

# – Environmental assistance within Air Pollution

# NERI



The Danish National Environmental Research Institute (NERI) has developed expertise in environmental assistance to countries in Eastern Europe, Africa, and Asia. Assistance is given on assessing air quality in other countries, establishing and operating air pollution measurement programmes, laboratories and measurement methods, use of models, and action plans for technical and administrative procedures. EU, UN, DANIDA, DANCED or DANCEE fund the projects, and they are carried out in co-operation with other institutions and private consulting companies. The different types of projects are summarised in the following.

## **Design and establishment of air quality monitoring programmes**

Well-designed air quality monitoring networks are crucial for efficient and cost effective assessment and management of the air quality in urban and rural areas. The design of the network is often defined by national or international requirements, but they have to be translated to real life situations, and the equipment has to be defined, purchased and installed. QA/QC programmes play a key role in a monitoring programme. NERI has been involved in all stages of establishment of air quality monitoring programmes in many parts of the world.

## **Implementation of EU air quality directives**

The framework directive "Ambient air quality assessment and management" and the so-called daughter directives set limit values and rules for monitoring and assessment of air quality in the member states. NERI has been deeply involved in the development of the directives and is responsible for the implementation of the monitoring and the assessment tools in Denmark. NERI has been a consultant for several accession countries in connection with their implementation of the directives, including design of network, implementation of assessment tools (air quality models), establishment of emission databases, laboratory analysis, QA/QC systems and training of staff.

## **Implementation of air quality models and management systems**

NERI has developed advanced air quality models in scales from streets, local point sources, urban, regional to global scales. The NERI models are installed in several countries as stand alone models or parts of different air quality management systems. The installation of models includes often instruction, education of staff and hands on training.

## Laboratory analysis and monitoring techniques

As the national reference laboratory NERI is accredited to carry out all relevant measurement methods for air quality monitoring. The function includes inter-calibration and documentation of traceability in relation to international standards. NERI is also expert in several other methods, e.g. passive samplers and DOAS. NERI has assisted in implementation of measurement and analysis methods in many consultant tasks.

## Emission inventories

Detailed and precise emissions data are necessary as input to the air quality models. NERI has a long experience in collection of emission data and design of emission databases, which often are parts of the consultant tasks. NERI is responsible for the Danish contribution to CORINAIR. The national emission databases in accordance with CORINAIR are often also a part of the projects.

## Basic studies on air quality

Many developing countries have very bad air quality, no legislation and very limited knowledge about the assessment and management of air quality. NERI has therefore carried out basic studies in developing countries in order to define the needs for assistance in capacity building and establishment of management structures, laboratory facilities, monitoring tools, air quality management systems, administrative units and university education.

## Training and arrangement of workshops

As part of the assistance in different countries NERI has designed and implemented training courses in all parts of the air quality assessment and management issues. The training included education, theoretical teaching and hands on training. The training tasks were mainly carried out in the countries, but also in Denmark. In addition, NERI is experienced in planning and performance of international workshops and conferences, e.g. as part of a consultant task.

## Characteristic projects

**2001-2002.** Consultant for DANCEE as air quality monitoring and modelling expert on two projects in Latvia and Romania on "Transposition and Implementation of EU Ambient Air Quality Requirements".

**2001-2002.** Consultant on PHARE project on technical assistance to prepare tender dossiers to joint air quality monitoring system in Romania and Bulgaria.

**2000.** Project manager of a DANCED study on "Development of an Air Quality Management Strategy for the Gauteng province in South Africa".

**2000.** Consultant for DANCEE on project formulation to "Assistance to Romania on transposition and implementation of the EU Ambient Air Quality Directive".

**1999.** Consultant for DANCEE on project formulation to "Assist Latvia in the Transposition and Implementation of EU Ambient Air Quality Requirements".

**1998-2000.** Consultant for UNDP on project formulation and implementation of an air quality monitoring system in Ho Chi Minh City, Vietnam.

**1996-2001.** Project manager of a scientific co-operation between Denmark and the St. Petersburg Region on "Monitoring and analyses of air pollution in St. Petersburg".

**1994-1996.** Project manager for a DANCED project on aerosol haze in Malaysia. (Technical expert of the pre-appraisal mission in 1994)

**1991.** Preparation of a Master Plan for Ambient Air Monitoring in Hungary under the PHARE Programme. Team Leader.



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NERI is a research institute under the Ministry of the Environment.