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DANIDA

Environmental Information and Monitoring Programme (EIMP)

Air Quality Monitoring Component

Mission 12 Report

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NILU Norwegian Institute for Air Research

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Environmental Information and Monitoring Programme (EIMP). Air Quality Monitoring Component

Mission 12 Report

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1 Introduction

The twelfth mission to Egypt was undertaken in February - May 1999.

The EIMP project is funded by Danida and headed by COWI.

The total project includes four components:

- Coastal Water monitoring (responsible VKI (Danish Water Quality Institute) and COWI)
- Air pollution monitoring (responsible NILU),
- Reference laboratory (responsible VKI) and
- Pollution sources and emissions (responsible COWI).

The work undertaken during the winter and spring of 1999 included the preparations, establishment and start up of monitors, on-the-job training, training in chemical analyses, data evaluation and reporting. A comprehensive amount of time was spent with the Monitoring Institutions to undertake training in data evaluation, data statistics and reporting.

Further site studies were undertaken, as the component again, for the third time, had a change in counterpart. The new counterpart, Mr. Haytham Ahmed, has no experience in the field of air pollution, and training and education was implemented every day during each operation.

An intensified installation programme was designed, and instrument check, calibration and preparation were performed prior to installation and training. On-the-job training continued as part of the installation programme.

The Air Quality Monitoring Team consisted of B Sivertsen, Haytham Ahmed, and Rolf Dreiem. Leif Marsteen updated the SOP procedures in February, and undertook further training including the first auditing for the Reference Laboratory at NIS. Oddvar Royset, who was responsible for chemical analyses of samples, visited the laboratories in February-March and finalised the training in inorganic analyses.

The following tasks are being undertaken, referring to the work programme activities:

A. Institutional support
   Define databases and undertake training of counterpart and Monitoring Laboratories.
B. Design of monitoring programme
   Introduce the new counterpart to all sites, and finalise site studies in the Delta and in Upper Egypt.
C. Procurement
   Specifications for additional equipment needed and discussion of the use of PM_{10} / $PM_{2,5}$ AIRmetrics samplers.
D. Data management
   Discuss data availability, data quality and specify databases locally and at EEAA.
E. Training
   Perform on-the-job training at the Monitoring Laboratories including data interpretation, reporting, installations, calibrations, operation and chemical analyses.
F. QA/QC
   Continue implementation of the QA/QC procedures at all levels. Specify instrument calibration procedures and upgrade standard operational procedures. Undertake training for Reference Laboratory on auditing.
G. Monitoring
   Continue to install monitoring programme and start data retrieval. Install new stations. Begin maintenance programme. Finalise installations in Cairo and Alexandria. Install sites in Delta. Evaluate data, develop reports at Monitoring Laboratories and at EEAA.
H. Reference Laboratory
   Calibrate monitors and samplers, start to re-calibrate after one year in field, take the responsibility for standard gases. Receive training in auditing, and start the audit programme.
I. Component Co-ordination
   Prepare reports, memos, monthly status reports, meetings etc. Prepare a status of the air quality in Egypt after one year of measurements, to be presented in Seminar on 13 May 1999.

The responsible personnel at the various institutions involved, as well as some of the persons we met during mission 11 are presented in Appendix A. The visit by O Royset has been presented in a separate report (Mission 10 report).

2 A. Institutional support

2.1 Activity A.2.2 Assist in describing work functions for new experts

The staff at CEHM that have been selected for air quality monitoring station operations is presented in Appendix A3.

Samples of organic air pollution (HC and VOC) will be started in October 1999. A new expert is needed for developing and up-grading the organic part of the laboratory at the Monitoring Laboratory in Cairo. This expert will undertake all necessary training in the preparation of samples, collection of samples and analyses of these air pollution samples

A brief presentation of this expert is included in Appendix A4.

3 B. Design of monitoring programme

3.1 Activity B.2.1 Select representative monitoring sites for air quality measurements

Most of the sites for the total air pollution monitoring programme for Egypt have been selected in earlier visits. However, due to the change of counterpart, several of the sites in the Delta and in Upper Egypt had to be revisited.

Some of the sites already selected were also changed. In Middle and Upper Egypt some of the sites were visited several times, due to difficulties in reaching an agreement with local authorities. (See Appendix B2.1).

The discussions concerning the use of CAIP AIRmetrics samplers for extending the EIMP/EEAA air pollution measurement programme lead to the presentation of possible sampling sites for PM10 measurements presented in Appendix B.2.2.

3.2 Activity B.2.2 Define site characteristics

At the end of Mission 12 site characteristics have been defined for all sites. The sites selected represent different area types, bearing in mind that the EIMP programme is mainly designed to monitor the impact in areas where people live. The different EIMP air quality monitoring sites have been characterised as follows:

- Industrial areas (represented by 12 sites),
- Urban city centres (8 sites),
- Streets and road sides (2 sites),
- Residential areas (15 sites),
- Regional and background areas (3 sites).

A total of 14 sites are located in the greater Cairo area, 6 sites in Alexandria, 10 sites in the Delta and Canal area, 9 sites in upper Egypt and 1 site in Sinai.

For the new monitoring sites the surrounding area, local sources and possible impacts has been described in Appendix B. Some of the site descriptions also include local maps, co-ordinate specifications and photos where available.

3.3 Activity B.2.8 Establish agreements with monitoring site owners

A major reason for some delays and changes in the installation schedules has been due to problems in obtaining adequate agreements from site owners, such as Governerates and Educational Authorities in the various areas. Agreements with the site owners about the use of their sites have been prepared. A general letter was developed to present the monitoring programme and to seek approval for using the location. The letter also described the location of the instruments.

In addition permission had to be given for installation of electricity and for telephone lines where necessary. The telephone line procedures take much more time than anticipated, and the end of Mission 12 only 4 sites had lines in fully operation.

4 C. Procurement of equipment, hardware and software

4.1 Activity C.2.1 Procure instruments and equipment

Various equipment needed for the laboratory at CEHM was identified during the visits in October 1998 and March 1999. A list of proposed purchases with descriptions of laboratory equipment is presented in Appendix C.2.1.a.

The delivery times for supply of spare parts and consumables was investigated. A list of suppliers, addresses and delivery times was prepared and presented in Appendix C.2.1.b

A new System Manager for IGSR in Alexandria was ordered in November 1998. (Appendix C.2.1.c). The delivery has, however, been delayed due to various reasons. A discussion with Kontram concerning backup diskettes further delayed the delivery. Finally a direct communication to the American producer at EMC speeded up the process. However, at the end of Mission 12, the System Manager had not yet been delivered.

Kontram also was very late in responding to the ordering of standard gases and permeation tubes (Appendix C.2.1.d). At the end direct contact was made to another supplier of gases.

4.2 Activity C.2.2 Prepare instruments for installation

Monitors and samplers were released from the storage in Maadi and calibrated at the Reference Laboratory at NIS prior to the installation in the field.

Shelters were constructed in a work shop located north of Maadi and inspected at the work shop prior to transport to the sites.

5 D. Data management

5.1 Activity D.1.2 Specify data retrieval and local data base at Monitoring Laboratory

Data collection procedures have been specified for data collected by passive samplers, sequential samplers and for automatic monitors. Procedures for use of high-volume samplers for TSP and PM_{10} have also been specified and established at the monitoring institutions.

The data retrieval and data storage at the Monitoring Laboratory is based upon the use of the System Manager. Data scaling, data storage, data quality control etc. has been discussed as part of the training of the Monitoring Laboratory personnel. Training of expert personnel for this operation at the data retrieval computer was based upon System Manager specifications. However, a preliminary database including a simple graphical and statistical tool was developed based upon Excel. The Monitoring Laboratory experts have been trained in the use of this tool for preparing the quarterly reports.

5.2 Activity D.1.3 Specify data quality check and control procedures

Data quality controls apply both to the automatic monitoring data and to semi automatic and manually collected data. The technical tools have been supported by quality control descriptions, manuals and reporting procedures. Logbooks are established for each instrument. The laboratory routine data monitoring, retrieval, storage and quality control begins as soon as the instruments are installed.

5.3 Activity D.1.5 Telecommunication lines

Telephone lines have been made available at Giza, Cairo University, IGSR, Tebbin, El-Gomhoriya, Quolaly and Shoubra el Kheima. The goal is to equip all monitoring sites with telephone lines to enable the daily quality control on the stations.

5.4 Activity D.2.1 Prepare database for manually analysed data

A laboratory database for manually collected samples was prepared during Mission 10. This database is used to store and convert for chemical analyses data into air pollution concentrations. Preliminary data will be entered into this database for manual check and control before the data are transferred to the Monitoring Laboratory database for statistical treatment and presentation. (See Mission Report 10 and Appendix D.2.1)

The use of the local database for manually analysed data was checked and verified during Mission 11; 21 February to 4 March 1999. (Mission 11 Report)

5.5 Activity D.2.2 Local database for monitor data at the Monitoring Laboratories

The System Manager represents the local database for monitoring data. The system manager (as a local database) will contain all one-hour average data; concentrations of gases and particles as well as all meteorological data. These data will be quality assured and controlled in the final version of the local database. The data will represent the basis for the development of quarterly reports and aggregated data transferred to the EEAA database.

The System Manager for IGSR was ordered at the end of 1998, but had not arrived at the end of Mission 12. Training for a proper use of this database will have to be undertaken as soon as this database has been installed at IGSR.

5.6 Activity D.3.1 EEAA data base

The database for air quality data is being developed by use of local consultants under the supervision of EIMP expatriate and Egyptian staff. This work started at the beginning of 1999. EIMP staff will prepare specifications for the database, which will include all air quality data, i.e. automatically registered monitoring data as well as manually generated data from samplers.

The development lifecycle and a first specification of the database is presented in Appendix D. The database will be structured to handle hourly, 8 hour and 24 hour average values for monitoring data. It will be developed by use of standard software applications thus facilitating easy import/export of data and compatibility to standard GIS software.

6 E. Training

6.1 Activity E.2.2 Training programme for instrument operation and maintenance.

The most important part of the training activities relates to the generation of data, QA/QC, calibration, maintenance, and repair of monitors and samplers (sequential air-samplers and high-volume samplers). The measurement teams at the Monitoring Institutions have received this kind of training continuously since the end of 1997. An example of training activities undertaken during Mission 12 is presented in Appendix E.

To present the complete QA/QC procedures given in the SOP and manuals a seminar was held in Cairo on 3 December 1998. A seminar report has been made available (Marsteen and Lund, 1998). Marsteen also repeated some of this training during Mission 12.

6.2 Activity E.2.3 On-the-job training at the Monitoring Laboratories

Assessment of training needs at the monitoring institutions and the reference laboratory-air is an ongoing activity. Several seminars and workshops have been undertaken since the beginning of the programme. The monitoring institutions as well as the EEAA counterpart have received training in interpreting and understanding the air quality data collected. Basic training in air quality work has been given to the Team leader counterpart, and further training courses have been specified.

Training was given for preparation of filters and analyses of various filters for sequential samplers, passive samplers and high-volume samplers. More details are given in Mission Report 10.

6.3 Activity E.2.4 Support training to Reference Laboratory personnel

The following training has been given to the Reference Laboratory-air staff:

- QA for monitors, including validation and control routines

- Complete training in external calibration, including documentation

Flow calibration

- Auditing of monitoring stations/field check of calibration
- Completion of Reference Laboratory quality system documentation as regards technical issues

Training in wet chemistry methods for analysis of manually collected filter samples was also offered to the Reference Laboratory personnel, but only one person attended only one session.

A training workshop was given on 15-17 March 1999 (Marsteen and Lund, 1999). The workshop was intended to introduce the Reference Laboratory personnel to Audit programmes. Audit basics and theory was presented during the first day. On the second day the air quality site at Tabbin was audited. Also a summary meeting between the Reference Laboratory personnel and the Monitoring institution was arranged to summarise the experience.

6.4 Activity E.5.1 Use of data base at System Manager

The main part of the System Manager training included practical use of the system. The operational experts should undertake remote calibrations, data quality controls, cleaning of data, data plots and storage of raw data. The main training has been undertaken as on-the-job training during applications.

Further training in the use of the System Manager is needed and will be undertaken after installation of the second System Manager at IGSR.

6.5 Activity E.5.2 Training in use of EEAA data base

The EEAA ambient air pollution database will include statistical programmes designed for air quality and meteorological data and will act as a report generator. Basic training in the use and understanding of some of this statistics was briefly started during Mission 12. Some basic education was given during the development of annual reports and during the interpretation and discussion of air quality data collected.

6.6 Activity E.6.1 Sample preparations

A final training programme for the preparation and use of various filters for sequential samplers and for passive samplers was undertaken in February 1999. The work performed at CEHM chemical laboratory is described in Mission Report 11.

6.7 Activity E.6.2 Chemical analyses of various filters

Some training in the evaluation of results of the SO_2 and NO_2 samples was performed during Mission 11 and 12. Problems in understanding some of the very high concentrations of SO_2 and NO_2 and some consistently low levels recorded in Alexandria were discussed during Mission 12.

All procedures were repeated without finding solutions to the problem. Additional filters were collected and brought back to NILU for analyses. These results will be available at the end of 1999.

7 F. QA/QC

7.1 Activity F.2.1 Instrument calibration procedures

Instrument calibration procedures, SOPs and logbooks have been developed. Quality control procedures at field and laboratory level were finalised during the spring 1999 (see summary table Appendix F). The procedures have been tested and seem to be working satisfactorily.

7.2 Activity F.2.2 Design QA / QC procedures at Monitoring Laboratory

A major part of the QA/QC procedures were developed during the first half of 1998. The reference material for the quality system documentation was finalised in June 1999. Reports from seminars and workshops have been made available and all SOPs and documentation material are available at the Monitoring Institutions. All monitoring and sampling sites should be equipped with logbooks and the necessary material to adequately operate the stations.

A control of the QA/QC procedures was developed as part of the Audit Programme, to be undertaken by the Reference Laboratory.

7.3 Activity F.3.1 QC and calibration routines as part of the on-the-job training

The Monitoring Laboratory personnel is now operating monitors and samplers using all the SOPs and manuals developed throughout the development of the programme. On-the-job training in the use of these routines has been an ongoing process through the installationl until the completion in June 1999.

7.4 Activity F.4.1 Input from Reference Laboratory- Air

The air quality monitoring staff has, in collaboration with the Reference Laboratory sub-component staff, develop procedures for undertaking audits at the Monitoring Institutions. The first actual audits were undertaken at two sites in March 1999. The auditing programme has been developed and is considered operational at the end of June 1999. (Appendix F.4.1)

8 G. Monitoring

8.1 Activity G.2.3 Monitoring programme updated

The monitoring programme needs a continuous evaluation and updating. Some items have already been specified for further improvements, such as the monitoring station at Gomhoryia Street. The monitors will be built into a smaller room, which will be air-conditioned.

Preparation of stands and masts as well as improvements of shelters is part of the improvement of the measurement infrastructure. (See contract agreement Appendix G.3.1)

Work notes were developed from day to day during the installation period. Examples are given in Appendix G.2.3.b. All work notes from R Dreiem during the installation period February-July 1999 is presented in Mission report 13.

Possible sampling sites for AIRmetrics instruments for PM_{10} and $PM_{2,5}$ sampling has been discussed, as shown in Appendix B.2.2.

8.2 Activity G.3.2 Install monitors

The installation schedule that was planned for completion by mid-1999 has almost been followed and completed in spite of practical problems concerning site owners, permissions, infrastructure details etc. The work plan for the spring 1999 is shown in Appendix G.3.2.

At the end of June 1999 only 3 sites remains to be installed and/or modified. Measurements are being undertaken at a total of 37 sampling and monitoring sites all over Egypt. In addition passive sampling is being performed at about 20 more sites.

	Cairo	
1	Cairo city El Qualaly	Urban centre
2	El Gemhoroya street	Street canyon
3	Meteorological Inst	Urban / Res.
4	Nasr City	Residential
5	Maadi EEAA building	Residential
6	Tabbin	Industrial
7	Tabbin south	Industrial

8	Fum Al-Khalig	Road side/urban
9	Abu Zabel	Industry/res
10	Shoubra el Kheima.	Industrial
11	Giza, Cairo University.	Residential
12	Gizapyramid	Regional
13	6 October	Res/industrial
14	10 Ramadan	Res/industrial
	Canal area	
15	Suez	Iindustrial/res.
16	Port Said	Residential
17	Ismailia	Residential
	Upper Egypt	
18	El Fayum	Urban
19	El Minya	Res./ Industrial
22	Naga Hammadi	Iindustrial/res
23	Luxor	Urban/residential
24	Edfu	Industry/urban.
25	Kom Ombo	Industrial
26	Aswan	urban/residential.
	Sinai Area	
27	Sharm ElSheik	Background
	Alexandria	
28	Abu Keir College	Industrial
29	El-Max Petrogas	Industrial
30	IGSR Alex University.	Urban/road side
31	El-AzafraUniversity.	Residential
32	Gheat El-Inab school	Residential
33	Alexandria, regional	Regional

	Delta Area	
34	Damanhur	Industrial/residential
35	Kafr el Zayet	Industrial/residential
36	Tanta	Urban
37	ElMahalla El Kubra	Industrial/residential.
38	El Mansura	Industrial/res.
39	Domyat	Residential

	Remaining sites (as of 30 June 1999)	
20	Assyut 1	Industrial/ res.
21	Assyut 2	Residential/urban
40	Kafr Dawar	Urban/industr

All parameters and indicators are still not being operated as some of the instruments are still waiting for installation. Most of these are samplers that will be used intermittently. Also sampling of organic compounds will be started during the fall 1999.

An updated complete air quality sampling and monitoring programme is presented in Appendix G.3.2.b. Various memos concerning the installations are also included in Appendix G3.2.

8.3 Activity G.4.1 Maintenance and calibrations at the monitoring stations

Maintenance and calibration is needed at all monitoring sites in the programme. Weekly visits are being paid to all sites from the Monitoring Institutions. The instrument experts will evaluate the need for repair and service based upon information collected during these weekly visits to the

stations. Also daily quality controls undertaken by the monitoring institutions will establish a basis for evaluating the need for maintenance and calibration.

Monitors and samplers will be taken to the laboratory for repair when ever necessary. In some cases simple repairs will be undertaken at the station.

A maintenance and visit schedule will have to be developed by the monitoring institutions, including support from institutions outside CEHM and IGSR, where this is necessary.

Procedures for instrument and site maintenance was developed and discussed with the monitoring institutions in February 1999 (Appendix G.4.1.a and b). The importance of good maintenance was stressed through follow up and training through the whole installation phase. One example of correspondence with IGSR is shown in Appendix G.4.1.c.

8.4 Activity G.4.2 Service and repair

The field station operators and instrument experts have been trained to evaluate the need for repair and service on a routine basis. Preventive maintenance and repair is stated as part of the contractual agreement with the Monitoring Institutions. Repairs will be undertaken either by the Monitoring Institutions themselves or by the local agent for the particular piece of equipment. In exceptional cases it is envisaged that equipment may have to be shipped abroad for repair.

A survey of spare parts needed for service and repair of monitors, samplers and meteorological equipment has been presented (Appendix G.4.2.)

8.5 Activity G.5.1 Data retrieval and data evaluation

For data collected continuously with monitors the System Manager is used daily for control of calibration factors and span checkpoints, errors, peak values, false data and other peculiarities in the retrieved data. Errors in the data will have to be corrected. The procedures are still being prepared through training and learning.

The first time plots of the data were produced on a routine basis from March 1999 at CEHM. These data were used to verify data quality and to perform further corrections of errors. Daily control routines will also be developed for IGSR in Alexandria, when they receive the System Manager.

Manually collected sampling data are imported to the local database, and printed in graphical form to enable the evaluation of data quality. Graphs from different stations and of different parameters are compared. An example of NO_2 concentrations measured at Nasr City is presented in Appendix G.5.1.

Evaluation of the data requires some training and experience in judging air quality, sources and meteorology. This work started during Mission 12, and will continue during the Consolidations Phase of the project.

8.6 Activity G.5.2 Data presentation

After the air quality data have been evaluated, and the QA/QC procedures have been completed graphical plots of the data will be produced. The data will be transferred to the local database as soon as the first corrections and approvals are available.

These data will be the input to monthly reports. Further evaluation of the data will be undertaken during the preparation of quarterly reports. (see Activity G.7.1). The description of the technical background, data availability, data quality and the data itself will be part of these reports.

Air quality data have been presented in various forms and for various purposes during Mission 12. A Newsletter briefly presented the Air Quality Monitoing Programme, as shown in Appendix G.5.2.a. Another Memo was produced for the Chairman of EEAA in April 1999 to present the measurements in Alexandria (Appendix G.5.2.b).

The first monthly data report was produced based on preliminary data from the Monitoring Institutions. (See Appendix G.7.1.)

8.7 Activity G.6.3 Passive sampling

The passive sampling programme was designed during Mission 12. (See Appendix G.6.3). Passive sampling became a routine part of the EIMP programme during the spring 1999. Measurements of SO_2 and NO_2 using passive samplers have still not been undertaken at all sites.

Results from the passive sampling programme have been reported in the Quarterly Reports as well as in the Summary report on Air Quality in Egypt (NILU OR 33/99).

8.8 Activity G.7.1 Monthly and Quarterly reports

A first monthly report was produced for March 1999 based on preliminary data from CEHM and IGSR. (Appendix G.7.1). SO_2 concentrations from 14 sites and NO_2 concentrations from 12 sites were reported. Also PM10 levels from 7 sites and TSP from 6 sites were included. The main problem in March was suspended particles in the air, which is normal for the air quality in Egypt. Only at one site was the SO_2 air quality limit value as given by Law no. 4 exceeded.

Quarterly reports were produced by the Monitoring Institutions. Both the paper bound reports and the hourly data have also been filed in electronic form on CD discs. Training and discussions of the data quality and data interpretations

have been an important part of the preparation of these quarterly reports. The interpretation and understanding of relationships between sources, meteorology and air quality will have to be followed up during the Consolidation Phase of the project.

The reports available at the end of Mission 12 can be found in the list of References.

9 H. Reference Laboratory

9.1 Activity H.3.1 Training

Training of the personnel at the Reference Laboratory Air at NIS (National Institute for Standardisation) was continued during Mission 12. As part of the training in calibration of monitors several instruments were actually prepared for field operations. A list of such preparations is shown in Appendix H.2.1.a.

9.2 Activity H.3.1 Check field monitors

The responsibilities of the Reference Laboratory Air were verified during Mission 12. An overview of standard gases used at the Monitoring Institutions and at the Reference Laboratory was established (Appendix 3.1) The number of calibration gases, working standards and travelling standards needed to undertake calibrations and controls is shown in Appendix H.

9.3 Activity H. 3.2 Audit programme

The Reference Laboratory also participated in workshops and seminars concerning QA/QC. The start up and training in performing air quality audits to the first sites (Tabbin and Maadi) was undertaken in March 1999. A part of the QA/QC programme also include proficiency tests. These tests started in 1999 with water samples. Also lead on filters will be included as shown in the proficiency test programme Appendix H.3.2.

10 I. Component Co-ordination

10.1 Activity I.2.1 Follow up and administration

This activity is ongoing and includes internal EIMP/EEAA co-ordination as well as external co-ordination with relevant institutions (Egyptian Meteorological Authority etc.) and other donor programmes (e.g. CAIP). This activity also includes organisation of meetings/seminars for briefing of EIMP-external EEAA staff on the activities and results of the sub-component. Other tasks under this heading are preparation of background information for EIMP project management use and follow up on work plans and installation schedules

A number of meetings are held during Mission 12 to Egypt. Weekly staff meetings and weekly air quality project meetings are reported, and represent a major input to the operation of the programme. Examples of minutes from these meeting are presented in Appendix I.2.1.a-b.

Several memos concerning operation of the project, instruments, programme design and personnel has been produced. Also monthly status reports are being presented every month. Examples of such memos are presented in Appendix I.2.1.c-d.

A seminar was prepared and held at Sofitel hotel on 13 May 1999 to summarise the air quality in Egypt after the first year of measurements. The seminar programme and a list of persons invited are presented in Appendix I.2.1.e. The seminar was a success and included presentations from CAIP and JICA as well as a discussion on sustainability. The EIMP presentation can be found in a separate report; Air Pollution in Egypt. Status after the first year of EEAA/EIMP measurements. (NILU OR 33/99).

The EIMP/EEAA air quality monitoring programme was also presented at a International Conference on Environmental Management, Health and Sustainable Development in Alexandria on 22-25 March 1999. The written material is found in report NILU F 7/99. The presentation was more related to the EIMP programme.

A list of reports available from the EIMP air pollution monitoring component is presented in Chapter 11, References.

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Sivertsen, B. (1997) Air quality monitoring systems and application. Prepared for the training seminar, EIMP. Kjeller (NILU TR 11/97).

Sivertsen, B. and Dreiem R.(1999) DANIDA/EIMP, Environmental Information and Monitoring Programme (EIMP). Air quality monitoring component. Mission 9 report. Kjeller (NILU OR 20/99).

Sivertsen, B. (1999) On-line Air Quality Monitoring Systems used in Optimal Abatement Strategy Planning. *Presented at the International Conference on Environmental Management, Health and Sustainable Development, Alexandria, Egypt, 22-25 March 1999.* (NILU F 7/99).

Appendix A

People and colleagues - Job descriptions

A.1 People and colleagues

EIMP

People met and colleagues (Spring 1999)

EIMP office,3 EEAA Building, 30 Helwan Str.Maadi, Cairo (behind Sofitel hotel) ,
Tel. 202 525 6442, Fax: 202 525 6467 ,E-mail: eimp@intouch.com
Staff: Mohammed Fathi,(tel: *0122141759*), Joergen Simonsen (PM) Dina, Lydia, Hassan, Mahmoud, Emad, Ahmed AlSeoud (EEAA. *tel: 0123102068, 5721289)*
Air: B Sivertsen (Task Manager), tel. 351 1615, Dreiem, L Marsten, Haytham Ahmed (p: 320 2078)
CEHM / Cairo Univ, tel 571 9688, Fax; 571 9687: Dr Sharkawi, Dr. Yehia Abd El Hady
Dr Tarek El Arabi (Project Manager) mob: *0123484050*, Dr. Hesham ElArabi (QA)
Staff: Ashraf Saleh (data retrieval), Essam Abdel Hallin (data retrieval), Mahir Sayed Hafez (Tabbin st.), Ahmed Sayd (Qualaly, Gemhoroya), Yassin Fathi (Giza CU, Fumm al Kahlig), Kamela (Mon.lab., Shoubra), Ahmed Sulamen (Chem lab head), Ameni Taher (Chem. Anal.).
IGSR Alex Univ, tel:03422 7688, lab: 03 422 5007, Proj. tel: 424 1485,
Fax 203 421 5792
Dr M El-Raey tel: *0123109051 (elraey@cns.sisnet.net)*, Dr. El Sayed Shallaby,
Ashraf A Zahran, Shawkat K. Guirguis (QA) (*aplab@igsrnet.net*),
Mohamed Mamdoua, Mohamed Rashad, Sekri,
Data Management: Jacob Andersen, Mohammed Zaki, Ayman El Maazawy, Dean
Procurement: Anwar Ahmed
Coastal Water: Arne Jensen, Erling, Ole
Reference Lab: Ulla Lund, (Street 13 Maadi) tel: 012 312 0951, Mai EzzEldin Ahmed (counterpart), Fleming Boysen, Kirsten, Suzanne, Jill, Vibecke.
EEAA,Dr. Ibrahim Abdel Gelil (Chairman)
Dr Ahmed Gamal
Mr Ahmed Abou ElSeoud (EIMP PM)
Dr. Mohamed el Zarka (EIMP counterpart)
Dr. Abdil Latif Hafez (Air Quality respons.), , (Env. researcher).
Mrs Hoda Hanaffi (head of GIS),
SharmElSheik, EEAA Nat. Park Office, Dr. Omar Hassan,
Wael Roger Karkour (passive sampl.)
NIOF: Dr.El Betagy
Sofitel Hotel: Maadi, Tel: 526 06011, Fax: 202 526 1133
Ambassader:
Norge: Al Gazira al Wusta str.
Amassadør: Mette Ravn, 2.sekr. Siw Boetker, tel.340 3340 , fax: 342 0709
Danmark: 12 Hassan Sabri, Zamalek, John Carstensen 378 2040
COWI: 00 45 45 97 22 11
USAID - CAIP: Jim Howes, Monir Labib, Jennifer Baker (Training) , Kirk Stopenhagen
CTS: Amr ElSoueini, tel: 378 2908, Fax: 350 4977, *Mobile: 012 216 6670*, Ali Hamed
EMC(Env. Monitoring Company inc.): Bill Hayes, Steve Gersh (Vice President),
Fax:805 544 1824, (sgersh@emcslo.com)
Mohammed Nasar (AQ) , tel 351 5174, Canal Street 3, Maadi
Giza Pyramids: Dr. Hawas, Ahmed El Hagar
Sakkara: Mohammed Hagras, Hamdi Amin
Delta Steel Company: Engineer Yussry Ibrahim (Project Director)

Leif Marsteen /Rolf Dreiem: 10 street 86, apt. 10, Maadi, Cairo, tel 351 3226,
Magde 351 1359, Maadi contact: Espen Alstad

A.2 EIMP and IGSR staff

EIMP STAFF			
Name	**Initials**	**Position**	**Tel. No**
Ahmed Abou El Seoud	AAE	EIMP Egyptian Project Manager	23
Anwar Ahmed	AZA	Procurement officer	31
Ayman El Maazaawy	AEM	Data base Specialist	27
Ahmed El Zaker	AEZ	Driver	32
Dean Jones	DJ	Database Specialist	27
Dina El Badramani	DRB	Financial & administrative Executive	21
Al Shabrawy Ibrahim	AMI	Coastal Water Counterpart	31
Emad Badr	EB	Driver	32
Hassan Abou Zeid	HAZ	Office boy	32
Haytham Ahmed	HAA	Air Quality Counterpart	30
Lydia Kiriakos	LSK	Executive Secretary	36
Mahmoud Nasr	MNA	Driver	32
Mahmoud Ebrahim	ME	Driver	32
Mai Ahmed	MEA	Reference laboratory Counterpart	26
Mohamed Fathy	MF	Deputy Project Manager	28
Mohamed Zaki	MZ	Data system Manager	27 or 29
Jorgen F. Simonsen	JFS	EIMP Project Manager	25
Naglaa Darwish	NMD	Data base Specialist	27
Ole Haslund	OH	Coastal Water Task Manager	26 or 31
Rolf Drieim	RD	Air Quality Specialist	30
Samir El Gaioshy	SEG	Private driver	32
Ulla Lund	UOL	Reference laboratory Task Manager	26
Tamer ALy	TMA	Photocopier operator	32

IGSR staff members in EIMP program are:

1. **Prof**. Mohamed El-Raey, Consultant's Director.
2. **Dr**. Elsayed A. Shalaby, Project Manager.
3. **Dr**. Shawkat K. Guirguis, Quality Assurance Manager.
4. **Dr**. Zekry F. Ghatass, Computer Expert.
5. **Mr**. Mohamed M. Kotb, Project Engineer.
6. **Mr**. Ashraf A. Zahran, Station Operator.
7. **Mr**. Mohamed Rashad, Station Operator.
8. **Mr**. Hossam A. Saied, Station Operator.

A.3 Station operators at CEHM

ID	Station Name	Operator	Data Handling
3	Meteorological Inst.	Kamla	Ashraf
8	Fum El-Khalig	Kamla	Ashraf
9	Abu Zabal	Kamla	Ashraf
10	Shoubra El-Kheima	Kamla	Ashraf
14	10 Ramadan	Kamla	Ashraf
2	El-Gomhoriya	Ahmed	Ashraf
4	Nasr City	Ahmed	Ashraf
19	El-Minya	Ahmed	Ashraf
20	Assyut (1)	Ahmed	Ashraf
21	Assyut (2)	Ahmed	Ashraf
6	Tebbin	Maher	Essam
7	Tebbin South	Maher	Essam
15	Suez	Maher	Essam
16	Port Said	Maher	Essam
17	Ismailia	Maher	Essam
22	Naga Hammadi	Mahmoud	Essam
23	Luxor	Mahmoud	Essam
24	Edfu	Mahmoud	Essam
25	Kom Ombo	Mahmoud	Essam
26	Aswan	Mahmoud	Essam
1	El-Kolaly	Yassin	Mohamed
5	El-Maadi	Yassin	Mohamed
11	Cairo University	Yassin	Mohamed
12	Gizapyramid	Yassin	Mohamed
13	6 October	Yassin	Mohamed
18	El-Fayum	Yassin	Mohamed
27	Sharm El-Sheik	???	Mohamed

Mohamed is Responsible for the whole Passive Sampling Programe

CAIRO UNIVERSITY
Hazard Mitigation Center
Air Pollution Monitoring Project
15 FEB 1999

A.4 New expert for organic chemistry

EIMP

Environmental Information and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: Joergen Simonsen
From Bjarne Sivertsen
Date: 10 June 1999

Ove Hermannsen
Our expert for the establishment of VOC and HC analyses within the EIMP programme

The Chemical Analyses expert Oddvar Royset, who covered inorganic analyses of air pollution samples collected on various types of filters, finished his obligations for EIMP in March 1999. Dr Royset prepared SOPs and undertook all necessary training in use of the methods for preparations and inorganic analyses of filters.

Samples of organic air pollution (HC and VOC) will be started in October 1999. A new expert is needed for developing and up-grading the organic part of the laboratory at the Monitoring Laboratory in Cairo. This expert will undertake all necessary training in the preparation of samples, collection of samples and analyses of these air pollution samples.

NILU has appointed Mr. Ove Hermannsen for this purpose. Hermannsen has ten years of experience as an expert in organic air pollution analyses at NILU. He is presently the responsible **Quality Assurance officer at NILU** and has experience from international projects. He has been working with the World Meteorological Organisation, for European Research Projects and he has been and is presently working in Africa.

Field of work:
Ove Hermansen is working in the NILU laboratory for organic analysis. He is presently assigned to the group for climate gases. His main field of work is the development and implementation of chromatographic methods for determination of volatile hydrocarbons and halogenated hydrocarbons (VOC's) in indoor, urban, and regional as well as global environment.

Training experience

Ove Hermansen has a broad experience in training of laboratory personnel and scientists in sampling and analysis techniques at the NILU training centre. He has and is still undertaking training of laboratory personnel in international projects, mainly in Europe and Africa.

His training experience ranges from organic and inorganic chemical analysis and sampling and method development techniques, to design and implementation of quality assurance/quality control systems.

In the BAQMQP-project (Air Quality Monitoring and Surveillance Programme, Botswana), he is responsible for the development of a training programme for chemical analyses. He is preparing and conducting all training of the chemical analytical personnel at the new environmental laboratory in Gaborone, Botswana.

Ove Hermannsen will perfectly cover the tasks necessary for the HC/VOC part of the EIMP programme. He will be preparing Manuals and Standard Operational Procedures for organic sampling and analyses. He will also prepare and train local experts in undertaking the necessary work.

It is anticipated that about three weeks are needed for the introduction and set up of this EIMP training programme in Cairo. There will also be a need for a short follow-up period to check the sutainability of the work. This will be in accordance with the time set aside in the project plans.

The CV for Mr Ove Hermannsen is attached to this Memo.

Appendix B

Design of monitoring programme

B.2.1 Site reports

Air quality monitoring network
Site visit report

Site Name: Meteorological Authority
Co-ordinates:. UTM: 335.5 , 3328.1

Access/ availability: The station is located at one of the buildings of the Meteorological Authority near Abbasiya

Buildings and rooms available:. The monitors are located in a small "shelter building" on top of the roof. Just outside the room will be location for meteorological tower.

Area description: Regional residential area normally up-wind from Cairo city centre, but down-wind from the Shoubra industrial area and Shoubra urban area.

Local sources: No immediate local sources, but regionally exposed

Representativity: The site is representative for a the regional urban area.

Parameters measured: SO_2, O_3 and Meteorological tower.

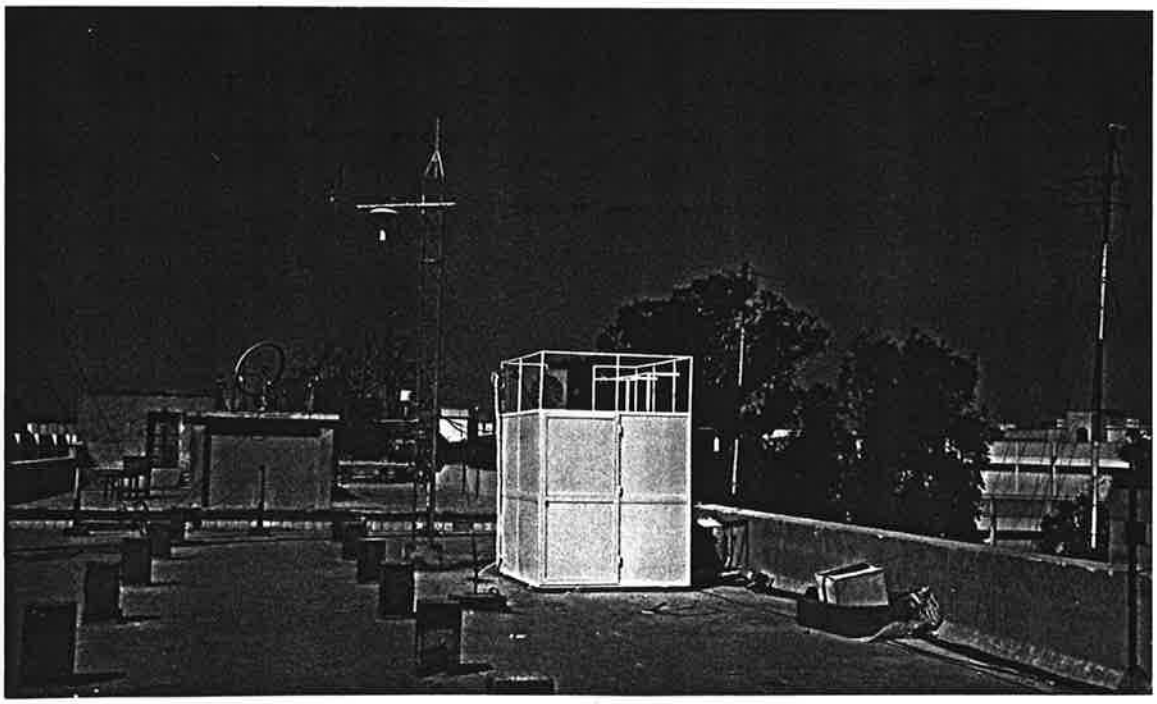
Measurement equipment:. Monitors will be linked to telephone lines.

Infrastructure: Power: 220 V available in the room.
Telephone lines: New line has to be installed .
Sampler/monitor locations: In the "shelter".
Air intake: Intake about 1 m from the wall at the roof about 16 m above street level

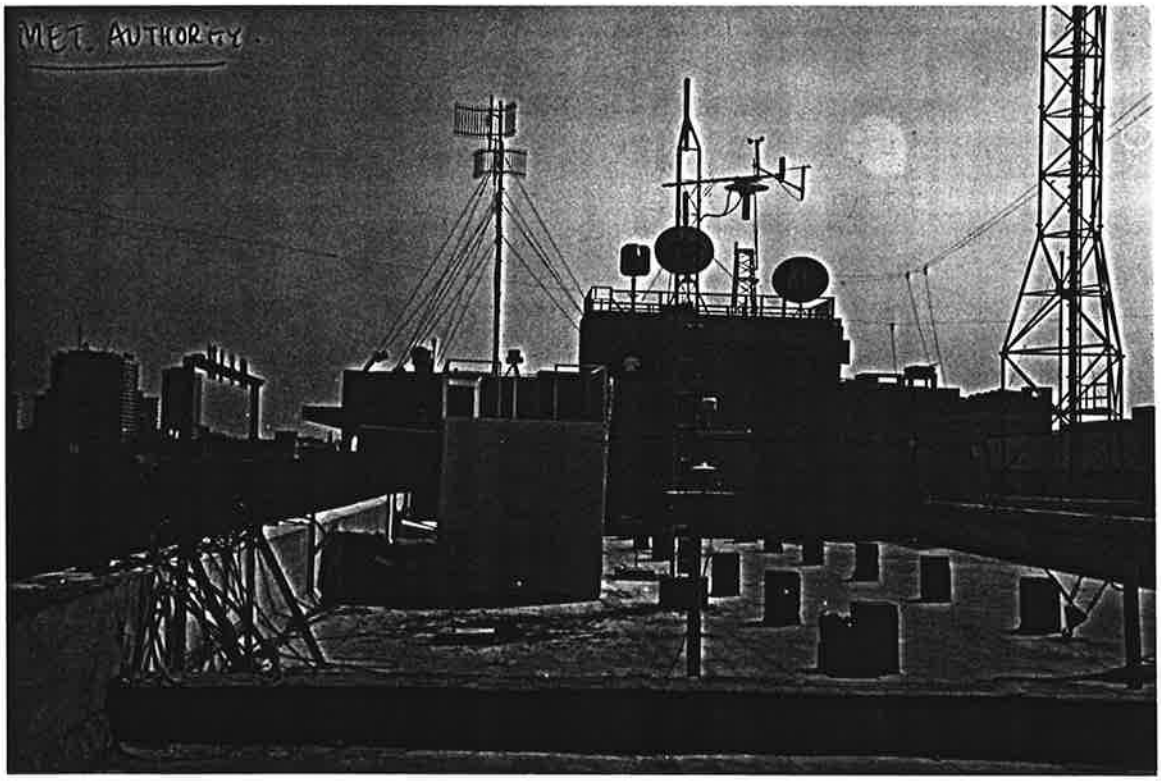
Personnel: Local contact Dr.Abd El Raouf El Asrag Fax:2849857
General manager of Scientific researches. Tel:2849858

Site visit report

Site: Meteorological Authority, Cairo



The EIMP station at the roof of the building



Air quality monitoring network
Site visit report, Alexandria

Site Name: Tanta
Co-ordinates:. UTM:

Access/ availability: In the main street of Tanta (500m from El Ahmadi Mosque)

Buildings and rooms available: (Mohammed Farid school) a small shelter on the roof of the security room.

Area description: Typical urban area. Tanta is the capital of Gharbiyuah Governorate.

Local sources: Traffic and daily activities of people. Not highly polluted?

Representativity: Representative of the urban area.

Parameters to be measured (possible future site): SO_2 , PM_{10}

Measurement equipment: Monitors

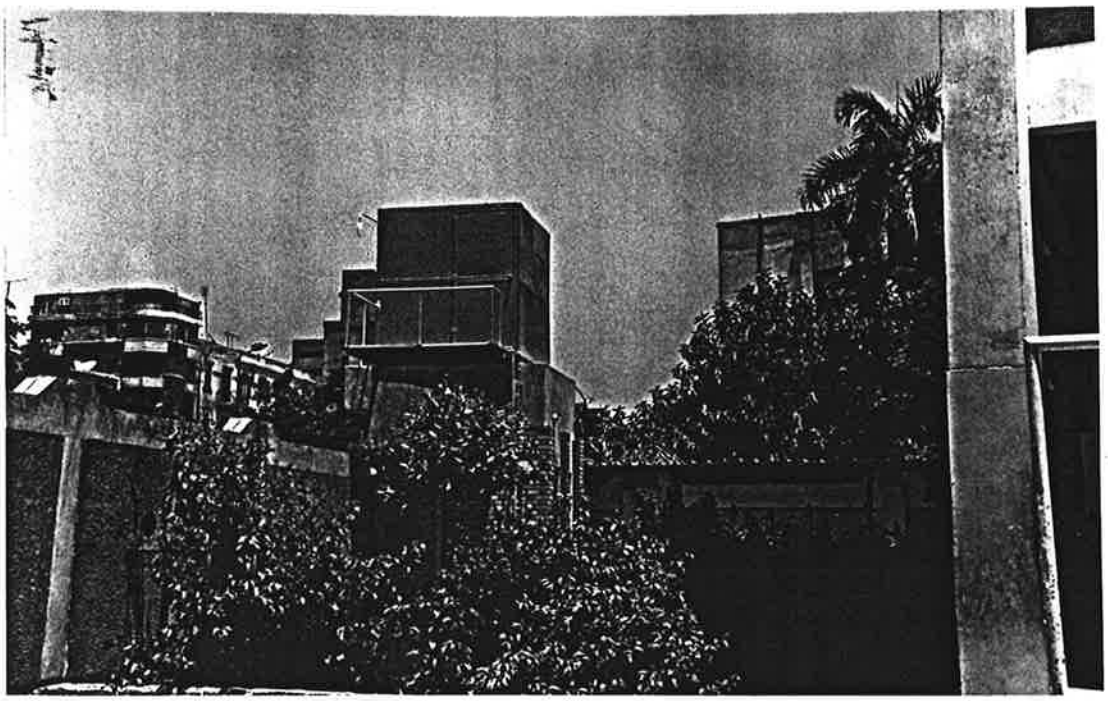
Infrastructure: Power: Available
Telephone lines:. .
Sampler/monitor locations: In shelter
Air intake: About 4 m above ground..

Personnel:. Mr. Ibrahim Abu Aisha
Headmaster of the school Tel:304981
Home:319527

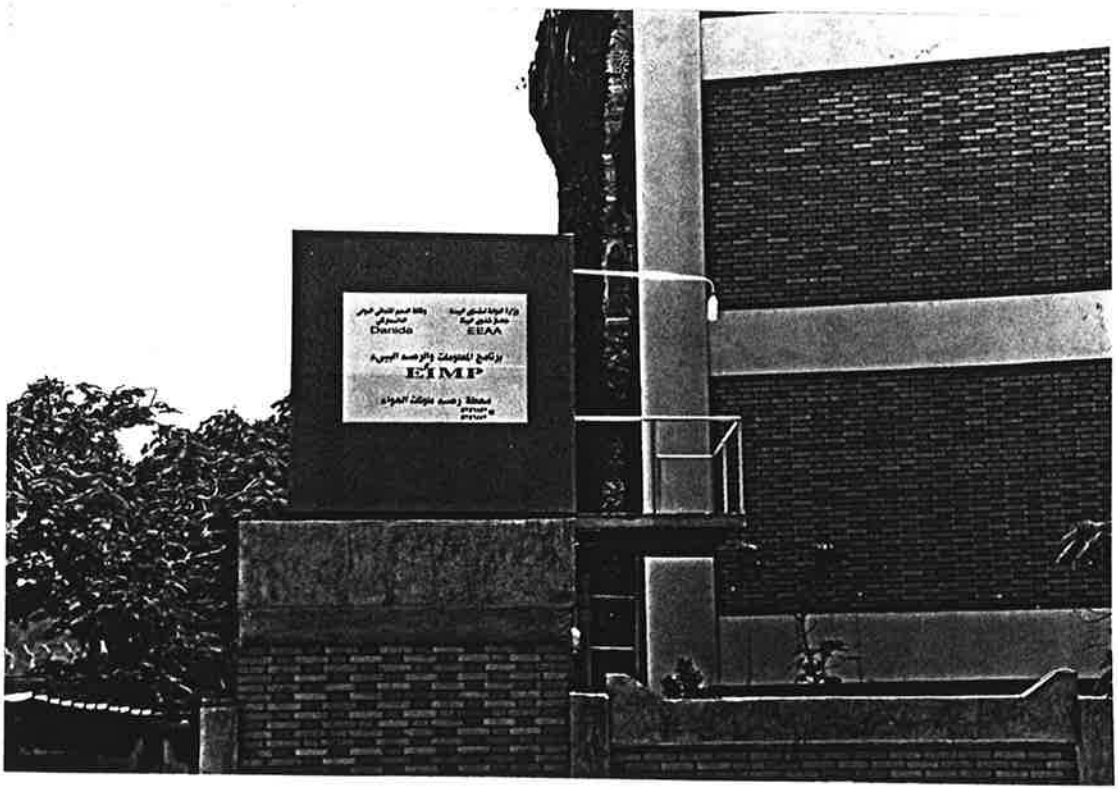
EIMP

Site visit report

Site: Tanta



The EIMP station at the roof of the security room at Mohamed Farid school in Tanta.



Air quality monitoring network
Site visit report,

Site Name: Al-Mahalla, Al-Kubra
Co-ordinates:. UTM:

Access/ availability: Easy from El Mahalla Stadium

Buildings and rooms available: (Al takwa Wa Al Marwa School) A shelter may be placed on the security room beside the gate of the school.

Area description: Residential/industrial .

Local sources: Textile manufacturing industries with cotton-processing and spinning mills.

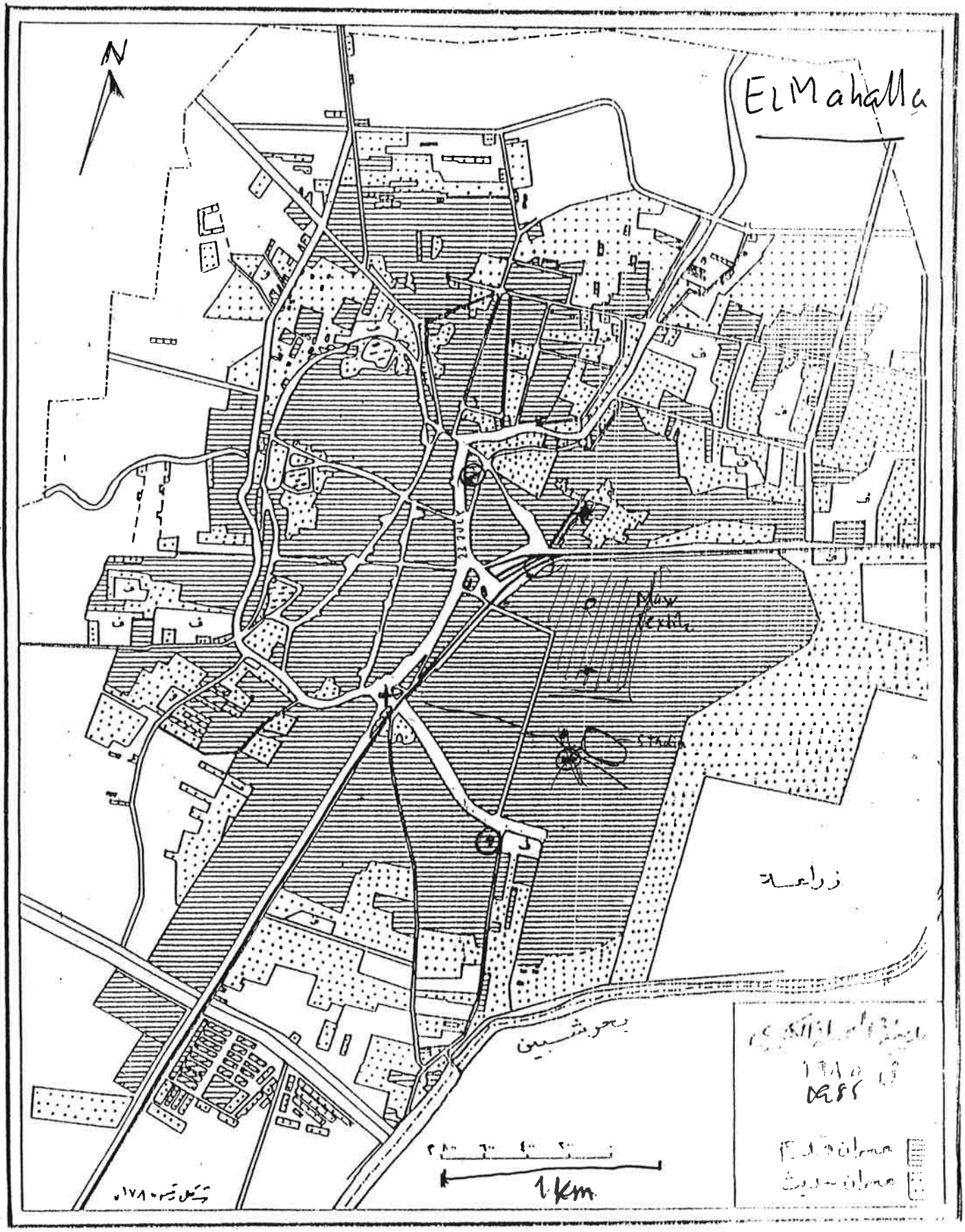
Representativity: Representative of the air pollution in a residential area affected by industrial emissions.

Parameters to be measured: SO_2 , PM10 , NO_2 passive , DF

Measurement equipment: Monitors and passive sampler

Infrastructure:
Power: 220 V available in the building.
Telephone lines: Has to be ordered from the telephone company.
Sampler/monitor locations: In shelter
Air intake: About 4 m above the surface 10 m from street.

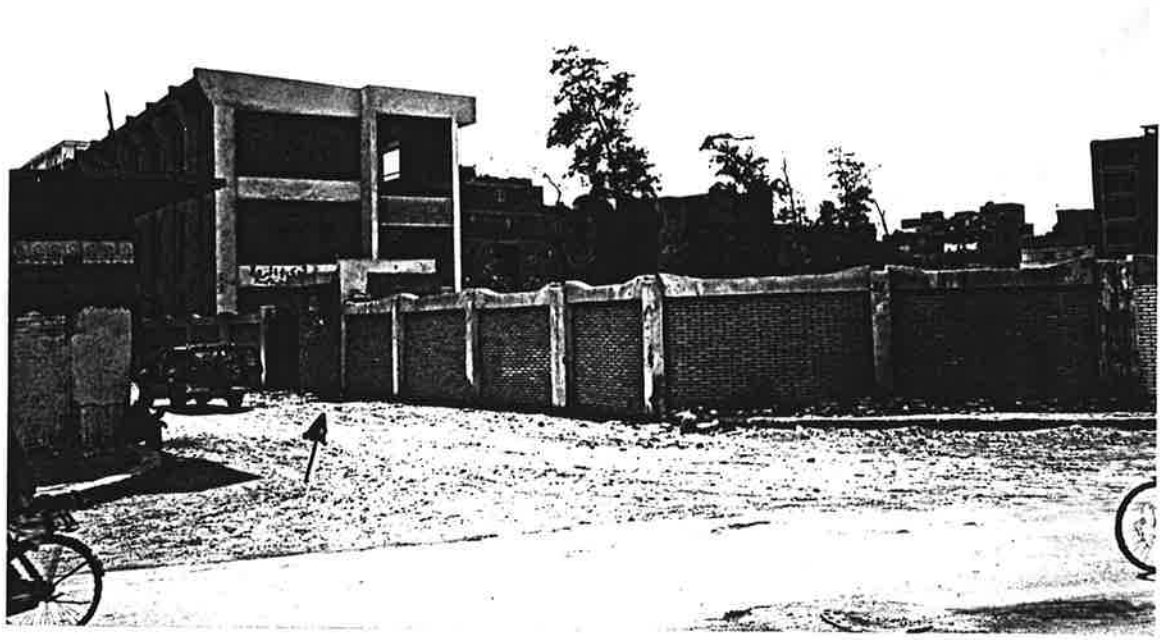
Personnel:. District Secretary Mohammed Ishahawi.
Mr. Awad Kamel, information Center manager Tel/fax: 233411
Tel:233264
We will need permission from the Governor of the District.



⊙ school

Site visit report

Site : El-Mahalla El-Kubra



AlTakwa Wa Al Marwa School, from the main street with stadium and the textile industries behind camera.

Security room at the school. The tower is located at the textile industries north of the site.

Air quality monitoring network
Site visit report

Site Name: El Minya
Co-ordinates:. UTM:

Access/ availability: Across the railway track (from the Cornish) to the Governmental Building (belonging to Ministry of Irrigation)

Buildings and rooms available: Meeting room on third floor can be used for samplers (in window).

Area description: Urban/Residential urban centre with traffic on the main street connecting Agricultural road and Desert road (to Upper Egypt).

Local sources: Traffic and various open burning..

Representativity: Representative for the central part of El Minya.

Parameters to be measured: SO_2 / NO_2 (passive samplers) DF.

Measurement equipment: passive samplers at selected periods ?.

Infrastructure: Power: not needed
Telephone lines: not needed
Samplers locations: At the window of meeting room.
Air intake: 6 m above the ground, about 10 m from the street.

Personnel:. Engineer Seif Allah Mosa Badrawi Tel: 343500
General Manager of the environmental 342044
department in Minya Governorate Fax:086/343273 of general Secretary
Fax:086/342764 of the governor

Air quality monitoring network
Site visit report

Site Name: Assyut I
Co-ordinates:. UTM:

Access/ availability: At El Gamaa primary school - 30 m from Canal Street.

Buildings and rooms available: A shelter will be located on the roof of the school and 12m meteorological tower must be placed on the north corner of the roof

Area description: Residential area.

Local sources: Fertiliser factories and petroleum refineries about 2 km away.

Representativity: Representative for the western residential area of Assyut.

Parameters to be measured: SO_2 , NO_2 , PM_{10} and Met tower

Measurement equipment: Monitors and AWS.

Infrastructure: Power: New line
Telephone lines: New lines needed.
Sampler/monitor locations: In a shelter on the roof of the school.
. **Air intake**: 6 m above the ground.

Personnel:. Mr. Amr Mostapha
Sports teacher of the school

Air quality monitoring network
Site visit report

Site Name: Assyut Azhar school
Co-ordinates:. UTM:

Access/ availability: The site is inside the Azhar school for girls in central Assyut.

Buildings and rooms available: Dust fall will be placed on the roof of the security room

Area description: Urban / residential area.

Local sources: Traffic on nearby roads.

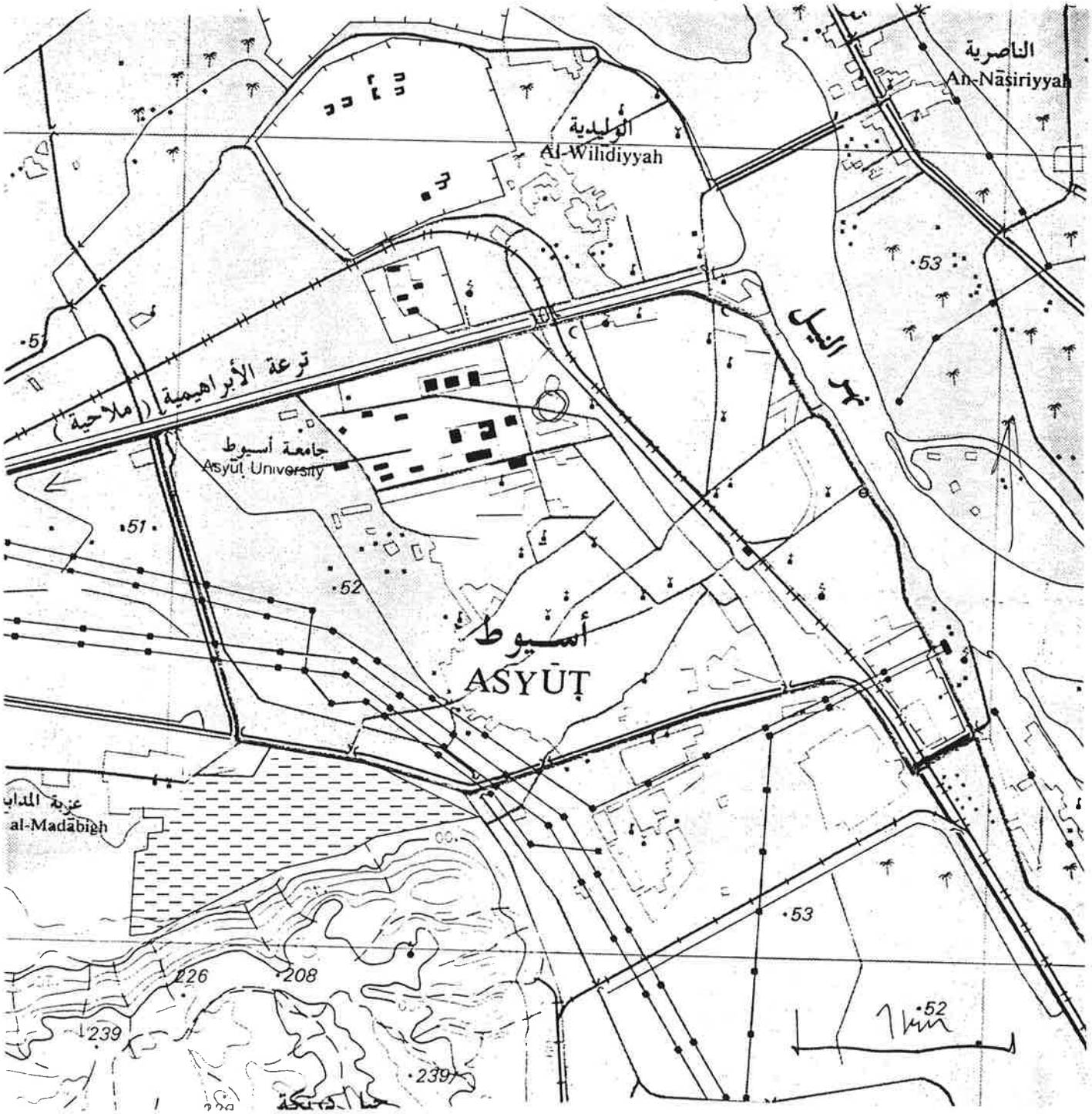
Representativity: Representative for central urban area of Assyut.

Parameters to be measured: SO_2 ,NO_2 (passive Samplers), dust fall.

Measurement equipment: Passive samplers and dust fall.

Infrastructure: Power: not needed
Telephone lines: Lines not needed.
Sampler/monitor locations: on the roof of the security room .
Air intake: 4 m above the ground.

Personnel:. Mrs. Yusria Mohamed Mahmoud Tel:323066
Headmaster of the school
Fax: 088/323575 of the general manager of Al azhar educational department.


الناصرية
An-Nāsiriyyah
الوليدية
Al-Wilidiyyah
ترعة الأبراهيمية (ملاحية)
جامعة أسيوط
Asyut University
نهر النيل
أسيوط
ASYŪṬ
عزبة المدابغ
al-Madābigh
53
51
52
226
208
239
239
52
1 km

Air quality monitoring network
Site visit report

Site Name: NagHammadi
Co-ordinates:. UTM:

Access/ availability: Inside Nag Mosa Allam School-on the agriculture road to Aluminium factory

Buildings and rooms available: A room for the sampler will be available.

Area description: Residential urban centre with traffic

Local sources: Traffic, Aluminium factory about 5 km away and sugar factory about 500 m to the North.

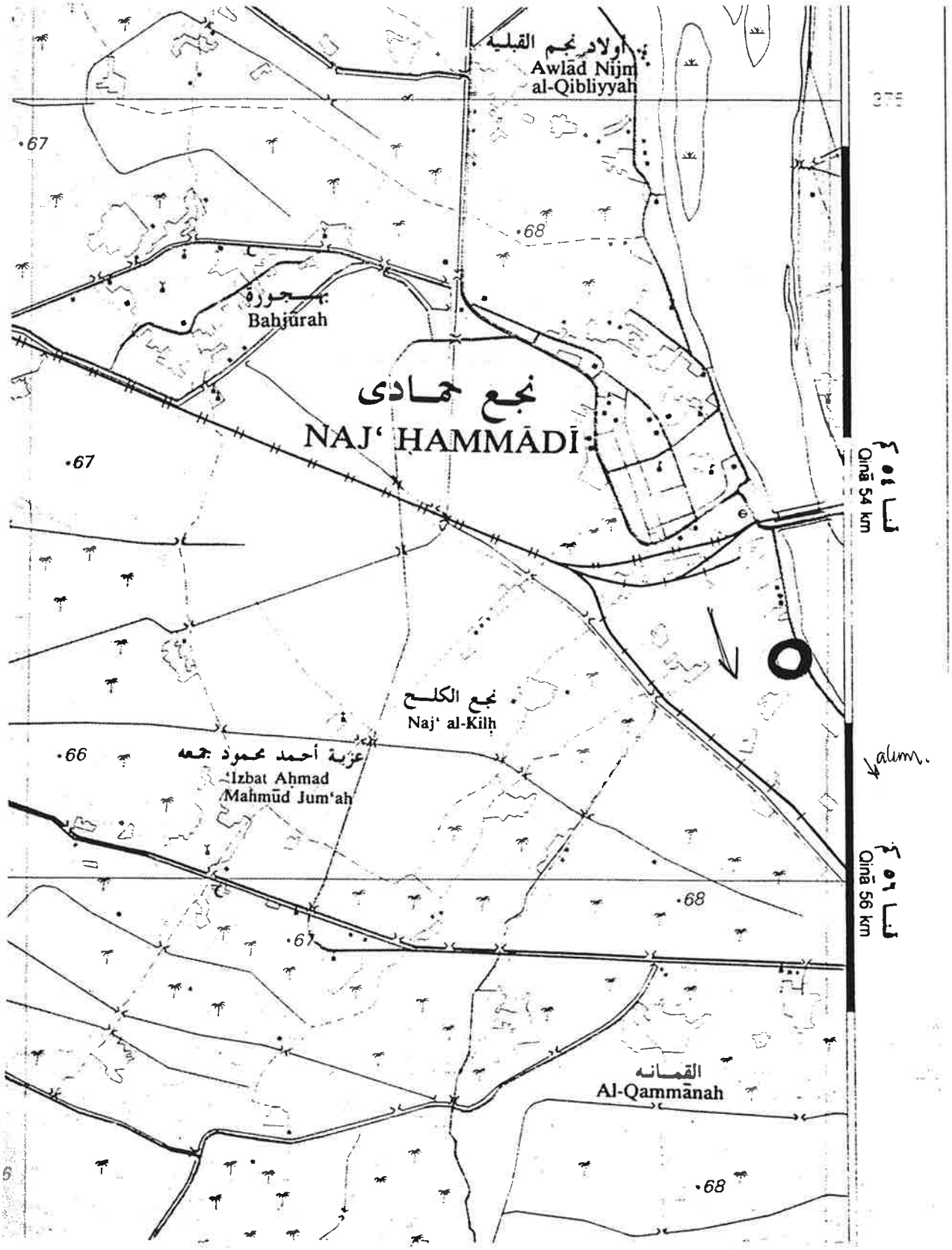
Representativity: Representative for a residential area of NagHammadi.

Parameters to be measured: Particles and SO_2 (with passive samplers).

Measurement equipment: Airmetrics and passive samplers.

Infrastructure: Power: not needed
Telephone lines: not needed
Sampler/monitor locations: on the roof of first floor.
Air intake: 4 m above the ground.

Personnel:. Mr. Ahmed Mosa Allam
Arabic Teacher in the school


أولاد نجم القبلية
Awlād Nijm al-Qibliyyah
67
68
بهجورة
Bahjūrah
نجع حمادى
NAJ' ḤAMMĀDĪ
67
قنا ٥٤ كم
Qinā 54 km
نجع الكلح
Naj' al-Kilḥ
66
عزبة أحمد محمود جمعه
'Izbat Aḥmad Maḥmūd Jum'ah
68
67
قنا ٥٦ كم
Qinā 56 km
القمانه
Al-Qammānah
68

Air quality monitoring network
Site visit report

Site Name: Luxor
Co-ordinates:. UTM:

Access/ availability: Narrow street branched from Cleopatra Street

Buildings and rooms available: The shelter will be located on the roof of the first floor

Area description: Urban/Residential urban centre .

Local sources: diurnal activities of the people (open burning?)..

Representativity: Representative for the central part of Luxor,.

Parameters to be measured: particulates, SO_2

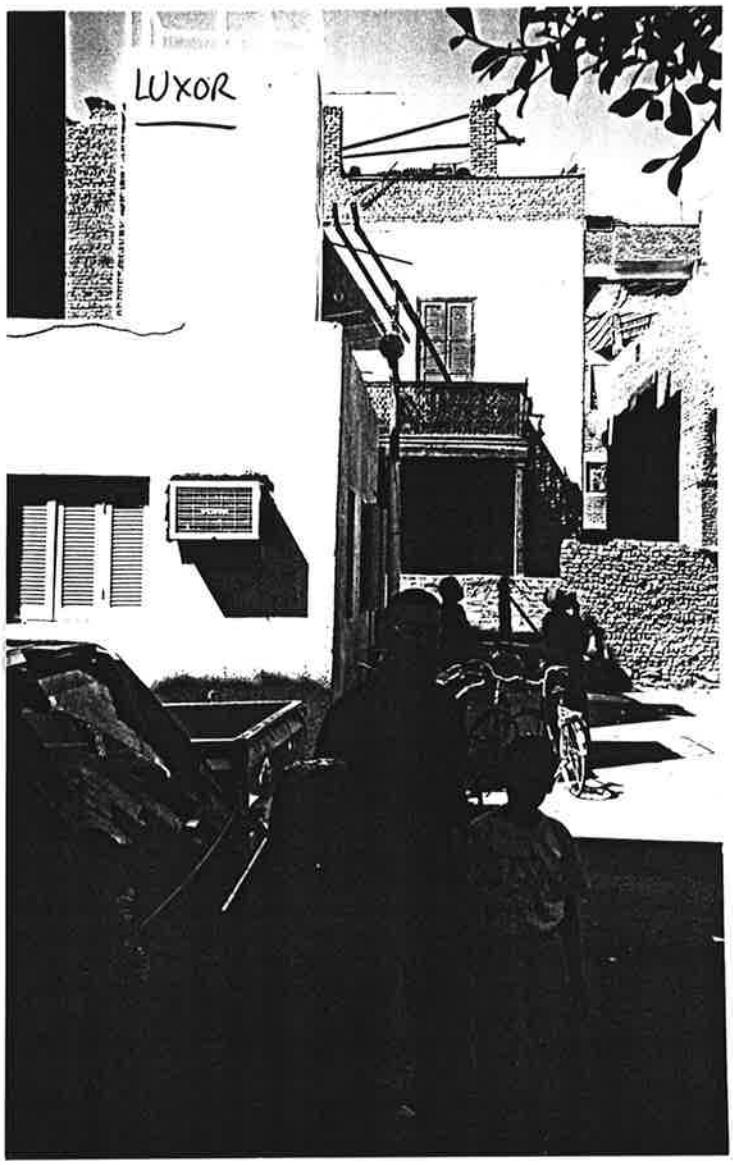
Measurement equipment: Sequential sampler, two filter samplers and passive samplers at selected periods ?.

Infrastructure: Power: available
Telephone lines: not needed
Sampler/monitor locations: in the shelter.
Air intake:4 m above the ground.

Personnel:. Chemist Mrs. Laila Arafa, Tel: 63 87 6913
General manager of the environmental department in the city council

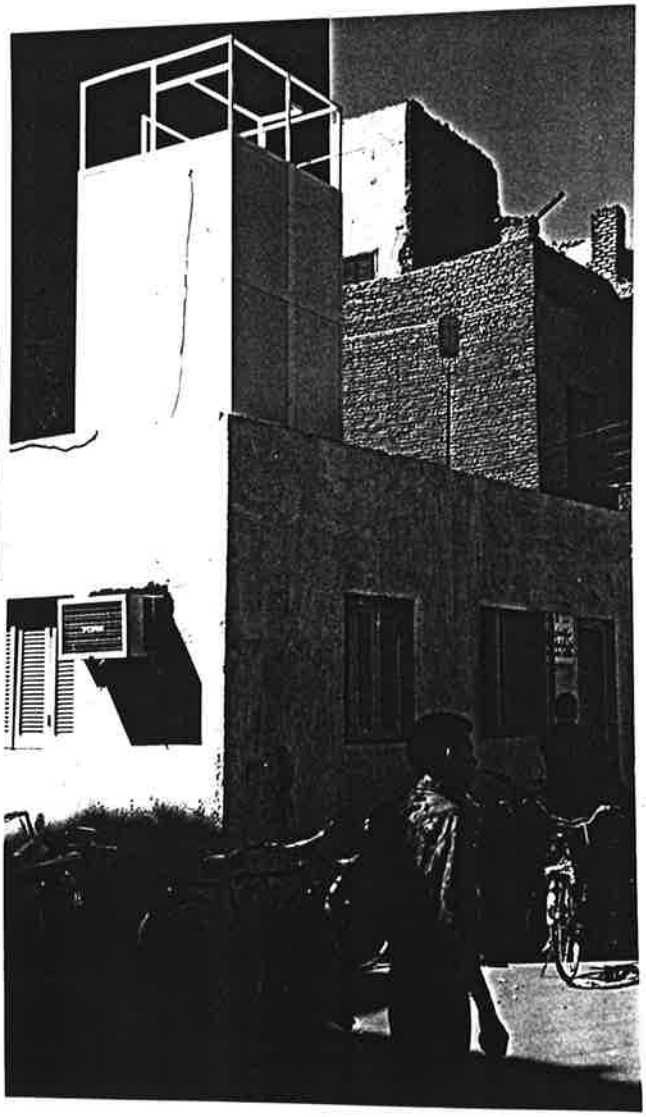
Site visit report

Site: Luxor



The shelter with sequential samplers located at the roof of a small building nesr the Environmental Department of the City Council.

-a side street from Cleopatra Street



Air quality monitoring network
Site visit report

Site Name: Edfu
Co-ordinates:. UTM:

Access/ availability: From the temple square (about 100m away).

Buildings and rooms available: The roof of the emergency building will be used. (23 of July Street, Edfu)

Area description: Industrial/Residential with traffic on the street .

Local sources: Traffic and occasionally downwind from the iron factory.

Representativity: Representative for the central part of Edfu.

Parameters to be measured: SO2, NO2, DF.

Measurement equipment: passive samplers (monthly), and dust fall collector.

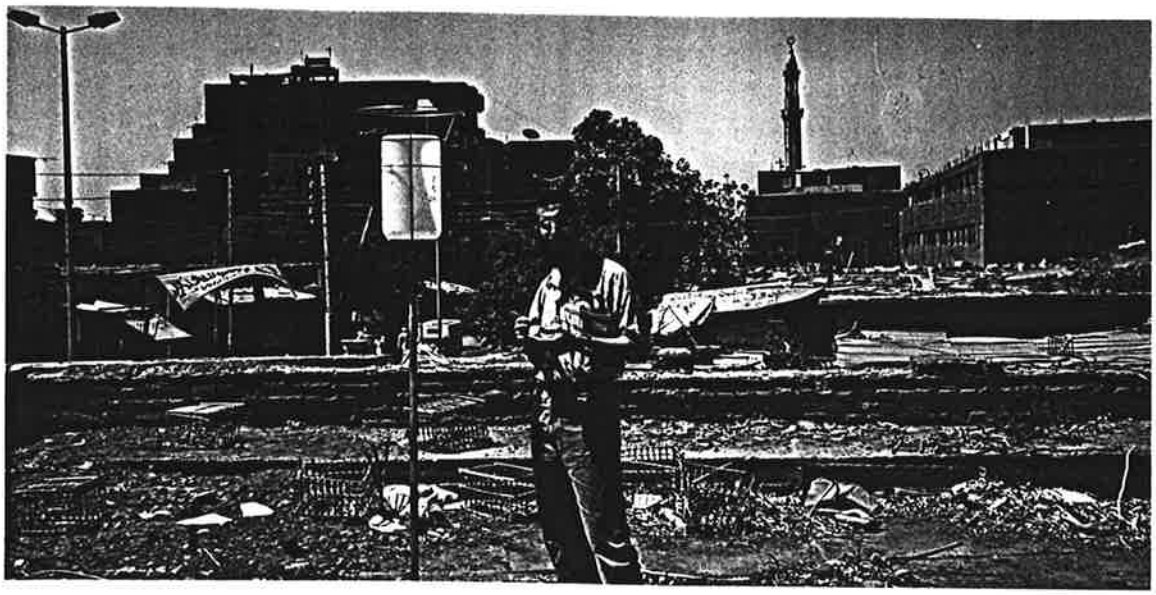
Infrastructure: Power: not needed
Telephone lines: not needed
Sampler/monitor locations: the roof of the first floor.
Air intake: 4 m above the ground.

Personnel: Mr. Omar Mohamadein Fax:700754
General Manager of the city council Tel: 700450

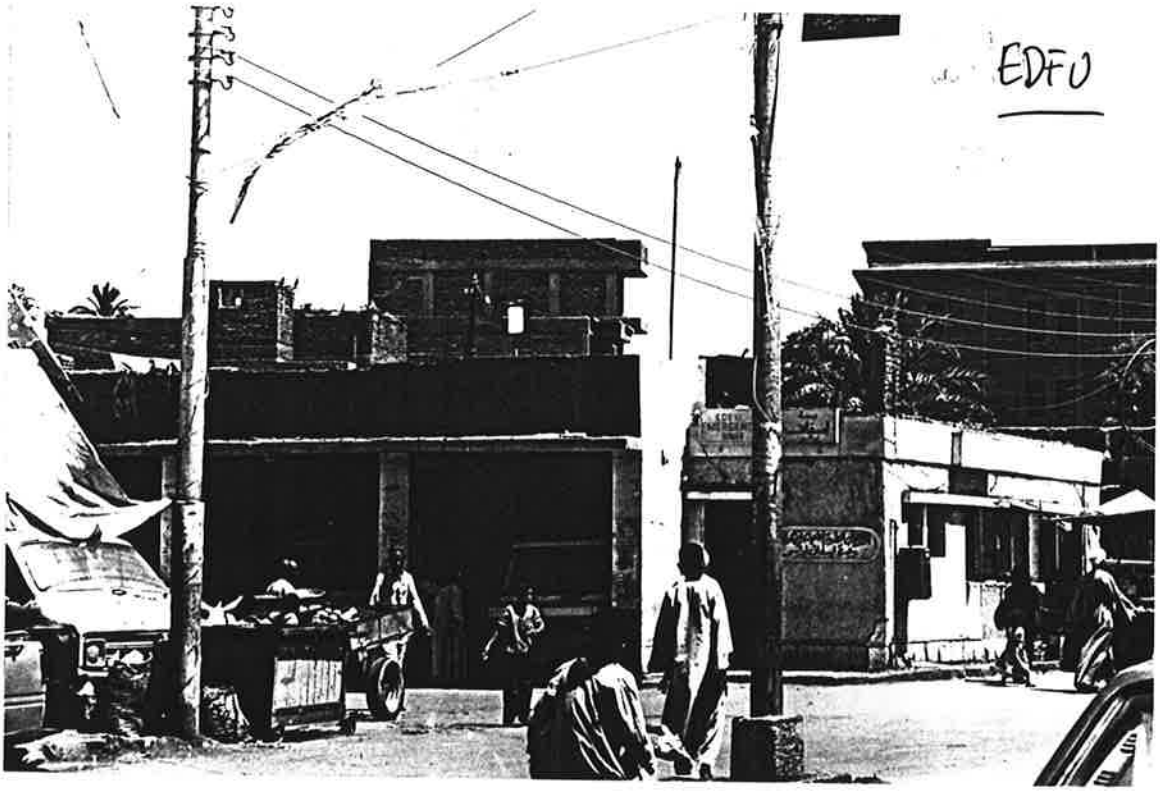
EIMP

Site visit report

Site: Edfu



Dust fall collector and passive samplers on the roof of Emergency Building.



Air quality monitoring network
Site visit report

Site Name: KomOmbo
Co-ordinates:. UTM:

Access/ availability: ComOmbo Secondary school (about 100m from the main road to Upper Egypt).

Buildings and rooms available: The shelter will be located on the roof of the agriculture activity building of the school .

Area description: Industrial polluted city centre close to a main road.

Local sources: Traffic, various city centre sources (open burning).and normally downwind from a large sugar factory (500m to north).

Representativity: Representative for the highly trafficked central (polluted) part of ComOmbo.

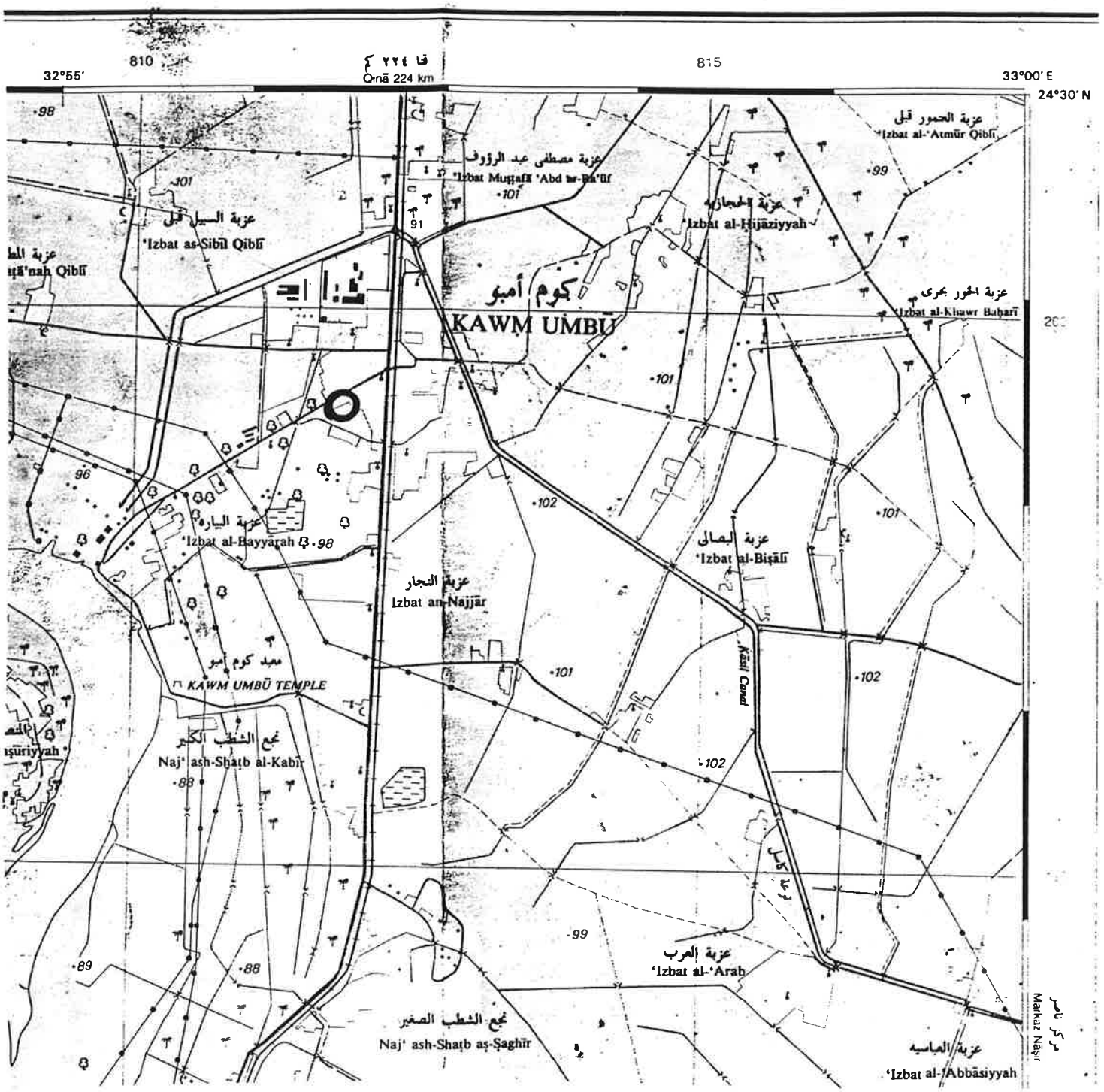
Parameters to be measured: SO_2, BS (Soot), NO_2 (Passive), PM_{10}.

Measurement equipment: SO_2 sequential sampler, and NO_2 (passive sampler), PM_{10} Airmetrics.

Infrastructure: Power: available
Telephone lines: Not needed
Sampler/monitor locations: In the shelter.
Air intake: 4 above the ground.

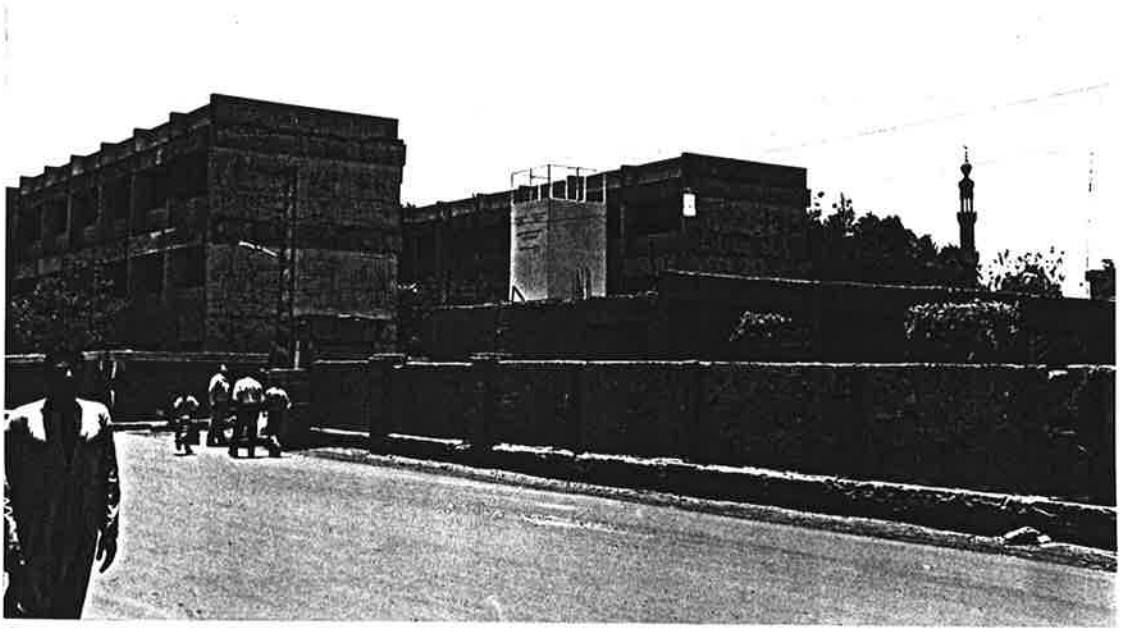
Personnel:. Mr. Abd El Fatah Mohamed Abdullah Tel: 500821097 50 0022
Headmaster of the ComOmbo secondary school

SHEET NG 36 B3d لوحة رقم

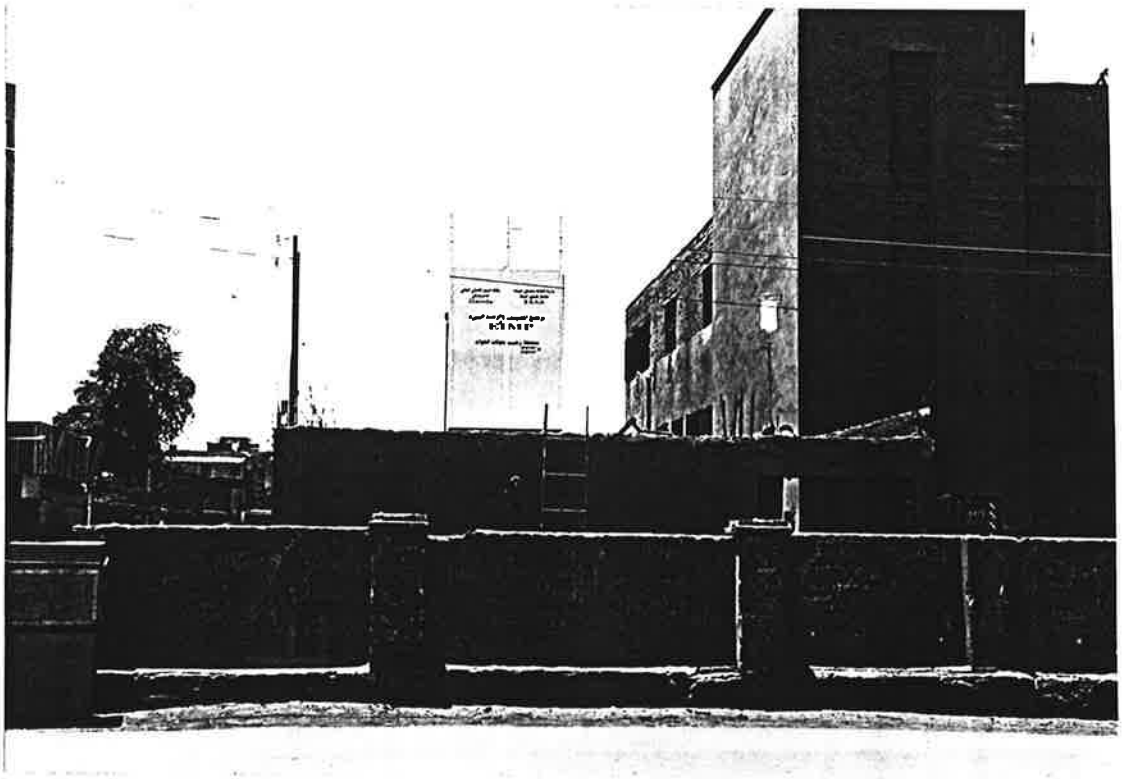


Site visit report

Site: KomOmbo



The EIMP shelter located at the roof of the Agricultural building of KomOmbo secondary school



Air quality monitoring network
Site visit report

Site Name: Aswan
Co-ordinates:. UTM:

Access/ availability: Easily from the road east of the rail road track

Buildings and rooms available: The monitoring station will be located in a shelter located on the top of the roof of a small industrial building.

Area description: Urban/Residential , about 1 km east of old Cataract hotel.

Local sources: Traffic and general activities of people.

Representativity: The site is located at the southern part of the city of Aswan and will be impacted by activities in the city.

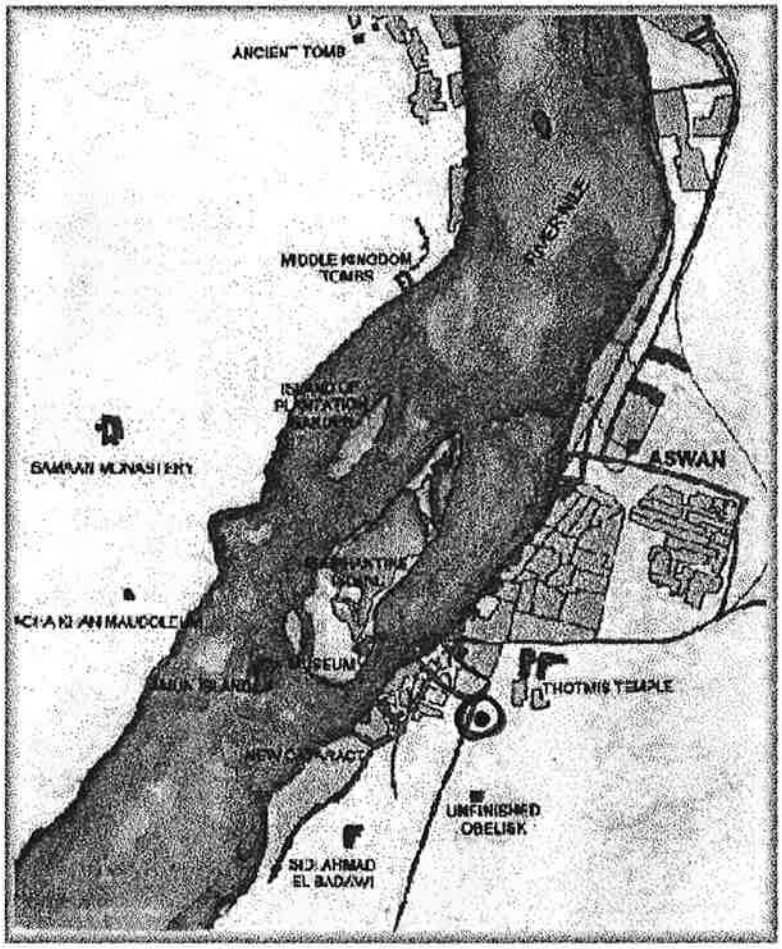
Parameters to be measured: SO_2 , O_3 ,NO_2 Passive Sampler, DF, PM_{10}

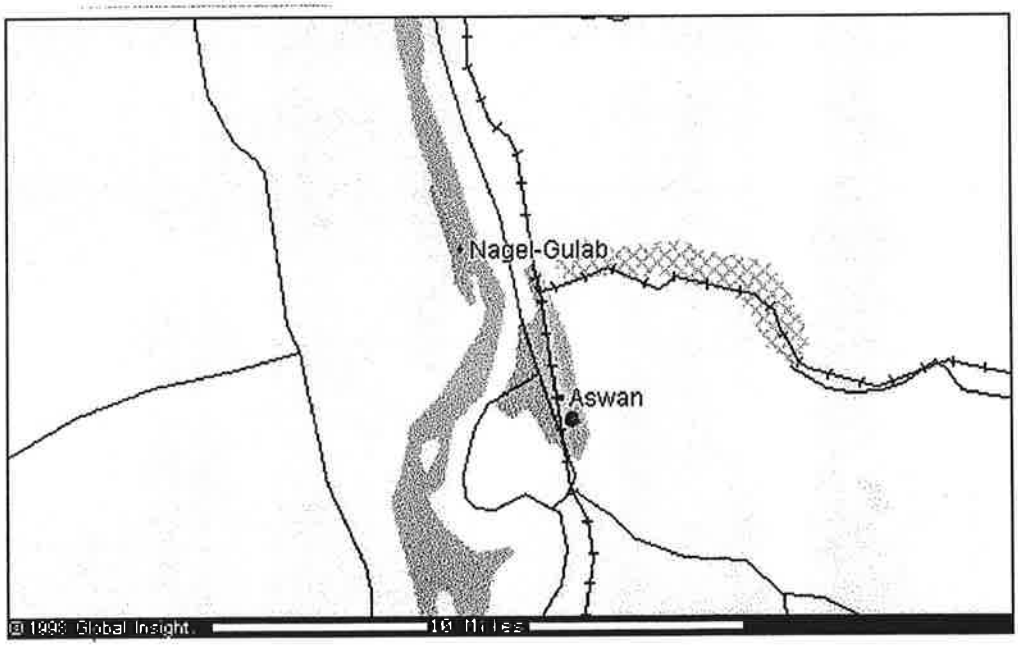
Measurement equipment: SO_2 and O_3 by monitors, NO_2 passive samplers, PM_{10} by Airmetrics and DF by dustfall collector

Infrastructure: Power: ?
Telephone lines: have to be checked
Sampler/monitor locations: At shelter on small building about 4 m above the ground.
Air intake: 4 m above the ground.

Personnel: Dr.Hussein El Tahtawy Fax:097/303854
General Manager of the environmental department Tel:305076
Aswan Governorate mob.:012/3124531

Aswan Map


ANCIENT TOMB
MIDDLE KINGDOM TOMBS
ASWAN
MUSEUM
THOTMIS TEMPLE
UNFINISHED OBELISK

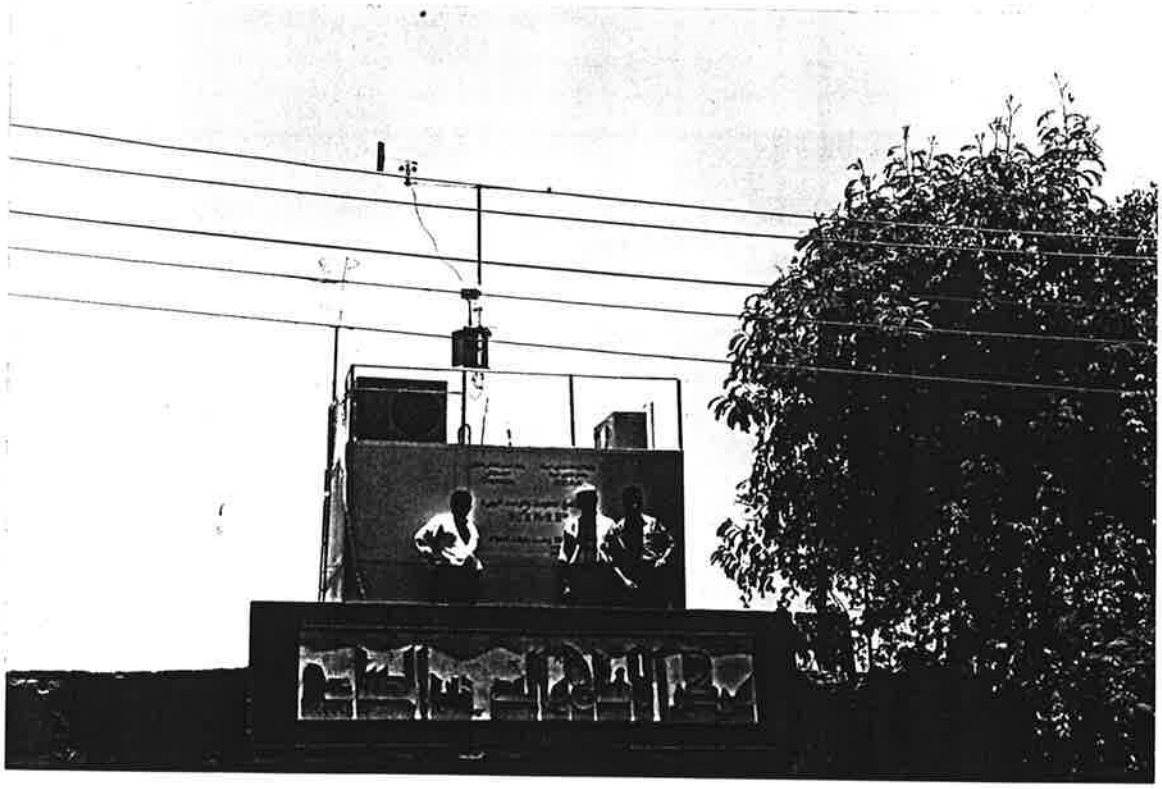

Nagel-Gulab
Aswan
© 1998 Global Insight
10 Miles

EIMP

Site visit report

Site: Aswan

The EIMP shelter located at the roof of a building in the southern part of Aswan



B.2.2 Possible sampling sites for AIRmetrics samplers

Environmental Information
and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: **Joergen Simonsen, Ahmed A El Seoud**
From **Bjarne Sivertsen**
Date: **11 May 1999**

Possible sampling sites for AIRmetrics samplers

The EIMP air quality monitoring programme has presently designed 20 sites for PM_{10} sampling. Eleven of these are using AIRmetrics Minivol air sampler.

A proposed future use of AIRmetrics samplers from Cairo Air Improvement Project (CAIP) initiated an evaluation of the suspended particulate sampling programme within EIMP. It has been demonstrated that fine particles (PM_{10} and $PM_{2,5}$) may represent a major health hazard to the population in the greater cities and in industrialised areas of Egypt. It will thus improve the quality of the EEEA permanent air quality monitoring programme to extend the PM measurements.

Nine sites, where EIMP already is performing air quality measurements, have been identified for additional AIRmetrics samplers. The EIMP programme was not originally designed to include $PM_{2,5}$ measurements. However, from results obtained by the CAIP project and from the general levels of fine particles recorded by the EIMP monitors, it is required to add $PM_{2,5}$ to the permanent EEAA network.

These nine sites selected are:
- Meteorological Authority, Cairo
- Tabbin South
- Shoubra El-Kheima (school)
- Suez
- ElFayum
- Assyut 2 (residential)
- Luxor (city centre)
- Aswan
- ElMansoura.

All these sites will be equipped with PM_{10} samplers. The distribution of $PM_{2,5}$ samplers will be evaluated later.

However, it is anticipated that the EEAA/EIMP programme need a total of at least 24 samplers, used in the following way:
9 for PM_{10} sampling (at the sites above)
9 for $PM_{2,5}$ sampling (the final distribution to be decided)
6 samplers for spares and support.

All sampling with the AIRmetrics samplers will be based on 24-hour average sampling periods. These samplers will normally be operated in parallel with the weekly operation of sequential samplers, with the monthly passive sampling programme or with the dust fall collecting programme, dependent upon area characteristics, local sources and availability of personnel.

The final use of all the AIRmetrics samplers in the EEAA permanent air quality monitoring programme (designed by EIMP) will have to be discussed later.

Bjarne Sivertsen
Task Manager Air Quality Monitoring

The EIMP air quality measurement programme

			Monitors							Seq.s			Samplers				
	Site	Area type	S	N	P	H	O	C	M	S	N	B	P	T	D	V	ps
	Cairo																
1	Cairo city El Qualaly	Urban centre	■	■	■									■		■	
2	El Gemhoroya street	Street canyon	■	■	■	■	■	■									
3	Meteorological Inst	Urban / Res.	■				■		■								▒
4	Nasr City	Residential								▒	▒	▒	■				
5	Maadi EEAA building	Residential	■	■									■				
6	Tabbin	Industrial	■	■	■				■					■	■		
7	Tabbin south	Industrial								▒		▒		■	■	■	▒
8	Fum Al-Khaliq	Road side/urban	■	■	■	■		■					■				
9	Abu Zabel	Industry/res													■		■
10	Shoubra el Kheima.	Industrial	■	■					■		▒		▒	■	■	■	
11	Giza, Cairo University.	Residential	■	■			■		■								
12	Gizapyramid	Regional															■
13	6 October	Res/industrial								▒	▒	▒	■				
14	10 Ramadan	Res/industrial								▒		▒	■		■		
	Canal area																
15	Suez	industrial/res.	■	■										■	■		
16	Port Said	Residential											▒				■
17	Ismailia	Residential											▒				■
	Upper Egypt																
18	El Fayum	urban													■		■
19	El Minya	Res./ Industrial											▒		■		■
20	Assyut 1	industrial/ res.	■	■	■				■								
21	Assyut 2	Residential/urban													■		■
22	Naga Hammadi	industrial/res											▒		■		■
23	Luxor	urban/residential								▒		▒			■		
24	Edfu	Industry/urban.													■		■
25	Kom Ombo	industrial								▒		▒	▒				▒
26	Aswan	urban/residential.	■				■		■						■		▒
	Sinai Area																
27	Sharm ElSheik	background					■						▒		■		▒
	Alexandria																
28	Abu Keir College	Industrial	■	■									■		■		
29	El-Max Petrogas	Industrial								▒	▒	▒	■		■	■	
30	IGSR, Alex University	Urban/road side	■	■	■	■		■									
31	El-Azafra-El Azhar Univers.	Residential								▒	▒	▒	▒				
32	Gheat El-Inab school	Residential								▒	▒	▒	■				
33	Alexandria regional	regional							■								
	Delta Area																
34	Damanhur	industrial/res											▒				■
35	Kafr el Zayet	industrial/res	■	■	■										■		▒
36	Tanta	urban								▒		▒	▒				
37	ElMahalla El Kubra	industrial/res.	■		■										■		
38	El Mansura	industrial/res.	■	■					■						■		
39	Domyat	residential								▒		▒	■		■	■	▒
40	Kafr Dawar	urban/industr								▒		▒	▒		■		

S = SO2 , sulfur dioxide
N = NO2 , nitrogen dioxide
P = PM10
H = NMHC, hydrocarbons
O = ozone
C = CO

M = meteorology
B = black smoke
T = TSP
V = VOC
D = dust fall
ps = passive samplers

■ monitors (1-h aver)
▒ Sequential samplers (24-h aver)
Particle samplers
Airmetric samplers
VOC samplers
passive samplers

Appendix C

Procurement of equipment, hardware and software

C.2.1 Additional procurement

a) Chemical equipment

b) Delkiveries of spare parts and consumables

c) Quotation for new System Manager

d) Standard gases, permeation tubes etc.

C.2.1 a) Chemical equipment

Environmental Information
and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 526 6447

Memo

To:	**Bjarne Sivertsen**
Copy to:	**Mohammed Fathy, Ahmed El Seoud, Joergen Simonsen, Ulla Lund, Anwar Ahmed**
From	**Oddvar Røyset**
Subject	**Equipment needs at CEHM**
Date:	**03.03.1999**

Equipment needs at CEHM of Cairo University

During my second visit at the CEHM at Cairo University I noticed some shortages of equipment. The equipment listed below, is strongly recommended for the measurements of SO2, NO2 , TSP, PM10 and dustfall measurements for the EIMP project.

Equipment type	Priority	Approximate price DKK
Vacuum pump for VOC canisters	1	max 40000
Injection device for Gas Chromatograph for VOC collected in canisters	1	not available by 03.03.99
Printer	1	ca 5 000
New PC for Ion chromatographs with mirror harddisk, ZIPdrive for backup, ethernetcard, CD write and read, Windows95/98	1	ca 15 000
Vacuum pump for filtration device for dustfall measurements	1	not available by 03.03.99
Upgrade of Peaknet software from 4.0 to version 5.1.	1	not available by 03.03.99

Comments

Vacuum pump for VOC canisters
A vacuum pump is needed for the evacuation of VOC canisters. The pump must be of a special quality - oil free pump (to avoid hydrocarbon contamination of canisters by oil from the pump).

A suitable pump is the type
Vacuubrand MD 4 Vario
Vacuubrand MD 4C Vario

Injection device for Gas Chromatograph for VOC collected in canisters
The Gas Chromatograph used for VOC analysis of VOC canister samples must have an injection device appropriate for injection of gas samples. The detailed specifications of this is not clear at 03.03.99.

Printer
There is a strong need for a printer which should be attached to Ahmed Solimans PC, or the PC where the data for the analysis are stored in the excel worksheet laboratory database. For quality control the graphs for the data achieved for the different stations should be plotted on a weekly basis in order to quickly sort out possible problems.
A laserprinter or equivalent is recommended.

PC for ion chromatographs
The PC on the ion chromatograph is old and do not have facilities for proper data security routines. I recommend strongly to get a new PC for this purpose. The new PC for Ion chromatographs should contain:
17" monitor
CD-drive with read and write
Harddisk of at least 2 GB
Extra harddisk of at least 2 GB (mirror harddisk)
ZIPdrive for backup
Ethernetcard for communication with ion chromatographs
Windows95/98

With the use of a mirror harddisk and a ZIP drive it is possible to develop good routines for data storage and security.

Vacuum pump for filtration device for dustfall measurements
The laboratory wishes to get a small lowcost vacuumpump for the filtration device used for dustfall samples.

Upgrade of Peaknet software
The current version of the Peaknet chromatography software used at the CEHM laboratory is v.4.0. It is recommended to upgrade to the latest version, v. 5.1., as this version have many new useful features.

Unknown

From: Lydia Kiriacos
Sent: 6. mai 1999 12:04
To: Bjarne Sivertsen

From: "Ove Hermansen" <Ove.Hermansen@nilu.no>
To: "Bjarne Sivertsen" <bjsivert@hotmail.com>
Cc: <eimp@intouch.com>
Subject: Re: VOC
Date: Thu, 6 May 1999 10:33:16 +0100
X-MSMail-Priority: Normal
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.2106.4

Hei Bjarne,

Pumpe for aa evakuere staalbeholdere til VOC-proever:
Fabrikat: Vacuubrand
Type: MD 4C VARIO
Pris: NOK 26 000,- (eks. moms levert i Norge av Chiron AS, Trondheim)
I tillegg MAA det kjoepes en vakummaaler Vacuubrand DVR2, NOK 4 000,-

Man trenger ogsaa en gassflaske med ren nitrogen samt regulator og avstengingsventil (dette har de sannsynligvis allerede paa laben).

Naar det gjelder Purge & Trap utstyr venter jeg fortsatt paa opplysninger fra forskjellige leverandoerer.
Dersom det er aktuelt aa maale paa et stoerre spekter av komponenter saa finnes det en sak fra Perkin Elmer som analyserer baade proever paa staalflasker og paa adsorbentroer (f.eks. Tenax). Disse roerene kan brukes som passive proevetakere, men er ikke saerlig egnet for komponenter lettere enn C6. Staal-flasker er ikke saerlig egnet for komponenter tyngre enn C6. Utstyret er glimrende for BTX-maalinger. Prisen er dog relativt hoey, man maa regne med ca. NOK 400 000,- (jeg skal sjekke pris med leverandoer her ogsaa).

Kan du si meg om GCen der har en FID (Flame Ionisation Detector)?

Ove.

C.2.1 b) Deliveries of spare parts and consumables

Expected delivery time for the supply of spares and consumable

Description	*Company responsible to deliver spare parts and consumable*	*Address*	*Expected delivery time after placing order*
Sequential air samplers	NILU Products AS	P.O. Box 100 Instituttveien 18 N-2007 Kjeller, Norway Tel : + 47 63 89 80 00 Fax : + 47 63 89 80 50	• Based on availability • from 4-8 weeks
Dust fall	NILU Products AS	P.O. Box 100 Instituttveien 18 N-2007 Kjeller, Norway Tel : + 47 63 89 80 00 Fax : + 47 63 89 80 50	• Based on availability • from 2-4 weeks
Passive samplers	NILU Products AS	P.O. Box 100 Instituttveien 18 N-2007 Kjeller, Norway Tel : + 47 63 89 80 00 Fax : + 47 63 89 80 50	• Based on availability • from 4-8 weeks
CEM Microwave	Meslo Egypt & North Africa	96 Al Thawara Street, Helioplis, Cairo. Tel.: (202) 673903 Fax : (2020 418 6049	• Based on availability • from 4-8 weeks
Lancer/Claus Damm Laboratory Washer	Lancer High Technology	Nasr City 10th area, 36(A) Swiss Zone . Cairo . Tel. : (202) 272 1691- 272 1861 Fax : (202) 272 1691	• Based on availability • Considerable spare parts package is available at EIMP Store •
Sartorius Vacuum pump	B&B	7 Sandbaekvej, DK 2610 Roedovre Tel : +45 44 94 88 22 Fax : +45 44 94 27 09	• Based on availability • 4-8 weeks
Laptop computer, IBM Thinkpad 380, Desk top computers	Egyptian Computer Systems	17 Tiba Street, Mohandsseen Tel : 3608801/2/3 Fax no. 360 8805	• Based on availability • Most spares are ex-stock
Desk top Computers, Gateway 2000	Blue Max Computer	10 A Omar Toson Street, Mohandsseen,	• Based on availability • Most spares are ex-stock

		Tel : 303 5473 Fax no. 303 5478	
Desktop Computers, Dell	Micro Way Systems	7 Youssef Gamal Street Tel : 5876192 Fax no : 5872463./3364356	• Based on availability • Most spares are ex-stock
Desk top computer, Compaq	RAJA Computer Centre	13 Shrief Street, Cairo Tel : 392 6786 Fax : 3933732	• Based on availability • Most spares are ex-stock
Lap top computer, Armnote	Master Communications	Fax no. 3029520	• Based on availability • Most spares are ex-stock
Lap top computer, Acer	Egypt Comp .	Fax no. 2613116	• Based on availability • Most spares are ex-stock
Auto Analyser, Alpkem	O.I. Analytical	151 Graham Road, College Station, Texas Tel : 409 690 1711 Fax : 409 690 0893	• Based on the Export Administration regulations. • Based on availability • 4-8 weeks
Electrometric equipment, Radiometer	Chemilab	195, 26 July Street, Agouza, Giza . Tel. : 302 8082 Fax : 344 4080	• Based on availability • 4-8 weeks
Mercury Analyser, Perkin Elmer	Perkin Elmer, Egypt	13 Abd El Salam Aref, Bab El Louk, Cairo. Tel. : 3930022	• Based on availability • 4-12 weeks

C.2.1 c) Quotation for new system manager

kontram

V.Rasmussen

Quotation 981117-2/JK
23.11.1998

Danida c/o COWI Consulting Engineers and Planners A/S
Parallelvej 15
DK-2800 Lyngby
Attn: Mr. Shiraz A. Dar

Re to: Quote for System Manager® and computers

Price	312.690,- DKK, additional start-up and training days 9.450,- DKK/day, without VAT.
Delivery time	appr. 8 weeks from the manufacturer.
Delivery terms	CIP at EIMP, Cairo Egypt.
Payment terms	100 % on shipment, 30 days net, interest on overdue payment 1,5 % per month.
Warranty	12 months from shipment.
Other terms	The purchaser shall make customs clearing and pay custom duties, custom services, import sales taxes and taxes at origin.
	Our quotation is valid 30 days.

Yours sincerely

/ Vagn Rasmussen

KONTRAM A/S
Carl Jacobsens Vej 16-20
DK-2500 Valby
Tel. + 45 3646 2446
Fax + 45 3616 7778

KONTRAM A/S Carl Jacobsens Vej 16 - 20, DK-2500 Valby, tlf. +45 36 46 24 46, fax +45 36 16 77 78
Jylland: Edwin Rahrs Vej 80 B 1, DK-8220 Brabrand, tlf. +45 86 26 56 06, fax +45 86 26 56 07
AS-reg.nr. 216.506, SE nr. 17633287

kontram

V.Rasmussen

Quotation 981117-2/JK
23.11.1998

Item 1.	1 pc	System Manager Central Data Management System-Software License - System Manager Software License for polling up to 30 stations - Stores data in Microsoft SQL Server Database - System Manager must be installed on two computers. One computer must be the database server-communications server PC and the second computer must be the Client-Workstation PC - Requires factory installation of System Manager Software on PC hardware in Items 3 and 4 by EMC engineers in San Luis Obispo, CA
Item 2.	1 pc	Relational Database Software License - Relational SQL Server DBMS software license and media, Version 6.5 - Requires factory installation of SQL Server software on PC hardware in Item 3 by EMC engineers in San Luis Obispo,Ca
Item 3	1 pc	System Manager Database Server PC - Gateway 350 MHz Pentium II PC 450 MHz Pentium II - 64 MB RAM memory - 10 GB hard disk drive, 3.5" floppy drive - 15 " monitor - 13X min/32X max CD-ROM Drive - Mid-Tower case - 120/220 VAC - Microsoft Office 97, Small Business Edition - Ethernet Card and twisted pair crossover cable - Microsoft Windows NT 4.0
Item 4.	1 pc	System manager Client-Workstation PC - Gateway 333 MHz Celeron PC - 32 MB RAM memory - 4 GB hard disk drive, 3.5" floppy drive - 17 " monitor - 13X min/32X max CD-ROM Drive - Mid-Tower case - 120/220 VAC - Microsoft Office 97, Small Business Edition - Ethernet Card, twisted pair - Microsoft Windows 98

KONTRAM A/S Carl Jacobsens Vej 16 - 20, DK-2500 Valby, tlf. +45 36 46 24 46, fax +45 36 16 77 78
Jylland: Edwin Rahrs Vej 80 B 1, DK-8220 Brabrand, tlf. +45 86 26 56 06, fax +45 86 26 56 07
AS-reg.nr. 216.506, SE nr. 17633287

kontram

V.Rasmussen

Quotation 981117-2/JK
23.11.1998

Item 5.	1 pc	Data Backup Unit - Iomega ZIP Drive - Installed in Database Server PC - Includes instructions for using EMC Data Storage Management Software to perform backup copying of data to ZIP cartridges
Item 6.	1 pc	Modem - US Robotics 33.6 KB external modem - 120 VAC
Item 7.	1 pc	Printer - HP model 722C Ink Jet printer - Automatic single sheet feeder (does not support fan fold Paper feeder) - print speed: 8-ppm black, 4-ppm color - includes standard HP documentation only
Item 8	1 pc	Power Conversion Transformer - converts 220-240 VAC to 120 VAC - this transformer is required for operation of the US Robotics modem and the HP Desk Jet printer only.
Item 9.	2 pcs	German (European type power plugs - Installed on UPS system and power conversion transformer
Item 10.	1 pc	UPS - APC uninterruptable power supply, model UPS Pro 1000 - 1400/950 VA/Watts
Item 11.	1 pc	Installation of Software - EMC factory engineers shall install the System Manager software on the hardware items listed in Items 3,4,5,6,7,8 and 9 at EMC's factory in San Luis Obispo - this bid is conditioned upon Kontram supplying the Gateway computer hardware and accessories quoted in Items 3,4,5,6,7,8, 9 and 10 - this bid nor the installation services described here will not be valid if Kontram is not contracted to supply the hardware listed in Items 3,4,5,6,7,8,9 and 10
Item 12.	1 pc	2-days start-up and training services in Cairo by EMC engineer

KONTRAM A/S Carl Jacobsens Vej 16 - 20, DK-2500 Valby, tlf. +45 36 46 24 46, fax +45 36 16 77 78
Jylland: Edwin Rahrs Vej 80 B 1, DK-8220 Brabrand, tlf. +45 86 26 56 06, fax +45 86 26 56 07
AS-reg.nr. 216.506, SE nr. 17633287

C.2.1 d) Standard gases, permeation tubes etc.

27.11.98

To : <dar @ cowi.dk>

From : EIMP Office Cairo <EIMP @ intouch.com >

Sub. : Delivery of standard gases and Perm. Tubes./ Danaida/EIMP project

Jamra

Dear Shiraz

Ref. Email of Kontram Managing Director to you on 27 Jan 1999 concerning the delivery of the above mentioned items , what about the possibility to affect shipping to Egypt directly ? this will save time and efforts .

delivery end of Feb.

Re. Your quotation for the supply of some spares, air dryer scrubber assy., charcoal scrubber assy., and glass chamber for 145 calibrator, prices quoted seem to be very high. For example, part no 6652 is quoted at 1303 DKK / unit, while it was quoted at 417 DKK/unit in the Kontram quotation , Group 1 . Is it logic ? Therefore, kindly contact Kontram to clarify .

Best regards

Anwar Ahmed .

Standard gases
permeation tubes

To : <dar @ cowi.dk>

From : EIMP Office Cairo <EIMP @ intouch.com >

Sub. : Delivery of Standard Gases and Perm. Tubes

Dear Shiraz

How are you ? I have not received email messages from you since a couple of weeks. I hope you are safe .

Further to my email dated 31 January 1999 concerning the above mentioned subject, kindly be advised that we are in bad need of having perm. Tubes, therefore, you are kindly requested to contact Kontram and persuade them to ship only the perm tubes partially by courier . This will help us to proceed with monitors calibration soon .

Re. Kontrm quote for the supply of some spares, air dryer scrubber assy., charcoal scrubber assy., and glass chamber for 145 calibrator, prices quoted seem to be very high as previously mentioned .For example, part no 6652 is quoted at 1303 DKK / unit, while it was quoted at 417 DKK/unit in the Kontram quote , Group 1 . Is it logic ? Therefore, kindly contact Kontram to clarify .

Kontram / PM 10 Calibration Kit .

Kindly place order to Kontram . To save time, shipping via courier has to be effected soon .

Looking forward to your quick action which will be highly appreciated .

Best regards

Anwar Ahmed .

delivery time (from Shiraz)
standard gases and perm. tubes
end of February.

Kontram A/S, 01:31 01/03/199 ρ, Re: From Bjarne

From: "Kontram A/S" <kontram@kontram.dk>
To: <eimp@intouch.com>
Subject: Re: From Bjarne
Date: Mon, 1 Mar 1999 13:31:38 +0100
X-MSMail-Priority: High

Dear Bjarne,

Just to avoid any misunderstandings the timing through this part of our
project has been the following:

1. December 1998 - Order received from COWI
22. January 1999 - Order acknowledgement from AGA on the valves (delivery
29. January 1999)
25. January 1999 - Order acknowledgement from AGA on the gasses (delivery
26. February 1999)
27. January 1999 - Mail to Shiraz informing him about expected delivery by
the end of February 1999 at Kontram and then it should be transported
to Egypt (valves by air, and gases by ship)

Last week we received the valves, but due to a couple of wrong valves the
delivery will be completed today or tomorrow at the latest.

Last week AGA also postponed the delivery of the gasses due to problems
with one of the gasses. AGA anticipates delivery 5. march 1999 here to
Kontram A/S, and then by ship to Egypt. Our shipping company is ready, and
we will do our utmost to get the package to Egypt as soon as possible.

If you need further information, please do not hesitate to contact me.

1 bottle of each by air

Yours sincerely,
Kontram A/S

Vagn Rasmussen
Managing Director

> > -----Alkuperäinen viesti-----
> > Lähettäjä: eimp@intouch.com [SMTP:eimp@intouch.com]
> > Lähetetty: 24. helmikuuta 1999 14:39
> > Vastaanottaja: Jarmo Kiukainen
> > Aihe: From Bjarne
> >

Printed for eimp@intouch.com 1

EIMP

Note

Subject: Purchase of calibration gases and regulators

Date: 24 Mar 1999

To: JFS

Copy: AAE, BS

From: UOL

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

30 Misr-Helwan Street
Maadi, Cairo, Egypt

Tel.: (+202) 525 6439/42/ 47/ 52
Fax: +202 525 6467

E-mail: eimp@intouch.com

For your information:

NIS has today received a confirmation of the order for purchase of reference gases for the Reference Laboratory - Air at NIS and the Air Monitoring Institution at CEHM.

The gases will be shipped from the Netherlands on 29 March 1999.

The prices, excluding sales taxes and expenses for customs clearance, are

1. Reference gases for NIS and CEHM (operational cost) 5884 USD

2. Regulators for same for CEHM (equipment cost) 2233 USD

Customs clearance will be performed by NIS.

Anwar Ahmed

From: Lydia Kiriacos
Sent: 31 ص 09:55 1999 شوال
To: Anwar Ahmed
Cc: Mohamed Fathy

From: Shiraz Akhtar Dar <DAR@cowi.dk>
To: '"eimp@intouch.com"' <eimp@intouch.com>
Subject: misc. matters
Date: Fri, 26 Mar 1999 13:54:42 +0100

dear anwar

please observe the following:

- millipore has confirmed the validity of their offer, a copy is on its way in the fax.

- kontram has confirmed that master cd-roms were not provided with the system manager etc., and will revert soon with what we might expect next move to be!

- new order for system manager has been submitted to kontram, awaiting their comments on remarks made by you.

- B&B has shipped more chemicals, commercial invoice is going through the fax in a minute as well

- kontram also confirms that the remaining two bottles have been shipped (by air) with eta sometime next week. details to follow.

for your information, i shall be out of office until wednesday 7 april.

kind regards

shiraz

Unknown

From: Dean Jones
Sent: 19. april 1999 08:50
To: Anwar Ahmed
Cc: Bjarne Sivertsen; Haytham; Ahmed Seoud; Mohamed Zaki; Mohamed Fathy; Jorgen Simonsen
Subject: Reply to dean from Steve Gersh at EMC, about technical documentation and System Manager Installation

It seems Steve Gersh will be coming here to install system manager, and I think EIMP data management should be present when he installs it. Can you arrange that Anwar ?

[Dean Jones]

-----Original Message-----
From: Lydia Kiriacos
Sent: Sunday, April 18, 1999 12:48 AM
To: Dean Jones
Subject:

From: "Steve Gersh" <sgersh@emcslo.com>
To: <eimp@intouch.com>
Subject: Re: Check_Subject
Date: Fri, 16 Apr 1999 02:45:32 -0700
X-MSMail-Priority: Normal
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.3110.3

Dear Mr. Jones:

The following are responses to your questions.

1. When I return from a current trip to Saudi Arabia and India within 14 days, I will fax you printouts of the hourly average database tables and other supporting tables that may be helpful to you in retrieving data from the hourly average database. This will be the only type of documentation about the database that we will be able to provide to you. If you wish to receive other technical support, our president, Bill Hayes at emc@emcslo.com will be able to provide you a quotation for additional technical support when I travel to Cairo to perform the installation of the new System Manager.

2. During the installation of the new System Manager in Cairo, I will supply CTS and the operator of the new system a CD that contains all of the System Manager files, ODBC drivers, and supporting programs needed to operate the system. I will also provide a copy of Microsoft NT and Windows 98 on CD.

3. I want to inform you that EMC has not yet set the date for the installation of the new System Manager in Cairo. We have only just received a purchase order for this system today and have not scheduled the date for delivery and installation. The schedule for the trip to Cairo should be established within the next 30 days.

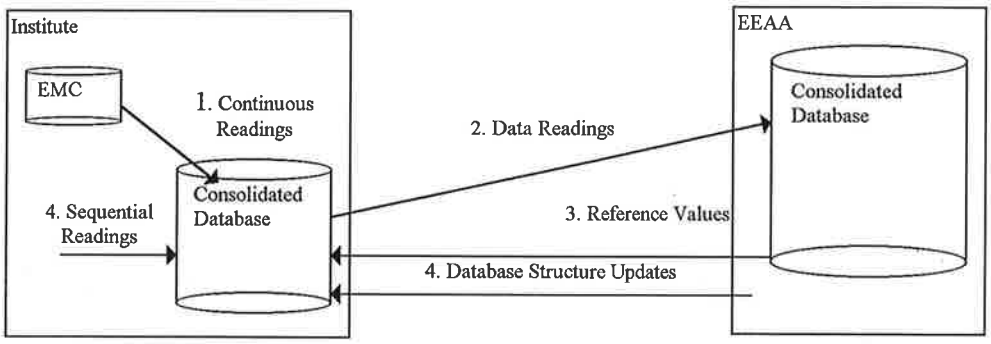
Regards,
Steve Gersh

Appendix D

Data management

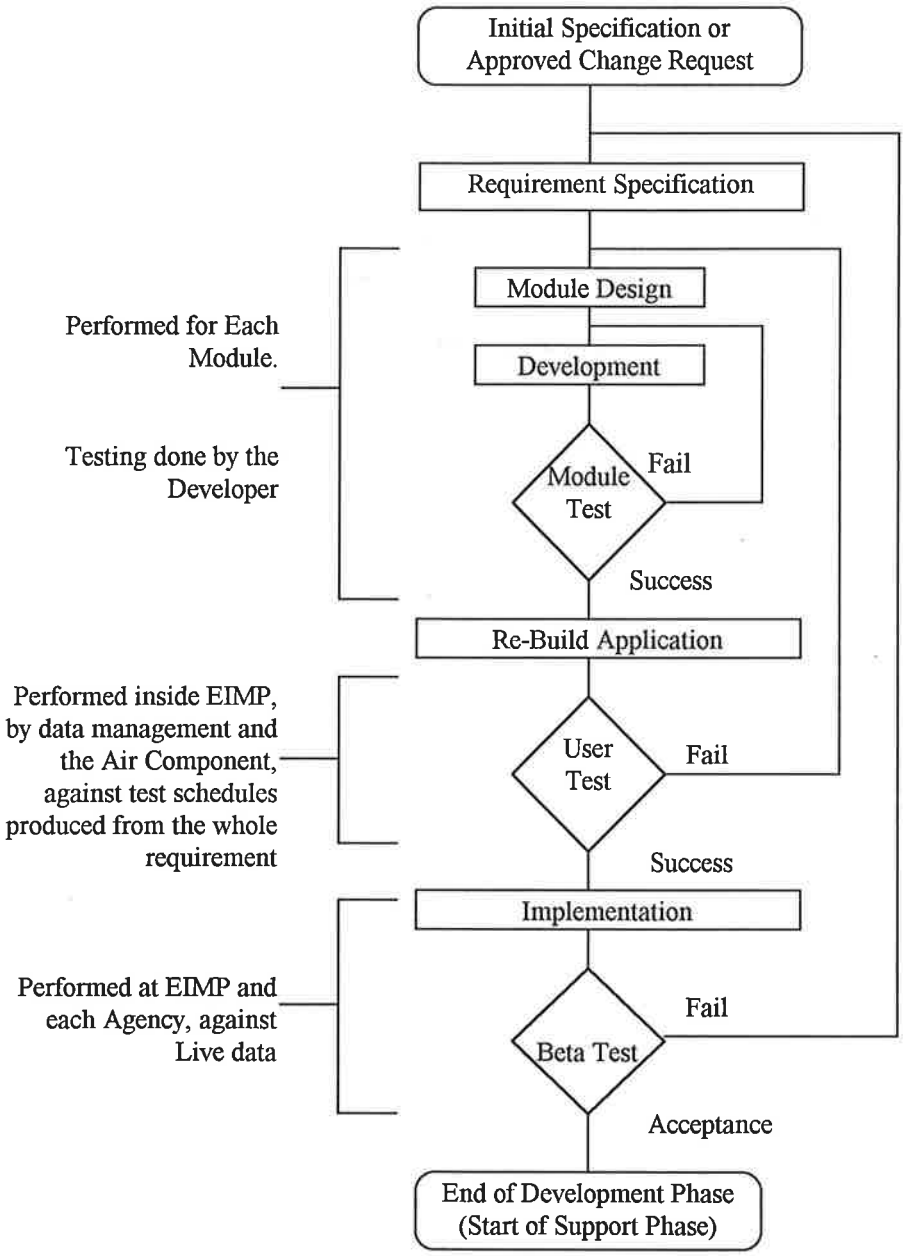
Data transfer
Development lifecycle
Database

Data Transfer

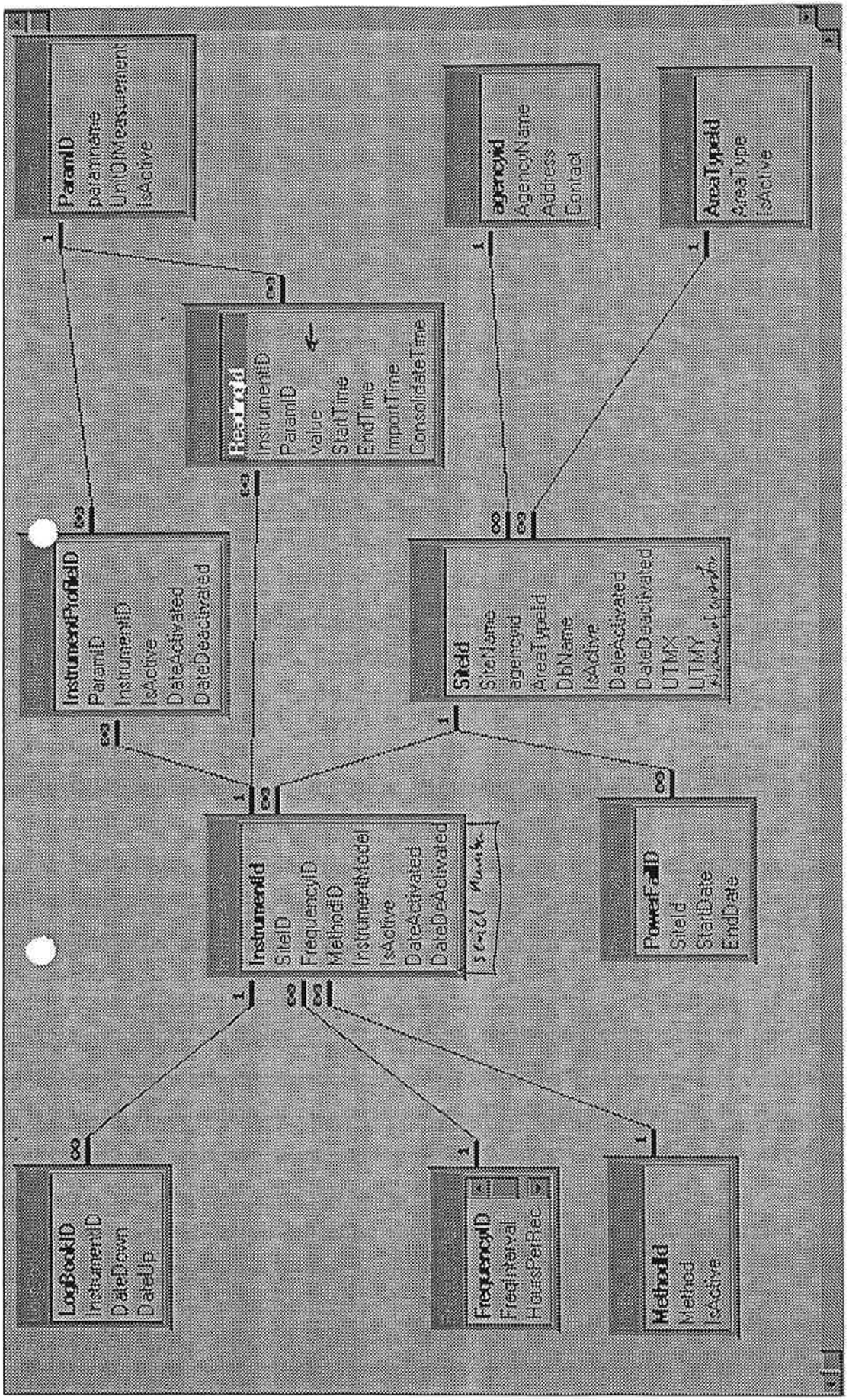


1.4 Development Lifecycle

This flow chart shows the development process we should adopt.



No GIS until October.
order ArcView.
MapInfo?



Coordinated by EEIS

Appendix E

Training activities

Training at Monitoring lab

Training activity	Date	Participants
Cleaning of critical orifices in monitors		
Cleaning of flow path, CO monitors		Yassin

Training at Reference lab

During this mission one week was spent on planning training for the reference lab and two weeks were spent on training.

Training activity	Date	Participants
Dynamic calibration of SO_2, NO_x, CO and O_3 monitors	99.03.01 99.03.02 99.03.03 99.03.04	Moh. Ali Nour Soad Ahmed Sobhy Adel Basuoni Shehata Moh. Aly Mohammed Basma Kamal Saleh Walid Hamed
Calibration of travelling and working standard standard gas cylinders	99.03.14	Moh. Ali Nour Soad Ahmed Sobhy Adel Basuoni Shehata Moh. Aly Mohammed Basma Kamal Saleh Walid Hamed
Station audit	99.03.15 99.03.16 99.03.17	Moh. Ali Nour Soad Ahmed Sobhy Adel Basuoni Shehata Moh. Aly Mohammed Basma Kamal Saleh Walid Hamed

Training at Chemical laboratory

Training activity	Date	Participants

Training at IGSR

Training activity	Date	Participants

Planned training

Training activity	Date	Participants	Performed by
Dynamic calibration of SO_2, NO_x, CO and O_3 monitors		Monitoring laboratory	Reference laboratory
Calibration of travelling and working standard standard gas cylinders		Monitoring laboratory	Reference laboratory

EIMP
Environmental Information
and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: Mohamed Fathy, Ahmed A El Seoud
From Bjarne Sivertsen
Date: 4 May 1999

Training requirements for different components

3. Air pollution Component

Training for Counterpart

- Reporting in English
- General environmental knowledge
- Background in air pollution science (3 week study visit to NILU?)
- -air quality guidelines and regulations
  -meteorology
  -sources and compounds
  –dispersion and deposition
  –understanding the concentration levels
- Preparation of data for monthly, quarterly and annual report
- Basic statistical analysis,
- Understanding and using the data base

Training for Monitoring Institutions

- Basic air quality science
- Reporting (is being trained on-line)
- Treating of samples and chemical analyses
- Field staff training in calibration, maintenance and repair
- Collecting and analyses of VOC samples
- QA/QC at the laboratory
- Basic statistical analyses
- Use of the data base statistics and graphics

Appendix F

QA/QC

F.2.3 QC documentation Spring 1999
F.3.1 a) Additional training
b) QA of environmental measurements
F.4.1 Audit plan

F.2.3 QC documentation Spring 1999

Preparation of QC documentation spring 1999

During this mission the following QC documentation was finalised:

QC documentaion	Accompanying form / comments
SOP Calibrating a SO_2 reference standard gas cylinder	Reference Gas Calibration - SO2
SOP Calibrating a NO reference standard gas cylinder	Reference Gas Calibration - NO
SOP Calibrating a CO reference standard gas cylinder	Reference Gas Calibration - NO
SOP Calibrating a HC reference standard gas cylinder	Reference Gas Calibration - NO
Dynamic calibration of a TEI model 49C O_3 monitor	Dynamic Calibration - Ozon Monitor
Two point calibration of a TEI model 49C O_3 monitor	Two Point Calibration - Ozone Monitor
Routine maintenance on a TEI model 49C O_3 monitor	Routine maintenance. TEI model 49C O3 monitor
Preparing the documentation for a new instrument or station	No form necessary
Air quality station audit	Station audit

In addition much of the existing QC documentation was revised based upon input from the Reference lab. and monitoring institutions. The revised documents will be handed over to the institutions later this year after compiling more comments and suggested changes.

F.3.1 a) Additional training

EIMP

Environmental Information
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30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: Joergen Simonsen
Copy: Mohammed Fathy, Ahmed A. ElSeoud, Heba, Rolf, Leif, Ulla
From Bjarne Sivertsen
Date: 24 Feb. 1999

Calibration of air quality monitors, additional training

To enable preparation and calibration of air quality monitors, as a result of the problems faced at NIS, we have decided to change our work programme slightly. This is being done to try to avoid too much delay in the installation programme.

Leif Marsteen will start to calibrate the monitors at NIS from 1 March 1999, and at the same time undertake training of new and existing personnel at NIS.

He will have to spend at least one week in calibrating equipment, which will delay the preparation of written procedures. To assure that all procedures will be available and understood by the local expert, L Marsteen will return and spend more time at the Monitoring Laboratories and at NIS in June 1999, if required, and after September 1999.

F.3.1 b)QA of environmental measurements

EIMP

Environmental Information
and Monitoring Programme

NEWSLETTER # 3

April 1999

Quality Assurance of Environmental Measurements

The reference laboratory component is established to support the monitoring components (coastal water, air and, till the end of 1998, also point sources) through quality assurance and quality control.

A reference laboratory is established for:

Water, at Ain Shams University, Faculty of Science, Central Laboratory; and
Air, at National Institute for Standards.

The general purpose of the reference laboratories is to

1. assist laboratories working in the EIMP monitoring programme in establishing a sufficient data quality for the monitoring programme, and
2. assist and advise EEAA on matters relating to laboratory measurements.

The activities undertaken by the reference laboratories to fulfil their purpose are to

1. prepare inter-laboratory studies (proficiency tests) to provide information on laboratory and method performance;
2. calibrate air monitoring equipment as a tool for equipment quality assurance;
3. supply training to monitoring institutions in quality assurance issues;
4. assist in preparing requirements for data quality to ensure comparable and reliable measurement data;
5. participate in international inter-laboratory studies and establish traceable calibration as a link between the laboratory community in Egypt and laboratories in other countries.

Proficiency Tests

Performing a proficiency test starts by the reference laboratory preparing samples for parameters selected from the EIMP coastal water or air monitoring programmes. Before or during the proficiency test, the reference laboratory analyses the samples to ensure homogeneity and stability. The samples are sent to the participating laboratories and they perform analyses for the selected parameters.

After the analyses, the participating laboratories send their results to the reference laboratory. The reference laboratory then performs statistical data analysis of the results from the participants. This analysis gives information on the precision and accuracy achieved by the participants. Graphical presentation of the data show the results from each participant in relation to a known concentration as well as the results from other participants. Each participant is represented by a code number known only to the laboratory itself and EEAA.

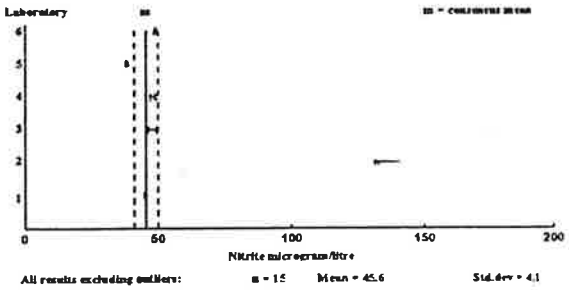
The reference laboratory performs the proficiency tests according to ISO standards and guidelines. The reference laboratory has also established a quality system for performing proficiency tests. Therefore the proficiency tests are at a level suitable for use in the quality management in the participating laboratories and for recognising the competence of laboratories, e.g. by accreditation.

Since the start of the EIMP programme, 5 proficiency tests have been performed. They cover the following parameters:

- chromium, cadmium and copper at mg/l level in water
- nitrate, phosphate and ammonium at mg/l level in water
- chemical and biochemical oxygen demand in water
- nitrate, chloride and pH in waste water
- nitrate, nitrite, phosphate and ammonium in sea water.

The participants are laboratories performing analyses for the EIMP monitoring programme, EEAA's own laboratories and a few others who have accepted the invitation to participate.

An example of the output from a proficiency test is given below for nitrite in sea water.



The plot shows for each laboratory a red bar representing the three results submitted from the laboratory for this sample. Furthermore a vertical line shows the overall average for all laboratories, except laboratory no 2 which is an outlier, ~~which~~ thus means a laboratory which differs so much from all others that it is not included in the statistical evaluation. The two dotted lines represent a 10% interval on both sides of the average. As can be seen, the results from most laboratories are within the 10% interval and therefore compare very well to one another whereas laboratory no 2 needs to investigate the cause of deviating results.

The output from the proficiency tests is an essential tool for EEAA to provide information on the data quality in the monitoring network. At the same time the participating laboratories received the same information and have the chance to correct any unsuspected errors. It is the hope that many other laboratories will take the opportunity offered through the activities of the EIMP reference laboratories to obtain this important information on their own quality.

The EIMP is implemented by the Egyptian Environmental Affairs Agency (EEAA) with support from the Danish International Development Assistance (Danida)

F.4.1 Audit plan

EIMP

Note

Subject: REFERENCE LABORATORY

Date: Audit plan for 1999

To: 9 Mar 1999

Copy: HA

From: BSJ MEA

UOL

Environmental Information and Monitoring Programme

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Maadi, Cairo, Egypt

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The plan for station audits from the contract for the Reference Laboratory - Air is given below. However. there is already a small change: Tabbin South is going to be audited on 16th March as part of Leif's training course because Nasr City is not suitable due to the unstable power supply.

First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Maadi	Tabbin	Abu Kir	IGSR
Nasr City	Shoubra El Kheima	El Max Petrogas	El Fayoum
Cairo University	El Gemhoroya Street	Alex Regional	Suez
Abu Zabel	El Quolaly	El Azafa	Tabbin South
	Gheat El Inab	Fum El Khalig	6 October
			10 Ramadan

Furthermore, PM_{10} monitors and samplers, and ozone monitors will not be audited until after Leif's next mission where he will train in auditing of these instruments.

EIMP

Note

Subject: REFERENCE LABORATORY

Quality System training at CEHM

Date: 9 Mar 1999

To: BSJ

Copy: HA

From: UOL

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

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Maadi, Cairo, Egypt

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Bjarne and Heba/Haisam

I have been too busy to take care of the training that I owe CEHM in fitting their quality system together to a unit, consisting of all the documentation prepared by Leif. But now it certainly can wait no longer. I have already started at IGSR a long time ago, doing it in connection with activities for the Coastal Water people there.

I propose to contact Dr Tarek and arrange for this, probably when I see him in the final step of the auditor training on the 17th. Is that all right with you?

For your information, EIMP/EEAA has an activity in the contract of NIS which consists of assistance with preparing the General Procedures for which Leif has made the framework and a lot of groundwork, and which must be finished by CEHM and IGSR themselves. Both CEHM and IGSR may therefore expect an invitation from NIS in the near future.

EIMP

Fax Transmission

To: Cairo University, Centre for Environmantal Hazard Mitigation

Fax no.: 571 9687

Attention: Dr Tarek El-Araby

No. of pages: 1 (incl. this page)

Environmental Information and Monitoring Programm

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Maadi, Cairo, Egypt

Tel.: (+202) 525 6439/42/ 47/ 52
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E-mail: eimp@intouch.com

Date
15 Apr 1999

Your ref.
400204

Our ref.

Quality Assurance and Quality Manual

Dear Dr Tarek El Araby

One of my tasks on the EIMP project is to assist the monitoring institutions to prepare their quality system. In you case, Leif has done a very large part of the work in making operations procedures and preparing the groundwork for general procedures. However, you still do not have the top management level of the quality system (the Quality Manual) and you will need to finish the general procedures. Both of these tasks you will do yourselves and I am here to help you.

I propose that we meet to start the process at your earliest convenience. I will the give you an introduction and help you to define some activities for you to prepare the Quality Manual. I will then follow you at 3 - 5 training sessions to help in your progress until the task is finished. I propose that the training takes place at CEHM.

The participants in the training should be yourself, your Quality Manager and any other of your staff who are involved in quality management, for example from your laboratory.

I am available on 19, 20, 21, 27 and 28 of this month. The first training will take approximately two hours. Will you please arrange with your staff for any one of these days and let me know when the training will be?

Yours faithfully

Ulla Lund
Reference Laboratory Task Manager

Appendix G

Monitoring

G.2.3 a) Contract for preparation of sites
b) Worknotes from Marsteen and Dreiem
G.3.2 a) Work plan Feb.-June 1999
b) The air quality monitoring programme
c) Various memos concerning installations
G.4.1 Instrument and site maintenance
G.4.2 Spareparts needed for service and repair
G.5.1 NO_2 concentrations (24 h aver.) measured at Nasr City
G.5.2 Memos on air quality in Nasr City, Egypt
G.6.3 EIMP passive sampling programme
G.7.1 Monthly Report, March 1999

G.2.3 a) Contract for preparation of sites

Environmental Information
and Monitoring Programme

EEAA - Danida - COWI

30 Misr-Helwan Street
Maadi, Cairo, Egypt

Tel.: (+202) 525 6439/42/ 47/ 52
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E-mail: eimp@intouch.com

Contract Agreement

This agreement is made on November 11. 1998 between The Environmental information and Monitoring Programme(hereinafter called "EIMP") of the one part and Environmental Engineering Company (EEC) . 3 Canal street, Maadi, Cairo (hereinafter called "the Contractor") of the other part:

WHEREAS EIMP assigned the contractor to carry out miscellaneous works, such as

Fabrication of stands for PM_{10} samplers, preparation of concrete foundation for PM_{10} samplers. unloading of shelters, positioning of shelters on the roof of building, opening holes and sealing of holes, supply of lab. furniture(benches, shelves, tables, chairs), fixation of weather station Met towers, supply and installation of locks for doors and ladders , small welding works, ...) .

EIMP hereby agreed to pay the contractor in consideration of the provision of the works as costs will be estimated for each case individually . The estimated costs must be accepted by EIMP prior to implementation of works .

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Agreed on behalf of

First Party	Second Party
Eng. Mohamed Fathy	Mohammed Nassar
Acting Project Manager	

Date November 11th 1998

EIMP
Environmental Information
and Monitoring Programme

G.2.3 b) Worknotes from Marsteen and Dreiem

99.02.20 Left Norway for Egypt at 05:50.

99.02.21 Arrived at Sofitel at 01:30. First day at the office. Staff meeting. Prepared complete QA/QC doc. for myself. Bjarne and Oddvar arrived at 19:30.

99.02.22 Office work. Weekly meeting at CHEM.

99.02.23 Started to work on SOP for maintenance of O3 monitors.

99.02.24 Finished SOP and form for maintenance of O3 monitors. Went to the storage, a lot of mess. Pump model for air supply to O3 monitors: Thomas model no. 107CCD14TFEL-7139. Multi meter model: Fluke.

99.02.25 Finished SOP and form for dynamic calibration of O3 monitors. Finished SOP and form for two-point calibration of O3 monitors. Changed plans, will calibrate 6 monitors at NIS next week.

99.02.28 Office work. Weekly meeting. Did not go to CHEM.

99.03.01 Went to NIS. Calibrated two O3 monitors. One was a little unstable. Did not check for leaks. Trained NIS personnel in calibration.

99.03.02 Went to NIS. Calibrated two SO2 monitors. One was too unstable. One was OK but had an elevated background level (86.5 ppb). Brought two O3 monitors from NIS to the storage. Unstable SO2 monitor will be reclibrated later by NIS/ Rolf. Trained NIS personnel in calibration.

99.03.03 Went to NIS. Calibrated two NOx monitors. One had an elevated NO2 level before calibration (12 ppb). Probably no problem. The other monitor showed 0.0 ppb NO2 at 800 ppb NO after 2 hours. Calibrated OK. Brought OK NOx and SO2 monitors back to the storage. NOx monitor with elevated NO2 level wil be calibrated tomorrow by NIS. Trained NIS personnel in calibration including O3 titration for checking the NO2 to NO converter.

99.03.04 Went to NIS with Rolf. We inspected and familiarised ourselves with the CO monitor to better understand why the zero level increases. It is problably because of dirt deposits on the mirrors in the flow path. Rolf will check this at CEHM later. Calibrated the NOx monitor which had elevated zero level. Calibrated one CO monitor. No problems. Brought the NOx and CO monitors back to the storage. Trained NIS personnel in calibration.

A total of 7 monitors were calibrated this week of which one SO2 monitor needs closer checkup.

Next week NIS will calibrate 4 or 5 more monitors as training without supervision of EIMP. If all goes well we will have a total of 10-11 monitors ready for installation by the end of next week.

99.03.07 Staff meeting. Finialised SOPs for calibrating NO, SO2, CO and HC reference gas cylinders.

99.03.08 Finalised SOP for preparing the documentation for a new instrument or station. Started planning of audit training next week. Prepared the QA/QC documentation for Maadi station.

99.03.09 Made a copy of the Maadi station QA/QC documentation for NIS. They will use it during preparations for audits as an example on how the QA/QC documentation is organised. Ulla will transfer the binders and the SOP for preparing the doc. to NIS tomorrow. She will also check the status on the calibration of monitors.

99.03.10 Prepared documentation for the Station audit seminar. The seminar will be held for NIS personnel.

99.03.11 Prepared documentation for the Station audit seminar. Finalised first version of the SOP for performing a station audit.

99.03.12 Prepared documentation for the Station audit seminar.

99.03.13 Prepared documentation for the Station audit seminar. A workbook called "Workshop 15-16 March 1999. Introduction to station audits" by Leif Marsteen and Ulla Lund was finalised.

99.03.14 Calibrated SO2 travelling standard gas cylinder at NIS for use during Station audit training. Trained NIS personnel in gas cylinder calibration.

99.03.15 Station audit training at Maadi station. NIS Personnel attended. Trained on system audit and performance audit, the latter on the SO2 monitor only. Yassin represented CEHM as technician.

99.03.16 Station audit training at Tabbin south station. NIS Personnel attended. Trained on system audit only. Maher represented CEHM as technician.

99.03.17 Finalised Station audit by having a summary meeting with NIS and CEHM. The audits went good.

Based on input from NIS some changes was made to the audit procedure and form. The SOP and form was handed over to UL who will give it NIS.

99.03.18 Prepared diplomas for the audit training participants.

Office work.

Work Notes April 1999. (R. Dreiem)

99.04.01 Prepare El Mansura.

99.04.02 Friday.

99.04.03 Saturday.

99.04.04 Office work. Planning and preparation for El Mansura. Staff meeting and meeting at CEHM cancelled. Transferred rack from CEHM to storage ready for installation in El Mansura. Prepared instruments at storage. 1 PC, 1 NOx monitor and 1 Calibrator 145 was transferred from CTS to storage. 1 PM10 Monitor inc. pump and inlet transferred to CTS.

99.04.05 Note from Anwar telling me that there is **NO POWER** available at shelter in El Mansura yesterday. The installation schedule is now delayed due to infrastructure in Egypt. I was told 2-3 weeks ago that electricity was connected in Mansura. MF said that I had to come to the office to pick up AES before going to El Mansura next day. Finalised the rest of Mansura station at storage.

99.04.06 Put El Mansura station on a truck and went to office at 10 am. Had to wait until 1130 am for AES, and was informed by MF that AES needed my car next day to visit other stations in the delta. It is very difficult to put up a station without a car and a driver even if I have the possibility of using TAXI. I can not send a taxi to get nuts or screws locally if I need some. The man from IGSR is under training so he can not go on his own and leave me continuing work. This means that it is ABSOLUTLY necessarily for me to have a COMPANY CAR when I am putting up stations. Arrived El Mansura at 2 PM and brought all instruments up on the roof besides the shelter.

99.04.07 Started at 9 am and waited fore electricity until 11 am. AES left at 10 am with company car. Worked until late afternoon.

99.04.08 Continued putting up all instruments and on the job training until 6 PM. At this time all instruments were working well and the station was completed. Due to delay in electricity connections and no company car on 4 Apr 99 the training did not have the quality that is usual fore a complex station as El Mansura. Arrived Cairo close to 9 PM.

99.04.09 Friday.

99.04.10 Saturday.

99.04.11 Staff meeting. Meeting at CEHM. Office work. Planning.

99.04.12 Not working day in Egypt.

99.04.13 Planning Kafr El Zayat. To storage and started on PM10 monitor who is not working! Due to long time out of operation backup battery is empty and all programmed information is lost. Has to be reprogrammed to measure the correct flow.

99.04.14 Early to storage and started work on PM10 monitor. The monitor is now working well. Started to put together the rest of equipment for Kafr El Zayat. Left storage at 6 pm by taxi.

99.04.15	Put together logbooks for Kafr El Zayat. Still missing 24 V power supply for solenoid valves on air intake. This was ordered 8 weeks ago. Went to storage to finalise all equipment for Kafr El Zayat.
99.04.16	Friday.
99.04.17	Saturday.
99.04.18	Staff meeting. Last preparation for Kafr El Zayat. Meeting at CEHM.
99.04.19	Went to Kafr El Zayat. Made station ready for installation. Nearest hotel in Tanta, New Hotel Arafa.
99.04.20	Installed Kafr El Zayat. Driver came from Cairo bringing one missing power supply (locally made). This power supply did not work. 24 volt DC drooped to 3 V under the load of solenoid valves. Tested on 2 different valves and I got the same results. Brought power supply back to Cairo on return.
99.04.21	Finalised Kafr El Zayat station. All is working well except for the solenoid valves due to the 24 V DC transformer (not working). Training undertaken by Mohamed Mamdoh, IGSR.
99.04.22	Office work. Starts assemble bits and pieces to make the station Mahalla ready for installation next week.
99.04.23	Friday.
99.04.24	Saturday.
99.04.25	Not working day in Egypt.
99.04.26	Mahalla will not be ready. No shelter, air condition or electricity. Start to work on instruments for Domyat instead of Mahalla. Meeting at CTS tomorrow at 1600 to discuss PM10-monitor from IGSR.
99.04.27	Nasr did not succeed in installing shelter in Domyat. This installation has also to be done later. Files for Domyat is ready. Starts on making preparation for Assyut stations and to put up Assyut 1 up at CEHM. Meeting at CTS. The PM10 monitor is no working well after reprogramming the system constants. The PM10 monitor will be put up in Alexandria on 3 May 99. CTS asked if they could borrow the Foil Calibrator?
99.04.28	Made all instruments for Assyut ready at storage.
99.04.29	Transferred Assyut station and 2 dust fall to CEHM. I got 1 Foil Calibrator from Dr Tarek and this was taken to CTS on my way to office.
99.04.30	Friday.

G.3.2 a)Work plan Feb.-June 1999

EIMP

Air Quality Monitoring
Work Plan Feb.-March 1999

Date	Name	Task	Comments
20 Feb Saturday			
21 Feb Sunday	LM BS	• Office work • Arrival in Cairo	
22 Feb Monday	LM BS ++	• Prepare SOP • Meeting the staff	
23 Feb Tuesday	all	• AQ meeting CEHM	
24 Feb Wednesday	OR LM	• Discuss with A Suliman and co-workers. • Writing SOP O_3	
25 Feb Thursday	OR LM BS	• Data storage and data presentations • Writing SOP O3 • Journalist at EIMP	CEHM lab
28 Feb Sunday	All BS all	• 1000 Staff meeting • 1100 Meeting at CEHM • 1300 AQ meeting CEHM	
1 Mar Monday	OR LM BS,RD	• Meeting with Saad Hassan from Ain SHAAms Reflab • Calibrate at NIS • To Alex for meeting and repair	
2 Mar Tuesday	OR LM RD BS	• QA-QC Procedures for SO4, NO2, lead • Calibrate at NIS. • Repair and maintenance Alex • Site mission with CAIP	Meet Nasar at storage
3 Mar Wednesday	OR LM	• Writing mission report. • Calibrate at NIS	
4 Mar Thursday	OR, BS LM RD	• Leaving Cairo • Repair CO at NIS • Calibrate an preapare CO NIS	
7 Mar Sunday	All	• Staff meeting • 1400 AQ meeting CEHM	
8 Mar Monday	HAA LM RD	• Site visit to Domiat • Prepare Audit training • Prepare instruments for RasMohammed	
9 Mar Tuesday	LM RD	• P. Audit training • To Sharm ElSheik	

Air Quality Monitoring
Work Plan March-April 1999

10 Mar Wednesday	LM RD	• P. Audit training • Installation in Ras Moammed	
11 Mar Thursday	LM RD	• P. Audit training • Finalising work in Ras MoHAAmmed	
14 Mar Sunday		• Staff meeting • 1400 AQ meeting CEHM	
15Mar Monday	LM RD	• Audit training at Maadi station • Prepare instruments for Kafr Zayat	
16 Mar Tuesday	LM RD	• Audit training at Maadi station • Prepare instruments for Kafr Zayat	
17 Mar Wednesday	LM RD	• Audit training at Maadi station • Prepare instruments for Kafr Dawar	
18 Mar Thursday	LM RD	• Office work • Prepare instruments for ElMansoura	
	BS	Returning to Cairo	
21 Mar Sunday		• Staff meeting • 1400 AQ meeting CEHM	
22 Mar Monday	BS,RD	• To Alex, meeting IGSR	BS Morning train
23 Mar Tuesday	BS RD	• In Alex. Conference , training • Maintenance and repair, training	
24 Mar Wednesday	BS RD	• In Alex., return by train at noon • Install Kafr Dawar return to Cairo	Heba wedding
25 Mar Thursday	BS RD	• Site visit to ElMahalla • Calibrate and prepair	
28 Mar Sunday	All	• Fiest	
29 Mar Monday		• Fiest	
30 Mar Tuesday		• Fiest	
31 Mar Wednesday	BS/RD HAA	• Reporting • Prepare papers for Kafr Zayat etc..	
1 April Thursday	RD BS HAA	• Office and storage, prepare ElMansoura • Site visit Met Authority • Prepare papers, etc for ElMahalla .	Air condition installed in ElMansoura
	BS, HAA	Travel to Aswan, by air	
4 April Sunday	BS, HAA	• **EASTER** • Site visit to Aswan, KomOmbo	Car from EIMP in Aswan
5 April Monday	BS, HAA RD	• Site visit Luxor • Prepare ElMansoura • Install Air Condition in ElMansoura!!	EIMP car
6 April Tuesday	RD BS,	• Install El Mansoura • Site visit to Edfu	EIMP car

Air Quality Monitoring
Work Plan April 1999

7 April Wednesday	RD BS, HAA	• Install El Mansoura • From Luxor 1545	
8 April Thursday	RD BS HAA	• Install El Mansoura • AQ meeting CEHM, annual report • Prepare papers for Met Authority • Agreements Met + Upper Egypt	
	HAA	• To Domiatt ??	
11 April Sunday	All BS	• Staff meeting • 1400 AQ meeting CEHM • Prepare passive samplers for Alex	 Passive sampling CEHM
12 April Monday	All	• Holiday	
13 April Tuesday	RD BS, HAA	• Prepare Kafr Zayat • Meetings IGSR Alex, annual report	
14 April Wednesday	RD BS,HAA	• Prepare Kafr Zayat • Passive sampling AbuKir	
15 April Thursday	RD BS, HAA	• Calibrate, repair and prepare monitors Kafr Zayat • To Cairo, site visit Domiatt	KafrZayat Air Con??
18 April Sunday	RD BS	• Staff meeting • 1400 AQ meeting CEHM	Check agreements and electricity Domiatt
19 April Monday	RD BS HAA	• Install Kafr Zayat • Reporting at CEHM • Agreements Upper Egypt	Telephone lines for ElMansoura and ElMahalla???
20 April Tuesday	RD BS HAA	• Install Kafr Zayat, • Prepare seminar • Check permissions ElMahalla	 Shelter and power in ElMahalla?
21 April Wednesday	RD BS	• Install Kafr Zayat • Site visit Tanta	Air Condition to ElMahalla
22 April Thursday	RD BS	• Prepare ElMahalla / Domiatt • Various repair? • Reporting of data • 14:00 Cairo Air Data base	Shelter to Domiatt electricity
25 April Sunday	All	• holyday	Holyday in Egypt?
26 April Monday	RD BS HAA +	• Prepare ElMahalla • Reporting meeting data base • Report from IGSR • To ElMinia site visit • Drive to Assyut,	 With CEHM
27 April Tuesday	HAA RD BS	• Site visit Assyut • Prepare Domiatt • Prepare summary reports, CEHM	With CEHM

Air Quality Monitoring
Work Plan April-May 1999

28 April Wednesday	HAA RD	• Site visits? Letters • Install Domiatt	With CEHM
29 April Thursday	RD HAA BS	• Install Domiatt • Letters and aggreements Assyut and Minia • Meeting at CEHM	With CEHM
2 May Sunday	 All	• Staff meeting 1400 AQ meeting CEHM	
3 May Monday	RD,BS RD	• To Alex. • Training and installation PM_{10} • Return to Cairo?	
4 May Tuesday	All HAA	• Meeting EIMP/ Dr Ibrahim • Check Luxor ComOmbo, Edfu, Aswan	
5 May Wednesday	BS,HAA RD	• To NagHammadi? • Holidays	
6 May Thursday	HAA,BS RD	• NagHammadi • Holidays	
9 May Sunday	All BS	• Staff meeting • 10:00 Meeting CAIP/EIMP • 1400 AQ meeting CEHM	Shelter to Met. Authority
10 May Monday	RD BS HAA	• Holidays • Reporting • Electricity etc. ElMaHAAlla and Tanta	
11 May Tuesday	RD BS HAA	• Prepare Assyut and Met Author. • Reports and meetings • Electricity Met Authority?	
12 May Wednesday	RD BS	• Training Assyut. • Prepare seminar and reports	AirCondit. Met Authority
13 May Thursday	RD	• Prepare Met Author. • **SEMINAR**	Shelter to ElMaHAAlla?
	BS	Leaving Cairo	
			Power ElMaHAAlla
16 May Sunday	RD, HAA	• Staff meeting • 1330 AQ meeting CEHM • Check upper Egypt	Place shelter Domiatt?
17 May Monday	RD HAA	• Install Met Authority • Prepare sites upper Egypt	 With CEHM
18 May Tuesday	RD HAA	• Install Met Authority • Reconstruction Gemhoryia street?	Shelter to Luxor
19 May Wednesday	RD	• Install Met Authority	Electricity in Luxor
20 May	RD HAA	• Finish Met. Auth prepare El Mahalla • Status Gemhoryia	Shelter to ComOmbo
23 May	RD	• Staff meeting • 1330 AQ meeting CEHM	

Air Quality Monitoring
Work Plan May June 1999

24 May	RD HAA	• Install El MaHAlla • Check Tanta	Electr. In ComOmbo?
25 May	RD	• Install El MaHAlla	
26 May	RD	• Finish ElmaHAlla • Prepare NagHAmmadi	
27 May	RD	• Install Tanta	
30 May	All RD, HAA	• Staff meeting • 1400 AQ meeting CEHM • Last training Assyut	Shelter and met tower to Assyut
31 May	RD HAA	• Install Domiatt •	Electricity and Air Condition to Assyut
1 June	RD HAA	• Install Domiatt •	
2 June	RD HAA	• Prepare ComOmbo •	Shelter to Aswan ??
3 June	RD HAA	• Prepare and calibrate • Install Assyut	With CEHM
6 June	All	• Staff meeting • 1400 AQ meeting CEHM	
7 June	RD	• Install Luxor	
8 June	RD LM	• Install Luxor • Arrival Cairo	
9 June	RD HAA	• Install ComOmbo • Telephone lines, where??	
10 June	HAA	• Check Gomhoryia	
13 June	All	• Staff meeting • 1400 AQ meeting CEHM	
14 June	RD	• Install Aswan	
15 June	RD	• Install Aswan	
16 June	RD	• Install Aswan	
17 June			
20 June	All	• Staff meeting • 1400 AQ meeting CEHM	
21 June	RD	• Check Assyut monitors	
22 June	HAA	• To ElMinia and Assyut	
23 June	RD HAA	• Check Sampling Programme • ElMinia to Assyut	
24 June	LM	**Leaving Cairo**	

Air Quality Monitoring
Work Plan June-July 1999

27 June	All HAA	• Staff meeting • 1400 AQ meeting CEHM • Install Asyut	
28 June	RD HAA	• Install Asyut	
29 June	HAA	• Install Asyut	
30 June	HAA	• Install Asyut	
1 July	RD	Finalising work	

G.3.2 b)The air quality monitoring programme

EIMP Air Quality Monitoring Programme
Location of instruments (updated May 1999)

				Monitors							Samplers							
	Site name	Area type		SO2	NOx	PM	HC	O3	CO	Met	PM	TSP	VOC	SO2	NO2	Pa	PS	DF
	Cairo																	
1	Cairo city El Qualaly	Urban centre	S	1	1	1						1	1					
2	El Gemhoroya street	Street canyon		1	1	1	1	1	1									
3	Meteorological Inst	Urban / Res.	ss	1				1		1								
4	Nasr City	Residential									1			1	1			
5	Maadi EEAA building	Residential		1	1						1							
6	Tebbin	Industrial		1	1	1				1		1						1
7	Tebbin south	Industrial	Sc									1	1	1				1
8	Fum Al-Khalig	Road side/urban	Sc	1	1	1	1		1		1							
9	Abu Zabel	Industry/res															2	1
10	Shoubra el Kheima.	Industrial		1						1		1	1		1	1		1
11	Giza, Cairo University.	Residential		1	1			1		1								
12	Gizapyramid	Regional															2	
13	6 October	Res/industrial	ss								1			1	1			
14	10 Ramadan	Res/industrial	ss								1			1			2	1
	Canal area																	
15	Suez	industrial/res.	S	1	1							1						1
16	Port Said	Residential														1	2	
17	Ismailia	Residential														1	2	
	Upper Egypt																	
18	El Fayum	urban															2	1
19	El Minya	Res./ Industrial														1	2	1
20	Assyut 1	industrial/ res.	S	1	1	1				1								
21	Assyut 2	Residential/urban															2	1
22	Naga Hammadi	industrial/res														1		1
23	Luxor	urban/residential	?											1			2	1
24	Edfu	Industry/urban.	ss														2	1
25	Kom Ombo	industrial												1		1	1	
26	Aswan	urban/residential.	S	1				1		m							1	1
	Sinai Area																	
27	Sharm ElSheik	background						1								1		1
	Number of instruments *(this page)*			11	8	5	2	5	2	5	5	5	3	6	3	7	22	14

EIMP Air Quality Monitoring Programme
Location of instruments

			Monitors							Samplers							
Site name	Area type		SO2	NOx	PM	HC	O3	CO	Met	PM	TSP	VOC	SO2	NO2	Pa	PS	DF
Alexandria																	
28 Abu Keir College	Industrial	S	1	1						1							1
29 El-Max Petrogas	Industrial	ss								1		1	1	1			1
30 IGSR, Alex University	Urban/road side	S	1	1	1	1		1									
31 El-Azafra-El Azhar Uni	Residential	ss											1	1	1		
32 Gheat El-Inab school	Residential	ss								1			1	1			
33 Alexandria regional	regional	ss					1		1								
Delta Area																	
34 Damanhur	industrial/res														1	1	
35 Kafr el Zayet	industrial/res	S	1	1	1												1
36 Tanta	urban												1		1		
37 ElMahalla El Kubra	industrial/res.	S	1		1												1
38 El Mansura	industrial/res.	S	1	1					1								1
39 Domyat	residential									1		1	1				1
40 Kafr Dawar	urban/industr	ss											1		1	1	1
Instr. Alex+Delta			5	4	3	1	1	1	2	4	0	2	5	3	3	1	6
Instr Cairo+C+UE+S			11	8	5	2	5	2	5	5	5	3	6	3	7	22	14
Instr. at Ref Lab			1	1		1	1	1									
Instr. at Mon Lab			1	1	1	1		1		1							
Instr. at other institutions			1	1			2		1								
Backup instr.			1	1			1		1			1	1	1	1		1
Number of instruments needed			18	14	9	5	6	5	7	10	5	6	12	7	11	23	21
	Instrum ordered		18	14	9	5	7	5	7	10	5		*13*	*7*	*12*		*22*

S = shelter; (2.0m x 2.3m x 2.1 m)
Sc=shelter (joined with CAIP) (2.1mx3.0m.2.1m)
ss =shelter for samplers (1.5mx1.5mx2.1m)

G.3.2 c)Various memos concerning installations

EIMP

Environmental Information
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EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: Joergen Simonsen
From Bjarne Sivertsen
Date: 25 Feb. 1999

Various matters as of 25 February 1999

The weekly Air Quality Team meeting will be reported to the EIMP administration. From the meeting on 23 Feb 1999 it can be mentioned that:

- -A major part of the installed instruments are operating
- -Power lines and telephones are still a problem at some sites (the responsibility of the EIMP/EEAA counterpart)
- -Calibration of new instruments has to be undertaken by expatriate experts at the moment
- -Preparations of sites BEFORE installation of expensive instruments have to be undertaken properly
- Official letters have to be prepared at new sites.

Calibration and training at NIS (See Memo)

Preparations of sites

The practical construction work that is needed at all sites has to be improved. Last fall I was told that EEAA wanted to hire one or two persons for undertaking these tasks. This has now been cancelled.

We thus propose that for the rest of the installation period we establish an agreement with Mr Mohammed Nasar, who has been responsible for supplying shelters and ladders to the programme during since September 1998. He will thus also be responsible for assuring that shelters, access, power and various installations of shelves, locks, alarms, air condition systems, stands for dust fall and PM_{10} samplers etc. are properly undertaken BEFORE we move in the instruments! There will also, throughout the Spring, be necessary to erect 3 meteorological towers, a task that he successfully undertook in Alexandria last year.

Transport problems

For the comprehensive and continuously needed field work, the transport situation has become unacceptable. We want the EIMP/EEAA staff to understand that field preparations, installations, maintenance and calibrations can NOT completely be undertaken between 0900 hrs and 1600 hrs. The critics and problems that especially Rolf has been faced with can not continue.
The best solution would be to assign one driver to the Air Component at least as long as we still are installing equipment in field. This driver has to be willing to work outside "normal office hours". To return to the office before 1600 hrs every day has already created delays in the installation programme.

Instruments ordered

Orders of instruments, spare parts, gases and permeation tubes originally placed in November 1998 has still not arrived in Egypt. I am not sure whether the delay is caused by administrative problems within EIMP, delay from COWI or Kontram or if it is just misunderstandings. However, I have contacted Kontram to find out. The pending orders were placed at Anwar yesterday, and are hopefully accomplished.
I am afraid that the installations of some of the instruments will be delayed compared to the original schedule.

Car for IGSR Air Pollution

Last fall I requested a car for IGSR. This was approved with the following argumentation:
During the contract negotiations the inspection schedules were changed so that IGSR also became responsible for several sites outside Alexandria. The institution will have to cover an area as far away as to Damietta (about 200 km from Alexandria).

They will have a total of 12 sites to inspect, calibrate, check and service. We propose that a small car will be purchased for the use at IGSR for weekly site visits, calibrations, data retrieval and various sampling. This car will be in operation every day of the week and will hopefully meet the needs of the IGSR as a Monitoring Laboratory for EIMP/EEAA air quality monitoring programme.

A full programme will be installed in the greater Alexandria area at the end of November 1998, and the Delta sites will be in operation from the beginning of 1999. We thus propose to go ahead with the necessary procurement procedures to be able to include this car into the programme as soon as possible.

Toolbox for CEHM

The Monitoring Laboratory at CEHM received a toolbox for maintenance and repair is missing a drill and a hammer. This will be supplied as soon as possible

Spare parts to CEHM

CEHM will start repairing monitors next week. Most of the spare parts presently stored at the Storage in Maadi will have to be moved to Cairo University (CEHM). Rolf will together with Anwar select the appropriate spare parts to be moved as soon as possible.

EIMP
Environmental Information
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Memo

To: Mohammed Nasar
Copy: J. Simonsen, M Fathy, A AlSeoud
From Bjarne Sivertsen
Date: 10 April 1999

Shelter deliveries, updated

The summary of sites and stations, including the need for shelters, indicate that there still are a few shelters that will have to be constructed and transported to the sites.

The big shelter Model C is needed for Aswan and Assyut, Model A shelters are needed in ElMahalla and at Met Authority and the small Model B shelter will be needed at 3 more sites. Shelters outside the big cities of Cairo and Alexandria should be **painted white** to avoid absorption of solar radiation and over heating of the shelter inside. Final orders will have to be placed at least 3 weeks prior to the delivery date. The updated delivery schedule will be as following:

Site	Delivery date	Model
Domyat	13 April 1999 ?	B
Aswan	7 June 1999 ??	C x)
ComOmbo	19 May 1999	B
Luxor	18 May 1999	B
Met. Authority	9 May 1999	A + AWS
ElMahalla	5 May 1999	A (ordered)
Assyut	17 May 1999	C x) + AWS
Tanta	12 May 1999	Maadi shelter fixed

x) Two aircondition systems in parallell, model FumAlKhalig will be installed

The shelters will be delivered and lifted to the specified sites according to the contract. Ladders and additional equipment will have to be considered at each location. Electricity an AC will have to be installed as soon as possible after shelter delivery.

Tower for Automatic Weather Stations (AWS) will have to be prepared at Meteorological Authority and at the Shoubra ElKheima site. A "mobile" meteorological station will be installed in Aswan.

Bjarne Sivertsen

EIMP

Environmental Engineering Company

3 Canal Street. Maadi.

Cairo.

Eng. Hend M. Hassan. Managing Director

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

30 Misr-Helwan Street
Maadi, Cairo, Egypt

Tel.: (+202) 525 6439/42/ 47/ 52
Fax: +202 525 6467

E-mail: eimp@intouch.com

Date 1 April 1999

Subject : Your Bid dated 19 August 1998

Dear Eng. Hend.

Referring to your bid dated 19 August 1998. and the contract signed between EIMP and your company on 1 November 1998. we are pleased to extend our orders with 1 additional unit of model B. at LE 7.800 each . Delivery address is Domyat.

Kindly note that the dimensions of the shelter. model B. remain unchanged.

Will you please confirm the order to enable us arranging to effect the advanced payment .

Yours sincerely

For Jorgen F. Simonsen

EIMP Project Manager

G.4.1 Instrument and site maintenance

EIMP

Environmental Information
and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: Monitoring Laboratories
From Bjarne Sivertsen
Date: 28 Feb. 1999

Instrument and site maintenance to be undertaken by Monitoring Laboratory personnel

To maintain the stations and instruments the responsible monitoring expert will have to undertake maintenance and cleaning. The maintenance procedures are described in the procedures and manuals. All actions have to be **reported in the logbooks!**

Some of the tasks covered by maintenance are:

- Manual weekly span check at all monitors,
- Calibrate the monitors with travelling standards every 3 month,
- Change monitor intake filter,
- Clean monitor fan filter,
- Clean the intake of the monitoring box,
- Leak check monitors, tighten fittings,
- Clean permeation tube chamber,
- Clean intake manifold,
- Change intake tubes (annually),
- Clean intake at PM_{10} monitor,
- Clean meteorological sensors,
- Change radiation shields,
- Clean intake for sequential samplers, PM10
- Calibrate High-volume TSP and ~~TSP~~ samplers
- Clean and keep the station in order.

Follow all procedures, and USE the log books!!!!

**For break downs that will require repair,
bring the instrument to CEHM repair
work shop for repair!**

EIMP

Fax Transmission

To	IGSR, CEHM
Fax no.	
Attention	Dr. Sayed Shalaby, Dr. Tarek El Araby
No. of pages	2 (incl. this page)

Environmental Information and Monitoring Programme

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30 Misr-Helwan Street
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Tel.: (+202) 378 5137 , 378 5237
Fax: +202 378 5478

E-mail: eimp@intouch.com

Date
23 Feb 1999
Our ref.
27776/HA

Subject: Equipment Maintenance and Repair

Dear Dr.,

At the beginning I would like to thank you for the great effort you showed in operating EEAA\EIMP Air monitoring network during the last period. The data obtained throughout the last month is becoming better in quality. It is now utmost importance that the monitoring laboratories tube the complete responsibilities for the operation of the monitoring network.

Concerning the equipment operation, maintenance and repair, I would like to clarify the procedure you should follow during this year to avoid any misuse or problems that may affect your data availability in the near future.

The following steps summarise the procedure:

- The station installation, the development of SOP for all the equipment with the on- job training supported by EIMP expert.
- Operating the station in accordance to manuals and SOP's with clear recording in the station log books that will help in the station auditing.
- In case of error occurrence with the equipment , please check the manuals, the procedures and return back to SOP. Don't forget to record in your log book.
- If the problem still existing and the instrument is within the warranty period, please contact CTS directly and inform EIMP. Outside the warranty period please bring the instrument to the laboratory at CEHM for repair.
- When you get the equipment back working properly, be sure to get the repair\ maintenance report, send copy to EIMP and keep the original for the equipment history in each station.

Finally, I would like to attract your attention that any misuse of the stations log- book may affect your operation performance.

If you have any further explanations or comments, please do not hesitate to contact me immediately. We highly appreciate your understanding and co-operation, hoping for you the best in the completion of the work.

With my regards.

EEAA\EIMP Counterpart
Heba Adly

EIMP

Fax Transmission

To	Prof. Mohamed El-Raey
Fax no.	2034215792
Attention	Dr Shallaby, AAE, BS, HA, JS
No. of pages	1 (incl. this page)

Environmental Information and Monitoring Programme

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E-mail: eimp@intouch.com

Subject: Instruments in Alexandria.

Date 99.02.18

Our ref.Rolf Dreiem

Thank you for your fax of 99.02.15

I would like to inform you of the plans I have at present:

1. Telephone Mohamed Mamdoula and give him some ideas how to check the temperature sensor. Properly just a bad contact.

2. Regarding counter at Gheat El-Enab station you can use the sampler without the counter. The counter will be replaced as soon as possible. (Warranty, has to get a new from CTS.)

3. 145- Calibrator at Abu Qir will be replaced when I come to Alexandria. At present no permeation tubes is available, and you have no use of the 145-Calibrator.

4. PM10 Monitor at IGSR. CTS agreed to send one engineer to you Saturday or Sunday first. CTS have all telephone and fax numbers and will contact you as soon as they know time and date of arrival in Alexandria. Hopefully the problems regarding PM10 monitor is over after this visit.

Regards

Rolf Dreiem

G.4.2 Spareparts needed for service and repair

EIMP

Note

Subject	Air monitoring sparepart list
Date	18 Mar 1999
To	AAE
Copy	MF, RD, BS, JFS
From	LM

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

30 Misr-Helwan Street
Maadi, Cairo, Egypt

Tel.: (+202) 351 0970
Fax: +202 378 5478

E-mail: eimp@intouch.com

I have prepared an Excel workbook for tracking the use of spareparts in the air monitoring component. The workbook includes one sheet for each group of instruments, eg. monitors, samplers, meteorology etc.

The columns are as follows:

Column:	Includes:
p/n	The sparepart part number
Item	Description of the sparepart
Stor.	Original number of spareparts in the storage according to our first sparepart order.
Take units	Total number of sparepart units removed from the storage
Unit prc. Dkk	Unit price in Danish kroner according to our first sparepart order.
Take Dkk	Total price of all units taken out of the storage.
Instruments	One coumn for each instrument model. A "x" indicates that the sparepart is used by that model.
Comments	Comments

Document location:

\\Eimpserver\Air Quality\Instruments\consumables and spareparts orders.xls

EIMP

Note

Subject	Air monitoring spareparts
Date	18 Mar 1999
To	Tarek ElAraby
Copy	MF, AAE, BS
From	LM

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

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E-mail: eimp@intouch.com

Attached you will find a sparepart list for most of the instruments in the EIMP programme with the unit prices included. The unit prices are in Dkk and is only an indication of today's prices. Today's prices are probably 50-100% higher.

Choose Data - Filter -Show all

Spareparts and consumables monitors

p/n	Item	Stor.	Take units	Unit prc. Dkk	Take Dkk	Instruments 42C	43C	48C	49C	PS	55C	145	146	1150	pm10	Log	Comments
2-2962	Dessicant cartridge	4		611.-							x						
2-2963	Deionizer pack	4		567.-							x						
1158	RTD			477.-							x						
4070	Filter element, fan	20		106.-		x	x	x	x	x	x						
4118	Capillary, 08 MIL S	2		137.-					x	x							
4119	Capillary, 08 MIL L	3		137.-		x											
4121	Capillary, 10 MIL L	2		137.-								x	x				
4127	Capillary, 15 ML L	3		137.-		x											
4158	Charcoal, activated			381.-		x						x		x			Buy in bulk
4233	Temp. cont., 250-500C			3,004.-										x			
4291	Scrubber, O3	1		1,035.-		x											
4293	Dryer, O3 generator			1,332.-		x											Buy in bulk
4314	Filter, element, type 90	4		133.-								x					
4320	Filter element (pk/25)	12		1,601.-		x	x	x	x								
4341	Gasket, viton (pk/2)	10		9.-		x											
4509	Fuse, 2 amp s/b (pk/5)	4		38.-					x	x			x				
4510	Fuse, 3 amp s/b (pk/5)	5		38.-		x	x	x				x		x			
4800	O-ring, viton (pk/10)	5		27.-		x	x		x	x		x	x				
4802	O-ring (pk/5)	5		18.-									x				
4803	O-ring	10		8.-		x							x				
4806	O-ring	10		11.-		x											
4808	O-ring	10		16.-		x	x										
4811	O-ring	10		14.-			x										
4820	O-ring	10		8.-			x										
4821	O-ring	10		12.-		x											
4822	O-ring	10		12.-		x											
4829	O-ring	10		16.-			x										
4830	O-ring, (pk/2)	10		14.-			x										
4831	O-ring, (pk/2)	10		16.-			x										
4910	Fuse (box of 5)	2		50.-											x		
5013	Pump repair kit, Thomas	4		281.-								x					
6652	Glass chamber, perm oven			417.-								x					
6998	Desiccant, dri-rite mtl (2 lb)	2		266.-		x											

Choose Data - Filter -Show all

Spareparts and consumables monitors

p/n	Item	Stor.	Take units	Unit prc. Dkk	Take Dkk	Instruments 42C	43C	48C	49C	PS	55C	145	146	1150	pm10	Log	Comments
7075	Purafil, (pound)			364.-								x					Buy in bulk
7336	Capillary, 18 MIL L	2		137.-				x									
7361	Source IR	4		252.-				x									
8119	Mode solenoid valve					x											
8186	Reactor, CO/HC (111)			4,030.-										x			
8193	Repair kit, compressor (K264)	4		336.-										x			
8510	Fuse, (pk-5)	2		38.-							x						
8540	Lamp photometer (49)	3		1,278.-					x	x							
8548	Washer teflon	10		16.-					x	x							
8549	Gasket, silicon (8546)	10		33.-					x	x							
8573	Solenoid valve	1							x	x							
8579	O-ring, silicon (pk/5)	5		20.-					x	x							
8606	Pump repair kit, KNF	20		252.-			x	x	x	x	x						
8645	Lamp ozonator (49)	2		1,068.-						x			x				
8919	Capillary, 13 MIL L	4		137.-			x										
8666	UV lamp	2		3,881.-			x										
9212	O-ring (pk/5)	5		23.-		x											
9267	Pump repair kit, KNF (9263)	10		446.-		x											
9269	Converter cartridge, molycon			3,729.-		x											
9788	Cleanser, O3	4		1,518.-		x											
9973	Ozonator assy					x											
12190	Filter, inlet (includes 12188 gasket)	1		448.-							x						
14950	Thermal fuse	2		299.-							x						
18074	Ignitor	4		119.-							x						
11029	FID O-ring	2		119.-							x						
11030	Thermocouple O-ring (pk-5)	1		60.-							x						
20100	Valve rebuild kit	2		597.-							x						
20110	Thermocouple assy, flame sensor			239.-							x						
20125	FID rebuild kit	2		597.-							x						
20150	Actuator rebuild kit	2		119.-							x						
20200	Column (CH4-NMHC spc)			2,984.-							x						
KBGAM314	Filter media, glass fibre	2		1,429.-											x		
HPRINT02	Roll, printer paper	20		109.-											x		

Spareparts and consumables monitors

p/n	Item	Stor.	Take units	Unit prc. Dkk	Take Dkk	Instruments 42C	43C	48C	49C	PS	55C	145	146	1150	pm10	Log	Comments
KBGAM117	Gasket set	3		735.-											x		
ZACVANC01	Pump repair kit	9		649.-											x		
KBGAM118	Tubing set	1		150.-											x		
KBGAE316	Battery pack, clock	1		259.-											x		
	Analog to digital converter			5,910.-												x	
	Digital control PC board			4,210.-												x	
	Analog input MUX 16 diff.			4,210.-												x	
	Digital control relay interface			4,210.-												x	
	Station Manager PC			13,610.-												x	
177-005-0082	SO2 perm. tubes, TEI 43C-400			2,020.-			x										
177-008-0082-T33	SO2 perm. tubes, TEI 145			2,020.-			x										
177-007-0081	NO2 perm. tubes, TEI 145			1,920.-		x											
	100±1% ppm NO gas cyl			11,270.-													Not larger then 10 l
	100±1% ppm SO2 gas cyl			11,270.-													Not larger then 10 l
	5000±1% ppm CO gas cyl			8,510.-													Not larger then 10 l
	200±1% ppm CH4+C3H8 gas cyl			8,810.-													Not larger then 10 l
	0.8±10% ppm NO gas cyl			12,280.-													Not larger then 10 l
	0.8±10% ppm SO2 gas cyl			14,370.-													Not larger then 10 l
	0.8±10% ppm CO gas cyl			6,590.-													Not larger then 10 l
	2±10% ppm CH4+C3H8 gas cyl			7,120.-													Not larger then 10 l

Choose Data - Filter -Show all

Spare parts high volume samplers

p/n	Item	Stor.	Take units	Unit prc. Dkk	Take Dkk	Instr. pm10	Instr. TSP	Comments
AWAAXXX8	Calibration orifice kit			6,836.-		x	x	
GGNR0001	Gasket, neoprene (17.5")	8		159.-		x		
GGNR0002	Gasket, neoprene (9x11)	8		42.-		x	x	
GGNR0006	Gasket, inlet clean ring	8		50.-		x		
GGNR0007	Gasket, inlet housing	8		50.-		x		
GGNR0008	Gasket, inlet clean/plug	8		42.-		x		
GGNR0009	Gasket, neoprene (2.5")	8		42.-		x	x	
HENCL014	Carrying case for cal. kit			986.-		x	x	
HBRUSH02	Brush inlet cleaning	10		33.-		x		
HFLTR001	Filter media, microquartz	20		1,148.-		x		
HFLTR002	Filter media, microquartz	2		660.-			x	
HMISC009	Inlet oil, multiweight	4		117.-		x	x	
HMISC011	Pressure recorder pen	40		85.-		x	x	
HMISC012	Pressure recorder pen arm	4		85.-		x	x	
HMISC035	Manometer oil, red	1		84.-		x		
HCHART01	Chart paper, circular (pk-25)	15		133.-		x	x	
KHVAM206	Cassette cartridge	5		1,203.-		x	x	
KHVAM305	Assembly, brushless M/B, 220/50			5,850.-		x	x	
MAAAAH03	Plug, cleaning assy	4		259.-		x		
MAAAAH04	Ring, space, cleaning assy	4		184.-		x		
MASAAH07	Cover, protective cassette			143.-		x	x	

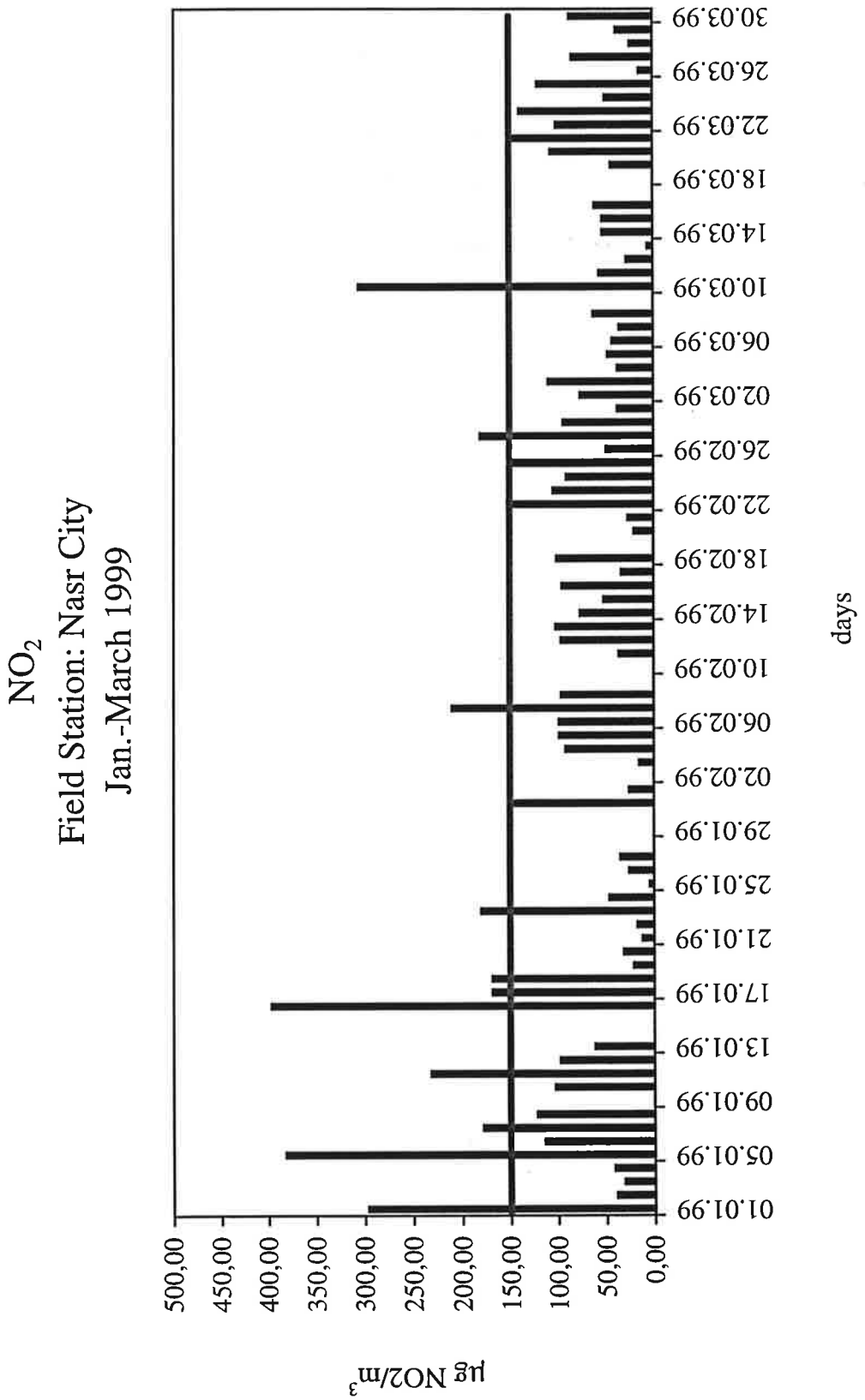
Spareparts meteorology

		Stor.	Take units	Unit prc. Dkk	Take Dkk	Instr. Prm.	Instr. Port.	Comments
1812	Aluminum cup assembly for m014	2		597.-		x		
1888	Bearings	12		114.-		x		
1898	Bearings	10		120.-			x	
2017	Potentiometer assembly for m024	2		923.-		x	x	
2106	Vane assembly for m024	2		675.-		x		
510070	Relative humidity calibrator			2,948.-		x	x	
590051	Fan motor for m0788			511.-		x		
820200	Relative humidity chip	3		817.-		x	x	
083C-0-35	Relative humidity/temp. sensor			5,328.-		x	x	
62	Differential temperature sensor			1,420.-		x		
97	Solar radiation sensor w/pn1289			3,019.-		x	x	
34	Wind speed and direction sensor			3,268.-			x	
	7 Amp. hour battery	1		390.-			x	

Spare parts samplers

		Stor.	Take units	Unit prc. Dkk	Take Dkk	Instruments FKN	FKS	SF1	Comments
9721	Particulate fallout collector w/lid	22		381.-				x	
	Sintered glass in bulb	49		167.-		x			
NK-VPO 125	Pump	1		1,429.-		x			
	Timer	2		709.-		x	x		
	Intakes	20		248.-		x	x		
	Filter holder, two stage inline	192		333.-			x		
N-75 KVE	Pump	1		2,858.-			x		

G.5.1 NO_2 concentrations (24 h aver.) measured at Nasr City



EIMP

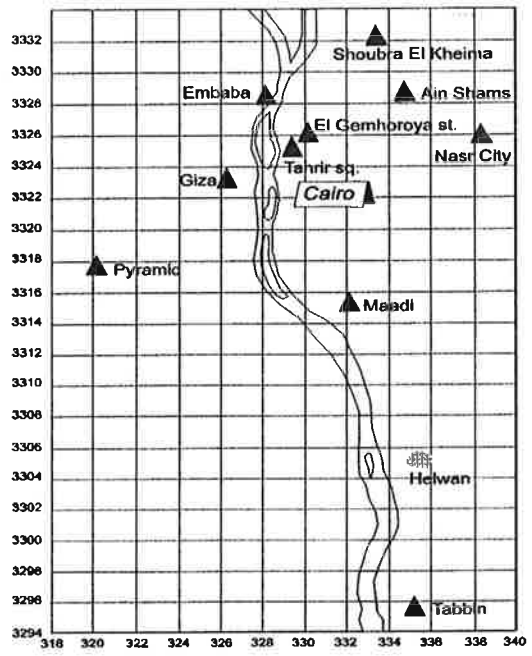
Environmental Information and Monitoring Programme

G.5.2 Memos on air quality in Nasr City, Egypt

NEWSLETTER # 1

September 1998

Air Quality in Greater Cairo



EIMP Air Quality Monitoring Network in Greater Cairo

The first EIMP air quality monitoring station was opened at Tebbin in October 1997. Another 6 stations have been installed by late September 1998 and the installation in Cairo will be completed by the end of 1998.

The entire national network covering 39 sites throughout Egypt will be fully installed by mid 1999. Parameters measured include SO_2, NO_x, CO, NMHC (Non Methane Hydro Carbons), O_3 as well as particulate matter (PM).

The network is a combination of traditional samplers and real-time monitors working on a 24 hour continuous basis. All data are recorded on PCs and are transferred via modem to the EEAA contracted network operator at Cairo University. Here the data are statistically analysed and quality assurance is applied.

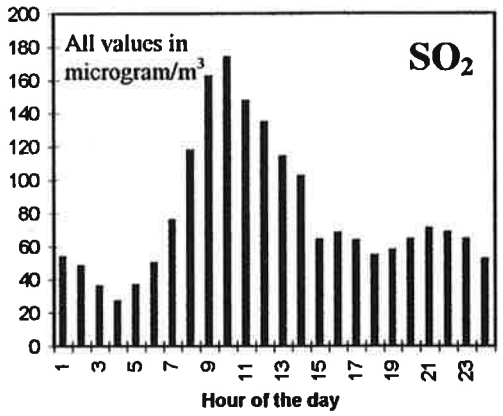
Much of the air pollution in Cairo is generated from traffic, in particular diesel vehicles emitting both SO_2 and particulate matter.

The graph below clearly shows the correlation between traffic movement pattern and SO_2 concentrations in a typical Cairo street setting.

Lowest concentration levels are found early morning (around 4 am) whereas the peak levels are registered around 9-10 am in the morning rush hours. A similar pattern is registered for PM and CO emissions although the PM levels in Cairo are affected by high background values also, due to the dessert setting and generally dry climate.

Egyptian air quality standard values for SO_2:

1 hour average	*: 350 microgram/m^3*
24 hour average	*: 150 microgram/m^3*
Annual average	*: 60 microgram/m^3*



Average (hourly) SO_2 concentrations for El Gomhoroya Street in March 1998

The EIMP is implemented by the Egyptian Environmental Affairs Agency (EEAA) with support from the Danish International Development Assistance (Danida)

EIMP

**Environmental Information
and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467**

Memo

EIMP/EEAA Air Quality measurements in the Alexandria area

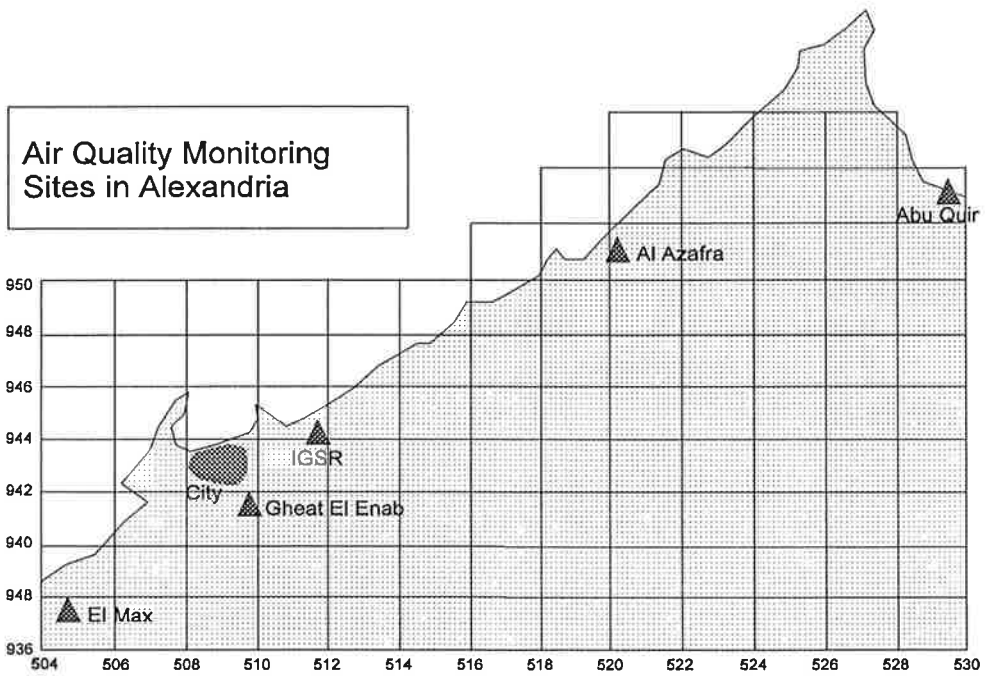
Bjarne Sivertsen, EIMP air quality monitoring team leader

The measurment programme

Six air quality measurment sites have been installed in the Alexandria area. These sites represent different area types such as:

- Industrial (2 sites)
- Urban areas/ traffic (1 site)
- Residential areas (2 sites)
- Background measurements (1 site)

The location of the sites is shown in Figure 1.



The sites are:

IGSR, Alexandria
The IGSR monitoring station was installed in February 1998. The sites represents the urban city centre of Alexandria and is also in some cases directly impacted by the heavy traffic on Horoya street. Most of the data has been of good quality but check and calibrations had to be undertaken regularly.

IGSR, Background station
The shelter for ozone monitoring at the background station in Alexandria was lifted to the top of the high building at IGSR on 23 November 1998. Background ozone measurements and meteorological parameters are measured here.

Abu Keir College
The station was installed in November 1998. The site selected was not perfect for measuring within the maximum impact area downwind from the most important sources (the fertilisers) in the area. However, occasionally, we can see impact of NOx from the fertilisers. A special study using passive samplers have been undertaken to investigate the most impacted areas due to emissions from the fertilisers in the area.

El-Max area
The shelter with samplers for SO_2, NO_2 and particles were installed in November 1998. The site is down-wind from cement industries and from a refinery. The instruments have performed well since the start up of measurements.

El-Azafra
A shelter with samplers for SO_2 , NO_2 and particles were installed in November 1998. The site is located in a typical residential area of Alexandria. The measurments show impact from open air waste burning and general human activities in the area.

Gheat El-Enab
The shelter on top of the fire station was installed in November 1998. The samplers for SO_2 , NO_2 and particles show the impact from a residential area were local burning and dust generating is dominating.

Air Quality Limit values for Egypt

The measurements performed in Egypt are all compared to the Air Quality Limit values given by Law no 4. A summary of the limit values is presented in the following Table together with the World Health Organisation Guideline values.

Pollutant	Averaging time	WHO	Egypt
SO_2	24 h	125	150
	annual	50	60
NO_2	24h		150
	annual	40-50	
PM10	24 h	70 Norw	70
Black smoke	24 h	50 x)	150
Ozone	1h	150-200	200
TSP	24 h		230
CO	8h	10	10

x together with SO_2

Typical average concentrations

Typical average concentrations of four indicators: PM_{10} (suspended particles less than 10 micrometer in diameter), SO_2 (sulphur dioxide), NO_2 (nitrogen dioxide), and Ozone is presented in figure 2.

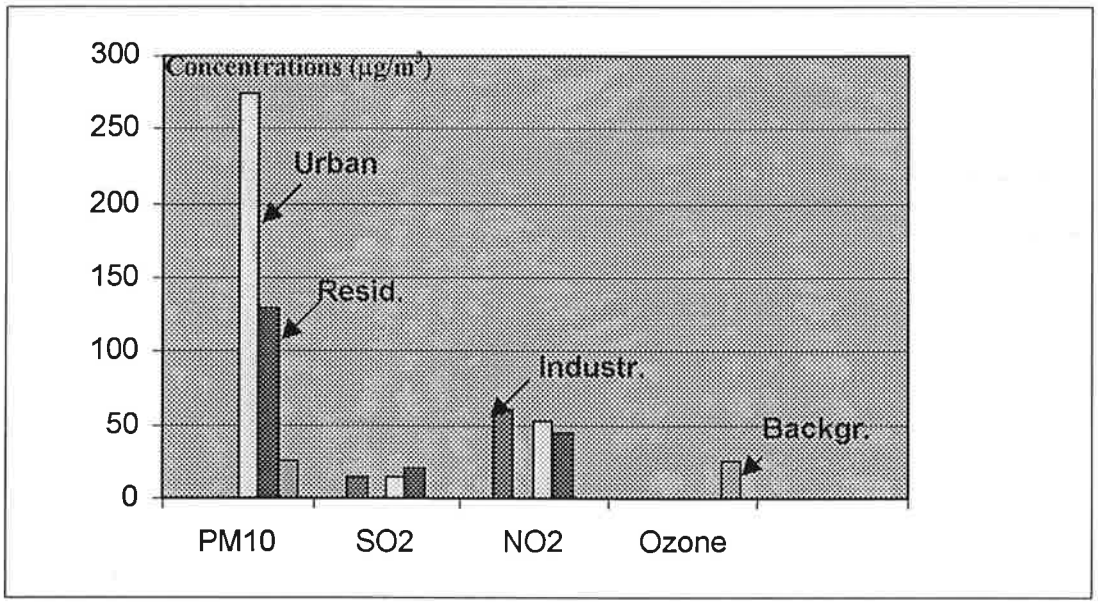


Figure 2: "Annual" average concentrations of PM_{10}, SO_2, NO_2, and ozone at urban, residential, industrial and background sites in Alexandria.

The most important air pollutant compared to the Air Quality Limit values is suspended particles as given by PM_{10}. This is the case for all sites in Egypt. In Alexandria the typical concentrations in urban areas are about 3 to 4 times the Air Quality Limit value of 70 µg/m^3 as a 24-hour average. In residential areas of Alexandria the values are about twice the Air Quality Limit value

The SO_2 concentrations in Alexandria have proven to be surprisingly low at all sites. Only occasionally can we see high short-term concentrations (1-hour averages) when industrial emissions impact on the site directly. The SO_2 levels in Alexandria is also significant lower than in the Cairo area. In Alexandria exceedances of the Air Quality Limit value for SO_2 has not been recorded.

There is no Air Quality Limit value for NO_2 in the Egyptian Law no 4. However, the WHO Health Organisation air quality guideline indicate a limit of 40 to 50 µg/m^3. The NO_2 concentrations measured in Alexandria may in some areas violate the WHO guideline values as shown in Figure 3.

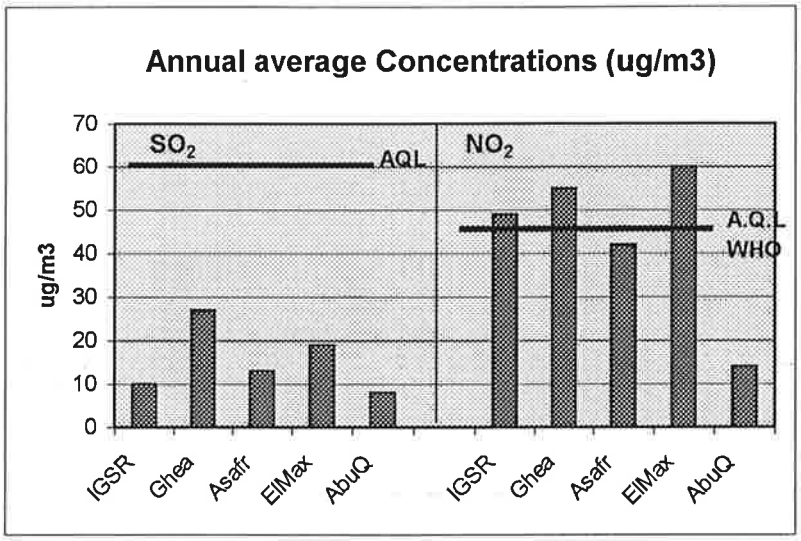


Figure 3: Average concentrations of SO_2 and NO_2 at 5 sites in Alexandria

The 24-hour average concentrations of NO_2 , as shown from El-Max area in Figure 5, did not yet exceed the Air Quality Limit value in 1999.

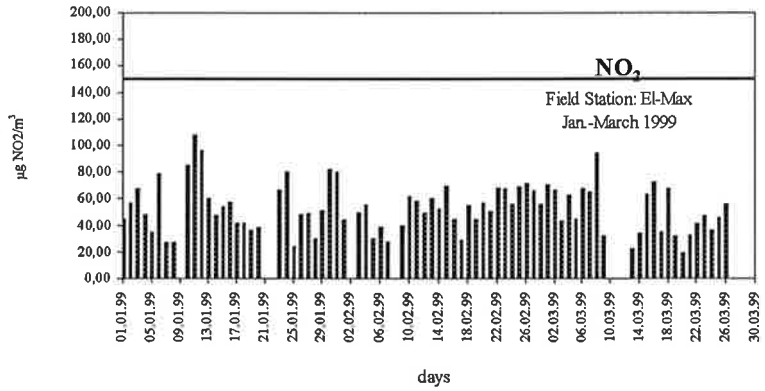


Figure 5: Daily average NO_2 concentrations measured at ElMax from 1 January to 30 March 1999.

The same picture can be shown for ElAzafra and Gheat ElEnab areas.

The diurnal variation of NO_2 studied at the IGSR site, close to the Horoya street, shows a clear influence from traffic air emissions. The maximum concentrations of NO_2, SO_2 , NMHC and CO are all recorded during rush hour traffic.

G.6.3 EIMP passive sampling programme

EIMP Passive sampling programme

Updated May 1999

			Quarterly samples									
	Site name	**Area type**	**Jan**	**April**	**July**	**Oct**	**monthly**	**Passive**		**Other**		
	Cairo											
3	Meteorological Inst	Urban / Res.	x	x	x	x		NO2		SO2	M	
7	Tabbin south	Industrial					x	NO2		SO2		df
9	Abu Zabel	Industry/res					x	NO2	SO2			
12	Gizapyramid	Monument	x	x	x	x		NO2	SO2			
	Sakkara	Monument	x	x	x	x		NO2	SO2			
	Tahrir Sq.Am.Un.	Urban					x	NO2	SO2		A	
	Shoubra (Kamela)	Residential	x	x	x	x		NO2	SO2			
	Helwan (Maher)	Residential	x	x	x	x		NO2	SO2			
	Nasr City (Tarek)	Residential	x	x	x	x		NO2	SO2			
	Heliopolis (Tarek)	Residential	x	x	x	x		NO2	SO2			
	AinShams (Ahmed)	Residential	x	x	x	x		NO2	SO2			
	Canal area											
	Suez industrial	industrial/res.					x	NO2	SO2			df
16	Port Said	Residential					x	NO2	SO2		A	
17	Ismailia	urban/resid					x	NO2	SO2		A	
	Upper Egypt											
18	El Fayum	urban					x	NO2	SO2		A	df
19	El Minya	Res./ Industrial					x	NO2	SO2		A	df
21	Assyut 2	residential/urban					x	NO2	SO2		A	df
22	Naga Hammadi	industrial/res					x	NO2	SO2		A	df
	Luxor, Karnak	monument	x	x	x	x		NO2	SO2			
	Luxor, Temple	monument	x	x	x	x		NO2	SO2			
24	Edfu	Industry/urban.					x	NO2	SO2		A	df
25	Kom Ombo	industrial					x	NO2		SO2	A	p
26	Aswan	urban/residential.					x	NO2		SO2	A	df
	Sinai Area											
	Sharm ElSheik	city, tourist	x	x	x	x		NO2	SO2			
27	Ras Mohamed	background					x	NO2	SO2		O3	df
	Alexandria											
33	IGSR, Background	Urban regional					x	NO2	SO2		O3	M
	AlAzafra (Shallaby)	Residential	x	x	x	x		NO2	SO2			
	Roman theatre	Monument	x	x	x	x		NO2	SO2			
	Delta Area											
40	Kafr Dawar	industrial					x	NO2		SO2	A	df
34	Damanhur	industrial/res					x	NO2	SO2		A	df
	Kafr el Zayet south	industrial					x	NO2	SO2		A	df
36	Tanta	urban					x	NO2		SO2	A	
39	Domyat	resid					x	NO2		SO2	A	df

A = AIRmetrics PM10 sampler
df = dust fall collector

G.7.1 Monthly Report, March 1999

EIMP

Air Quality Monthly Report

Air Quality in Egypt, March 1999

1.Introduction

This monthly report is based upon preliminary data collected for EIMP/EEAA by the Monitoring Laboratories at the Centre for Environmental Hazard Mitigation (CEHM) at Cairo University and the Institute of Graduate Studies and Research (IGSR) at Alexandria University. The monitoring programme has been design and established by EIMP. The measurement programme is still under construction, the installation programme is not finalised and the measurement personnel are still being trained in operations, maintenance and quality control. The monthly data presented have been pulled from the database at an early stage in the various processes of data quality assurance. The QA/QC on the data has not been finalised, and thus the data are not fully validated.

2. Sites and indicators

During March 1999 17 measurement sites were operated by CEHM and 5 sites were operated by IGSR. These sites were all part of the EIMP/EEAA air quality monitoring programme. The sites and indicators are presented in the Table 2.

The selected set of environmental indicators are being be used by local and regional authorities as a basis for the design of monitoring and surveillance programmes and for reporting the state of the environment.
Air quality indicators should:

- · provide a general picture
- · be easy to interpret
- · respond to changes
- · provide international comparisons
- · allow development of trend analyses.

Table 1: Typical air quality indicators used internationally, based on impact on public health (World Health Organisation (WHO) 1987, and 1995)

Indicator	AQ guideline values Averaging time			
	1 h	8 h	24 h	Year
CO (mg/m^3)	30	10	-	-
NO_2 (µg/m^3)	200			40-50
SO_2 (µg/m^3)	500		125	50
PM_{10} (µg/m^3)	-		70**	-
Black Smoke* (µg/m^3)	125		50	-
Ozone (µg/m^3)	150-200	120		-

*Together with SO_2 ** Norway 3)

It should also be noted that a common feature of exposure to the air pollutants such as NO_2 , SO_2 , ozone and PM (particulate matter) is that the resulting health effects may be affected by the interference of other compounds and/or aero allergens. The interaction of the compounds can be synergistic. These considerations are not taken into account when Air Quality Limit values are established.

Although the Air Quality Limit values take into account the most sensitive populations, interactions with climatic factors are not accounted for. The existence of a threshold value has not necessarily been documented for all compounds. For compound where this is the case there is normally a safety margin between the lowest known effect and the Air Quality Limit value.

Table 2: The air quality measurement programme operated in Egypt during March 1999

		Indicators								
Site name	**Area type**	SO2	NOx	PM	HC	O3	CO	TSP	DF	Met
Cairo										
1 Cairo city El Qualaly	Urban centre	m	m	m				s		
2 El Gemhoroya street	Street canyon	m	m	m	m	m	m			
4 Nasr City	Residential	s	s	s						
5 Maadi EEAA building	Residential	m	m	s						
6 Tabbin	Industrial	m	m	m				s		a
7 Tabbin south	Industrial									
8 Fum Al-Khalig	Urban/road	m	m	m	m		m			
9 Abu Zabel	Industry/res	p	p						s	
10 Shoubra el Kheima.	Industrial	m	s	s				s	s	a
11 Giza, Cairo University.	Residential	m	m			m				a
12 Gizapyramid	Regional	p	p							
13 6 October	Res/industrial	s	s	s						
14 10 Ramadan	Res/industrial	s	p	s					s	
Canal area										
15 Suez	industrial/res.	m	m					s	s	
16 Port Said	Residential	p	p	s						
17 Ismailia	Residential	p	p	s						
Sinai Area										
27 Sharm ElSheik	background	p	p			m			s	
Alexandria										
28 Abu Keir College	Industrial	m	m	s					s	
29 El-Max Petrogas	Industrial	s	s	s					s	
30 IGSR, Alex University	Urban/road	m	m	m	m		M			
31 El-Azafra-El Azhar Univers.	Residential	s	s	s						
32 Gheat El-Inab school	Residential	s	s	s						
33 Alexandria regional	regional					m				a

m = monitors, s = samplers, p = passive samplers, a = automatic weather station

3. Egyptian Air Quality Limit values

Air Quality Limit values are given in the Executive Regulations of the Environmental Law no. 4 of Egypt (1994). These Air Quality Limit values are presented in Table 3.

Black smoke (BS) or soot has not yet been analysed by the EIMP programme. These analyses will, however, start in May 1999. Hydrocarbons (HC) or Volatile Organic Compounds (VOC) will also be measured as part of the EIMP programme. For these pollutants no Air Quality Limit values are available.

Table 3: Ambient Air Quality Limit values as given by Law no.4 for Egypt

Pollutant	Maximum Limit	Averaging Time
Sulfur Dioxide (SO_2)	350 $\mu g/m^3$	1 Hour
	150 $\mu g/m^3$	24 Hour
	60 $\mu g/m^3$	Annual
Carbon Monoxide (CO)	30 mg/m^3	1 Hour
	10 mg/m^3	8 Hour
Nitrogen Dioxide (NO_2)	400 $\mu g/m^3$	1 Hour
	150 $\mu g/m^3$	24 Hour
Ozone (O_3)	200 $\mu g/m^3$	1 Hour
	120 $\mu g/m^3$	8 Hour
Black Smoke (BS)	150 $\mu g/m^3$	24 Hour
	60 $\mu g/m^3$	Annual
Total Suspended Particulate (TSP)	230 $\mu g/m^3$	24 Hour
	90 $\mu g/m^3$	Annual
Suspended Particulate <10 µm in diameter (PM10)	70 $\mu g/m^3$	24 Hour
Lead (Pb)	1 $\mu g/m^3$	Annual

Dust fall (DF) measurements is already part of the programme, as dust is assumed to be a major air pollution problem in Egypt. No Air Quality Limit values are given for dust fall. However, western countries normally state that whenever dust fall values are less than 10 g/m^2 per 30 days, the area is considered clean.

4. March 1999 Air Quality data

4.1. Monthly average concentrations

SO_2 concentrations were measured at 14 sites in Egypt during March 1999. The monthly average concentrations of SO_2 are presented in Figure 1. There are no Air Quality Limit values for monthly averages. However, assuming that the concentrations in time are log/log distributed, the monthly values should not exceed about 90 $\mu g/m^3$ for SO_2 .

Using SO_2 as an indicator Figure 1 show that the most polluted areas are to found in Shoubra El-Kheima and Fum El-Khalig. The site at El-Kolaly in the urban centre of Cairo did not operate during March due to lack of electricity. However, data collected during earlier months indicate that the pollution level at El-Kolaly also is very high.

The low SO_2 concentrations measured in Alexandria and at Tebbin have been subject to further evaluation. It has been expected that the emissions of SO_2 in some of these areas

should be much higher than the measured concentrations indicate. Presently the effect of reactions with alkaline particles and aerosols transforming the SO_2 to sulphates in these areas is being estimated.

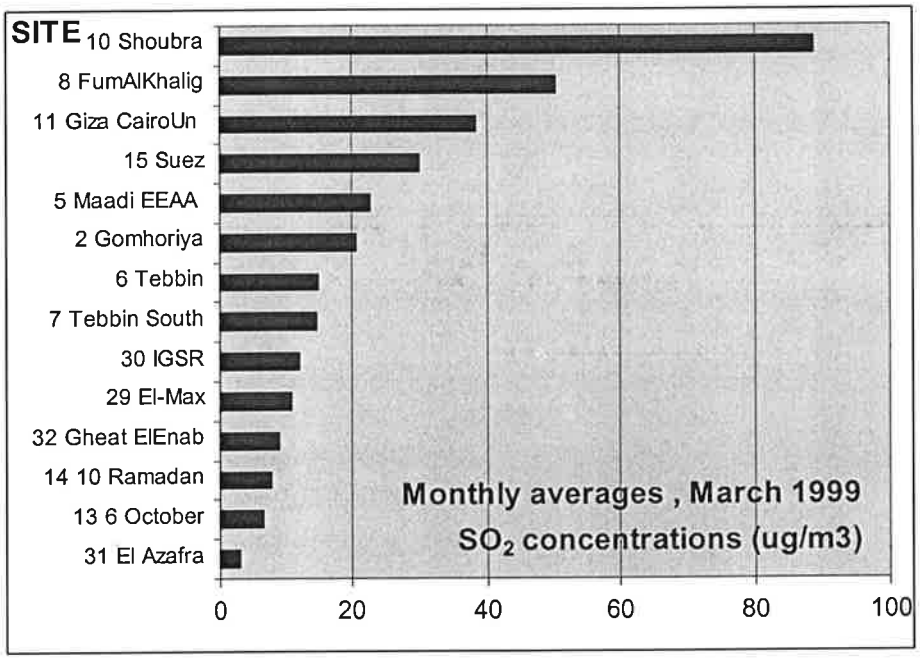


Figure 1: Monthly average concentrations of SO_2 ($\mu g/m^3$) at 14 sites in March 1999.

4.2. 24-hour average concentrations

A summary of the highest 24-hour average concentrations of 5 indicators measured in March 1999 is presented in Table 4 based upon data from 16 sites operated in the greater Cairo area and in Alexandria.

Table 4: Maximum 24-hour average concentrations presented for four air quality indicators in March 1999 ($\mu g/m^3$)

Site	SO2	NO_2	PM_{10}	TSP
2 Gomhoriya	49	28	210	
4 Nasr City	79			
5 Maadi EEAA	46	82		
6 Tebbin	41	47	637	932
7 Tebbin South	92			863
8 FumAlKhalig	84	74		
10 Shoubra	157			697
11 Giza CairoUniver	55	94		
13 6 October	52	131	112	
14 10 Ramadan	75		67	
15 Suez	82	81		136
28 AbuQuir	15	16	36	
29 El-Max	66	94	139	
30 IGSR	90	130		
31 El Azafra	10	48		
32 Gheat ElEnab	18	78	125	
Air Quality Limit value	***150***	***150***	***70***	***230***

Suspended dust measured as PM_{10} concentrations have been identified as the major air pollution problem recorded by the indicators selected in the EIMP programme. The Air Quality Limit value of 70 $\mu g/m^3$ was exceeded at all sites except one in March 1999. At Tebbin the highest level recorded was nine times the Air Quality Limit value.

Also TSP concentrations were measured at levels more than 4 times the Air Quality Limit value. It should be observed that the typical background level of suspended particles in the air in many regions of Egypt is close to or around the Air Quality Limit value already. Man made sources included waste burning and traffic only add to this problem.

SO_2 concentration limits were only exceeded once at Shoubra El-Kheima. At all other sites the 12-hour averages were well below the Air Quality Limit value. NO_2 concentrations did not exceed the 24-hour average Air Quality Limit value in March 1999.

4.3. Eight-hour average concentrations

The eight-hour average concentrations of CO and ozone have been estimated and compared with the Air Quality Limit values. CO concentrations did not at any of the sites exceed the Air Quality Limit value of 10 mg/m^3 in March 1999, and the levels were lower than in previous months.

Ozone measurements at Giza, RasMohammed and IGSR regional site only show exceedances of the Air Quality Limit value at the background site of Ras Mohammed. The limit value of 120 $\mu g/m^3$ was exceeded on 12 days in March. The highest 8-hour average concentration was still only 130 $\mu g/m^3$. Close to the urban areas of Giza and Alexandria, it seems like the contribution of NOx from the traffic reduced the ozone concentration levels. These processes will have to be further investigated based on future data.

4.4. One-hour average concentrations

The maximum one-hour average concentrations of SO_2 and NO_2 are presented in Figure 2.

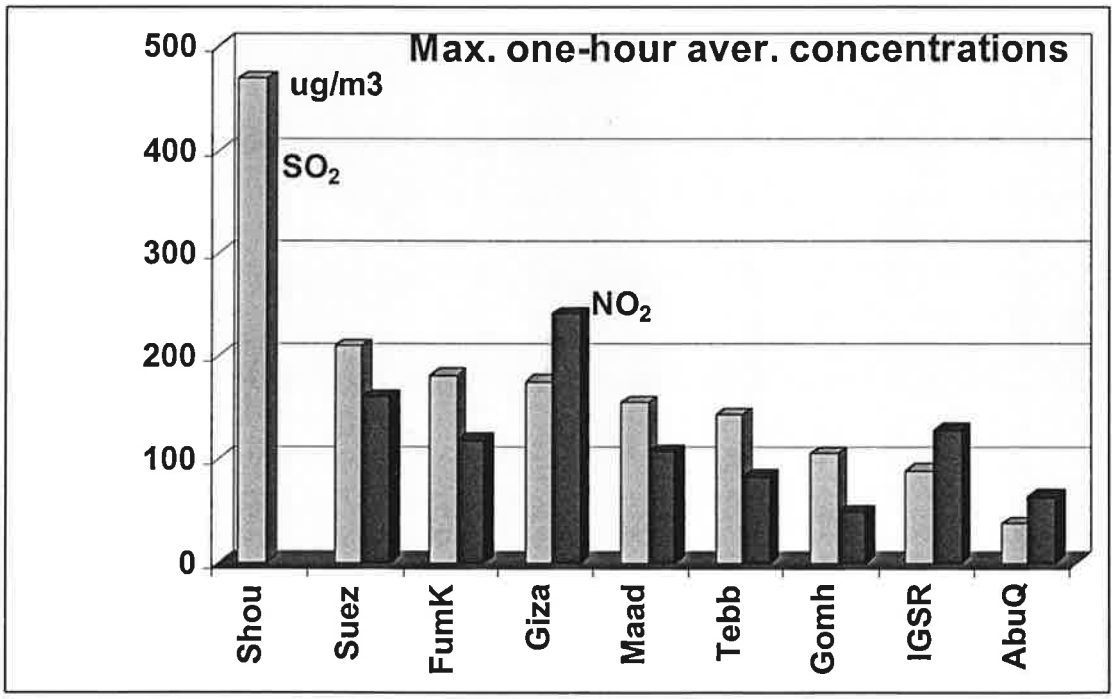


Figure 2: The highest concentrations of SO_2 and NO_2 ($\mu g/m^3$) measured at 10 sites in Egypt in March 1999.

Compared to the Air Quality Limit values for Egypt of 350 $\mu g/m^3$ for SO_2 and 400 $\mu g/m^3$ for NO_2 , only SO_2 at Shoubra El-Kheima exceeded these limit values in March 1999.

A summary of all maximum one-hour concentrations measured by the network in March 1999 is also presented in Table 5.

Table 5: Maximum one-hour average concentrations (in $\mu g/m^3$) of five indicator pollutants measured at the different sites in Egypt in March 1999.

Site name	Init.	SO_2	NO_2	PM_{10}	CO	Ozone
10 Shoubra ElKheima	Shou	470				
15 Suez	Suez	210	161			
8 Fum El-Khalig	FumK	182	119		8500	
11 Cairo University	Giza	176	241			124
5 Maadi EEAA building	Maad	155	109			
6 Tebbin	Tebb	144	84	1621		
2 Gomhoriya Street	Gomh	107	50	485	11100	
30 IGSR	IGSR	90	129		13000	60
28 AbuQuir	AbuQ	38	65			
27 Sharm ElSheik	Shar					149
Air Quality Limit value		*350*	*400*	-	*30000*	*200*

Again we see that the few continuously recorded PM_{10} concentrations (presented as one-hour averages) are very high. The highest one-hour average ozone concentration of 149 $\mu g/m^3$ was recorded at the background site of RasMohammed near Sharm ElSheik. At IGSR regional site, the ozone concentrations were surprisingly low.

5. Summary

In summary the air quality in Egypt was somewhat better in March 1999, than it had been in previous months. The data quality is still not up to the level that is required for the programme. However, further training and improved methods will be developed as the programme is still in the installation phase.

The highest concentrations of the indicator pollutants were found in industrial areas and inside the urban area of Cairo. For further discussions of sources and impact we refer to the quarterly reports, and to annual reports to be issued by the Monitoring Institutions.

6. References

"Maximum limits for outdoor air pollutants" as given by Annex 5 of the Law number 4 for 1994, Law for the Environment, Egypt.

Abdelhady, Y. , El-Araby, T., El-Araby H. (1999) Air Quality in Egypt based upon EIMP data. Quarterly Report October-December 1998. Cairo University CEHM. (January 1999)

El-Raey M et.al. (1998) Quarterly Report no. 3, Air quality in Egypt based upon EIMP data (Alexandria and Nile Delta), IGSR, University of Alexandria (September 1998)

Sivertsen, B. (1999) Danida/EIMP, Air Quality Monitoring Programme, Mission 9 Report. Kjeller (NILU OR4/99).

Appendix H

Reference laboratory

H.2.1 Preparation of instruments
H.3.1 a) Standard gases
b) Distribution of travelling standards
H.3.2 Proficiency tests 1999

H.2.1 Preparation of instruments

Preparation of instruments spring 1999

As part of the training in calibration of monitors at NIS the following new monitors were calibrated and made ready for installation at stations:

Calibrated during training:
2 O3 monitors
2 SO2 monitors
2 NOx monitors
1 CO monitor

Of these one SO2 monitor was found to be unstable and in need of closer checkup.

After the training NIS calibrated two groups of monitors and made them ready for installation at stations.

Group 1:
3 SO2 monitors
1 O3 monitor

In group 1 the SO2 monitor from CEHM's own station is included.

Group 2:
3 SO2 monitors
1 O3 monitors
1 NOx monitor

As of 18 March the calibration of monitors in Group 2 is yet not finished.

When the single remaining monitor in Group 1 and all monitors in Group 2 are calibrated there are no more new monitors in need of calibration.

H.3.1 a) Standard gases

EIMP

Note

Subject REFERENCE LABORATORY

Overview of standard gases

Date 28 Apr 1999

To AAE

Copy MF, MEA, Heisam

From UOL & BS

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

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Maadi, Cairo, Egypt

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The attached table gives an overview of standard gases used at the air monitoring institutions and reference laboratory air. The list includes an estimate of the lifetime for each item. This estimate is subject to considerable uncertainty since it depends on the amount of use. If for example a certain type of monitor gives problems, the consumption of travelling gas standard for that type of monitor may increase while locating the source of the problem is in progress.

Prices are given without sales tax since the amount of sales tax is not known to me. Furthermore, any handling costs in customs clearance are not known.

The total estimated average annual cost, excluding sales tax and handling charges, is therefore 110 000 LE. Please note that there are considerable variation around this average depending on whether primary gas standards and travelling gas standards need to be purchased or not. The monitoring institutions and Reference Laboratory - Air must therefore supply their needs every year.

Institution	Use	Gas	Concentration	Volume	No of cylinders/ permeation tubes needed	Expected lifetime per cylinder/permeation tube	Estimated price per unit, LE	Estimated average price per year, LE
Air Monitoring Institutions	Calibration gas for multipoint calibrator for annual full calibration	SO_2	100 ppm	10 litre	1 (CEHM)	*	2800	0
		NO	100 ppm	10 litre	1 (CEHM)	*	2800	0
		CO	5000 ppm	10 litre	1 (CEHM)	*	4500	0
		$CH_4 + C_3H_8$	200 ppm each	10 litre	1 (CEHM)	*	2400	0
	Working gas standard for daily zero/span check	CO	500 ppm	20 litre	3 (CEHM & IGSR)	approx. 9 months	2600	10 400
		$CH_4 + C_3H_8$	20 ppm each	20 litre	3 (CEHM & IGSR)	approx. 9 months	2600	10 400
	Permeation tubes for daily zero/span check	SO_2	-	-	16 (CEHM&IGSR)	aprox ½ - 1 year	1400	29 900
		NO_2	-	-	12 (CEHM&IGSR)	aprox ½ - 1 year	1600	25 600
	Travelling gas standard for two point calibration every 3 months	SO_2	0.8 ppm	10 litre	2 (IGSR & CEHM)	approx. 1 year	3700	7 400
		NO	0.8 ppm	10 litre	2 (IGSR & CEHM)	approx. 1 year	3700	7 400
		CO	50 ppm	10 litre	2 (IGSR & CEHM)	approx. 2 years	3000	3 000
		$CH_4 + C_3H_8$	2 ppm each	10 litre	2 (IGSR & CEHM)	approx. 2 years	2900	2 900
Reference	Primary calibration gas	SO_2	100 ppm	10 litre	1	3 years	2800	0 930

Institution	Use	Gas	Concentration	Volume	No of cylinders/ permeation tubes needed	Expected lifetime per cylin- der/permeation tube	Estimated price per unit, LE	Estimated average price per year, LE
Laboratory - Air	for multipoint calibrator for verification of calibration and for calibration of other gases	NO	100 ppm	10 litre	1	2 years	2800	1 400
		CO	5000 ppm	10 litre	1	3 years	4500	1 500
		$CH_4 + C_3H_8$	200 ppm each	10 litre	1	3 years	2400	0 800
	Travelling gas standard for performance audit of monitors on-site	SO_2	0.8 ppm	10 litre	1	approx. 2 years	3700	1 850
		NO	0.8 ppm	10 litre	1	approx. 1 year	3700	3 700
		CO	50 ppm	10 litre	1	approx. 2 years	3000	1 500
		$CH_4 + C_3H_8$	2 ppm each	10 litre	1	approx. 2 years	2900	1 450
TOTAL								110 130 ~ 110 000

* The Air Monitoring Institution will in future use expired primary gases from the Reference Laboratory - Air. The gases will no longer be primary gases but just calibration gases which are calibrated against the primary gases at the Reference Laboratory - Air. Since consumption is low compared to the time for expiration, it is expected that there will be no need to buy calibration gases for the multipoint calibrator at the Air Monitoring Institution at CEHM in the future.

H.3.1 b) Distribution of travelling standards

EIMP

Note

Subject Traweling Standards

Date 4 May 99

To Ulla

Copy BS

From Rolf

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

30 Misr-Helwan Street Maadi, Cairo, Egypt

Tel.: (+202) 525 6439/42/ 47/ 52
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E-mail: eimp@intouch.com

Distribution of Traweling Standard Gases.

To NIS: 1 SO2 1 ppm

1 NO 1 ppm

1CO 50 ppm

1 2 ppm CH4 and 2 ppm C3H8

To CEHM: 2 SO2 1 ppm

2 NO 1 ppm

1CO 50 ppm

1 2 ppm CH4 and 2 ppm C3H8

To IGSR: 1 SO2 1 ppm

1 NO 1 ppm

All above gases has to be followed by one regulator to etch cylinder.

H.3.2 Proficiency tests 1999

Note

Subject: REFERENCE LABORATORY
Proficiency tests in 1999

Date: 9 Mar 1999

To: BS

Copy: HA, MEA

From: UOL

Environmental Information and Monitoring Programme

EEAA - Danida - COWI

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Maadi, Cairo, Egypt

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For your information, the proficiency tests for 1999 will be as follows:

ASUPT-7, suspended matter in water

The proficiency test covers:

- suspended solids and volatile suspended solids

The proficiency testing date is 3rd week of April 1999.

Proficiency test ASUPT-8, selected nutrients in sea water

The proficiency test covers:

- total nitrogen, total phosphorus, silicate

The proficiency testing date is the 2nd week of May 1999.

Proficiency test ASUPT-9, trace elements in biota

The proficiency test covers:

- Pb, Cd, Cu, Zn

The proficiency testing date is in the 4th week of August 1999.

Proficiency test ASUPT-10, lead on filters from high volume samplers (air)

The proficiency test covers:

- Pb

The proficiency testing date is in the 4th week of October 1999.

The last is specifically directed to air. CEHM will also receive invitation for the first three proficiency tests but participation is optional.

Appendix I

Co-ordination and meetings

I.2.1 a) Air Quality staff meeting
b) EIMP staff meeting
c) Memo on various matters
d) Status reports (monthly)
e) Seminar programme and invited persons

I.2.1 a) Air Quality staff meeting

Minutes of Meeting Ambient air monitoring

Subject: Weekly planing meeting

Date: 99.02.23

Place: CEHM (Cairo University)

Participants: H. Adly, B. Sivertsen, Rolf, Oddvar (EIMP), T. El-Araby, H. El-Araby, Ahmed, Maher, Yassin, Kamla, Mahmoud, Essam, Ashraf, Mohamed (Cairo Univer - sity)

Prepared by: TM

Distribution: T. El Araby, B. Sivertsen, H. Adly, M. Fathy, J Simonsen, and Ahmed A. El Seoud

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Next meeting: Sunday 28 February 13:30 at CEHM

		Init.
1.	**El-Kolaly Station** No power at the station. EEAA finalise the contract on Sun 21 Feb., fees paid on Mon 22 Feb. Two weeks to connect the power.	Yassin
2.	**El-Gomhoriya Station** NO_x monitor reported ozonator high flow. Will be transferred on We 24 Feb to CEHM to be repaired on Th 25 Feb. NMHC monitor will be stopped until transferring the station to the new location, because instrument may be damaged due to power failures. NMHC measurements will be supported by VOC measurements at selected time. Daily two-point calibration for CO will be performed at the new station location, but manually calibration will be performed every week. A meeting will be held between Eng. Ahmed A. Seoud and Dr. Islam from Arab Contractor to finalise the new station location and the internal telephone line.	Ahmed AA Seoud
4.	**Nasr City Station** A lot of problems with power failures. A private power line is needed. Eng. Heba will contact district administration on Tuesd 2 March to speed up the procedures. Sample start time has been set to 12 PM. Done Ok. The sampling period varied between 6 and 13 hours	Ahmed Heba

5.	**El-Maadi Station** A lot of dust was found inside this station. Has to be cleaned.	Yassin
6.	**Tebbin Station** NO_x transferred to CTS on Mo 25 Jan. NO_x monitor belongs to monitor lab. installed instead of the one at CTS. TSP pump not working. Trying to repair it locally. A spare pump installed on the TSP. Radiation shield for solar radiation sensor must be ordered.	Maher Tarek
7.	**Tebbin South Station** TSP installed. Dust Fall collector can be moved to the security room	Maher
8.	**Fum El-Khalig Station** Water inside the shelter after the rainy day. Silicon will be bought to repair the leakage points. Problems in installing telephone line due to station location. A letter from EEAA must be submitted to Telephone authority to know the price of connecting telephone line to this location. Alarm System will be installed and the lock will be changed. NMHC and its requirements transferred to CTS on Tu 8 Dec. Waiting for spare parts. SO2 transferred to NIS on 1 Feb. to be calibrated after repair.	Kamla
9.	**Abu Zabal Station** OK	Kamla
10.	**Shoubra El-Kheima Station** The construction of the ladder finalised. NO2 sequential sampler will be installed during March.	Kamla
11.	**Cairo University Station** O3 monitor should be re-calibrated. Problems when downloading data (Computer Hanging). Yassin Call CTS. Waiting for a date.	Yassin

13.	**6 October** Final approval for power connection is needed.	Yassin
14.	**10 of Ramadan** OK	Kamla
15.	**Suez** Installed on 3 February A ladder must be constructed for this station. Letter for telephone authority will be finalised on Su 28 Feb. Air condition must be ordered for this station.	Maher
16.	**Ismailia** Installed on 4 February	Maher
17.	**Port Said** Installed on 4 February	Maher
18.	**El-Fayum** Installed on 31 January A letter from EEAA is needed for each visit. A leader will be bought from El-Fayum.	Yassin
	Other matters	

Minutes of Meeting

Subject: Ambient air monitoring

Weekly planing meeting

Date: 99.02.28

Place: CEHM (Cairo University)

Participants: H. Adly, B. Sivertsen, Rolf, Oddvar (EIMP), T. El-Araby, H. El-Araby, Ahmed, Maher, Yassin, Kamla, Mahmoud, Essam, Ashraf, Mohamed (Cairo University)

Prepared by: TM

Distribution: T. El Araby, B. Sivertsen, H. Adly, M. Fathy, J. Simonsen, and Ahmed A. El Seoud

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Next meeting: Sunday 7 March 13:30 at CEHM

ID		Init.
1.	**El-Kolaly Station** No power at the station. EEAA finalise the contract on Su 21 Feb., fees paid on Mo 22 Feb. Two weeks to connect the power.	Yassin
2.	**El-Gomhoriya Station** NO_x monitor reported ozonator high flow. Will be transferred on We 24 Feb to CEHM to be repaired on Th 25 Feb. Done Ok. Will be returned back on Tu 2 Mar. NMHC monitor will be stopped until transferring the station to the new location, because instrument may be damaged due to power failures. NMHC measurements will be supported by VOC measurements at selected time. Daily two-point calibration for CO will be performed at the new station location, but manually calibration will be performed every week. A meeting will be held between Eng. Ahmed A. Soud and Dr. Islam from Arab Contractor to finalise the new station location and the internal telephone line.	Ahmed Ahmed A. Soud
4.	**Nasr City Station** A lot of problems with power failures. A private power line is needed. Eng. Heba will contact district administration on Tu 2 Mar. to speed up the procedures. Sample start time has been set to 12 PM. Sampling period has	Ahmed

	proven to vary between 6 and 13 hours since January.	
5.	**El-Maadi Station**	Yassin
	A lot of dust recognised inside this station.	
6.	**Tebbin Station**	Maher
	NO_x transferred to CTS on Mo 25 Jan. NO_x monitor belongs to monitor lab. installed instead of the one at CTS.	
	TSP pump not working. Trying to repair it locally. A spare pump installed on the TSP.	
	Radiation shield for solar radiation sensor must be ordered. Will be considered as consumables.	
	New air condition will be installed.	
7.	**Tebbin South Station**	Maher
	TSP installed.	
	Dust Fall collector can be moved to the security room	
8.	**Fum El-Khalig Station**	Kamla
	Water inside the shelter after the rainy day. Silicon will be bought to repair the leakage points.	
	Problems in installing telephone line due to station location. A letter from EEAA must be submitted to Telephone authority to know the price of connecting telephone line to this location.	Heba
	Alarm System will be installed and the lock will be changed.	EIMP
	NMHC and its requirements transferred to CTS on Tu 8 Dec. Waiting for spare parts.	
	SO2 transferred to NIS on 1 Feb. to be calibrated after repair.	
9.	**Abu Zabal Station**	Kamla
	OK	
10.	**Shoubra El-Kheima Station**	Kamla
	The construction of the ledder finalised.	
	NO2 sequential sampler will be installed during Mar.	CEHM
11.	**Cairo University Station**	Yassin
	O3 monitor should be re-calibrated.	
	Problems when downloading data (Computer Hanging). Yassin	

	Call CTS. Waiting for a date.	
13.	**6 October** Final approval for power connection is needed.	Yassin
14.	**10 of Ramadan** OK	Kamla
15.	**Suez** Installed on 3 February CEHM Shut off all the instruments on Th 4 Mar. because the Temp. was very high inside the shelter A ladder must be constructed for this station. This week Letter for telephone authority will be finalised on Su 28 Feb. Done Ok. Air condition must be ordered for this station. This week.	Maher
16.	**Ismailia** Installed on 4 February	Maher
17.	**Port Said** Installed on 4 February	Maher
18.	**El-Fayum** Installed on 31 January A letter from EEAA is needed for each visit. A leader will be bought from El-Fayum.	Yassin
	Other matters	

Minutes of Meeting Ambient air monitoring

Subject: Weekly planing meeting

Date: 99.03.21

Place: CEHM (Cairo University)

Participants: Haysam, B. Sivertsen, Rolf (EIMP), T. El-Araby, H. El-Araby, Ahmed, Maher, Yassin, Kamla, Mahmoud, Essam, Ashraf, Mohamed (Cairo University)

Prepared by: TM

Distribution: T. El Araby, B. Sivertsen, Haysam, M. Fathy, J. Simonsen, and Ahmed A. El Seoud

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Next meeting: Sunday 10 April 13:30 at CEHM

ID		Init.
1.	**El-Kolaly Station** No power at the station. EEAA finalise the contract on Su 21 Feb., fees paid on Mo 22 Feb. Two weeks to connect the power. Extra 900 LE for network information authority needed, paid on Tu 16 Mar. Another 1135 LE needed for Abdeen distrect.	Yassin
2.	**El-Gomhoriya Station** NMHC monitor will be stopped until transferring the station to the new location, because instrument may be damaged due to power failures. NMHC measurements will be supported by VOC measurements at selected time. Daily two-point calibration for CO will be performed at the new station location, but manually check will be performed every week. A meeting will be held between Eng. Ahmed A. Soud and Dr. Islam from Arab Contractor to finalise the new station location and the internal telephone line.	Ahmed Ahmed A. Soud
4.	**Nasr City Station** A lot of problems with power failures. A private power line is needed. EIMP representative must contact district administration to speed up the procedures. Sample start time has been set to 12 PM. Sampling period has proven to vary between 6 and 13 hours since January. Set of chargeable batteries ordered from Nilu Products	Ahmed

5.	**El-Maadi Station** Ok	Yassin
6.	**Tebbin Station** NO_x transferred to CTS on Mo 25 Jan. NO_x monitor belongs to monitor lab. installed instead of the one at CTS. Returned to CEHM CTS recommend to change PMT in the near future (7100 LE). Will be calibrated at NIS on beginning of April. Replacement decision will be taken after calibration. TSP pump not working. A spare pump installed on the TSP. A new pump must be ordered. Radiation shield for solar radiation sensor already ordered. Will be considered as consumables. Old air condition must be repaired	Maher
7.	**Tebbin South Station** OK.	Maher
8.	**Fum El-Khalig Station** Problems in installing telephone line due to station location. A letter from EEAA must be submitted to Telephone authority to know the price of connecting telephone line to this location. Alarm System will be installed and the lock will be changed. NMHC and its requirements transferred to CTS on Tu 8 Dec. Waiting for spare parts. SO2 transferred to NIS on 1 Feb. to be calibrated after repair finalised	Kamla Heba EIMP
9.	**Abu Zabal Station** OK	Kamla
10.	**Shoubra El-Kheima Station** NO2 sequential sampler will be installed during Mar.	Kamla CEHM
11.	**Cairo University Station** O3 monitor should be re-calibrated. Will be calibrated at NIS on beginning of April. Problems when downloading data (Computer Hanging). Yassin Call CTS. Waiting for a date.	Yassin

13.	**6 October** Ok	Yassin
14.	**10 of Ramadan** OK	Kamla
15.	**Suez** Ok	Maher
16.	**Ismailia** Ok	Maher
17.	**Port Said** Ok	Maher
18.	**El-Fayum** Ok	Yassin
27.	**Sharm El-Sheik** Finalised on We 10 Mar. persons from monitoring lab will visit the station every month. **Other matters** Increase of transportation fees must be considered Car Licence expired on 13 Mar Passive samplers requirements already ordered from NILU products Met. sensors for Delta will be assembled at CEHM	

Minutes of Meeting

Subject:	Ambient air monitoring Weekly planing meeting
Date:	99.04.11
Place:	CEHM (Cairo University)
Participants:	Haytham, B. Sivertsen, Rolf (EIMP), T. El-Araby, H. El-Araby, Ahmed, Maher, Yassin, Kamla, Mahmoud, Essam, Ashraf, Mohamed (Cairo University)
Prepared by:	TM
Distribution:	T. El Araby, B. Sivertsen, Haytham, M. Fathy, J. Simonsen, and Ahmed A. El Seoud

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Next meeting: Sunday 18 April 13:30 at CEHM

ID		Init.
1.	**El-Kolaly Station** No power at the station. EEAA finalise the contract on Su 21 Feb., fees paid on Mo 22 Feb. Two weeks to connect the power. Extra 900 LE for network information authority needed, paid on Tu 16 Mar. Another 1135 LE needed for Abdeen distrect. Official invoice submitted to EIMP on Su 11 Apr.	Yassin
2.	**El-Gomhoriya Station** NMHC monitor will be stopped until transferring the station to the new location, because instrument may be damaged due to power failures. NMHC measurements will be supported by VOC measurements at selected time. Daily two-point calibration for CO will be performed at the new station location, but manually check will be performed every week. A meeting will be held between Eng. Ahmed A. Soud and Dr. Islam from Arab Contractor to finalise the new station location and the internal telephone line.	Ahmed Ahmed A. Soud
4.	**Nasr City Station** A lot of problems with power failures. A private power line is needed. EIMP representative must contact district administration to speed up the procedures. Sample start time has been set to 12 PM. Sampling period has proven to vary between 6 and 13 hours since January. Set of chargeable batteries ordered from Nilu Products	Ahmed Haytham

check to Yassin pay Tomorrow

Zero level of CO ~2 pm..

meeting tomorrow HCS at Gomhoriya check level install permeation tube

Civil Defense approval

5.	**El-Maadi Station**	Yassin
	Ok	
6.	**Tebbin Station**	Maher
	NO_x transferred to CTS on Mo 25 Jan. NO_x monitor belongs to monitor lab. installed instead of the one at CTS. Returned to CEHM CTS recommend to change PMT in the near future (7100 LE). Will be calibrated at NIS on beginning of April. Replacement decision will be taken after calibration. Transferred to NIS on Su 11 Apr.	
	TSP pump not working. A spare pump installed on the TSP. A new pump must be ordered.	CTS
	Radiation shield for solar radiation sensor already ordered. Will be considered as consumables.	CTS
	Old air condition must be repaired	
	Room isolation must be considered before summer	Haytham
7.	**Tebbin South Station**	Maher
	OK.	
8.	**Fum El-Khalig Station**	Kamla
	Problems in installing telephone line due to station location. A letter from EEAA must be submitted to Telephone authority to know the price of connecting telephone line to this location. Extra 50 LE needed.	Hytham
	Alarm System will be installed and the lock will be changed.	EIMP
	NMHC and its requirements transferred to CTS on Tu 8 Dec. Waiting for spare parts.	
	Co transferred to CTS on Tu 23 Mar. for repair	
9.	**Abu Zabal Station**	Kamla
	OK	
10.	**Shoubra El-Kheima Station**	Kamla
	NO2 sequential sampler started on Mo 5 Apr.	
11.	**Cairo University Station**	Yassin
	O3, NOx, SO2 monitors transferred to NIS on Tu 6 Apr. SO2 returned on Su 11 Apr.	
	Problems when downloading data (Computer Hanging). Yassin	

	Call CTS. Waiting for a date.	
13.	**6 October**	Yassin
	Ok	
14.	**10 of Ramadan**	Kamla
	OK	
15.	**Suez** Telephon letter. Maher calld not find the man. Ibring letter next thursday.	Maher
	Ok	
16.	**Ismailia**	Maher
	Ok passive 24.3 - 24.4.	
17.	**Port Said**	Maher
	Ok 24.5 -	
18.	**El-Fayum**	Yassin
	Ok	
27.	**Sharm El-Sheik**	
	Finalised on We 10 Mar. persons from monitoring lab will visit the station every month.	Yasin
	Other matters	
	Increase of transportation fees must be considered	
	Passive samplers requirements already ordered from NILU products	
	Met. sensors for Delta will be assembled at CEHM	
	Monitoring Lab. Co monitor transferred to CTS on Tu 23 Mar. for repair	
	Annual Report	

Transfer data on mail

(O monitors at CTS, the can check which part is wrong...

PM_{10} calibrator : Invoice, will decide

Assyut : installed by : Ahmed, Maher.

Spare parts to CEHM, Shelves...

Data retrieval every day

I.2.1 b) EIMP staff meeting

Minutes for the Air Quality staff meeting, IGSR
Tuesday 23 March 1999, 6:00 P.M

Attendants

1. Prof. Bjarne Sivertsen
2. Mr. Rolf
3. Mr. Haytham Ahmed
4. Dr. Elsayed Shalaby
5. Dr. Shawkat Guirguis
6. Dr. Zekry Ghatass
7. Mr. Hossam Said
8. Mr. Mohamed Mamdoh
9. Mr. Mohamed Rashad
10. Mr. Ashraf Zahran
11. Mr. Aly Elhadidy

Station	ID		Operator
Abur-Qir	AQ-28	- Air conditions is okay - Passive samplers are needed for the field study	Mr. A. Elhadidy
El-Mex	AQ-29	- Sampling is okay, SO2 peaks have to investigated	Mr. M. Rashad
IGSR	AQ-30	- We get the data continuously except PM_{10} in repair - CO problem, zero level adjustment.	Mr. H. Said
Ozone	AQ-33	- Data is okay	Mr. H. Said
Meteorological	AQ-30	- Data is okay, radiation sensor changed.	Mr. H. Said
Gheat El-Inab	AQ-32	- Sampling is okay - The chart for PM_{10} not found	Mr. A. Zahran
El-Asafra	AQ-31	- Sampling is okay - Ladder is unsafe	Mr. A. Zahran
Kafr El-Dawar	AQ-40	- Ladder was installed	Mr. A. Elhadidy
Damanohr	AQ-34	- Needs only a balcony (no shelter required)	Mr.
Kafr El-Zayat	AQ-35	- There are some problems with the educational building authority	Mr. M. Mamdoh
Tanta	AQ-36	- A visit to Tanta is required to confirm the selected site	Mr. M. Mamdoh
El-Mansoura	AQ-38	- The installation of the equipment will start on 6 of April 99	Mr. A. Zahran
El-Mahala	AQ-37	- Prof. Bjarne will visit El-Mahala to define the site.	Mr. M. Mamdoh
Dameitta	AQ-39	- The site was selected at the bus station, the approval did not confirm.	Mr. A. Zahran

All PM_{10} samplers are need to operate at the same time

Minutes for the Air Quality Staff meeting, IGSR Tuesday 13 April 1999.

Attendants

1. Prof. Bjarne Sivertsen
2. Mr. Ralf Dreiem
3. Dr. Elsayed Shalaby
4. Dr. Shawkat Guirguis
5. Dr. Zekry Ghatass
6. Mr. Hossam Said
7. Mr. Mohamed Mamdouh
8. Mr. Mohamed Rashad
9. Mr. Ashraf Zahran
10. Mr. Aly Elhadidy

Station	ID		Operator
Abu-Qir	AQ-28	- Passive samplers will be done tomorrow 14 April - PM_{10} sampling at the same day	Mr. A. Elhadidy
El-Max	AQ-29	- Power failure 2-4 times	Mr. M. Rashad
IGSR	AQ-30	- PM_{10} is still in repair - CO problem still there.	Mr. H. Said
Ozone	AQ-33	- O.K.	Mr. H. Said
Meteorological	AQ-39	- O.K.	Mr. H. Said
Gheat El-Inab	AQ-32	- The chart of PM_{10} is still under repair SO_2 peaks may be typing errors, SO_2 is still low?? Why? Although we have diesel buses	~~Mr. A. Zahran~~ M. Rashad
El-Asafra	AQ-31	- O.K.	Mr. A. Zahran
Kafr El-Dawar	AQ-40	- Installed 24 March 1999 and looks OK.	Mr. A. Elhadidy
Damanohr	AQ-34	- Not selected yet and needs a visit.	Mr. Hossam
Kafr El-Zayat	AQ-35	- Hossam is contacting Electricity Authority on 13 April 1999. - M. Kotb + Ralf will go on Monday 19 April 1999.	Mr. M. Mamdouh
Tanta	AQ-36	- Postponed visit till next week.	Mr. M. Mamdouh
El-Mansoura	AQ-38	- Installed on 8 April 1999, first visit will be 17 April 1999 by (Ashraf). - Needs system manger & Modem.	Mr. A. Zahran
El-Mahala	AQ-37	- Papers are still to be signed. - 26 April is the plan for installation.	Mr. M. Mamdouh
Dameitta	AQ-39	- Will be visited on 15 April 1999.	Mr. A. Zahran

-The car has been licensed , the cover will be designed.

Minutes of Meeting

Subject: STAFF MEETING # 74
Date: 18 April 1999
Place: EIMP Office
Participants: Jorgen Simonsen (JFS), Anwar Ahmed (AZA), Ahmed Abou ElSeoud (AAE), Bjarne Siversten (BS), Haythem Ahmed (HAA) Mohamed Fathy (MF), Mai Ahmed (MEA), Naglaa Darwish (NMD) Ulla Lund (UOL), Rolf Dreiem (RD), Dean Jones (DJ), Dina El Badramani (DRB) Lydia Kiriakos (LSK), Ayman El Maazawy (AEM), Mohamed Zaki (MZ)
Prepared by: LSK
Distribution: EIMP Staff

Environmental Information and Monitoring Programme
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Maadi, Cairo, Egypt
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Component	Task Description	Time	Person
1- Institutional Support	• Create an Access Database linked to the live Coastal Water Database.	This week	AEM
	• Finish the layout of the reports for Flemming and show them to the Coastal Water Component.	April 18th	AEM
	• Continue the Air Quality database development.	This week	DJ & NMD & Nermeen
	• Arrange a meeting with RITSEC to ask them to submit the CWM database documentation.	This week	MZ
	• Make a demo. internally for the development of the air database.	April 26th	DJ
Procurement	• Release the following shipments from Cairo Airport Customs:		
	- Standard and Reference materials shipped by B&B as compensation to the chemicals shipped by mistake.	Next week	AZA
	- 2 Standard SO_2 cylinders shipped by Kontram.	Next week	AZA
	- Mini Vol portable samplers.	Next week	AZA
	• Installation of A/C split unit at Kafr El Zayat.	This week	AZA
	• Follow up with Shiraz to send the original B/L to release Heto Holten shipment from Alex. Seaport.	This week	AZA
	• Pushing ETAMCO to effect delivery of water purification units soon.	This week	AZA/MF
2- Coastal Water Monitoring	• Evaluate the annual report delivered from IGSR.	This week	OH & SMI & AJE
	• Visit Alexandria to discuss the annual report.	This week	OH & SMI
	• Prepare for Flemming's mission that	This week	OH & SMI

seventy-fourth

	starts on 19th April. • Participate in some field campaigns with IGSR & NIOF. • Check the equipment and log books at IGSR & NIOF. • Follow up with NIOF to submit 1998 annual report.	 May 1999 This week This week	 OH & SMI OH & SMI OH & SMI
3- Air Pollution Monitoring	• Submit the draft annual report. • Plan and specify the final program and participants for the Air Quality Seminar. • Shelters will be transferred to the new selected sites in Upper Egypt. • Passive samplers at Abu Keir station will be collected and analysed. • Install Kafr El Zayaat Station. • Paper on the Air Quality in Egypt will be prepared as part of the Seminar preparations. • Participate in several meeting on Air Quality with CAIP, EEAA and database experts. • The fees of the Contractor to make sure that the electricity and the A/C are installed in the sites in Upper Egypt will be checked.	April 26th April 24th April 22nd April 20th May April April 22nd	IGSR AAE Contractor IGSR/CEHM RD BS/AAE BS BS
4- Reference Laboratories	• Perform QA training for NIOF, CEHM and TIMS. • Continue the training of Ref. Lab. Water in preparation of samples for trace elements in solid samples for proficiency tests. • Start training for both Ref. Labs in internal and external QA auditing. • Check the log books at Ain Shams University. • Report for the mini proficiency test. • Report for the Microbiological Reference laboratory. • Comments on Newsletter # 3.	April 22nd Next week Coming 2 weeks Approx. May1st This week This week April 19th This week	UOL LRA Estelle MEA UOL Local Consultants Management

Notes for Minute of staff meeting 18 April 1999

	When	Who
ElMansoura was installed last week		
Visited IGSR to prepare annual report, Draft will be presented for Task Manager	26 April	Shallaby
Passive sampling undertaken at AbuKir, Samplers collected this week, to be analysed at CEHM	22 April	IGSR/ CEHM
The site in Damietta was re-visited on 15 April 99, and the site changed. Oral agreement to locate the shelter was given by the General Secretary at the Governerate, and the shelter will be transferred as soon as possible.	24 April ?	HAA
KafrZayat station will be installed this week. Rolf leave for the site on Monday. Power and AirCon promised today.	20 April	RD
For the sites in Upper Egypt the AirCon will be transported together with the shelters. The contractor will be asked to see that electricity and AirCon are installed before he leaves the site. BS check prices.	22 April	BS
The Air Quality Seminar is planned for 13 May 99. AAE is responsible for the planning. Final programme and participants has to be specified.	25 April	AAE
BS will participate in several meeting on Air Quality with CAIP, EEAA Chairman, and database experts.	April	BS
Paper on the air quality in Egypt will be prepared as part of the Seminar preparations. It will be requested for approval for presentation on international conference.	May	BS/AAE

I.2.1 c) Memo on various matters

Environmental Information and Monitoring Programme
EEAA - Danida - COWI
30 Misr-Helwan Str. Maadi, Cairo, Egypt
Tel: 202 525 6442, Fax: 202 525 6467

Memo

To: Joergen Simonsen
From Bjarne Sivertsen
Date: 25 Feb. 1999

Various matters as of 25 February 1999

The weekly Air Quality Team meeting will be reported to the EIMP administration. From the meeting on 23 Feb 1999 it can be mentioned that:

- -A major part of the installed instruments are operating
- -Power lines and telephones are still a problem at some sites (the responsibility of the EIMP/EEAA counterpart)
- -Calibration of new instruments has to be undertaken by expatriate experts at the moment
- -Preparations of sites BEFORE installation of expensive instruments have to be undertaken properly
- Official letters have to be prepared at new sites.

Calibration and training at NIS (See Memo)

Preparations of sites

The practical construction work that is needed at all sites has to be improved. Last fall I was told that EEAA wanted to hire one or two persons for undertaking these tasks. This has now been cancelled.

We thus propose that for the rest of the installation period we establish an agreement with Mr Mohammed Nasar, who has been responsible for supplying shelters and ladders to the programme during since September 1998. He will thus also be responsible for assuring that shelters, access, power and various installations of shelves, locks, alarms, air condition systems, stands for dust fall and PM_{10} samplers etc. are properly undertaken BEFORE we move in the instruments! There will also, throughout the Spring, be necessary to erect 3 meteorological towers, a task that he successfully undertook in Alexandria last year.

Transport problems

For the comprehensive and continuously needed field work, the transport situation has become unacceptable. We want the EIMP/EEAA staff to understand that field preparations, installations, maintenance and calibrations can NOT completely be undertaken between 0900 hrs and 1600 hrs. The critics and problems that especially Rolf has been faced with can not continue.
The best solution would be to assign one driver to the Air Component at least as long as we still are installing equipment in field. This driver has to be willing to work outside "normal office hours". To return to the office before 1600 hrs every day has already created delays in the installation programme.

Instruments ordered

Orders of instruments, spare parts, gases and permeation tubes originally placed in November 1998 has still not arrived in Egypt. I am not sure whether the delay is caused by administrative problems within EIMP, delay from COWI or Kontram or if it is just misunderstandings. However, I have contacted Kontram to find out. The pending orders were placed at Anwar yesterday, and are hopefully accomplished.
I am afraid that the installations of some of the instruments will be delayed compared to the original schedule.

Car for IGSR Air Pollution

Last fall I requested a car for IGSR. This was approved with the following argumentation:
During the contract negotiations the inspection schedules were changed so that IGSR also became responsible for several sites outside Alexandria. The institution will have to cover an area as far away as to Damietta (about 200 km from Alexandria).

They will have a total of 12 sites to inspect, calibrate, check and service. We propose that a small car will be purchased for the use at IGSR for weekly site visits, calibrations, data retrieval and various sampling. This car will be in operation every day of the week and will hopefully meet the needs of the IGSR as a Monitoring Laboratory for EIMP/EEAA air quality monitoring programme.

A full programme will be installed in the greater Alexandria area at the end of November 1998, and the Delta sites will be in operation from the beginning of 1999. We thus propose to go ahead with the necessary procurement procedures to be able to include this car into the programme as soon as possible.

Toolbox for CEHM

The Monitoring Laboratory at CEHM received a toolbox for maintenance and repair is missing a drill and a hammer. This will be supplied as soon as possible

Spare parts to CEHM

CEHM will start repairing monitors next week. Most of the spare parts presently stored at the Storage in Maadi will have to be moved to Cairo University (CEHM). Rolf will together with Anwar select the appropriate spare parts to be moved as soon as possible.

I.2.1 d) Status reports (monthly)

EIMP

Status report Air Pollution Monitoring March 1999

Procurement

The System Manager for IGSR has been ordered. More passive samplers are needed for the whole EIMP programme and has been ordered from NILUProducts.

Data management

Local data management undertaken by the Monitoring Laboratories is now in routine but are still preliminary, as more advanced data treatment programmes are needed. The EEAA data base requirements have been specified in co-operation with the data base team.

Training

The first auditing at monitoring sites was undertaken as part of the on the job training. The sites in Maadi and at Tebbin South were selected for training of the Ref. Lab. Air personnel.
Training of the chemical laboratory at Cairo University was finalised in March.
On-the-job training of field personnel at the Monitoring Institutions continued in March.
Training of the new Air Pollution Counterpart started in March.
Training was undertaken at CEHM and at IGSR for the development of annual reports.

QA/QC

Standard Operational Procedures (SOP) is still being developed and is being used by the institutions.

Monitoring

El Quolaly
The power has still not been formally connected at the station. EEAA was supposed to finalise the power contract on 21 Feb. As of 1 April we still have no data from the site.

Gomhoryia street:
Most measurements at the site were reported satisfactory in March. The NMHC has been stopped until the transfer of the station in a new location. The monitor could be damaged because of frequent short power failures.
A meeting is planned between EEAA and Arab Contractors based upon the letter sent in February with a sketch for the new room for the measurements.

Nasr City
There are still problems in power supply at the site. The sampling period has been changed to reduce loss of data, and chargeable batteries will be ordered from NILUProducts.

Maadi :
The measurements at Maadi (EEAA building) was working properly

Tabbin:
Monitors and samplers operated on routine bases. Problems reported on the NOx monitor, it was transferred to CTS for repair, the one belongs to the monitoring lab is working there now. The radiation shield for the solar radiation sensor was ordered from CTS.

Tabbin South:
The measurements are operating fine. The dust fall bucket was moved to the security room.

Fum El Khalig:
Working properly except the NMHC. Still no telephone line.

Abou Zabaal:
Operating according to plans.

Shoubra ElKheima:
The station operates adequately. NO_2 sequential sampler was installed and started in March.

Giza, Cairo University:
All instruments have been at the Reference Laboratory for re-calibration. Measurements are in according to plans.

6 October:
The station was working adequately. High NO2 concentrations.

10 Ramdan:
Alle measurements are working according to plans.

Suez:
Data have been collected according to plans. A ladder was installed in the veginning of March. A letter requesting telephone line installations has been prepared.

Ismailia:
Passive sampling has been undertaken successfully. PM_{10} sampling will be undertaken when the airmetrics samplers are being made available.

Port Said:
Passive samplers were lost in March.

El Fayoum:
Dust fall sampler changed on 1 April. Sampling successfully undertaken.

Sharm El-Sheik/ RasMohamed :
Ozone and dust fall measurements started on 10 March 1999. Visits from the Monitoring Laboratory will be paid to the site once a month.

IGSR, Alexandria
The instruments are operating according to schedule, except the PM_{10} monitor. This is still not functioning perfectly and has been transferred to CTS for repair. The zero line change on the CO monitor will be solved in April.

Alex. Background
Meteorlogical data are now functioning well. Ozone data looks good.

Abou Keir :
The instruments are giving good quality data. Low concentrations of SO_2 and NO_2 are due to the location of the site. Passive sampling will be undertaken in April to study the concentration distribution in the area.

El Azafra:
All data are of good quality.

El Max
The instruments are working properly. The data show relatively high NO_2 and PM_{10} concentrations, surprisingly low SO_2 concentrations. PM_{10} measurements were undertaken on the same day at all sampler sites from 20 March.

Gheat El Inab:
The measurements look good. Same comment as for ElMax.

Kafr El Dawar:
The shelter was installed in February. The instruments were installed and measurement started on 24 March 1999.

Kafr El Zayet:
The shelter was installed in February. When installations were supposed to be undertaken in March, papers and agreements were not signed. Installation postponed till April

El Mansoura:
The site was selected in February. The shelter and meteorological mast was on the site in March. All instruments will be installed during first week of April.

El Mahalla:
The site was selected on 25 March. Papers prepared.

Domiatt:
One site was selected in March. However, the site will have to be re-visited in April, due to complaints about the represenativity presented to the Governorate.

Reporting

The Monitoring Laboratory at CEHM presented the last Quarterly report containing data for the fourth quarter 1998 in February 1999. A similar report from IGSR was finalised in March and will be presented in April.

Annual reports have been prepared at both Monitoring Laboratories. However statistics are not easily available as the final EEAA database system has not been installed.

A summary report is also being prepared at EIMP/EEAA. This summary will be presented in a seminar during the spring 1999.

EIMP

Status report Air Pollution Monitoring April 1999

Procurement

Passive samplers and various types of filters have been ordered for the whole EIMP programme. The equipment has been reported sent from NILUProducts.

Data management

Little progress on obtaining the System Manager for IGSR, as there has been no response from Kontram. Data management is still undertaken by the Monitoring Laboratories based on simple excel based procedures. Training in the presentation and handling of data is undertaken continuously. The EEAA data base development proceeds, and input requirements have been specified in co-operation with the data base team.

Training

On-the-job training of field personnel at the Monitoring Institutions continued in March. Comprehensive every-day training of the new Air Pollution Counterpart is being undertaken, but more basic knowledge will have to be obtained through more extended training courses. These have been indicated in a memo to M Fathy.
Training was undertaken at CEHM and at IGSR for the further development of quarterly and annual reports. A major part of this training has been repetition of QA/QC requirements.

QA/QC

QA/QC training and awareness has been a major part of the reporting procedures and training in April. Standard Operational Procedures (SOP) is still being developed and is being used by the institutions. The Reference Laboratory expatriate expert started introduction to QA/QC at a high level at the Monitoring Institutions.

Monitoring

El Quolaly
The power has still not been formally connected at the station. EEAA was supposed to finalise the power contract on 21 Feb. 1999. As of 1 May we still have no data from the site.

Gomhoryia street:
Most measurements at the site were reported satisfactory in April. It was decided in a meeting with Arab Contractors that a room will be constructed, isolated and cooled at the place where the instruments already are located The NMHC has been stopped until the station will be upgraded. The monitor could be damaged because of frequent short power failures.

Nasr City
There are still problems in power supply at the site. The sampling period has been changed to reduce loss of data. Very high NO_2 concentrations are analysed on some days. Possible problems in the analyses are being investigated.

Maadi :
The measurements at Maadi (EEAA building) was working properly

Tebbin:
Monitors and samplers operated on routine bases. Problems reported on the NOx monitor. It was at CTS for repair and has been at NIS for calibration. The monitor is back at Tebbin. The radiation shields for the solar radiation sensor, ordered from CTS, have still not arrived.

Tebbin South:
The measurements are operating fine. The dust fall bucket was moved to the security room and measured in April considerably more dust than before..

Fum El Khalig:
Working properly except the NMHC. The CO monitor has been at CTS for repair in April. It is returned back to the station, and is reported to function well. There is still no telephone line at the station due to numerous negotiations concerning various payments..

Abou Zabaal:
The measurements are operated according to plans.

Shoubra ElKheima:
The station operates adequately. The NO_2 sequential sampler was installed and started on 5 April (one week delayed). Preparations were made to change the small movable meteorological station to a normal automatic weather station with 6 m tower.

Giza, Cairo University:
All monitors (SO_2 ,NOx, Ozone) were at the Reference Laboratory for re-calibration. They are now returned to the site and the measurements are undertaken according to plans.
The data logging problems, which has remained at the site since start-up, has to be considered in the future. The data logger is a different type than at the other sites.

6 October:
The station was working adequately. We still record occationally high NO2 concentrations.

10 Ramdan:
All measurements are working according to plans.

Suez:
Data have been collected according to plans. Surprisingly low TSP and dust fall values will have to be checked. A letter requesting telephone line installations has been prepared. No progress was reported in April.

Ismailia:
Passive sampling has been undertaken successfully. PM_{10} sampling will be undertaken when the Airmetrics samplers are being made available.

Port Said:
Passive samplers were lost in March. New set installed at the end of April.

El Fayoum:
Dust fall sampler changed on 1 April. Passive sampling was successfully undertaken.

Sharm El-Sheik/ RasMohamed :
Ozone and dust fall measurements started on 10 March 1999. The Monitoring Laboratory project leader visited the site in April, and reported very good data. Ozone data have also successfully been transferred vie Internet.

IGSR, Alexandria
The instruments are operating according to schedule, except the PM_{10} monitor was transferred to CTS for repair and will be re-installed on 3 May 1999. The instrument personnel are now following up the zero line change on the CO monitor.

Alexandria Regional/Background
Meteorological data were reported of good quality in April. The ozone data looks good, even if they are surprisingly low. The location may be influenced by traffic emissions in the city, reducing the natural background ozone concentrations.

Abu Qir:
The instruments are giving good quality data. Low concentrations of SO_2 and NO_2 are due to the location of the site. In most of the hours the wind is blowing from the Mediterranean Sea giving background concentration levels.
Passive sampling of SO_2 and NO_2 was undertaken along a traverse from 14 April 1999. The data are at Centre for Environmental Hazard Mitigation for analyses as of 1 May 1999.

El Azafra:
The data seem to be of good quality. The reasons for the very low SO_2 concentrations are being investigated.

El Max
The instruments are working properly. The data show relatively high NO_2 and PM_{10} concentrations, surprisingly low SO_2 concentrations. The PM_{10} measurements in the Alexandria area were all undertaken on the same day during April 1999.

Gheat El Inab:
The measurements look good. Same comments as for ElAzafra and ElMax.

Kafr El Dawar:
The shelter was installed in February. The instruments were installed and measurement started on 24 March 1999. The data for April look good.

Kafr El Zayet:
The shelter was installed in February. When installations were supposed to be undertaken in March, papers and agreements were not signed. The installations were undertaken and finalised on 21 April 1999. A power supply has to be installed to operate the calibrators.

El Mansoura:
The shelter and meteorological mast was on the site in March. All instruments were installed and in operation from 8 April 1999. Due to delay in electricity (not available upon arrival with the instruments) limited training was given. The air condition broke down after a few days. This was not reported to the installation expert until one week later. The air condition was repaired on 29 April. The instruments will be started on 8 May 1999.

El Mahalla:
The site was selected on 25 March. Papers prepared but all April has been used to clarify permissions.

Domiatt:
The site selected in March was re-visited in April. It had to be altered and the Environmental responsible and the General Secretary of the Governorate gave oral agreements to place the shelter at a school in central Domiatt. When the shelter was brought to the site on 27 April no permissions could be confirmed. The shelter had to be left on the ground, and the installations postponed till all papers are approved.

Reporting

The Monitoring Laboratory at IGSR finalised the last quarterly report for 1998. It was presented to EIMP/EEAA in April. Quarterly reports for the first quarter 1999 has been drafted, and given to the Air Quality Task Manager.

Annual reports have been prepared at both Monitoring Laboratories. The Task Manager, as part of the training, has prepared texts and comments for the Centre for Environmental Hazard Mitigation report. For IGSR instructions and training has been given concerning the statistics and data presentation procedures. However, statistics are not easily available as the final EEAA database system has not been installed.

The first annual report from Centre for Environmental Hazard Mitigation is expected to be available during the first week of May. For IGSR the annual report will need more considerations.

A Monthly air quality report has been developed for EEAA. This will be presented in the beginning of May. A summary report for 1998 will be prepared at EIMP/EEAA and the content of this may be presented in the Air Quality Seminar on 13 May 1999.

I.2.1 e) Seminar programme and invited persons

EIMP

Mr. Bjarne Sivertsen, Air Quality Task Manager

Environmental Information and Monitoring Programme

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Seminar for the status of the air pollution in Egypt after the first year of EEAA measurements

Date
11 May 1999

Dear Mr. Bjarne

We have the pleasure to invite you to attend EIMP Seminar for the status of the air pollution in Egypt after the first year of EEAA measurements.

The Seminar will take place at Sofitel Hotel, Luxor Hall, Maadi on May 13th 1999.

Kindly find attached the Seminar Agenda and list of participants.

We are looking forward to seeing you.

Yours sincerely,

Jorgen Simonsen
Project Manager

Note: Please confirm your attendance

Egyptian Environmental
Affairs Agency
EEAA

Danish International
Development Assistance
Danida

Environmental Information
and Monitoring Programme
EIMP

Welcome you to the seminar

Air pollution in Egypt

Status after the first year of EEAA measurements

13 May 1999

At Sofitel Hotel, Maadi (Luxor Hall)

Egyptian Environmental Affairs Agency
EEAA

Danish International Development Assistance
DANIDA

Environmental Information Monitoring Programme
EIMP

Title of the seminar :

Air pollution in Egypt

Status after the first year of EEAA measurements.

Seminar Venue : Sofitel hotel, Maadi
Date of the Seminar : 13 May 1999

10:00	Welcome. Eng. Ahmed Abou Elsoud, Egyptian proj. man. Dr. Ibrahim A. El-Gelil. CEO EEAA H.E. Danish Ambassador H.E. Minister of State for Environmental Affairs
10:40	The Danida/EIMP project. **Dr. *Jørgen Simonsen*, *EIMP Project Manager***
11:00	- coffee break -
11:20	Air pollution in Egypt, ***Mr. Bjarne Sivertsen*, *Team Leader EIMP Air Pollution Monitoring*** • *Background (the first year of data)* • *Sites and indicators* • *The typical air pollution problem* • *Air pollution from many sources; traffic, industry, waste burning etc.* • *Background air pollution* • *An air pollution episode* • *Violation of Law no. 4, Air Quality Limits* • *Conclusions*
12:00	Cairo Air Improvement Project, ***Jim Howes, CAIP Air Monitoring Component Director,***
12:30	JICA, Air pollution measurements, ***Dr. Mowaheb Abo El-Azm, CCC Director***
13:00	Sustainability and future use of data • *Introduction , **Bjarne Sivertsen*** • *Open discussions*
14:00	Summary and Conclusions

List of Invited Persons to the Air Seminar on May 13th 1999

Organization / Project	Name	Title
EEAA		
	Dr. Nadia Makram Ebid	H.E. Minister of State for Environmental Affairs
	Dr. Ibrahim Abd El Gelil	CEO, EEAA
Danida		
	Mr. Erling Harlid Nielsen	H.E. Danish Ambassador
	Mr. John Carstensen	Counsellor Environment
EIMP		
	Dr. Jorgen F. Simonsen	EIMP Project Manager
	Eng. Ahmed Abou El Seoud	EIMP Egyptian Project Manager
	Eng. Mohamed Fathy	Deputy Project Manager
	Mr. Bjarne Sivertsen	Task Manager Air Component
	Mr. Rolf Dreiem	Installation Specialist
	Mr. Hytham Ahmed	Air ComponentCounterpart
	Ms. Mai Ahmed	Ref. Lab Counterpart
	Ms. Ulla Lund	Ref. Lab Task Manager
	Eng. Mohamed Zaki	Data Mangemnt Counterpart
	Mr. Dean Jones	Database Specialist
	Ms. Naglaa Darwish	
EETP		
	Mr. Frank Runchel	Chief Technical Advisor

OSP	Mr. Morten Palle Hansen	Project manager
	Eng. Khaled Fahmy	Egyptian Project Manager
EEIS	Dr Mousa Ibrahim	Egyptian Project Manager
	Mr Frank Greif	Project Manager
	Mr Marc Beandoin	Database Specialist
CAIP	Mr Stasys Rastonis	Project Manager
	Mr Jim Howes	Air Quality Monitoring Component Manager
	Dr Mounir Labib	Air Quality Monitoring Specialist
	Ms Noha Samaha	Air Monitoring System Supervisor
JICA	Mr Hiromi Chihara	Project Chief Advisor
EPAP	Mr Esko Meloni	Project manager
TCOE	Eng Dahlia Lotayef	Director
CEO Technical Office	Eng Gihan Bayoumi	Technical follow up officer, CEO office

Finacial and Administrative Department

Dr Ali Abou Sdira	Under secretary

Environmental Quality Sector

Dr Ahmed Gamal	Head of the Sector
Dr Mohamed El Zarka	Director of CAIP
Mr Abd El Latif Hafez	Director of Air Quality & noise protection Dep
Chemist Kawther Hefny	Industrial Pollution Specialist
Chemist Ekhlas Gamal	Head of the Environmental Monitoring Department
Chemist Mona Kamal	Vehicle Pollution Specialist

Educatin and Public Awarness Depatment

Dr Nirvana Khedr	Director
Mr Fouad Megahid	Public Awarness Manager

Environmental Management Sector

Dr Ahmed Abou El Azm	Head of the Sector

CCC

Dr Mawaheb Abou El Azm	Director

Greater Cairo Branch Office

Dr Magdi Allam	Director

Environmental Department in Different Governorates

Minister Office

Dr. Ahmed Hamza	Head of Minister Counsellor
Dr. Samia Galal	Minister Counsellor
Dr. Dina El Nagar	Minister Counsellor

Monitoring Instiutions

TIMS

Dr. Ahmed Amin	Director

CEHM / Air Component

Dr. Yehia Abd El Hady	Director
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Environmental Information and Monitoring Programme (EIMP). Air Quality Monitoring Component Mission 12 Report	Bjarne Sivertsen NILU PROJECT NO. O-96013
AUTHOR(S) Bjarne Sivertsen, Leif Marsteen and Rolf Dreiem	CLASSIFICATION * A CONTRACT REF.

REPORT PREPARED FOR:
COWI/EIMP
EEAA Building, 30 Misr Helwan Street
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ABSTRACT
The twelfth mission to Egypt on the DANIDA EIMP programme included installations, training and reporting. The installation of monitors was finalised. A total of 37 air quality monitoring sites were operated in Egypt at the end of the mission. Monthly and Quarterly air quality data reports were produced and presented. The development of annual reports was undertaken as part of the training in understanding air pollution. Training in QA/QC operations was given to the Monitoring Laboratories. The first Audits to the monitoring stations was performed as part of training given to the Reference Laboratory. A seminar summarising the first year of measurements was given on 13 May 1999.

NORWEGIAN TITLE
Overvåkingsprogram for luftkvalitet i Egypt

KEYWORDS		
Air Quality	Monitoring	Siting

ABSTRACT (in Norwegian)

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- *A Unclassified (can be ordered from NILU)*
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- *C Classified (not to be distributed)*