparation of legislation, appropriate regulations, and licensing procedures.

An Addendum to the Agreement, that prolonged the project to the end of year 2000, was signed 20<sup>th</sup> August 1999.

NVE participated at the Annual Meeting that was arranged 8<sup>th</sup> November 2000.

The Annual Meeting was combined with the Termination Workshop (summing up workshop), as the project from NVE's side was completed.

Some short term training and the continued long term training of the candidate from Energy Operation Department at the University of Dundee will continue, but all project accounts will be terminated and audited before June 2001. NVE has sent the final invoice for the project.

This project was also delayed due to the war between Ethiopia and Eritrea, but as all funds had been transferred to the project before the freeze situation of the funds was carried out, the activities continued.

### ***Achievements***

With the last Annual Meeting and the Termination Workshop in November this year, all goals and objectives for the project, set out in the Terms of Reference for the project, were fulfilled.

Ethiopia has ranked the project as one of the best projects during the recent years, due to good results, the small delay due to circumstances outside the project, and that the project was carried out within the budget.

## 4.5 Laos

### **Institutional cooperation with the Ministry of Industry and Handicraft (MIH)**

The agreement between Norway and Lao PDR on phase II of the legal framework project for the hydropower sector was planned in the period 1997-99.

The goal of the project was to establish an administrative structure, legislation and regulations which will ensure state control and at the same time attract private investments in development of water resources, and contribute to a rapid electrification, which will promote a broad development of the country.

#### *Achievements*

During workshops and seminars a better understanding and knowledge of commercial negotiations and the implications of a licensing system have been developed among the personnel.

Meetings and discussions between the involved Ministries and the regional agencies on the content of the regulations for Hydropower development and electricity have been important. So has capacity building as well as in shaping the content and form of the draft regulations. The regulations are in a form of a decree from the Prime Minister. This process is finalised in 2000.

## 4.6 Mozambique

### **Institutional Cooperation with the National Energy Directorate**

An agreement on institutional cooperation between the National Energy Directorate (DNE) and NVE was signed in March 1998. The project is intended to last for three years. Through this cooperation, NVE will assist DNE in strengthening its administrative routines, effectiveness and skills connected to regulation of the Mozambican energy sector. The following main areas of support have been identified:

- Organisational set-up and manning of DNE.
- Management procedures and routines.
- Training of DNE-personnel.
- Regulations and guidelines adapted to the existing Electricity Law.
- Energy Strategy Action Plan.
- Rural electrification strategy planning.

#### *Achievements*

The project includes a NVE long-term adviser to be posted in DNE in Maputo. A new adviser has been recruited and he took up his position on 1 September.

Implementation of parts of the short-term training program has taken place. DNE-personnel have participated in seminars abroad on different aspects of regulation of the power sector

and in English courses in Maputo. The DNE-staff has improved their skills in English considerably during this year.

Norplan/KanEnergi prepared the study and a draft report of «the Rural Electrification Strategy Plan».

The annual meeting was arranged as planned in July.

A mid-term review was carried out by ECON in November/December, and the report was completed in 2001. This report will be valuable for NORAD when decision of possible prolongation of the project would be taken in the future.

Detailed workplans for activities connected to organisation and management procedures and routines were prepared in October/November. Some initial work on collection of information and analysis is done. However, the current activities have not been finalised.

### ***Challenges***

The extent of activities carried out in the project is lagging somewhat behind what was intended according to the plans, due to different reasons connected to both parties, and partly reasons beyond any of the parties control. Due to lack of manning of DNE, it has not been regarded as appropriate to implement long-term training. Further, due to lack of appropriate office facilities, it is difficult to increase the staff at present. DNE is expected to get more space in new offices during 2001.

Involvement of NVE short-term advisers has increased in 2000. NVE has improved the project performance by increasing the communication between NVE, NVE's long-term adviser and DNE to identify needs for current support from NVE. Further, NVE intends to improve the internal reporting routines to improve the follow-up of the project.

The rural electrification study was also delayed due to the flood-situation in Mozambique.

### **Gurue – Lichinga Transmission Line Project. Evaluation of Feasibility Study**

The project involves construction of a 110 kV transmission line from Gurue via Cuamba to Lichinga, a length of 230 km plus distribution branches to 8-10 villages along the route.

In late 1998 NVE was contracted by EDM to assist in contracting a Consultant to prepare a feasibility study for the project. The feasibility study is now finished and NVE and Birka of Sweden were requested to jointly evaluate the study. This was done and the conclusions and recommendations were presented in a meeting with NORAD and SIDA.

### ***Achievements***

Evaluation completed and recommendations presented.

## **4.7 Namibia**

### **Institutional Cooperation with the Ministry of Mines and Energy (MME)**

The cooperation between MME and NVE has been going on since 1994. A new 3-year agreement was signed in June 1999. An adviser from NVE has been posted at MME since 1997 and a new resident adviser replaced him by the middle of 1999.

The present agreement includes altogether 16 activities covering a wide variety of topics (from development of public information skills to technology on solar water heaters).

### ***Achievements***

Restructuring study: Completed

Regulations to the Electricity Act: Ongoing, harmonisation of technical, economic and administrative parts nearly completed.

Public information skills: Following a study visit to NVE and Norwegian Petroleum Directorate by MMEs Director of Administration and a workshop in Windhoek, a communication policy and development plan has been prepared.

Rationalisation of tariffs: Consultancy bids received, evaluation is ongoing

Hydropower resources study: Updated report completed.

### ***Challenges***

MME is losing personnel. Some personnel receiving further education financed by the programme are taking other jobs upon completion.

## **4.8 Nepal**

### **Melamchi Water Supply Project**

Melamchi Diversion Scheme is the first of altogether four components in the project for a new water supply to Kathmandu. The Melamchi Diversion Scheme (MDS) will divert water from the Melamchi River through a 27 km long tunnel to the northeastern edge of Kathmandu. During year 2000 it was decided to delete the hydropower component of the project and to redesign the scheme based on water supply only. NORAD agreed to finance the revised final design study as well.



*Fig.3: A positive consequence of the Melamchi project will be the 42 km of new roads, which will make it easier to bring people and goods in and out of the area.*

NVE continued the institutional assistance to the Melamchi Water Supply Development Board (MWSDB). NVE has participated with MWSDB in discussions with ADB and other Donors regarding organisational and management issues regarding the project and has prepared the Terms of Reference for the revised scheme and assisted in preparation of the amended consulting contract. Furthermore, NVE has commented on the new draft report based on water supply only and has prepared a draft Terms of Reference for supervision during construction of the MDS.

### ***Achievements***

Terms of Reference for the revised MDS based on water supply only prepared, contract with Consultant established.

Comments to draft new report on MDS based on water supply only prepared

Draft Terms of Reference for supervision of construction prepared.

## **4.9 Palestine**

### **Institutional Cooperation with the Palestinian Water Authority**

The former Institutional Agreement between the Palestinian Water Authority (PWA) and the NVE was replaced by a new agreement signed by the parties on 3 September 1998. The ultimate goal of the assistance is to enable the PWA to be fully operational within the Palestinian territory.

NVE has been involved in the following activities:

- Development of a wastewater Policy, Strategy, Objectives and connected Action Plan. Followed up the Action Plan
- Development of a Management System for the sections and departments (objectives, strategies, actions, annual plans including result documentation and performance indicators)
- Development of a licensing system for wastewater discharges in co-operation with six Ministries
- Followed up the Water Management Plan, identified needed actions and started the work on the Policy and Strategy for the Water sector
- Contributed in the Strategic Planning Study (Development of the Water sector, including defining priorities for investments)
- Followed development projects, among others the Abu Dis wastewater treatment plant
- Commenting on draft Technical Guidelines and Specifications
- Commenting on drafts and advising on the elaboration of the draft Palestinian Water Law. Contribution to the drafting of the law and advising on organization of work
- Preparing a general draft of licensing regulations and advising on the development of regulations

- Initiated and contributed to the development of the Water Tariff Guidelines
- Advice to the departments on management issues
- Initiation and development of a leadership and management development process

### ***Achievements***

The Strategy for Water Management in Palestine has been elaborated and implemented in the water and wastewater Policy, Strategy etc.

Policy, Strategy and Goals for the water and wastewater sector have been developed in close co-operation with the relevant staff members.

The work on the Water Tariff Guidelines has started based on PWA resources.

A Management System for all the sections is developed and partly implemented

A licensing system for wastewater is developed, but need to be implemented

A new resident adviser for PWA was employed for 2000 and 2001.

### ***Challenges***

The achievements from last year have not been fully followed up, in particular the Day to Day Management Manual. This is also the situation for the Management system and the policies developed both in the Strategic Planning Study and the Wastewater Master Plan. The most effective way of solving this problem will probably be to identify the most important achievements and activities and ask for documentation of how the management has followed up recommendations and results

Some of the main management problems will be addressed in the new leadership and management development process.

The work during the last part of the year 2000 has been heavily hampered by the new Intifada that made it impossible for people to come to work for long periods.

## **4.10 South Africa**

### **Institutional cooperation with National Regulatory Authority (NER)**

NER and NVE have had an institutional cooperation agreement since January 1999. The cooperation has focused on development of a regulatory framework in South Africa with emphasis on regulatory challenges related to a more open electricity market. ECON has been contracted for a scenario project to assess consequences of different market options and regulatory challenge.

The project is planned to enter into a second phase in 2001. A future NVE cooperation with the Ministry of Energy is also foreseen to start in 2001.

### *Achievements*

ECON has executed the project according to time schedule and scope. Report for the three project phases has been released in 2001 with a seminar in November 2000.

## **4.11 Uganda**

### **Ministry of Energy and Mineral Development**

Since July 1997 NVE has assisted the Ministry of Energy and Mineral Development preparing an Energy Act through the Institutional and Legislative reform project. The drafting process has continued in 1997 and 1998 and was finalised in November 1999 when the new electricity Act was approved by Parliament.

The Institutional and legislative Reform project was formally terminated 31st January 2001.

### *Achievements*

The main focus for 2000 has been planning of the extension of the cooperation with Ministry of Energy and Mineral Development.

### **Legal framework MEMD**

NVE and MEMD initiated a second phase of the cooperation in 2001. The scope the project was to:

- draft regulations (codes and standards license) to needed in connection to the Electricity Act.
- Prepare a Project Document for cooperation between NVE and the regulator in Uganda (the Electricity Regulatory Authority, ERA)
- Conduct rural electrification seminars

### *Achievements*

A Project Document for the ERA – NVE cooperation was finalised by 21 November 2000. The consulting company ECON was subcontracted to prepare a regulatory framework for isolated systems. The report was released in January 2001. Otherwise less emphasis has been put on drafting of regulations due to later upstart of the project than foreseen. Rural electrification seminars have been conducted.

### **Audit assistance to Uganda Electricity Board (UEB)**

NVE has facilitated assistance through PriceWaterhouse Coopers (PWC) Norway to improve the internal audit functions in UEB. PWC had a resident representative in Uganda for 8 months to assist on the project.

### ***Achievements***

The PWC project is accomplished according to time schedule and scope. Final report was released by August 2000 and report on the implementation of the proposals was completed by November 2001. A further follow up on the implementation of the proposal is ongoing.

### **Electricity Regulatory Authority (ERA)**

NVE and ERA initiated in 2000 an institutional cooperation to establish ERA as an efficient and credible Regulator. The cooperation shall last for 3 years and will involve substantial assistance from NVE and subcontracted consultants. A resident NVE advisor is also foreseen to be stationed in Uganda under the project.

### ***Achievements***

A LFA (Logical Framework Assessment) planning seminar in Uganda and a study visit to Norway were arranged for the ERA Board in 2000.

## **4.12 Vietnam**

After preparatory work by the World Bank, Norway and Sweden agreed to provide financial support to Vietnam for the development of a National Hydropower Plan (NHP) Study under Agreement signed in July 1999. The total grants are 28 mill NOK. A consortium by Sweco/ Statkraft Eng./ Norplan has been given the contract for the implementation of the study over a period of two years.

4 mill. NOK is allocated from the Norwegian grant for a two year institutional cooperation between Electricity of Vietnam (EVN) and NVE. The cooperation includes the posting of a long-term adviser at EVN in Hanoi. The resident adviser took up his duties in Hanoi from 1 May 1999.

The ultimate goal of the institutional cooperation is to strengthen the administrative and technical capacity of EVN in its role as implementing agency for the National Hydropower Plan.

During the NHP study the EVN has wanted to include more projects into the study than was planned from the beginning. NORAD and SIDA has therefore provided additional funding for a 7 month extension of the study, and NVEs contract has been prolonged to the end of November 2001.

### ***Achievements***

A group of five officers that all are involved in NHP project visited Norway on a study tour in August 2000. The program aimed at giving the participants a broad introduction to the energy sector in Norway with visits included governmental agencies, power companies and research institutions.

As a result from a workshop in December 2000, where also NVE participated, a new related project was requested. The project will assist Vietnam to establish licensing procedures, and is expected to start in 2001.

## **4.13 Zambia**

### **ZESCO training program**

NVE agreed in 1999 to facilitate ZESCO with a training program related to the financial management system and small power investments. The program started in 1999 with a visit of senior accountants and auditors from ZESCO to a Norwegian Utility (Sandefjord Energiverk).

#### ***Achievements***

NVE has during 2000 subcontracted three companies (Norplan, Siemens Meetering and Alpha System) to execute the training program as specified in the ZESCO – NVE agreement.

## **5. Comments on NVE's cooperation with NORAD and Partner Institutions**

### **5.1 Cooperation with NORAD**

The cooperation between NORAD and NVE has been carried out without any major difficulties. The experiences from previous years on the different roles and responsibilities of the actors within the development assistance have helped us to carry out our services with the desired quality and without any conflict between the partners.

As it can be seen from Appendix A, Table A-1, 728 hours have been recorded in year 2000 as general assistance to NORAD. The hours spent is for reporting, accounts to NORAD, visits of delegations and part of the administration of the Section for International Development Cooperation. It has previously been agreed upon between NORAD and NVE that the number of hours for general assistance to NORAD should be reduced. The intention to reduce the general assistance has been carried out successfully as the about 2000 hours that were recorded in 1998 has been reduced to 728 hours last year. Most of the reduction is achieved by charging all assistance directly related to the institutional agreements on the specific projects.

In addition to the Annual Meeting, a semi-annual meeting will be arranged between NORAD and NVE in order to revise the budget and the activity plan. The first extra meeting will be in September 2001.

### **5.2 Cooperation with Partner Institutions**

Substantial results have been achieved with our partner public institutions in cooperating countries, but also some problems have occurred. The most common problem is that planned activities have been delayed due to different reasons. Some times our clients have unrealistic expectations of how fast NVE can be able to provide service on a very short notice. To find the right persons to provide the desired service may take time in a busy organisation like NVE, or from outside NVE. Other times the activities may be delayed because of the lack of suitable counterparts in the cooperating institution.

This, in turn, causes problems for NVE's activity planning, which has to be changed several times, and puts extra workload on the NVE personnel. Sudden changes in the planned activities may cause delays in the project. Work to be delivered from other sections in NVE and different consultants need to be planned in advance in order to reduce the problems this may occur.

NVE has considerable outstanding claims throughout the year, and the situation has not improved in 2000. This is a heavy strain to NVE's budget.

In some countries progress have deviated from the plans. This is the case in Ethiopia and Angola because of the war, which is outside our influence. A large amount of foreign experts, some from NVE, were planned to be used in Palestine. This plan has not been followed because of what NVE regards as reluctance from PWA.

The project in Bosnia has been delayed because of an initiative by the World Bank to initiate the development of an energy strategy for BiH before the completion of the legislation.



*Fig. 4: Good cooperation between the secretaries from different institutions*

### **5.3 Cooperation with Norwegian Institutions**

On a case by case basis, NVE has frequent contacts with other Norwegian directorates, research institutions and universities. These contacts are also strengthened through the network established by NORAD.

The cooperation between Norwegian water institutions with the relevance and quality of their assistance to developing countries was improved in 2000. This has been very successful with a very positive approach from all three institutions NORAD, SFT and DN. Several means to improve the cooperation and the quality and relevance of our services have been identified, the most concrete and demanding one is the development of the course on Water Management in Developing countries. NVE was responsible to take the lead in developing and implementing of the course in 2000.

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 participated in four meetings of the Steering Committee in 2000.

Professionals from NVE gave several presentations during the two courses, each of three weeks duration on "Hydropower Resources Development and Management" and "Hydropower and the Environment", organised by ICH in 2000.

## **5.4 Other International Cooperation**

NVE is a member of the Executive Committee in IEAs "Implementing Agreement for Hydropower Technologies and Programmes" and attended the two ExCo meetings in 2000. NVE is Operating Agent for the programme Annex III on "Hydropower and Environment", and has one participant in Annex 1 "Hydropower Upgrade Resources and Technologies". The Operating Agents attended all ExCo meetings in 2000, and also participated in the conference "Hydrovision 2000" in USA in July 2000.

## **5.5 Information Dissemination**

During 2000 there has been produced 4 articles in NVE's magazine "Vann og Energi":

Svelle, Morten: "*Konfliktfylte dammer*", Nr. 2 s. 12.

Skaugen, Aud K., "*Ny stiftelse skal ivareta norsk vannkompetanse i internasjonalt arbeid*". Nr. 3, s. 2.

Magne Skåltveit; "*Tanzanias største vannkraftverk åpnet*", Nr. 4, s. 6.

Alf V. Adeler: "*Vannkraftutbygging i u-land en spesiell utfordring*", Nr. 4 s. 7.

Heggemsnes, Kari: "*Spennende samarbeid med Uganda*", Nr. 5, s. 4.

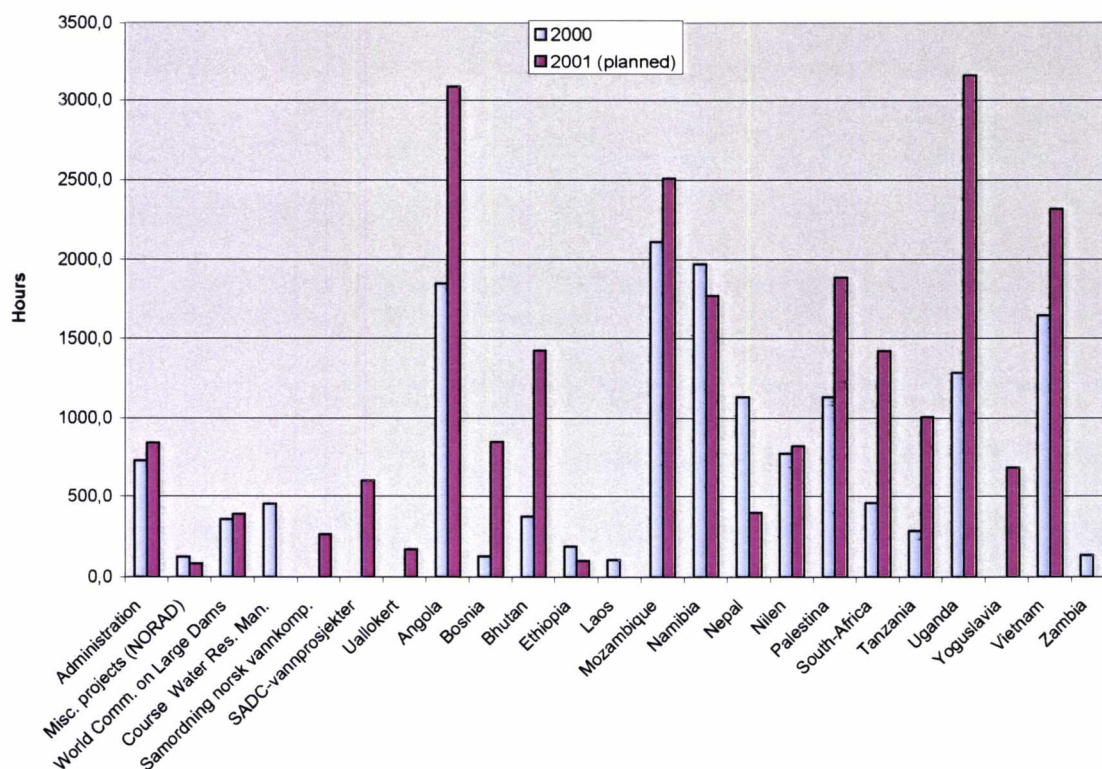
## 6. Planned Activities in 2001

The planning of activities for 2001 was discussed with NORAD in a meeting in February 2001. The tentatively agreed activities and budgeted use of personnel are shown in Appendix B.

The expected time consumption for 2001 is 17 man-years<sup>1</sup>, and is based on existing commitments laid down in the running institutional agreements, and information provided by NORAD in a meeting in February 2001. The expected further increase of activities is mainly a consequence of an increase in the activity in institutional co-operation and increased use of resident advisors. Out of the total of 17 man-years about 14.2 man-years are expected on institutional cooperation, including 3,7 man-years on long term advisers stationed in the cooperating institutions.

Experience from previous years does however indicate that the planning routines give a higher estimation of future work than what is actually recorded during the year. This is due to inter alia delay in the initiation of planned work from the co-operating institutions. It is therefore reason to believe that the time consumption for 2000 will rather be in the range of 14-15 man-years than the estimated 17 man-years.

The distribution between countries compared to 2000 is illustrated on the figure below.



<sup>1</sup> One man-year = 1400 hours

# 7. Appendices

APPENDIX A  
Table A-1

## TOTAL NORAD CONSULTING ALLOCATION Based on invoiced expenses 1-4 quarter 2000

Proj.no	Activity	NVE hours	Fee (charged)	NVE exp.	Consultants	TOTAL
32001	General assistance	727,5	421 950,00	18 242,62	60 404,00	500 596,62
32009	Nile Basin initiative	771,5	447 470,00	222 670,78	0,00	670 140,78
32010	Tanzania. Kihansi Water Power Project	220,5	127 890,00	29 584,85	0,00	157 474,85
32011	Paper on licensing/revision of report NORAD	15	8 700,00	0,00	0,00	8 700,00
32012	Nepal. Power Sector Report	84,5	49 010,00	0,00	0,00	49 010,00
32013	World Commission on Dams	351	203 580,00	60 563,00	0,00	264 143,00
32014	Course Inst. Development	28	16 240,00	0,00	0,00	16 240,00
32015	Paper on regulations and tariffs in Africa	9	5 220,00	0,00	0,00	5 220,00
32017	Course Water Resources Management	449	260 420,00	0,00	0,00	260 420,00
32005	Conference on hydropower and environment. Tanzania	63,5	36 830,00	18 024,00	0,00	54 854,00
32022	Gurue-Cuamba-Lichinga Transmission Line	36,5	21 170,00	0,00	0,00	21 170,00
32024	Lichinga Transmission Line	149	86 420,00	0,00	0,00	86 420,00
32025	Hydropower projects,i SADC - Evaluation	19	11 020,00	0,00	0,00	11 020,00
32026	Vietnam. Licensing seminar	131	75 980,00	0,00	0,00	75 980,00
32528	Palestina, Environmental Study	29	16 820,00	0,00	10 800,00	27 620,00
32021	Bhutan. New Water Act	111	64 380,00	36 915,00	0,00	101 295,00
32023	Bhutan. Further cooperation in the hydropower sector. Projec Document.	114	66 120,00	39 552,00	0,00	105 672,00
32008	NVE-assistance to Zesco	11	6 380,00	0,00	0,00	6 380,00
32020	Strengthening of cooperation of Norwegian water competence on hydropower	55	31 900,00	0,00	0,00	31 900,00
	TOTAL	3375	1 957 500,00	425 552,25	71 204,00	2 422 356,25

**Total invoiced, institutional agreements 1-4  
quarter 2000**

Proj.no	Activity	NVE hours	Fee (charged)	NVE-adviser	NVE exp.	Consultants	TOTAL
32501	Angola. Ministry of Energy and Water Affairs, Energy sector	1848,5	1 072 130,00	0,00	1 160 158,11	306 639,35	2 538 927,46
32522	Bosnia. Electricity law	128	74 240,00	0,00	160 205,00	980 816,37	1 215 261,37
32502	Bhutan. Ministry of Trade and Industry, Division of Power, Mangde Chhuu	145	84 100,00	0,00	59 271,00	0,00	143 371,00
32503	Ethiopia. Ministry of Water Resources	118,5	68 730,00	0,00	41 694,72	0,00	110 424,72
32504	Ethiopia. Ministry of Miens and Energy, Energy Department	69	40 020,00	0,00	19 635,18	180 025,00	239 680,18
32505	Lao PDR. Ministry of Industry and Handicraft, Legal framework, phase II	109	63 220,00	0,00	46 455,22	129 535,80	239 211,02
32513	Mozambique. National Directorate of Energy	955	539 950,00	407 736,78	752 692,46	0,00	1 700 379,24
32027	Mozambique. National Directorate of Energy. Conference on Hydropower Development and Environment	105	60 900,00	0,00	0,00	0,00	60 900,00
32506	Namibia. Ministry of Mines and Energy	571	331 180,00	583 716,48	526 004,74	151 504,15	1 592 405,37
32517	Nelamchi Water Supply ment Board.	1046,5	606 970,00	0,00	184 511,19	48 793,00	840 274,19
32507	Palestinian Water Authority.	637	369 460,00	472 146,44	703 423,97	90 620,00	1 635 650,41
32519	South-Africa. Inst. cooperation NER/NVE	458	265 640,00	0,00	95 290,02	15 446,00	376 376,02
32511	Uganda. Ministry of Natural Resources.	47	27 260,00	0,00	13 520,15	0,00	40 780,15
32525	Recruitment of Audit Assistance to UEB	65	37 700,00	0,00	604,00	1 980 123,00	2 018 427,00
32526	Uganda. Ministry of Natural Resources. Extension	1173,5	680 630,00	0,00	268 860,47	69 355,00	1 018 845,47
32518	Vietnam. Institutional cooperation NER/NVE	110,5	64 090,00	687 406,95	637 661,18	17 918,14	1 407 076,27
32524	Zesco, Training Programme	123,5	71 630,00	0,00	13 506,63	635 315,60	720 452,23
	<b>TOTAL</b>	<b>7710</b>	<b>4 457 850,00</b>	<b>2 151 006,65</b>	<b>4 683 494,04</b>	<b>4 606 091,41</b>	<b>15 898 442,10</b>

**Planned Activities 2001**

Proj.No	Project	Hours
	<b>NORAD ASSIGNMENTS</b>	
32001	General assistance	840
32009	Nile project	819
32010	Tanzania. Kihansi Hydropower project	52
32011	Paper on licensing procedures	42
32013	World Commission on dams	383
32015	South Africa, Paper on regulations and tariffs	146
32019	Global Water Partnership	42
32020	Consolidation of the Norwegian water resources expertise	261
32022	Lichinga follow-up	488
32025	SADC water projects	599
	Not allocated	170
	<b>Sub-total</b>	<b>3 842</b>
	<b>COUNTRY SPECIFIC ASSIGNMENTS</b>	
32501	Angola, Energy	1850
32503	Etiopia, hydrology	102
32506	Namibia, Energy insitutional cooperation	1768
32507	Palestine, PWA	1884
32513	Mozambique, DNE	2019 <sup>1)</sup>
32517	Melamchi Water Supply Project	394
32518	Vietnam National Hydropower Plan	2022
32519	South Africa, NER	1278
32522	Bosnia, Electricity Law	845
32525	Uganda, UEB auditors assistance	22
32526	Uganda, institutional cooperation	45
32530	Uganda, instiutional cooperation, ERA	3091
32532	Bhutan, institutional cooperation	1425
	Angola, instiutional cooperation, water	1233
	Vietnam, MARD	295
	Yogoslavia, institutional cooperation, energy	684
	Tanzania, institutional cooperation, energy	951
	<b>Sub-total</b>	<b>19908</b>
	<b>TOTAL PLANNED TIME CONSUMPTION</b>	<b>23 750</b>

<sup>1)</sup> Including Conference Hydropower and Environment



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