DANMARKS OG GRØNLANDS GEOLOGISKE UNDERSØGELSE RAPPORT 2001/136

STUDY TOUR REPORT
On Water Resources Management and Administration in Denmark, 16 - 29 November 2001

Delegation from Ministry of Agriculture and Rural Development (MARD), Hanoi, Vietnam

Per Rasmussen

GEOLOGICAL SURVEY OF DENMARK AND GREENLAND
MINISTRY OF ENVIRONMENT AND ENERGY

GEUS

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1. Introduction

The Study Tour introduced senior staff of the Vietnamese Ministry of Agriculture and Rural Development (MARD) to the framework for water resources management in Denmark, with particular emphasis on water resources management, planning, and the licensing of water abstractions and wastewater discharges.

The Study Tour is part of the Danida Water Sector Program Support in Vietnam, specifically the Subcomponent for Support to Implementation of the Law on Water Resources. The LWR came into force in 1999 and the support to its implementation focuses on formulation of the legislative documents that will be required for the registration and licensing of water use and water users, including the abstraction of surface water and ground water, and discharge of waste water, river basin planning and management, and a system of water resources fees and charges for bulk water supply from reservoirs and other hydraulic works.

The Study Tour was intended to make government staff familiar with the objectives and procedures for management and administration of water resources in Denmark, with particular emphasis on the purpose and methods for registration and legislation of different types of water utilisation.

The study tour had 11 participants, who all were senior staff within MARD, Department of Water Resources and Hydraulic Works Management (DWRHWM), responsible for implementation of the Law on Water Resources at central level in Vietnam.

DWRHWM has 8 bureau's of which 4 have major responsibilities in water resources management: Legislation and Inspection; River Basin Planning and Management; Ground Water Planning and Management; and Environment and Water Quality Management

MARD is also responsible for water service delivery in rural areas, where irrigation and drainage is managed by DWRHWM, rural water supply and sanitation by Centre for Rural Water Supply and Sanitation, and flood control and coastal zone protection by Department of Flood Control and Dyke Management.

Dr. Nguyen Dinh Ninh, Deputy director, MARD, was leader of the delegation. Mr. Le Duc Nam, MARD, acted as translator during the meetings. Mr. Per Rasmussen, GEUS, supervised the whole study tour in Denmark.

2. Study Tour Program

During the study tour the following institutions were visited:

- Danish Environmental Protection Agency
- EU Environment Agency
- Geological Survey of Denmark and Greenland
- Aarhus Country
- Aarhus Municipality
- Danish Water Supply Association and Danish Water Services
- National Environmental Research Institute
- Skjern River restoration project
- DHI Institute of Water and Environment
- Danish Technical University

Summary of the content of each visit

Danish Environmental Protection Agency (DEPA)

- The political and administrative position of the EPA,
- Introduction to the Ministry of Environment and Energy
- The tasks of the EPS
- Presentation of the Environmental Protection Act
- The three administrative levels in Denmark
- National, regional and local tasks and obligations
- The Danish environmental appeal system
- The Danish water supply act and permit system
- Integrated and water supply planning
- Supervision, tariffs and metering
- The Aquatic Environment Action Plan, I and II
- Facts on waste water in Denmark
- Waste water treatment plants, from small scale to large scale
- The obligations of different authorities in Denmark, the three levels of administration
- Legislation, the planning tools
- The effect of the Aquatic Action Plan on waste water treatment and pollution, point sources
- How does the waste water treatment plant works
- Operation and management of waste water facilities
- Cost recovery for waste water facilities
- Waste water tax

EU Environment Agency (EEA)

- The EEA mission, tasks, and products
- EIONET, European information network
- The DPSIR framework
- Environmental problems in Europe
- EEA information needs and information sources
- Eurowaternet
- Water Framework Directive: The requirements for monitoring of ecological quality
- Streamlining reporting at a European level

Geological Survey of Denmark and Greenland (GEUS), first visit

- Presentation of GEUS and the Ministry of Environment and Energy
- Focus areas for GEUS: Geological data collection, water monitoring, geological and hydrological modelling
- GEUS' role in relation to the Water Supply Act
- General introduction to Danish hydrogeology
- GEUS's tasks in the Danish water sector
- Water resources planning, the use of modelling
- Groundwater quantity and quality
- Guidelines for counties
- The interaction of research and administration in the Danish water sector
- From problem identification to legislation and guidelines
- Danish and EU research programmes, history and progress in water research
- GEUS as Technical Advisor of the Danish EPA
- Example: The Pesticide Leaching Assessment Programme

Aarhus County

- Introduction to the County of Aarhus, Environmental Division
- Fields of work and tasks
- Demonstration of the 'Land owners information system' on www
- Surface water management in the Danish counties
- Water pollution management on county level
- Water management in Denmark, main principles: Decentralisation, public influence, monitoring as basis for decisions, management plans - objectives and measures, the combined approach, polluter pays principle, co-operation between administrative units, example Gudenå river bassin.
- Setting objectives for water areas, outlet criterias
- Water administration form a political point of view
- Co-operation between politicians and administration
- Danish water supply: Organisation, principles of water quality and treatment
- Regional water resources planning and the public participation
- Ground water resources assessment, protection, and monitoring
- Example of water abstraction application
- Assistance and guidelines from county to waterworks
- Financing of water supply, taxation
- Example of active groundwater protection, Tunø

Aarhus Municipality

- Introduction Marselisborg waste water treatment plant
- Visit to the plant
- Introduction to The Public Utilities of Aarhus
- Role of Municipalities in drinking water and wastewater management and administration: Water supply planning, operation and management of distribution systems, issuing licenses, supervision of wells, utilities, water quantity and quality
- Visit to Staustrup waterworks

Danish Water Supply Association (DVF) and Danish Water Services, (DWS)

- DWS Short meeting with Carsten Møller, Managing Director DWS, and Bent Hansen, Vice Director
- Objectives and activities of DVF
- Political objectives of DVF
- Technical objectives of DVF, support to smaller and larger water works
- Guidelines for the use of the water resources
- Responsibilities of the municipalities, e.g. issuing licenses for discharge of waste water
- The water supply plan, practical aspects
- The water supply utilities, practical aspects
- Financing and taxation
- The role of DVF in conflicts between water works and consumers

National Environmental Research Institute (DMU)

- Introduction to Department of Streams and Riparian Areas and NERI
- The role of DMU in the Danish water resource administration: Research, monitoring and consultancy
- National monitoring programme: Main issues and political context
- National Data Topic Centres
- Example of national monitoring programme to support the Danish Action Plan on the Aquatic Environment
- Consequences of the EU Water Framework Directive
- Introduction to the Skjern River restoration project

Skjern River restoration project

- Visit to the Skjern River restoration project exhibition in Skjern
- Visit to the Skjern River restoration project area: Stop for walking at (1) Pumping station north, with view tower, (2) In the river valley, (3) Lønborg Church, view from the south, and (4) the 'Poldene'.

DHI Institute of Water and Environment

- DHI W&E, a general introduction to DHI and specific information on DHI's water resources work
- River hydraulics: Introduction to department, tasks, projects and software. Examples of projects, mainly from Southeast Asia
- Urban utilities: Introduction to department, tasks, projects and software. Examples of projects, mainly from Southeast Asia
- Flood management: Introduction to department, tasks, projects and software. Examples of projects, mainly from Southeast Asia
- Advanced hydrological modelling: Introduction to department, tasks, projects and software. Examples of projects, mainly from Southeast Asia
- Integrated water resources management: Introduction to department, tasks, projects and software. Examples of projects, mainly from Southeast Asia
- Introduction to GWP and SEATAC
- Vietnam Water Partnership
- Third World Water Forum in 2003 and the pre-conference in Hanoi in 2002
- Visit to DHI W&E's hydraulic experiment facilities

Danish Technical University (DTU)

- Introduction to DTU, Department of Environment & Resources
- M.Sc. in Environmental Engineering, main topics
- Organisation of studies at DTU
- Possibilities at DTU for foreign students, admission requirements
- M.Sc. in Water Resources Management
- Multi-disciplinary approach
- Presentation of chemical laboratories
- Presentation of Hydraulic Research Laboratories

Geological Survey of Denmark and Greenland (GEUS), second visit

- Danish Water Supply Act, obligations of drilling companies
- Geological data collection, databases and information systems
- Quality assurance of geological data collection and drillers work
- Hydrogeological maps and products
- National Groundwater Monitoring Programme
- Design of monitoring programme, parameters and frequencies
- Administration and responsibilities in the national monitoring programme
- Data collection, data transmission and dissemination of results to the public
- Grundwater quality in Denmark
- Integrated water resources modelling, water balances
- Assessment of the exploitable water resources
- Hydrological modelling, surface water and groundwater
- Calibration and validation of models
- Danish National Water Resources Model, the use of GEUS geological databases
- Licence for water abstraction, the framework: Water supply Act, Environmental Protection Act, regional planning, and water supply plans
- Example of issuing licence to water abstraction: Obligations for applicant, administrative procedures and responsibilities
- Statutory order for licensing waste water treatment plants and discharge

3. Evaluation of the study tour

The evaluation of the study tour programme consisted of four elements:

- An overall evaluation of the study tour by each participant
- An evaluation of the study tour arrangement by the host institutions
- An evaluation of the cultural events by each participant
- Two participants evaluated each visit to the different institutions (see Appendix 4)

The overall evaluation of the study tour by participants

Summary of the evaluation from the 11 delegates (not all persons answered all questions).

ACTIVITY	SATISFACTION					RELEVANCE				
	1	2	3	4	5	1	2	3	4	5
	Low		to	high		Low		to	high	
Introduction to study tour programme				2	9				1	9
Danish Environmental Protection Agency				2	9				1	10
EU Environment Agency				6	5				2	9
Geological Survey of Denmark and Greenland (1)				2	9				1	10
County of Aarhus				1	10					11
Municipality of Aarhus				6	5				1	10
Danish Water Services / Danish Water Supply Association				6	5				2	8
National Environmental Research Institute				1	10				3	8
Skjern River restoration project					11					11
DHI Institute of Water and Environment				2	9				2	9
Danish Technical University			1	3	7			1	2	8
Geological Survey of Denmark and Greenland (2)				2	9				2	9
Accommodation				3	8					
Cultural events				3	8					
Practical arrangements, logistics				2	9					
Transport				2	9					
Information during the stay in Denmark				2	9					

Further comments and suggestions for improvement: None

The evaluation of the study tour arrangement by the host institutions

Summary of the evaluation from the eight host institutions: EPA, EEA, Århus county, Århus municipality, DVF/DWS, NERI, DHI, DTU

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Time of first contact from GEUS regarding input to study tour			1	4	3
Information about study tour from GEUS		1		3	4
Practical arrangement by GEUS			2	2	4
Length of visit to your institution			1	6	1
How did the translation influence your presentation (1=littel, 5=very much)	2	2	4		
Enthusiasm from delegation			1	6	1
The overall arrangement			1	5	2

Further comments and suggestions for improvement: None

The evaluation of the cultural events by each participant

Summary of the evaluation from the 11 delegates (not all persons answered all questions).

ACTIVITY	SATISFACTION					RELEVANCE				
	1	2	3	4	5	1	2	3	4	5
Sightseeing bus in Copenhagen				1	10				1	8
National Museum				1	10				1	8
Kronborg Castle				1	10				3	6
Viking Ship Museum				8	3				3	6
Tivoli				4	7				5	4
Royal Theatre				1	10				2	7
Jazz in Aarhus				7	3				8	1
AQUA Freshwater Aquarium				6	5				2	7
The Old Town of Aarhus				1	10				3	6
House of Hans Christian Andersen				1	10				1	8

Further comments and suggestions for improvement: Too little time to see other places in Copenhagen

What did you enjoy the most?

- House of H.C. Andersen
- National Museum
- Danish History

Appendix 1

Appendix 1: Detailed Study Tour Program

DATE	TIME	ACTIVITY
16/11, Friday	Morning	Travel Hanoi – Bangkok TG683 12.00 – 13.50
	Evening	Travel Bangkok – Copenhagen TG950 00:40 – 06.45
17/11, Saturday	Morning	Travel Bangkok – Copenhagen TG950 00:40 – 06.45
		Transport to hotel
	09.00 - 10.30	**Introduction to Study Tour Programme** at Ascot Hotel, by Per Rasmussen
	11.00 - 13.00	Sightseeing tour in Copenhagen with bus
	13.00	Hotels rooms available, Hotel Alexandra
	Afternoon	Free
	Evening	Free
18/11, Sunday	09.45	Departure from Hotel Alexandra
	10.00 - 11.30	Visit to the National Museum
	11.45 -	Bus departs from National Museum Guided tour to Kronborg Castle, Helsingør
		Light lunch in Helsingør at own expense
	- 17.30	Viking Ship Museum, Roskilde
	Evening	Free
19/11, Monday	09.00	Departure from Hotel Alexandra
	09.30 - 13.00	**Danish Environmental Protection Agency (DEPA)** Christian Ammtisøe, Deputy Head of Division of Wastewater and Water Supply • General introduction to the administration of water resources in Denmark: From EU to local water works. The role of DEPA • The water sector framework in Denmark, i.e. legislation, institutions and finance • Responsibilities and functions at different levels of government • Roles of different stakeholders in the water sector in Denmark • Water Resources Planning and Protection • Water abstraction: Purpose and methods for registration, financing and legislation • National Environmental Action Plans Eva Vestergaard, Head of Section of Wastewater • Waste water treatment and discharge: Purpose and methods for registration, financing and legislation

	Lunch	DEPA canteen, DEPA invitation
	Afternoon	Free
	Evening	Free, optional visit to Tivoli
20/11, Tuesday	10.30	Departure from Hotel Alexandra
	11.00 - 12.15	**EU Environment Agency (EEA)** Niels Thyssen • The role of EU/EEA in water resources administration and management of member states: EUROWATERNET, data collection, databases, and the EU Water Framework Directive
	12.30 - 13.15	GEUS Canteen, GEUS invitation
	13.15 - 16.30	**Geological Survey of Denmark and Greenland (GEUS)** Johnny Fredericia, Deputy Director General • Presentation of GEUS and the Ministry of Environment and Energy Alex Sonnenborg, Head of Department of Hydrology • GEUS's tasks in the Danish water sector Jens Christian Refsgaard, Research Professor • The interaction of research and administration in the Danish water sector Bo Lindhardt, Head of Department of Geochemistry • GEUS as Technical Advisor of the Danish EPA
	19.00	Departure from Hotel Alexandra
	Evening	The Royal Theatre: 'Un ballo in maschera' by Giuseppe Verdi
21/11, Wednesday	7.30	Departure from Hotel Alexandra
	8.00	Departure from Copenhagen Central Station Transport to Aarhus (Train)
	- 11.08	Arrival at Aarhus Station
	Lunch	County of Aarhus Canteen, Aarhus County invitation
	13.00 - 16.00	**County of Aarhus** Richard Thomsen, Head of Department of Groundwater • Introduction to the County of Aarhus, Environmental Division Poul Nordemann, Head of Department of Lakes • Surface water management in the Danish counties, examples from Aarhus County Bo Fibiger, Committee Chairman Environment and Traffic • Water administration form a political point of view • Co-operation between politicians and administration Arrival at Hotel Scandic
	Evening	Free
22/11, Thursday	8.30	Departure from Hotel Scandic

	9:00 - 11.30 Lunch 12.30 13.00 - 17.00 Evening	**County of Aarhus** Richard Thomsen, Head of Department of Groundwater • Regional planning and public participation • Ground water resources assessment, protection, and monitoring • Registration, licensing, and financing of water supply County of Aarhus Canteen, at own expense Departure from County of Aarhus **Municipality of Aarhus** Flemming Dan Husum, Plant manager • Visit to Marselisborg waste water treatment plant Lars Schrøder, Head of Department • Role of Municipalities in drinking water and wastewater management and administration • Visit to Staustrup waterworks Free
23/11, Friday	8.00 8.45 -11.00 12.30 - 13.15 - 15.15 15.15 -17.30 Evening	Departure from Hotel Scandic, check out **Danish Water Supply Association and Danish Water Services, Skanderborg (DVF)** Claus Vangsgaard, Danish Water Supply Association • Short meeting with Carsten Møller, Managing Director DWS, and Bent Hansen, Vice Director DWS • Activities of DVF • Planning of water supply in the municipalities • Waste water management in the municipalities • Practical problems with registration, licensing, financing Stopover at Himmelbjerget Lunch at DMU canteen, DMU invitation **National Environmental Research Institute (DMU)** Ole Sortkjær, Department of Streams and Riparian Areas • The role of DMU in the Danish water resource administration • Monitoring surface water; quantity and quality • Effect of the EU Water Framework Directive Hans Ole Hansen, Department of Streams and Riparian Areas • Introduction to the Skjern River restoration project AQUA Freshwater Aquarium, Silkeborg Return to Hotel Royal, centre of Aarhus Free
24/11, Saturday	Morning 11.00	Shopping in Aarhus Departure from Hotel Royal

		Lunch at Danish Inn in Skjern, at own expense
		Visit to the Skjern River restoration project exhibition in Skjern, and the restoration project area
	- 19.00	Return to Hotel Royal
	Evening	Jazz concert: Marc Mommas and the Mads Berentzen Trio
25/11, Sunday	9.45	Departure from Hotel Royal
	10.00 - 11.15	Guided tour in the Old Town of Aarhus
	Lunch	Lunch at own expense
	12.00	Departure from Hotel Royal
	12.30	Departure from Århus Station, transport to Odense (train)
	14.04	Arrival in Odense
	14.30 - 15.30	Visit to the house of Hans Christian Andersen, guided tour
	16.06	Departure from Odense Station, transport to Copenhagen (train)
	17.27	Arrival in Copenhagen, transport to Hotel Alexandra
	Evening	Free, optional visit to Tivoli
26/11, Monday	8.15	Departure from Hotel Alexandra
	9.00	**DHI Institute of Water and Environment** Jørn Rasmussen, Dep. Managing Director: • DHI W&E, a general introduction to DHI and specific information on DHI's water resources work Hans Enggrob, River Hydraulics Department: • River hydraulics Sten Lindberg, Head, Urban Utilities Department: • Urban utilities Michael Butts, Flood Management Department: • Flood management Anders Refsgaard, Head, Hydrological Modelling Department: • Advanced hydrological modelling Jens Fugl, Water Management Department: • Integrated water resources management
	Lunch	Lunch at DHI Canteen, DHI invitation
		Torkil Jønch-Clausen, Director, International Centres • GWP, UNEP, WHO Jesper Fuchs, Head, Ports and Structures Department • DHI W&E's hydraulic experiment facilities
	14.30	Departure from DHI
	15.00	**DTU, Danish Technical University** Henrik Bregnhøj, Assistant Professor, DTU, E&R • Introduction to DTU, Department of Environment & Resources Bo Skjold Larsen, Assistant Professor, DTU, E&R • M.Sc. in Environmental Engineering

		• Possibilities at DTU for foreign students Dan Rosbjerg, Senior lecturer, DTU, E&R • M.Sc. in Water Resources Management Jens Christian Tjell, Senior lecturer, DTU, E&R • Presentation of chemical laboratories Dan Rosbjerg
	- 17.00	• Presentation of Hydraulic Research Laboratories
	Evening	Dinner at the house of Per Rasmussen
27/11, Tuesday	8.30	Departure from Hotel Alexandra
	9.00	**GEUS** Niels Kelstrup, GEUS Enquiry Service • Danish Water Supply Act, obligations of drilling companies • Geological data collection, databases and information systems Jens Stockmarr, Department of Hydrology • National Groundwater Monitoring Programme: Design, administration, responsibilities, data collection and results Hans Jørgen Henriksen, Department of Hydrology • Integrated water resources modelling, water balances • Hydrological modelling, surface water and groundwater • Danish National Water Resources Model
	Lunch	GEUS Canteen, GEUS invitation
	- 15.00	Alex Sonnenborg, Head of Department of Hydrology • Example of issuing licence to water abstraction: Danish statutory orders, obligations for applicant, administrative procedures and responsibilities
	Evening	Farewell Dinner at Langelinie Pavillonen
28/11, Wednesday	8.30	Departure from Hotel Alexandra
	9.00 - 11.00	**GEUS** (Group 1) • Consultancy assistance to implementation of registration and licensing
	9.00 - 11.00	**PEM Consult** (Group 2) • Consultancy assistance to Institutional and Training Needs Assessment Free (Group 3)
	12.00	Departure form Hotel Alexandra to Copenhagen Airport
	Afternoon	Departure from Copenhagen TG951 CPH – BKK 14.05 – 06.55+1
29/11, Thursday	Morning	Travel BKK – HAN TG682 07.50 – 09:40

Appendix 2

Appendix 2: CV of Participants

1. Name: Nguyen Dinh Ninh
Position: Deputy director - Department for management of resources and hydraulic works.
Age: 55
Responsibility function related to implementation of the Law on water resources

- Participated in the process of drafting under law on water resources issues;
- Participating in the direction of management and operation of hydraulics works;
- Direction of inspection and controlling works in the file of water resources and hydraulic works management;
- Participated in the preparation annual plan for integrated water resources and hydraulic works management;
- Deputy team leader for management and utilisation in the river between Vietnam and Cambodia;
- Participating in the process communicating of implementation of the Law on water resources.

2. Name: Ngo Thi Tuyet
Position: Department for management of resources and hydraulic works.
Age: 53
Responsibility function related to implementation of the Law on water resources

- The member of drafting under law on water resources;
- The member of drafting of degree of implementation of the Law on water resources;
- The member of drafting ordinance of exploitation and protection of hydraulic works;
- The member of the office national water resources;
- The member of the water resources planning management board.

3. Name: Le Huu Duyen
Position: Chief of bureau for hydraulic works management
Age: 58

- Responsibility function related to implementation of the Law on water resources
- Participating in the preparation of drafting law on water resources;
- Participating in the process of drafting decree on exploitation and protection of hydraulic works;
- Participated in process of principle for operation of irrigation systems.

4. Name: Van Son
Position: Staff
Age: 54
Responsibility function related to implementation of the Law on water resources

- Participated in law on water resources preparation;
- Participated in the draft direction on stability river basin organisation;
- Participate in drafting of regulation of R.B.O.

5. Name: Le Duc Nam
Position: Chief of bureau for management of water resources planning
Age: 54
Responsibility function related to implementation of the Law on water resources

- The member of the working group of the TA - 2747 VIE "Red river basin water resources management project" by ADB;
- Preparation for establishment river basin organisations Red - Thai binh river; Dong nai river an Cuulong river;
- Draft regulation for the RBO;
- Project manager of the subcomponent implementation of the Law on water resources funded by DANIDA;
- Draft the licensing of surface water extraction.

6. Name: Duong Van Tai
Position: Chief of plan - Economic and organisation bureau
Age: 59
Responsibility function related to implementation of the Law on water resources

- Drafting pan for water resources development in the whole country;
- Establishing relationship between National and International river basin management;
- Establishing organisation model for local water resources management;
- Establishing the financial money for water resources management;
- Draft plan for water quality monitoring network (including investment);
- Establishing database for river basin water resources management.

7. Name: Vu Tien Luc
Position: Chief of inspection and legislation division of dwrhwm
Age: 57
Responsibility function related to implementation of the Law on Water Resources

- Head of Hydraulic Subject, Electrical & Mechanical University, 1968 - 1972, worked as a hydraulic lecturer;
- Chief of Water Resources Management Division, Water Resources Planning Institute, MARD, 1972 - 1995;
- of a National Science Research Program: KC 1208 Legislation and Organisation in National water resources management, 1990 - 1994, MARD. Funded by MOSTE - Viet Nam;
- Secretary of Viet Nam Water Law Preparation Group of Vietnam, 1985 - 1998.
- Secretary of Project IDF Grant TF 28873 of Finalisation of Vietnam Water Law; Funded by WB: 1994 - 1998;
- Chief of Inspection and Legislation Division of DWRMHW, 1995 - Now, MARD;
- Drafts-man of Documents to implement Law on Water Resources:
- General Implementation Decree (Published 1/2000).
- Sanction Decree (Preparing).
- Licenses / permit Decree (Preparing).
- Inspection Decrees (Preparing).
- Decisions of Prime Minister on River Basins (Preparing).
- Decision of National Water Resources Council (Preparing).
- Take part in drafting of Land Law, Environment Protection Law, Mineral Law and by-Law documents, Ordinance on Exploitation and Protection of hydraulic works.

8. Name: Dang Dinh Phuc
Position: Head of bureau for groundwater management
Department for Water resources and Hydraulic work management
Age: 58
Responsibilities in implementing Law on Water resources

- Preparing and releasing the bylaw document as following:
- Regulation on releasing the permission on ground water exploration, exploitation, groundwater well drilling;
- Regulation on groundwater protection;
- Preparing the regulation on technical standard concerning to wells as well as groundwater management;
- Guiding on monitoring the volume, quality of groundwater, assessing the volume of aquifers;
- Assisting ministry to release the permission on groundwater exploitation, exploration and well drilling;
- Observing and inspecting all activities concerning to ground water exploration and exploitation;

9. Name: Trinh Van Nho
Position: Chief
Age: 59
Responsibility function related to implementation of the Law on water resources

- Supporting and requiring the relevant agencies report annually for MARD about the situation of implementation LWR and other related issues;
- Supporting the selection of implementation water supply and sanitation the program funded by UNICEF;
- Organising National and International conceded with exploitation and utilisation and management of water resources.

10. Name: Nguyen Thi Tam
Position: Deputy Head of Water Environment Bureau
Age: 52
Responsibility function related to implementation of the Law on water resources

- Setting up water quality database;
- Setting up National Monitoring Network for water quality;
- Developing river water quality standards and effluent standards, water price, water pollution tax;
- Carrying out Environment Impact Assessment for Hoa Binh Reservoir and water resources development projects;
- Carrying out water quality investigation project in Red river delta;
- Taking part in establishing National Water Resources Council and developing Council's document;
- Taking part in establishing River Basin Planning Management Office.

11. Name: Tran Duc Hai
Position: Specialist
Age: 56
Responsibility function related to implementation of the Law on water resources

- Participating in preparation of water plans and appraisal of water plans;
- Participating in adjustment of irrigation plans;
- Participating in appraisal of new construction projects; rehabilitation projects in water sector;
- Participating in preparation of short-term, long term plans for regional water resources development.

Appendix 3

Appendix 3: Profile of Institution

Danish Environmental Protection Agency (DEPA)
The Danish Environmental Protection Agency (DEPA) spheres of activity are concentrated on preventing and combating water, soil and air pollution. The Agency belongs under the Danish Ministry of Environment and Energy and has some 425 employees.
The DEPA administers environmental legislation and prevents and combats the pollution of water, soil and air in Denmark. An important task is monitoring the state of the environment and disseminating information related to this. With the assistance of other national and local authorities, the Agency gathers information on such environmental hazards as the emission of chemical substances to the air and the use of pesticides in Denmark.
Homepage: http://www.mst.dk/homepage/

European Environment Agency (EEA)
The aim of the European Environment Agency is to establish a seamless environmental information system. This is done to assist the Community in its attempts to improve the environment and move towards sustainable development, including the EU's efforts to integrate environmental aspects into economic policies. The EEA is an European Union institution located in Copenhagen.
The EEA aims to support sustainable development and to help achieve significant and measurable improvement in Europe's environment through the provision of timely, targeted, relevant and reliable information to policy making agents and the public.
Homepage: http://www.eea.eu.int/

The Geological Survey of Denmark and Greenland (GEUS)
The Geological Survey of Denmark and Greenland (GEUS) is a sector research and advisory institution under the Danish Ministry of Environment and Energy. The Survey's primary function is to provide the essential geological service for the utilisation and protection of Denmark's, Greenland's and Faeroe Island's natural resources. This involves mapping, data collection and basic research, in addition to providing impartial advice and to both government, the general public and the scientific community.
Within the environmental sphere, the Survey has both a research and advisory role with respect to environmental protection, water supply, exploitation of raw materials and nature conservation. Similarly, the Survey assists the Ministry in its administration of the utilisation of raw materials and mineral deposits , including the supervision of exploration for and exploitation of oil, natural gas, geothermal energy, etc.
In addition, the Survey undertakes numerous contract assignments for private firms. Over the years a large number of papers have been published on the Survey's scientific and practical activities. GEUS was created in 1995 by the amalgamation of the Geological Survey of Denmark (established 1888) and the Geological Survey of Greenland (established 1946).
Homepage: http://www.geus.dk

Aarhus County
The County of Aarhus is one of the fourteen counties that constitutes the middle level of of local government . In terms of the number of inhabitants, the County of Aarhus is the largest in Denmark. At the same time, it is also one of the largest employers in the entire country, with some 20,000 employees serving over 600,000 people. These services include a complex and comprehensive network of hospitals, schools, institutions for the disabled and housing for the homeless, etc.
The County of Aarhus is run by a County Council consisting of 31 members, who meet once a month. The meetings are chaired by the County Mayor. The members of the county council also form a range of committees, each of which deals with a specific area: The Finance Committee, The Hospital Committee, The Committee for Psychiatry and the Disabled, The Committee for Children, Culture and Education, The Committee for Traffic and the Environment, The Business Affairs Committee.

There are 26 municipalities and communes within the County of Aarhus, including both the second-largest city in Denmark - Aarhus - with its population of 282,000, and some of the smallest municipalities in the country, some with as few as 5,000 inhabitants.
Responsibility for the environment is a wide-reaching task, even though it only represents a small portion of the county budget. The County of Aarhus has to plan how best to use the 456,000 ha. of land that make up the county's area. The County of Aarhus does the assessment, planning and implementation work necessary to take decisions on issues such as where the refuse dumps should be placed, and how they are to be constructed to avoid polluting the groundwater (which in Denmark is the normal source of drinking water).
Other similar issues include where wind turbines can be erected without causing a nuisance to residential areas, what direction the development of the built-up areas should take, where the industrial activities resulting in the greatest pollution should be located, and to what extent waste water should be purified before it is led out into the lakes, rivers and sea in and around the County of Aarhus. These considerations - and many more - are included in the County of Aarhus' overall regional plan, which is revised every four years.
Homepage: http://www.aaa.dk

Aarhus Municipality
Aarhus is the second-largest city in Denmark, Jutland's metropolis. A growing, dynamic city and a base for education, research, commerce, economics, ecology, culture and recreation. A city packed with a comprehensive range of offers.
The Aarhus of the twenty-first century is home to trail-blazing IT companies, the largest container port in Denmark, extensive retail chains, educational and research institutions, wonderful specialist shops, excellent cultural offers, tempting restaurants and all the sport and leisure facilities you could wish for. The city is very attractive, neatly framed by woods and beaches. Aarhus Å river has recently been cleared and now forms a delightful central axis for the pulsating city.
Aarhus City Council is made up of 31 members. The citizens of Aarhus elect a new council every four years. The members of the council then elect the mayor and the five aldermen. The mayor and the aldermen constitute the Municipal Authority. The city council also appoints a number of committees. The mayor and the aldermen are the day-to-day heads of the six municipal administration departments. The city council meets every second Wednesday. Citizens can observe these council meetings as spectators in the council hall, listen to them on regional radio, or follow them on the Internet. The population totals 285,000 people.
Homepage: http://www.aarhus.dk/

Danish Water Services (DWS) / Danish Water Supply Association (DVF)
Danish Water Services Limited is a consulting company, which is owned by 28 of the largest Danish municipalities together with the Danish Water Supply Association. Through the Water Supply Association DWS can provide highly qualified staff who are specialists in the practical and administrative tasks necessary for the efficient management of water utilities. DWS is independent of private and commercial interest and conducts all its activities on normal consultancy basis, or alternatively, as part of international development programmes.
DWS has references from Eastern Europe, Asia and Africa, and we know from experience that it makes a difference when staff from Danish Water and Wastewater Utilities work as colleagues of our clients.
Today the demands for experts on the operation and maintenance of water utilities are increasing, and in Denmark this expertise is based in public administrations and companies. Since 1993 DWS has provided the international markets with expertise from the Danish Public Utilities in connection with improvement of effective environmental management as well as operation and maintenance.
The headquarters of DWS is in Skanderborg together with DVF (Danish Water Supply Association and DANAS (Danish Association of Sewage Works).
Homepage: http://www.danwater.dk

The National Environmental Research Institute (NERI)
The National Environmental Research Institute is an independent research institute under the Danish Ministry of Environment and Energy. NERI's mission is to provide a sound and informed scientific basis for making environmental decisions at the political, administrative and commercial levels.
The object of NERI's work is to help fulfil the Government's goal of an environmental policy based on knowledge. The Statutory Order governing NERI assigns the Institute responsibility for "research, consultancy services, monitoring and information activities within the environment and nature areas, including the atmospheric environment, the environment and nature in inland and marine waters, the terrestrial environment and nature, as well as concerning the relationships between society's activities and the state of the environment and nature".
Homepage: http://www.dmu.dk

DHI Water and Environment
DHI Water & Environment is an independent, international consulting and research organisation affiliated to the Danish Academy of Technical Sciences.The Institute is organised into four divisions: Environmental Technology & Chemistry, Water Resources, Water Environment & Informatics, and Marine Technology.
DHI Water and Environment has achieved a leading position within the field of integrated management of land and water resources, and provides comprehensive expertise together with a range of decision support tools to understand and simulate a variety of hydrological aspects ranging from broad-scale river basin issues to detailed hydrological and hydrodynamic investigations. In relation to water supply, development and implementation of early warning systems with respect to quantity and quality, has been a focus area for DHI since the early 1990's.
Projects often require integration of various aspects, such as conjunctive use of ground water and surface water, water quantity and quality, water uses, industrial water management and integration of the natural systems into human (political and institutional) systems. In the recent years DHI Water and Environment has contributed to development of scenarios, visions and actions within the so-called Vision and Framework for Action process through participation in Global Water Partnership and regional collaborations.
Homepage: http://www.dhi.dk

Technical University of Denmark (DTU)
As a modern technological university, DTU, the Technical University of Denmark, operates at a high international level in a wide array of activities in fields such as biotechnology, communications technology, nanotechnology and development of technologies for sustainable energy. The University's research and teaching is provided by 16 faculties , and a number of major independent centres established as joint ventures between DTU and companies and research institutes in the region. Like all modern universities, DTU also operates a number of transient and dynamic centres in which the driving force resides in collaboration across different fields of research and organisations.
DTU's physical location in the north of Copenhagen gives it a natural part to play in fostering the Øresund region as a new "powerhouse" for research, the development of production facilities and educational provisions. The platform for this drive is made up of the region's 11 universities, 5 science parks and a heavy concentration of both old and new companies.
The University embraces most of the engineering disciplines, and trains engineers to Bachelor, Masters and PhD level. In addition, the University offers a comprehensive continuing education programme, with a number of courses taught in English. The University has 6000 students preparing for Bachelor and Masters degrees, 600 PhD students and takes 400 foreign students a year on English-taught courses. DTU also has a permanent 400 of its Danish students away on varying length courses at foreign universities.
The English taught courses include an internationally acclaimed 2 year M.Sc. study in Environmental Engineering, ranging from water supply and sanitation engineering, hydraulic engineering, geology and hydrogeology via water quality management to environmental protection, management and economics. The course tuition is free of charge to international students who qualify for entry into DTU and can document adequate funding of their travel, accommodation and living costs (In the order of DKK 60,000 per year).

Homepage: http://www.dtu.dk

PEMconsult
PEMconsult is an international consultancy company dedicated to delivering high quality services in Environment and Management. During the last 5 years we have carried out more than 200 assignments in over 32 countries world wide, with an annual fee turnover of approximately 3 million USD. Our consultants form the centre for our operations, with 11 partners and 5 core consultants. This base is constantly being strengthened by additional consultants and by our close network of associated consultants. PEM also co-operates with a range of consultancies, public sector enterprises and NGOs. We especially value co-operation with local consultants and have a close network and alliance with compatible organisations in countries of special interest for our fields of work.
Homepage: http://www.pemconsult.com/

Appendix 4

Appendix 4: Evaluation of each visit

Two participants filled out evaluations sheets for each host institution:

Evaluation of visit to: Danish EPA **Date: 19.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation				1	1
Performance of lecturer					2
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: EEA **Date: 20.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented				2	
Weighting of subjects				2	
Length of presentation				2	
Performance of lecturer				1	1
Fulfilment of your expectations				2	
Personal benefit				2	
Practical arrangements				1	1

Further comments and suggestions for improvement: None

Evaluation of visit to: GEUS **Date: 20.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation					2
Performance of lecturer					2
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: Aarhus County **Date: 21.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation				1	1
Performance of lecturer					2
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements				1	1

Further comments and suggestions for improvement: None

Evaluation of visit to: Aarhus County **Date: 22.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation				1	1
Performance of lecturer					2
Fulfilment of your expectations					2
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: Aarhus Municipality **Date: 22.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation					2
Performance of lecturer				1	1
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: DWS/DVF **Date: 23.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation				1	1
Performance of lecturer				2	
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					1

Further comments and suggestions for improvement: None

Evaluation of visit to: NERI **Date: 23.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation				1	1
Performance of lecturer					2
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: Skjern River Restoration Project **Date: 24.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented				1	1
Weighting of subjects					2
Length of presentation					2
Performance of lecturer					2
Fulfilment of your expectations					2
Personal benefit					2
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: DHI W&E **Date: 26.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation					2
Performance of lecturer					2
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: DTU **Date: 26.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation				1	1
Performance of lecturer					2
Fulfilment of your expectations				1	1
Personal benefit				1	1
Practical arrangements					2

Further comments and suggestions for improvement: None

Evaluation of visit to: GEUS **Date: 27.11.2001**

	SATISFACTION				
	1	2	3	4	5
	Low		to		high
Relevance of subjects presented					2
Weighting of subjects					2
Length of presentation					2
Performance of lecturer					2
Fulfilment of your expectations					2
Personal benefit					2
Practical arrangements					2

Further comments and suggestions for improvement: None