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ENSIS YANTAI

Annual Report 1996

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Summary

On November 27, 1996, an agreement was signed in Beijing between the Norwegian Agency for Development Cooperation (NORAD) and The State Science and Technology Commission (SSTC) regarding Environmental Surveillance and Information System for Yantai, China. According to this agreement and the project proposal on the above mentioned project, a start up Workshop was held in Yantai 25-29 November.

The institutions participating in the project are Yantai Municipal Science and Technology Commission (YMSTC), Yantai Environmental Monitoring Center (YEMC) and Yantai Environmental Protection Bureau (YEPB) from the Chinese side. The ENSIS group consists of the institutions Norwegian Institute for Air Research (NILU), Norwegian Institute for Water research (NIVA) and the Norgit center.

This annual report describes the work carried out in 1996 during the workshop and a revised project plan for 1997.

Air and water quality measurements

On water quality, the chinese part accepted the planned instrumentation as described in the project plan. Three online stations shall be delivered, one fully equipped and two reduced equipped. The first installation will be reduced equipped on all three stations.

On air quality, the chinese part want to purchase the instruments from a Chinese distributor. It was agreed to take out the sequential stations and extend the monitoring program from three to five online stations.

The chinese part shall prepare the monitoring sites according to the specifications given by NILU and NIVA by the end of June 1997. The installation of measuring instruments will take place in October/ November 1997.

Emissions/discharge inventory

Information on emissions to air and discharges to water have to be collected by local personnel. This information should for air pollution contain data on traffic flow, area distributed consumption of fossil fuels and emissions from industrial point sources. Discharges to water should contain data for both industrial and public sources. NILU and NIVA will in January 1997 send specifications on the parameters needed and in which form the data should be collected and stored. The first version of the inventory should be finished in June 1997.

The ENSIS system

The adaptation of the Environmental Surveillance and Information System (ENSIS) to Yantai city has to start as soon as possible. Norgit will send an offer on computers for approval from the Chinese side in December 1996. After

approval, Norgit will order the computers for starting the implementation of the ENSIS system for Yantai.

The first ENSIS installation, containing one of the four PCs will be delivered with the modules for manual input and measurements in september 1997. The complete ENSIS system, containing emission database, statistics, wind field module, dispersion models, exposure module and geographical information system will be developed in 1997 and a training of the chinese experts will take place in Norway in spring 1998. The final installation in Yantai of the complete ENSIS system is planned to take place in autumn 1998.

Project costs 1997

A detailed description of the project plan and costs for both Norwegian and Chinese side is given in Chapters 2 and 3. The planned total cost for 1997 to be covered by the Chinese side is RMB 1,935,900.-. The planned total costs for the Norwegian side according to the Agreement is NOK 6,500,000.- including NOK 2,100,000.- for air quality instruments to be purchased and installed by the Chinese side and savings from 1996.

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1. Introduction

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2. Revised project plan for 1997 from the Norwegian side

The project plan is described in detail in the NILU report: 'Environmental Surveillance and Information System for Yantai, P. R. of China. Project Proposal.' dated 14. February 1996. Based on the conclusions from the three parallell workshops on air, water and information technology, only minor changes of the planned activity were needed. The revised project plan will be as described below. A detailed description of the work in 1997 prepared by the chinese partners is given in Appendix C: "The working plan of the Yantai ENSIS project in 1997".

2.1 Revised work plan summary

2.1.1 Phase I (November 1996–March 1997)

The following tasks will be undertaken during the first phase of the project:

1. Project kick-off seminar to initiate the project in Yantai.
2. Development of a detailed working plan, distribution of tasks, appointment of the participants.
3. Start of emission and discharge data inventory.
4. Collection of other relevant available information on air and water quality.
5. Evaluate existing monitoring network.
6. Collect information on communication network and data handling.
7. Institutional assessment, man power, infrastructures, equipment etc.

8. Evaluation of laboratory equipment.
9. Data model adaptation.

The kick off seminar was held as planned in Yantai at the very start up of the project.

An additional workshop will be arranged in Yantai at the end of Phase 1.

The workshop will include:

- presentation and discussions of the preliminary emission and discharge inventory;
- presentation and discussion of the improved monitoring system;
- status on ENSIS development by the ENSIS group;
- preparation of status report for each sub-task;
- preparation for the tasks of Phase 2.

2.1.2 Phase 2 (April 1997–September 1998)

Phase 2 will represent a continuation of the work started and reported from the Phase 1. In addition, the following tasks will be covered by Phase 2:

1. Functional user requirements.
2. Data management routines.
3. Functional design.
4. Abatement strategy discussions.
5. Installation of monitoring stations, data collection network and quality control.
6. Develop dispersion models on air and water.
7. Configuration, testing and installation of first version of the ENSIS system in Yantai.
8. Training by Yantai personell in Norway and in Yantai.
9. Implementation and use of manual data.

In the beginning of second phase, the new stations on air and water will be installed and on-the-job training will be undertaken. Selected Yantai experts will receive training in operation and maintenance of the instruments by ENSIS personnel. Data collection will be continuously undertaken.

Three workshops will be arranged during Phase 2:

a) Scientific workshop.

After installation of the Unix server and the air and water monitors a scientific follow-up meeting will be held in Yantai. During this workshop, the following terms will be discussed:

- design of management routines for manual and on line data handling;
- data communication and quality control of measurements;
- evaluation and presentation of the measurements
- adaptation of air and river models.

A first version of the ENSIS system, containing storage and presentation of measurements will be installed in connection with this workshop.

- b) Midway through the second phase work a training workshop will be arranged in Norway to include:
- training and presentation of the ENSIS system;
 - presentation and discussions of the improved emission inventory;
 - first model calculations of air and water pollution ;
 - discussion on abatement strategies;
 - preparation of status report of each sub-task.
- c) At the end of the second phase a workshop will be arranged in Yantai. This meeting will include a consideration of the work undertaken so far, and will consider a possible extension of the project if necessary. The following items will also be included:
- presentation and discussion of second phase results;
 - preparation of status report;
 - preparation of tasks in Phase 3.

2.1.3 Phase 3 (October 1998–September 1999)

This phase contains mainly improvements and finalization of the tasks described in phase 2. A full version of the integrated ENSIS system, containing measurements, quality control, models, statistics and GIS presentations will be installed and adapted to the local environment. The manual noise data collected by the Chinese part will be entered into the measurement database. A final training will be performed in Yantai to ensure that the system is fully understood and learned by local personelle.

In addition to work performed by ENSIS personelle in Yantai, a final workshop will be undertaken containing:

- presentation of the ENSIS system;
- discussion on needs for local personelle for further operating and maintenance of the monitoring and data system;
- discussion of further needs for collaboration, if any;
- prepare the content of final report, distribute responsibilities.

The final report should be finalized and sent to NORAD not later than three months after the final workshop.

Revised Time schedule.

Phases	1996	1997				1998				1999			
	4	1	2	3	4	1	2	3	4	1	2	3	4
Phase 1													
Workshop Yantai	■												
Project plan													
Pollution screening													
Emission/discharge inventory													
Network, data handling													
Phase 1 reports			■										
Phase 2													
Workshops Yantai													■
Installation monitors													
ENSIS, first version													
Dispersion models													
Training ENSIS, Norway													
Phase 2, reports													■
Phase 3													
Installation, full ENSIS													
Testing, adapt ENSIS													
Training Yantai personnel													
Abatement strategy													
Completion workshop													■
Final project report													■

2.2 Project costs 1996 and budget for 1997

The project costs from the Norwegian side are divided into three phases as described in the Project Plan:

Phase 1 (November 1996 – March 1997)	NOK 1,242,000.-
Phase 2 (April 1997 – September 1998)	NOK 7,586,581.-
Phase 3 (October 1998 – September 1999)	NOK 1,745,000.-

which gives a total cost from the Norwegian side of **NOK 10,573,581.-** as stated in the Contract.

The project cost from Norwegian side in 1996 was as described in Table 1.

Table 1: Project costs for 1996.

Task	Budget 1996	Costs 1996
Preparatory work plan	120,000.00	73,500.00
Seminar, hours	210,000.00	195,780.00
Emission inventory	20,000.00	14,490.00
ENSIS application	120,000.00	125,160.00
Eval. lab. instruments	30,000.00	14,460.00
Project management	100,000.00	65,520.00
Subsistence, travels	242,000.00	124,081.02
Total	842,000.00	612,991.02

The costs in 1996 was NOK 229,008.99 lower than the budget. The main reason for this was delayed finalization of the preparatory work plan and saved travelling costs due to co-ordination of workshop for the two NORAD projects in Harbin and Yantai.

The saved costs for phase 1 in 1996 will be transferred to 1997 for finalization of phase 1 and an extra project meeting in connection to the Consultation Meeting. This project meeting is important for deciding instrument requirements which was not discussed in the first workshop due to extended discussions on the contract.

The budget from the Norwegian side for 1997 including savings from 1996 is as described in Table 2.

Table 2: ENSIS Yantai – Project budget for 1997.

Revised work plan	NOK	20,000.-
Emission inventory	NOK	40,000.-
User requirements	NOK	100,000.-
Data management routines	NOK	100,000.-
Develop dispersion models	NOK	150,000.-
Abatement strat. disc.	NOK	200,000.-
Manual data implementation	NOK	100,000.-
Monitoring water quality	NOK	1,400,000.-
Monitoring air quality	NOK	2,100,000.-
Server system, hardware	NOK	230,000.-
Server system, software	NOK	255,000.-
Client systems	NOK	145,000.-
Installation water quality instruments	NOK	100,000.-
Installation technical data system	NOK	50,000.-
Configuration and test	NOK	150,000.-
Training in Yantai	NOK	100,000.-
ENSIS lisence	NOK	630,000.-
Subsistence and travels	NOK	330,000.-
Project management	NOK	300,000.-
Total 1997	NOK	6,500,000.-

The main changes compared to the Project Plan is related to purchasing of air quality instruments. The Chinese side will purchase this equipment from Gemini, a Chinese distributor, which also shall install the equipment.

The air instrument budget is therefore increased with NOK 268,000.- due to reduced costs from the Norwegian side related to installation, training and freight.

3. Project plan for 1997 from the Chinese side

According to the project proposal, the main tasks of Yantai ENSIS project in 1997 are as the following:

- Collect and investigate monitoring data and information of the existing air and water (Jia river flow) quality situation.
- Investigate and analyse the inventory on emission to air and water discharges.
- Collection of relevant available information of meteorology.
- Construction of monitoring sites, buying equipment, installation and adaption.

On the basis of project proposal, in order to work with the Norwegian side smoothly, tasks in 1997 can be divided into 3 phases:

1. Collecting, investigating, analysing information will be fulfilled at the end of April.
2. Construction of monitoring sites, buying equipments will be fulfilled at the end of July.
3. Installation and test of equipment will begin at September.

3.1 Collection and analysis of information

First phase: (1997.1.1.–1997.4.30.)

(1) Training

- Workshop for collection of information on air and water quality situation, 10 people, 4 days.
- Workshop for inventory of air an water, 10 people, 5 days.

(2) Collecting of environmental monitoring data

- Air monitoring materials. Select statistics on air quality of Zhifu, Fushan and Developing Zone for the last 6 years (1991–1996), includes SO₂, NO_x, TSP, about 14,000 dates.
- Water monitoring materials of Jia river. Select statistics on water quality (BOD₅, NH₃-N, COD, NO₂-N, NO₃-N, metals, SS, oil, volatilize phenol, hydrology), about 15,000 dates.

- (3) Investigation of pollutant source inventory
1. Investigation of pollutant sources:
 - Select fuel consumption data of all enterprises (700), air emission inventories for compounds such as SO₂, NO_x, particles, radioacting pollution.
 - Select fuel consumption data of administration units (200), air emission inventories for compounds such as SO₂, NO_x, particles.
 2. Investigation of domestic air pollutant sources:
 - Select a typical area, investigate fuel type, use, amount dispersion and time of emission, there are about 16,000 inhabitants (1/10 of the whole population of this typical area).
 - Investigate area home heating, fossil fuel and dispersion.
 3. Line sources investigation:
 - Collect data on traffic amount, traffic pattern and emissions, along main road about 86 km long.
 - Collect above mentioned data at traffic crossing.
 4. Investigation of industry pollutant sources of Jia river:
 - Industrial discharge to water, treatment and its working state.
 - Discharge to water of administrative units.
 5. Domestic water pollutant sources:
 - Investigate inhabitant water consumption and discharge per year in a typical area.
 - Population distribution along the Jia river.
 6. Agriculture pollutant sources:
 - Information about fertilizer and pesticides consumption in the area.
 7. Information on characteristic for the Jia river system monitoring section, gradients, roughness etc.:
 8. Meteorological materials:
 - Collect information of Yantai meteorological station such as wind direction, wind speed, air temperature, atmospheric pressure, precipitation and air stability.
 9. Statistics and analysis of investigation materials:
 - Statistics amount of industry domestic and agriculture pollutant sources, make uniform forms for discharges and emissions.
 - Statistics of meteorological parameters, values yearly, monthly and daily.
 - Input information into non-data base form and data base (be presented by Norwegian side).
 - Collect maps of area, Jia river basin environment quality and make maps of pollutant sources dispersion data.
 - Translate those materials.

3.2 Construction of monitoring stations

Construction engineering mainly includes five air automatic monitoring stations (west suburb spot in industry area, bearing factory spot, Shengli oil field, Laishan chemical work and Fushan environmental protection Bureau) an automatic meteorological station, and three water automatic monitoring stations (Menlou Reservoir outlet, TaoKou rubber dam and new Jia river bridge rubber dam), also contains instruments selection and installation of electric supply, communication, temperature assurance, dust prevention.

Second phase: (1997.3.1.–1997.7.31.)

(1) Monitoring stations construction engineering

1. Construction of houses for monitoring:
 - Construction of five air automatic monitoring stations.
 - Construction of three water automatic monitoring stations.
 - Construction of central control computer stations.
 - Construction of central laboratory.
2. House building and working platform:
 - Rebuild laboratory, central control station, meteorological station, computer room, automatic and manual monitoring stations.
 - Installation of aluminium alloy windows at YTMC.
 - Isolated room for the water monitoring stations.
 - Rebuild working platform for air automatic monitoring stations, other stations install new platforms.
 - Seal off windows of air automatic monitoring stations.
 - Installations of air conditioner and dust prevention facilities.
 - Installation of electric and communication equipment.
 - Power, install steady electric supply ups, AC supply will be increased.
 - Installation and rebuild lighting equipment.
 - Installation of power line and communication telephoen line.
 - Telephones will be installed at every monitoring station.
3. Other buildings and afforest:
 - Build 10 m meteorological tower.
 - Build grass land (15 x 15 m²) around meteorological tower.
 - Build defensive fence of meteorological station.
4. Erect special pipeline for water use:
 - Install water pump and lay special pipeline for water use in water automatic monitoring stations.

(2) Other constructions and equipment purchasing

- Clearing job during the later construction of every station.
- Installation and debugging of computer and exterior equipment.

- Installation and purchasing of fire-fighting equipment accessory to every station.
- Purchase special cross-country jeep for monitoring and checking.
- Purchase and access equipment, tools, and mobile communication equipment for checking instruments.

3.3 Installation and testing of instruments

- (1) The work of installing and testing the instruments during the third phase is based on the plan and mainly co-operate the Norwegian experts. The work start from 1997.10.1.
- (2) Installation and initial testing of air, water automatic monitoring instruments.
- (3) Installation and testing of ground meteorological station.
- (4) Installation of central control station equipment.
- (5) Installation and debugging of computer software and operating system.

The attached charts are the budget and time schedule of Yantai ENSIS in 1997.

The time schedule of Yantai ENSIS Project in 1997.

Work	Month (in 1997)											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Collect information												
(1) Training	▶											
(2) Collect monitoring materials												
(3) Investigate industrial pollutant sources			→									
(4) Investigate domestic pollutant sources				→								
(5) Investigate traffic pollutant sources				→								
(6) Investigate agricultural pollutant sources		→										
(7) Investigate the characteristic of Jia river basin			→									
(8) Collect meteorological materials		→										
(9) Statistics and analyse materials				→								
(10) Input data and materials			→									
(11) Collect and draw charts and maps		→										
(12) Settle data		→										
2. Basic construction												
(1) Construct automatic monitoring stations			→									
(2) Construct meteorological station												
(3) Construct central control station		→										
(4) Construct central laboratory			→									
(5) Construct and install meteorological tower			→									
3. Decorate and install												
(1) Decorate indoors					→							
(2) Install power line outdoors			→									
(3) Install telephone line outdoors				→								
(4) Install electrical equipment indoors					→							
(5) Install communication equipment indoors						→						
(6) Install and rebuild lighting equipment				→								
(7) Build fence around the meteorological station							→					
(8) Plant grassland to green the meteorological station								→				
(9) Install and access the fire-fighting equipment					→							
(10) Install air conditioners						→						
(11) Erect special pipeline for water use							→					

Cont.

Work	Month (in 1997)											
	1	2	3	4	5	6	7	8	9	10	11	12
(12) Clear during the later construction									→			
(13) Install computer and exterior equipment							→					
4. Prepare and install equipment								→				
5. Install and test equipment												
(1) Install and initially test air automatic monitoring equipment										→		
(2) Install and initially test water automatic monitoring equipment										→		
(3) Install and initially test meteorological station										→		
(4) Install and initially test central station equipment										→		
(5) Install and debug computer software and operating system										→		
6. Annual work report												
(1) Work summarization of 1997											→	
(2) Work plan and financial budget of 1998											→	

The budget Yantai ENSIS Project for Chinese side in 1997.

Classified number	Order number	Name of project	Unit	Amount	Standard and technological requirement	Unit price (RMB: yuan)	Amount of budget (RMB: yuan)
	I	<p>Collect and arrange information</p> <p><i>(i) collect and arrange the basic data</i></p> <p>1. <i>Air section</i></p> <p>(1) SO₂</p> <p>(2) NO_x</p> <p>(3) TSP</p> <p>2. <i>Water section</i></p> <p>Collect and arrange water environment quality data of Jiabe Valley</p> <p>3. <i>Information technology section</i></p> <p>(1) population data</p> <p>(2) traffic data</p> <p>(3) energy data</p> <p>(4) valley data</p> <p><i>(ii) pollutant survey section</i></p> <p>1. <i>Air section</i></p> <p>(1) survey industrial source of pollution</p> <p>(2) survey civil source of pollution</p> <p>(3) survey traffic source of pollution</p> <p>(4) collect and arrange meteorological data</p>		<p>5000</p> <p>5000</p> <p>1400</p> <p>15000</p> <p>400</p> <p>500</p> <p>500</p> <p>600</p>	<p>from 1991 to 1996</p> <p>from 1991 to 1996</p> <p>from 1991 to 1996</p> <p>from 1991 to 1996 including gathering and statistics of all parameters</p> <p>collect the existing information (including urban and special area)</p> <p>collect the existing information (road state, vehicle flow, etc.)</p> <p>collect the existing information</p> <p>collect the existing information</p> <p>smoke amount emission height, exit diameter, strength of emission source, flow rate, emission location and type</p> <p>smoke amount emission height, exit diameter, strength of emission source, flow rate, emission location and type</p> <p>volume of traffic, volume of consumed fuel, etc. collect wind direction, wind speed, stability, temperature, atmospheric pressure of last 5 years</p>		<p>5,000.00</p> <p>5,000.00</p> <p>3,400.00</p> <p>8,000.00</p> <p>4,000.00</p> <p>800.00</p> <p>1,000.00</p> <p>1,000.00</p> <p>1,200.00</p> <p>8,000.00</p> <p>8,000.00</p> <p>7,000.00</p> <p>12,000.00</p>

Cont.

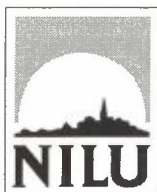
Classified number	Order number	Name of project	Unit	Amount	Standard and technological requirement	Unit price (RMB: yuan)	Amount of budget (RMB: yuan)
		2. Water section					
		(1) survey industrial source of pollution			including statistics, analysis, inputting data base, mapping		8,000.00
		(2) survey civil source of pollution			waste water emission, equipment of dispose of sewage water amount consumed by inhabitant, waste water emission		5,000.00
		(3) survey agricultural source of pollution			field distribution, amount of pesticide and fertilizer		6,000.00
		(4) survey the feature of Jiabe valley			valley feature of each monitoring section		4,000.00
		3. Cost for training		20	five days (including training members of each group and surveying source of pollution)		15,000.00
		4. Cost for traffic			including cost for field surveying		29,000.00
		5. Cost for communication			including internal and international long-distance call		67,000.00
		(iii) prepare map		40	including map for topography and distribution form DXF or other form after digitizing	20.00	800.00
		(1) paper map					8,000.00
		(2) digital map					15,000.00
		(3) cost for mapping					
		Basic engineering construction					
		(i) purchase equipment					
		(1) purchase air conditioner		9	separated, non-freon	8,000.00	72,000.00
		(2) purchase telephone		9	including an inside telephone	800.00	7,200.00
		(3) purchase mobile phone		2	Motorola	8,000.00	16,000.00
		(4) purchase regulated power supply		9		4,500.00	40,500.00
		(5) purchase UPS		5	1 kv 6h on-line	15,000.00	75,000.00
		(6) purchase electric meter		9	15AV	400.00	3,600.00
		(7) purchase power supply wire	M	400	water-proof	20.00	8,000.00

Cont.

Classified number	Order number	Name of project	Unit	Amount	Standard and technological requirement	Unit price (RMB: yuan)	Amount of budget (RMB: yuan)
		(8) purchase work table (9) purchase work chair		22 10	made of wood and iron, single and double layers	1,000.00 250.00	22,000.00 2,500.00
		(ii) installment engineering					
		(1) indoor decoration	M ²	115	including decoration of each spot and center control room	1,200.00	20,000.00
		(2) thermal insulation engineering		9		200.00	21,000.00
		(3) install air conditioner		9	including an inside telephone	3,200.00	1,800.00 26,600.00
		(4) install telephone					10,500.00
		(5) install outdoor power supply in the spot and control room					15,000.00
		(6) synthetical wiring in the spot and control room					30,000.00
		(7) transportation expense for equipment			including costs for transporting the equipment to each spot and others		
		(iii) monitoring station construction					
		1. Transform the automatical stations					
		(1) close the exhaust fan		3	existing exhaust exit in the automatical station		200.00
		2. Transform manual station					
		(1) separated with aluminium alloy	M ²	21	in the manual station of Fushan and Laishan		4,200.00
		(2) dustproof management	M ²				1,000.00
		3. Ground meteorological station					
		(1) building cost	M ²	12	including cost for land		120,000.00
		(2) grassland around the meteorological station	M ²	225	15 m x 15 m, around the tower		35,000.00
		(3) enclose the station with fence					15,000.00
		(4) make the meteorological tower					35,000.00
		(5) install the tower	M	10	triangle, made of steel		10,000.00

Cont.

Classified number	Order number	Name of project	Unit	Amount	Standard and technological requirement	Unit price (RMB: yuan)	Amount of budget (RMB: yuan)
		4. <i>Transform YEMC lab.</i> (1) install doors and windows made of aluminium alloy (2) buy more test instrument and equipment (3) buy vehicle	M ²	500	4 x 4 jeep		100,000.00 120,000.00 240,000.00
		5. <i>Install and adjust instrument</i> (1) in the automatic station (2) in the manual station (3) in the meteorological station					60,000.00 8,000.00 35,000.00
		6. <i>Construction of water automatical monitoring station</i> (1) separated with aluminium alloy (2) seal the windows (3) set up telephone line (4) lay the special pipe to get water (5) install and adjust the instrument		3			12,000.00 3,000.00 20,000.00 34,000.00 90,000.00
		7. <i>Control center construction</i> (1) fire-fighting (2) static electricity-proof floor (3) computer (4) printer (5) scanner (6) cost for entering the network	set M ²	1 36 4 1 1	fire extinguisher in each station pention 133 RAM 16M HD 1G colour laser printer colour internet (EMAIL sending)	600.00 20,000.00 100,000.00 9,000.00	3,000.00 21,600.00 80,000.00 100,000.00 9,000.00 6,000.00 30,000.00
		8. <i>Cost for trip of this year</i> 9. <i>Unpredictable cost</i>					150,000.00
		TOTAL					1,935,000.00



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<p>ABSTRACT Norwegian Institute for Air Research (NILU) carries out on behalf of the ENSIS group (NILU, NIVA, Norgit) a project for Yantai Municipal Science and Technology Commission, China, regarding installation of an Environmental Surveillance and Information System (ENSIS). This system consists of modules for air and water monitoring and management. The Norwegian side is funded by NORAD. The project started in November 1996 and will last for three years. This annual report for 1996 describes the costs for 1996 and a revised plan for 1997.</p>			
<p>NORWEGIAN TITLE ENSIS Yantai – Årsrapport 1996</p>			
KEYWORDS Monitoring		Management	
<p>ABSTRACT (in Norwegian) NILU utfører, sammen med ENSIS-gruppen (NILU, NIVA, Norgit), et prosjekt for Yantai Municipal Science and Technology Commission, China, vedr. installasjon av ENSIS-systemet i Yantai, Kina. ENSIS-systemet er et planverktøy for luft- og vannkvalitet som omfatter målinger og spredningsmodeller. Prosjektet startet i november 1996 og har en varighet på tre år. NORAD finansierer den norske siden av prosjektet. Denne rapporten er årsrapport for 1996 med revidert prosjektplan for 1997.</p>			

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