Standard Summary Project Fiche for the Transition Facility

1. Basic Information

1.1 CRIS Number: **2007/019-303.04.07**

1.2 Twinning contract BG/07/IB/EN /07

1.3 Title: **Further Development of EEA's Calibration lab as a National Reference Laboratory and Optimization of the National Quality Assurance and Quality Control System for Ambient Air Quality Measurements**

1.4 Sector: **Environment**

1.5 Location: Bulgaria – Executive environment agency at the Ministry of Environment and Water

2. Objectives

2.1 Overall Objective(s):

Improving the air quality in Bulgaria in line with EU and international provisions

2.2 Project purpose:

The purpose of the proposed project is to guarantee the quality of the monitoring data, the latter being used for implementing short- as well as long-term measures for improving the ambient air quality in line with the environmental protection policy

2.3 Justification

The project completion will lead to full implementation of the requirements under the 96/62/EC Framework Directive for AAQ assessment and management as well as the four Daughter directives as regard the following:

- Ensuring the required accuracy and time span of the data;
- Providing information in real time for to the population;
- Ensuring the quality of the information, subject to provision to the population;

The project implementation is also crucial for the fulfilment of the Bulgarian international obligations for reporting data on ambient air quality, including those under Council Decision 97/101/EC of 27 Jan. establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member state.

3. Description

3.1 Background and justification:

In the current decade, the Republic of Bulgaria started to enact legislation for environment protection, which is being updated and harmonized with the corresponding European Union legislation. The new Environmental Protection Act was adopted in 1991 and amended in 2002.

In accordance with the new Environmental Protection Act, the Ministry of Environment and Water (MEW) is in charge of organizing and conducting the monitoring of the environment components including air quality, which is of great importance to the human health and sustainable development. One of the main functions of the MEW and its subordinated bodies, the Executive Environmental Agency (EEA), including 15 Regional laboratories (RL), is to collect, handle, and store air quality data and to provide the interested governmental institutions and the general public with relevant information. For this purpose, EEA and RL

have set up specialized structural units and laboratories. The information obtained through the air quality monitoring system is used as a basis for setting a national policy and strategy on air quality management as well as undertaking appropriate pollution abatement measure.
The Bulgarian Air Protection legislation is based on State Gazette (SG) No. 91/25.09.2002, "The Environmental Protection Act" as amended by the "Regulation on the terms and conditions for carrying out Environmental Impact Assessment" (SG 25/18.03.2003) and the Decree No. 87/23.03.1995 on the Ratification of the Convention on Environmental Impact Assessment in a Transboundary Context.
The Framework Directive and the Daughter Directives are implemented by regulations as follows:

EU Directives	National Legislation
Framework Directive 96/62/EC of 27 September 1996 on AAQ assessment and management	**Clean Air Act** Regulation No. 7 from May 3, 1999 on Ambient Air Quality Assessment and Management
Directive 99/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides, particulate matter and lead in ambient air	Regulation No. 9 from May 3, 1999 on limit values for sulphur dioxide, nitrogen dioxide, fine particulate matter and lead in ambient air
Directive 2000/69/EC of the European Parliament and of the Council of 16 November 2000 relating to limit values for benzene and carbon monoxide in ambient air	Regulation No. 1 from Jan. 16, 2004 on limit values for benzene and carbon monoxide in ambient air
Directive 92/72/EC relating to ozone in ambient air	Regulation No. 8 from May 3, 1999 on ambient air quality limit values for ozone
Directive 2002/3/EC relating to ozone in ambient air	Regulation No. 4 from July 5, 2004 relating to ozone in ambient air
Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air	In process of preparation
	For the specific air pollutants there is a Regulation No 14/2002 on limit values of harmful substances in the settlements ambient air in Bulgarian legislation.

During the implementation of the 2003 twinning some shortcomings had been found in the AAQ Monitoring Network in Bulgaria (inefficient organization of the monitoring network (has to be reorganized), insufficient data centre in the EEA (has to be implemented new), insufficient equipment of the monitoring stations (has to be improved).

Presently, the data transfer between the monitoring stations and the data centre in the EEA is not carried out in a direct way but is done via radio modems to the data bases of the Regional Inspectorates and from there to the data centre in the EEA via telephone lines. This is highly inefficient because 8 regional databases are needed in the Regional Inspectorates (which costs licence fees and money for administration). Also for QC and QA measures it is necessary to have remote connection to the analyzers in the monitoring stations, however this is not possible with the radio modems used in Bulgaria.

The currently used database is not able to handle basic functions of remote control of the equipment in the monitoring stations, to perform plausibility checks of the measured data, to predefine and create periodically reports and to automatically disseminate the measured data to the public (all of these are features of a state of the art data centre)

In order to fulfill and to implement on a practical level all recommendations in the frame of the project BG03-IB-EN-03 /see point. 3.2/ Bulgaria will need additional assistance by an EU partner.

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3.2 Linked activities:

The assistance provided so far by EU funds /PHARE Program/ has covered equipment supply for National Air Monitoring System /lab. Equipment, equipment for stationary and mobile automatic stations/:

- Air Tender N1-1992
- Air Tender N2-1993-4
- Air Tender N3-1996
- BG 9916/11.02.01/

2000 – 2002:
The PHARE-Twining-Project BG99EN02 "Support of Air Quality Management at Local Level"

2000 – 2002:
PHARE-TBC-Project BG 9916.02.01 about the "Technical Assistance for Development of Joint System for Air Quality Management in the Regions along Bulgarian-Romanian Boundary - Down Danube" with the REIs Pleven, V. Tarnovo, Rousse.

2000 – 2002:
PHARE-Project BG 9807-01-03 about the "National Real Time Air Quality Information Network" with the EEA and the REIs Sofia, Varna, Plovdiv, St. Zagora, Rousse, Vratza, Pleven, V. Tarnovo, Bourgas.

2005-2006
PHARE-CBC Project EUROPEAID/121203/D/SV/BG Development of an Air Quality Management Programme for the Romanian Region along the Bulgarian Border on the Lower Danube

2005-2006
PHARE-Project Project: BG03/IB-EN-03 Establishment of National Quality Assurance and Quality Control System for Ambient Air Quality and Emission Measurements.

In the framework of the Twinning Project BG03-IB-EN-03 between the Bulgarian Ministry of Environment and Waters and the German Federal Ministry for the Environment, Nature Protection and Nuclear Safety QA/QC system for ambient air quality and emission measurements within NAAMS (including establishment and putting into operation of the EEA and RL Varna Calibration Labs) has been established.

The main Activities of the project were:

1. Analysis of the Administrative and Legal Framework;
2. Analysis of the IT Infrastructure within NAAMS;
3. Determination of present situation with regard to QA/QC within NAAMS i.e. to analyze the measurement methods, equipment and methodologies used; data handling, validation and verification procedures etc.; [background and emission measurements]
4. Established Calibration Lab operated on sustainable basis; ensured with adequate and well trained staff, as well as with the required methodologies

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5. Established National QA/QC System for AAQ measurements within NAAMS (in compliance with EU QA/QC requirements [ISO 17025] according to art.3 of The Framework Directive 96/62/EC on AAQ assessment and management); ensured with adequate and well trained staff (station operators and REI laboratory experts), as well as with the required guidebooks, instructions and methodologies
6. Approved measurement and calibration methodologies, as well as instructions and guidebooks [ensuring the operation of the QA/QC in general]
7. Trained staff in 15 REIs and EEA on daily analysis of data gathered and therefore, to identify without delay measurement problems and to propose remediative action
8. Trained staff in 15 REIs and EEA on basic maintenance and simple repairs of the measurement equipment
9. Elaborated Action Plan for further development of QA/QC System (and The Calibration Lab) in order to gradually to increase it's scope by covering the new AAQ parameters established by 2000/69/EC, 2002/3/EC and the Directive 2004/107/**EC** (PAH, benzene, arsenic, heavy metals). The data coverage of the measurements will be significantly increased by improved maintenance, preventive measures. Thus it will comply with the respective measurement requirements of the AAQ daughter directives.

The duration of the 2003 project BG03-IB-EN-03 had to be two years, but finally it was reduced to 15 months.
The duration was reduced to 15 months due to the fact that the budget seemed to be too low for a 24 months project. Therefore in a first step the activities were shortened and some guarantied results had to be deleted. Then the PF was changed. This change of the PF took about 6 months in the BC. As a result of this the start of the project was delayed and in order to keep the end of the reimbursement period the project duration had to be shortened by 6 months)

3.3 Results:

- Improved EEA's Calibration lab as a national reference laboratory,
- Improved technical equipment in the monitoring stations for automatic zero- and span-point-calibration.
- Further refined system for routine control calibration in the monitoring stations on a quarterly basis according to the EU-Guidelines.
- Fully operational system for plausibility check in the EEA's Central data base,..
- Fully operational system for **automatic** dissemination of AAQ-Data via Internet, Fax, GSM, TV (Teletext)/Radio..
- Fully operational system for IT-based generation and dissemination of QA/QC-documents (Document Management System)

All above results have not been subject to previous projects described in Linked activities.

3.4 Activities:

Twinning contract

- Optimization of the system for real time data transfer. The data transfer between the monitoring stations and the data centre will be changed from radio-modem to ISDN- or analogue modems or GSM.
- Optimization of the AAQ-Database
- Installation of necessary equipment for plausibility-checks in the monitoring stations

- Training abroad of the personal for plausibility checks and data correction in the optimized AAQ-database and system for real time data transfer
- Training in-house of the personal for plausibility checks and data correction in the optimized AAQ-database and system for real time data transfer;
- Development of software for **automatic** regular data dissemination to the public and to the EU as well as creation of monthly and annual reports.
- Optimization of the calibration lab in Sofia.
- Implementation of the routine control calibration in the AAQ-network.
- Implementation of service centres with stocks of spare parts and calibration facilities for the maintenance of AAQ-monitoring analyzers.
- Update of the ringtest facilities in the EEA for standards transfer to the service centres
- Implementation of the action plan drafted in the Twinning-Project BG-03-IB-EN-03.

Supply Contract

Additional Hardware for the QA of the AAQ-Network in Bulgaria
In order to fulfill the QA/QC requirements of the AAQ-Framework-Directive and the corresponding Daughter-Directives the following additional hardware needs to be implemented in the AAQ-Monitoring-Network

- Additional primary measuring units for Ozone-Calibration
- Systems for production of primary standard gases for the reference laboratory
- Gas-dilution-systems for the service centers
- Transportable standards for the routine calibration every three months according to the EU-Guidelines
- Span-gas generation systems for the update of the existing monitoring stations for the realization of the daily plausibility checks
- Controlling unit for the gas supply of the ringtest system.

Additional Hardware for the AAQ-Data Centre in the EEA
In order to provide a stable operation of the databases and software set up within the twinning, the hardware background needs to be optimized. Through the supply the necessary hardware, in terms of computer and network facilitation (to increase the speed and capacity of net connections as well as to change the data transfer between the monitoring stations and the data centre from radio modem to telephone-line or GSM) will be provided and installed.

Service contract:

Software for the central AAQ-database.
In order to allow the beneficiary to fulfill the requirements of the AAQ-framework-Directive and from the corresponding daughter directives it is necessary to optimize the software and the database currently in use in the EEA. The software must be partly rewritten.
The following optimizations will be done:

- Unification of the database currently in use in the EEA for reporting purposes with the database of the real-time-system
- Unification of the currently three used databases for the EoI-reporting of the monitoring stations in the new established database
- Implementation of software tools for automatic plausibility checks of the monitoring data and data correction
- Implementation of software tools for the creation of monthly and annual reports.

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- Implementation of software tools for remote administration of analyzers in the monitoring stations.
- Connection of the calibration laboratory to the data centre

Software for Dissemination of AAQ-Data
The software will fit the following needs:

- Implementation of software tools for actual and automatic dissemination of AAQ-data to the public. The presentation of the data will be done in Internet, Fax, GSM, TV (Teletext)/Radio with hourly updating of the data. This is to fulfil the requirements of the EU-Guidelines for the information of the public on Environmental Data.

The tender dossier for contract 2 and 3 will be prepared by EEA experts in-house.

3.5 Lessons learned:

Based on previous projects, the main lesson learned is that the data flow organization under the national air quality monitoring system needs further improvement and optimization. Furthermore, the calibration lab within the Executive environment agency is to gain additional experience through ring tests in order to achieve high air quality data .

4. Institutional Framework

- The main beneficiaries of the project will be the Ministry of Environment and Water /Air protection department/, Executive Environment Agency /Air monitoring department, Air laboratory department and QA/QC department/ and 15 Regional Inspectorates /Air monitoring departments, Air laboratory departments/.
- The Provided assets will cover the whole National air monitoring system and will be property of the Executive Environment Agency
- On a National level the project will be managed by:

- Air protection directorate, MEW
- Air Monitoring Department, EEA
- Air Quality Laboratory Department, EEA

5. Detailed Budget

€M	Transition Facility support			Co-financing			Total cost
	Invest-ment	Institu-tion Building	**Total Transition Facility (=I+IB)**	National Public Funds (*)	Other Source s (**)	Total co-financing of the project	**TF plus cofinancing**
Twinning		**600 000**	**600 000**				**600 000**
Supply Contract	**75 000**		**75 000**	**25 000**		**25 000**	**100 000**
Service Contract	**150 000**		**150 000**	**50 000**		**50 000**	**200 000**
Total	**225 000**	**600 000**	**825 000**	**75 000**		**75 000**	**900 000**

Up to 10% national co-financing for the twinning part will be provided from the State budget through the National Fund Directorate.

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(*) contributions from National, Regional, Local, Municipal authorities, FIs loans to public entities, funds from public enterprises. All the co-financing is joint co-financing and will be provided from the state budget. In the case where the final overall cost is lower than foreseen in the project fiche, the national public and Transition Facility co-financing shall be reduced proportionally so as to maintain the agreed rate of co-financing.
(**) private funds, FIs loans to private entities

Contributions from the Bulgarian administration for effective implementation of the twinning/twinning light/TA may be further detailed in the twinning contract/terms of references.
To ensure smooth implementation of the project, the beneficiary will provide adequately equipped office space with telephone, PC (Internet) and fax. Photocopier and access to the necessary information as well as secretarial support will be ensured during the project life-time. In addition the beneficiary will provide space and facilities for workshops (training), consultations and seminars. The national co-financing will be specified in the twinning contract.

6. Implementation Arrangements

6.1 Implementing Agency

The CFCU - Ministry of Finance of Republic of Bulgaria is the Implementing Agency (IA) for this project. CFCU will work closely with both the NAC and each beneficiary institution that receives assistance under the facility. The financial management of the twinning arrangements will be the responsibility of CFCU. The NAC will be responsibility for overseeing implementation of general training provided under the facility. The relevant beneficiary institution will be responsible for overseeing project-specific assistance provided under the facility
The Beneficiary of the project will be the Executive environment agency at the Ministry of environment and water

Mrs. Gergana Beremska from the State Treasure, Ministry of finance will act as PAO of the project. Her contact details are:

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State Treasure, Ministry of finance
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Fax: +359 2 980 68 63
g.beremska@minfin.bg.

Senior Programme Officer (SPO)
The responsible person for technical implementation of the project at the MoEW is:

Mr. Atanas Kostadinov
Deputy minister (SPO)
Ministry of Environment and Water
67, William Gladstone Str., 1000 Sofia, Bulgaria
tel. +359 2 980 6728 fax: +359 2 980 96 41
E-mail: kabinet503@moew.government.bg

6.2 Twinning

The Twinning Manual will apply for the Twinning component of this project.
SPO

Contact details:
Name: Mr. Atanas Kostadinov - SPO

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Position: Deputy Minister
Address: 1000 Sofia, 67 W. Gladstone Str.
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Fax: +359 2 981 66 10
E-mail: AKostadinov@moew.government.bg

The responsible person for twinning arrangement at the MoEW is:

BC Project Leader
Mr Kalin Iliev
Head of European Issues Sector
Ministry of Environment and Water
67, William Gladstone Str. 1000 Sofia, Bulgaria
Tel.: + 359 2 940 61 55; Fax: + 359 2 980 3547

The Bulgarian Project Leader shall direct the implementation of the project and shall be responsible for the substance and the progress of the project.

BC Project implementation manager and RTA counterpart

RTA counterpart shall be Mr. Valery Serafimov. He will work on a day-to day basis with the RTA.

Valery Serafimov
Head of the Air monitoring dept.
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The project implementation requires the provision of long and short-term twinning experts for the following periods:

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Category	Position	No. of Experts*)	Duration of assignment (Man-months)
RTA	QA/QC expert, IT expert	1	12 months
Short-term	Data gathering and analysis	2	5 months
Short-term	IT expert, database maintenance	1	3 months
Short-term	QA/QC in calibration laboratory	1	3 months
Short-term	QA/QC in monitoring stations	1	3 months
Short-term	Background monitoring expert	1	2 months
Indicative total Man-months for the Short-term experts:			16 months

*) Indicative for Short-term experts
The exact amount of expertise will be determined by the Twinning Partners.

The MS institution implementing this twinning project with the Bulgarian Executive Environment Agency should have a comparable range of institutional tasks regarding management of environmental monitoring and data at national level, and assuring reporting to European institutions.

The **Project leader** should have at least 7 years of experience as a public sector expert senior civil servant in a relevant central administrative structure of a Member State (M.S.); commensurate with the requirement for an operational maintenance and monitoring of automated stations. Knowledge and/or experience in the relevant documentation and exchange of information, supplemented by skills in project management as well as ability to lead a process, communicate clearly may be useful. International practice and fluency in English are also required..

The **RTA** should be a public servant from a relevant MS institution having at least 10 years of proven operational and organisational experience for ensuring the air quality data. The RTA is to have engineering educational background, supplemented by skills in project management as well as ability to lead a process, communicate clearly and train staff. International practice and fluency in English are also required

Each of the short-term experts in the project team of the Member State teams will be a public servant with at least 5 years of proven experience /CV will be used as reference/ in his or her respective field.

The following, but not limited to, experts will ensure proper implementation of the project.

The project is to be implemented under the direct control and supervision of a Steering Committee. For the successful project implementation, the Steering committee will comprise members from:

- Ministry of Environment and Water, "European Funds for Environment" Directorate;
- Ministry of Environment and Water, "European Integration" Department;
- Ministry of Environment and Water, "Air protection" Directorate

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- Executive Environment Agency, "Air monitoring" department
- Executive Environment Agency, "Air quality" unit
- Executive Environment Agency, "Calibration laboratory"
- Executive environment agency, "International Cooperation" Department;
- Ministry of finance, State Treasure
- Ministry of Finance, Management of EU Funds Directorate

6.3 Non-standard aspects

n.a..

6.4 Contracts

Twinning contract: 600 000Euro.
Supply contract: 100 000€ joint co-financing
Service contract: 200 000€ joint co-financing.

7. Implementation Schedule

7.1 Start of tendering/call for proposals

December 2007

7.2 Start of project activity

July 2008

7.3 Project Completion

July 2009

The whole project duration is 15 calendar months. The duration of the twinning component is 12 calendar months

8. Sustainability

The Executive environment agency which will be in charge of the project will provide 10 experts that will be directly involved in this project from the "Air monitoring" dept., the Calibration laboratory, the IT dept. and the "International cooperation".dept. They will work in close cooperation with other competent and control authorities in order to achieve an effective implementation and enforcement of the requirements of Framework directive and the four daughter directives on AAQ assessment and management. Furthermore, training is envisaged to guarantee sustainability of results.

9. Conditionality and sequencing

1. The Executive environment agency which will be in charge of the project will provide 10 experts that will be directly involved in this project from the "Air monitoring" dept., the Calibration laboratory, the IT dept. and the "International cooperation" dept.

2. A detailed needs analysis for the supply contract will be completed before the launch of the tender.

3. The technical specifications for the supply contract will be verified by an independent technical expert before launch of the tender.

4. As the activities of the Twinning depend on the provision of supplies, the Twinning contract can only be concluded once the supply contract has been signed.

ANNEXES TO PROJECT FICHE

1. Logical framework matrix in standard format (compulsory)
2. Detailed implementation chart (compulsory)
3. Contracting and disbursement schedule by quarter for full duration of programme (including disbursement period) (compulsory)
4. Annex 4 Action Plan for further development of the calibration laboratory
5. Annex 5 Explanation on project BG 03-IB-EN-03
6. Annex 6 Equipment provided under previous PHARE projects
7. Annex 7 Indicative price list
8. Annex 8 Breakdown of equipment

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LOGFRAME PLANNING MATRIX FOR Project		Programme name and number	
Further development of EEA's calibration lab as a national reference laboratory and optimization of the national quality assurance and quality control system for ambient air quality measurements.		**Contracting period expires: 15 Dec 2009**	**End of execution of contract period: 15 Dec 2010**
		Total budget : € *900 000*	TF budget €825 000:
Overall objective	**Objectively Verifiable Indicators**	**Sources of Verification**	
Improved air quality in Bulgaria in line with EU and international provisions.	Reports issued by the European environment agency	Protocols of the Ring Tests Evaluations of the data production chain	
Project purpose	**Objectively Verifiable Indicators**	**Sources of Verification**	**Assumptions**
The purpose of the proposed project is to guarantee the quality of the monitoring data the latter being used for implementing short- as well as long-term measures for improving the ambient air quality in line with the environmental protection policy	Yearly data coverage and data quality of the monitoring stations Reporting under the Priority data flows of the European environment agency	Evaluations of yearly AAQ data European environment agency	
Results	**Objectively Verifiable Indicators**	**Sources of Verification**	
• Improved EEA's Calibration lab as a national reference laboratory, • Improved technical equipment in the monitoring stations for automatic zero- and span-point-calibration.. • Further refined system for routine control calibration in the monitoring stations on a quarterly basis according to the EU-Guidelines. • Fully operational system for plausibility check in the EEA's Central data base. • Fully operational system for **automatic** dissemination of AAQ-Data via Internet, Fax, GSM, TV (Teletext)/Radio.. • Fully operational system for IT-based generation and dissemination of QA/QC-documents (Document Management System)	Ring Tests are running in the EEAs's Calibration Laboratory Data quality of monitoring data Efficient dissemination of AAQ data on a hourly basis Efficient and safe system for managing QA/QC-documents	Protocols of the Ring Tests Evaluation of AAQ data Evaluation of AAQ data	

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		Evaluations of yearly AAQ data AAQ data available in internet on hourly basis Evaluation of QA/QC-documents	
Activities	**Means**		**Assumptions**
• Optimization of the system for real time data transfer. The data transfer between the monitoring stations and the data centre will be changed from radio-modem to ISDN- or analogue modems or GSM. • Optimization of the AAQ-Database • Installation of necessary equipment for plausibility-checks in the monitoring stations • Training abroad of the personal for plausibility checks and data correction in the optimized AAQ-database and system for real time data transfer • Training in-house of the personal for plausibility checks and data correction in the optimized AAQ-database and system for real	Changing the data transfer from radio-modem to transfer via telephone line Sufficient working database software in the data centre in the EEA (new software) Ensure automatic zero and span control in the monitoring stations Training of the staff Manuals developed Ensure automatic generation of reports for AAQ data to the EU and for the MOEW by		

time data transfer • Development of software for **automatic** regular data dissemination to the public and to the EU as well as creation of monthly and annual reports. • Optimization of the calibration lab in Sofia. • Implementation of the routine control calibration in the AAQ-network. • Implementation of service centres with stocks of spare parts and calibration facilities for the maintenance of AAQ-monitoring analyzers. • Update of the ringtest facilities in the EEA for standards transfer to the service centres • Implementation of the action plan drafted in the Twinning-Project BG-03-IB-EN-03.	a new software Buying and installation additional hardware for the calibration lab and training of the staff Training of the staff for routine control calibration Ensure efficient service and maintenance for the monitoring stations in Bulgaria Ensure standard transfer for calibration in Bulgaria Ensure efficient running of the NAAMS		

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Annex 2 Detailed implementation chart

Activities	01	02	03	04	05	06	07	08	09	10	11	12
Optimization of the system for real time data transfer	X	X	X	X								
Optimization of the AAQ-Database	X	X	X	X	X	X						
Installation of necessary equipment for plausibility-checks in the monitoring stations								X	X	X	X	
Training abroad of the personal for plausibility checks and data correction in the optimized AAQ-database and system for real time data transfer										X	X	X
Training in-house of the personal for plausibility checks and data correction in the optimized AAQ-database and system for real time data transfer												X
Development of software for **automatic** regular data dissemination to the public and to the EU										X	X	X
Optimization of the calibration lab in Sofia	X	X	X	X	X	X	X	X	X	X	X	X
Implementation of the routine control calibration in the AAQ-network	X	X	X	X	X	X	X	X	X	X	X	X
Implementation of service centres with stocks of spare parts and calibration facilities for the maintenance of AAQ-monitoring analyzers					X	X	X	X	X	X	X	X
Update of the ringtest facilities in the EEA for standards transfer to the service centres	X	X	X	X	X	X						

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Implementation of the action plan drafted in the Twinning-Project BG-03-IB-EN-03							X	X	X	X	X	X

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Annex 3 Contracting and Disbursement Schedule

Contracts	2007								2008												2009									
Twinning									D	T	T	T	C	I	I	I	I	I	I	I	I	I	I	I	I					
Supply							D	D	T	T	T	C	I	I	I	I	I	I	I	I	I	I	I	I						
Service							D	D	T	T	T	C	I	I	I	I	I	I	I	I	I	I	I	I						

Due to the nature of the facility the contracting and disbursement schedule can be estimation only

D: Design T: Tendering/ Call for proposals and contracting I: Implementation

CUMULATIVE CONTRACTING and DISBURSEMENT SCHEDULE (Million euro)

Date	01/01/08	01/04/08	01/05/08	01/10/08	31/12/08	30/05/09	31/07/09		
Twinning contract									
Contracted			**0,600**						
Disbursed			0,200	0,200	0,200	0,200	0,600		
Supply/service contract									
Contracted		**0,075**							
Disbursed		0,025	0,025	0,025	0,025	0,075			
Supply/service contract									
Contracted		**0,150**							
Disbursed		0, 050	0, 050	0, 050	0, 050	0,150			
Total Contracted		0,225	0,600						

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Total Disbursed		0,075	0,275	0,275	0,275	0,425	0,600		

(*) The national co-financing for the Twinning project should be up to 10 % from the State budget through the national fund

Annex 4 Action Plan for further development of the calibration laboratory

Provided by all STEs of HLUG to the Twinning-Project BG03-IB-EN-03 on request of EEA
13th July 2006

- **(B2)** Installation of the sampling tube heating system for FH62I-R instruments (continuous PM-monitor)
- **(B1)** Purchase of the necessary EPROM (RAM): KM 684000 LP-7
- **(A0)** Ensure that the PM sampling heads will be cleaned and greased regularly
- **(B3)** Change flow rate of all PM analyzers from standard conditions to ambient conditions
  (EC-Directives on ambient air quality require all results of **gaseous** pollutants to be referred to standard conditions (0°C, 101,3 kPa) but **NOT** the results of PM, which must refer to ambient conditions)
- **(A0)** Change determination factor (ppb into µg) from 0 °C to 20 °C
- **(C1)** Installation of the exhaust system in new calibration laboratory (room 411)
- **(C2)** Installation of the sampling system (sampling manifold) in Room 411
- **(D)** Installation of the "Ringtest" facility in Room 411
- **(D)** Installation of the zero gas supply in Room 411
- **(A0)** Purchase and continuous operation of a data acquisition system in Room 411 (Breitfuss system)

- **(A4)** Purchase of a color printer for the Breitfuss system for documentation of calibration results
- **(B0)** Ensure continuous operation of all analyzers in Room 411
- **(A5)** Set up a reliable hierarchy of calibration gases to ensure traceability to primary calibration standards
- **(B1)** compare and recalibrate (certify) existing gas cylinders with permeation tube calibration systems (ensure alignment of those gas cylinders used in the field (at the monitoring stations) for calibration with reliable permeation tube calibration systems)
- **(B2)** Ensure frequent calibration at the monitoring stations every 3 Months ("checkup calibration")
- **(A5)** Prepare calibration certificates for all analyzers
- **(B2)** Use the transportable standard (VM3E) for benzene- and H_2S calibrations at the monitoring stations
- **(A3)** Calibrate the benzene analyzer with different concentrations
- **(A2)** Calibrate all O3 analyzers in Bulgaria with the transportable standard from Horiba
- **(A1)** Modify all API analyzers by replacing the filter in the sample inlet
- **(A1)** Modify all air quality monitoring stations to allow for regular automatic zero and span gas checks
- **(A1)** Purchase material necessary for the modifications mentioned in point
- **(A1)** Tender and purchase of central permeation tube calibration systems for zero- and span supply at all ambient air quality monitoring stations
- **(A3)** Tender and purchase calibration gas cylinders from an entitled reference laboratory that guarantees traceability to metrological standards.
- **(A3)** Tender and purchase spare parts for analyzer and the calibration laboratory.
- **(A3)** Tender and purchase of spare analyzers

- **(A2)** Collect the stations protocols from all ambient air quality monitoring stations in Bulgaria
- **(A2)** Ensure continuous data checking and data validation at the EEA (daily routine).
- **(D)** Modify H_2S analyzers to measure SO_2.
- **(D)** Modify ammonia analyzers to measure NO/NO_2.
- **(B4)** Prepare an inventory list of all existing analyzers and related technical equipment (such as permeation tube calibration systems etc.) that can be used at ambient air quality monitoring stations or in the calibration laboratory. Based on this it can be decided, what can still be used. It might be a cost effective measure to improve the current situation.
- **(D)** Provide a vehicle especially equipped with facilities for the transportation of gas cylinders and analyzers, to facilitate the maintenance of the air quality monitoring stations. Preferably this vehicle should be reserved for this specific task.
- **(D)** Provide frequent training in particular for the technical staff and the staff dealing with the evaluation of the data, to improve their knowledge and to build up the capacity to operate the technical installations and to ensure a continuously increasing confidence and competence for better evaluation of the data.
- **(A3)** Provide for additional staff for the calibration laboratory, for maintaining the monitoring stations as well as for working with the monitoring data (plausibility checks, correction of data, evaluation of data, preparation of reports…)
- **(A1)** Ensure that the data acquisition system can be administered and controlled by EEA staff. Build up capacity and knowledge for administration of the system (including training on this issue if necessary)
- **(A1)** Improve the operation of the existing data acquisition system (related to the central computer as well as the data acquisition at the monitoring stations) as well as the knowledge on the operation of the system.
- **(A0)** Follow up the response of SOPHILCO AG (Mr. Georgiev) to questions drafted by Mr. Hagemann and Mr. Jacobi (4th July 2006) on request by EEA concerning the data acquisition system provided by this company.
- **(C1)** Improve or build up the presentation of the data and in particular the capacity to ensure that up-to-date information on ambient concentrations of air pollutants are routinely made available to the public (as it is required by EC-Directives).
- **(A0)** Improve collaboration between the different lab sections within the EEA but also with the regional inspectorates.

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- **(D)** Use the calibration laboratory for workshops in the field of quality assurance and improvement of technical understanding of analyzer technologies.
- **(B1)** upgrading of the sampling systems at the remote background monitoring stations
- **(B1)** shortening of the Teflon sampling lines (in particular for sampling of ozone)
- **(D)** change the scrubbers of the O3-analyzers from MnO to thermal silver wool scrubbers
- **(C1)** send instruction for PM measurements to the RIEWs and check it is being observed / taken into consideration by the responsible persons in the regional laboratories
- **(A0)** preparing and sending of the new H_2S-Analyzer to Burgas
- **(A0)** modification of Burgas Station for automatic daily zero and span control

Important for the future:

- Definition / notification of a reference laboratory for ambient air in Bulgaria (e.g. EEA)
- Regular use of:
  - reference methods for calibration gas production (e.g. Static Injection) and
  - the reference measuring method for O_3
- Participation in proficiency tests ("Ringtests"), also organized on the European level.

Collaboration with other air quality reference laboratories in the European Community

9. Annex 5 Explanation on project BG 03-IB-EN-03

The a.m. mentioned project provided the set up for the National QA/QC system for ambient air quality measurements. Furthermore, it delivered the Action plan for further development of the ExEA calibration lab and outlined the future improvement of the National QA/QC system as whole. Within the frame of the project the ExEA experts were trained following the on-hands training method to work with the available at the ExEA equipment. Due to the lack of adequate equipment in the calibration lab, the project couldn't cover to the full extend the training of the experts in practice i.e for important procedures their experience remained on a theoretical level. In order to move from theory to practise additional support form an EU MS will be required. In addition, the software available at the ExEA for data processing does not allow for ensuring dissemination of information on air quality in real time. The data processing with the software available takes a lot of efforts and considerable time before the information goes for public access. One of the major reasons for this situation is the tough communication between the automated stations, the Regional databases and the National database due to the use of radio modem connection for transmissions. That's why in the proposed project for TF we envisage to change this modus operandi.
The duration of the project has been reduced from 24 months to 15 months upon request from the Twinning partner following its selection. The reason behind this reduction is not under the competencies of the ExEA
The main results achieved under the above project are:

1. Established Calibration Lab operated on sustainable basis; ensured with adequate and well trained staff, as well as with the required methodologies
2. Established National QA/QC System for AAQ measurements within NAAMS (in compliance with EU QA/QC requirements [ISO 17025] according to art.3 of The Framework Directive 96/62/EC on AAQ assessment and management); ensured with adequate and well trained staff (station operators and REI laboratory experts), as well as with the required guidebooks, instructions and methodologies
3. Established system for monitoring of background air pollution levels and emission measurements in line with EU requirements in this field [including The EMEP Protocol under The Convention on Long Range Transboundary Air Pollution]
4. Approved measurement and calibration methodologies, as well as instructions and guidebooks [ensuring the operation of the QA/QC in general]
5. Elaborated Action Plan for further development of QA/QC System (and The Calibration Lab) in order to gradually to increase it's scope by covering the new AAQ parameters established by 2000/69/EC, 2002/3/EC and the forthcoming daughter directives (PAH, benzene, arsenic, heavy metals)

All of the above provide the background for initiating the present project proposal.

Annex 6 Equipment provided under previous PHARE projects

The assistance provided so far by EU funds /PHARE Program/ has covered equipment supply for National Air Monitoring System /laboratory equipment, equipment for stationary and mobile automatic stations/ and building of the National Real Time Air Quality Information Network:

- PHARE Programme 1991-1992 Air Tender N1 "Supply of Air monitoring equipment";
- PHARE Programme 1993-1994 Air Tender N2 "Supply of Air monitoring equipment";
- PHARE Programme 1996 Air Tender N3 "Supply of laboratory equipment including equipment for Gas Chromatography and Atomic Absorption Spectrophotometer laboratories";
- PHARE-TBC-Project BG 9916.02.01 about the "Technical Assistance for Development of Joint System for Air Quality Management in the Regions along Bulgarian-Romanian Boundary - Down Danube" with the REIs Pleven, V. Tarnovo, Rousse;
- PHARE-Project BG 9807-01-03 about the "National Real Time Air Quality Information Network" with the EEA and the REIs Sofia, Varna, Plovdiv, St. Zagora, Rousse, Vratza, Pleven, V. Tarnovo, Bourgas.

The supply equipment from the projects mentioned above is distributed in EEA's and REI's laboratories

Laboratories in National Air Monitoring System

EEA/REI	Ambient Air Quality Monitoring Laboratory	Emission Laboratory	Gas Chromatography Laboratory	Atomic Absorption Spectrophotometer laboratory
EEA	Yes	Yes	Yes	Yes
REI - Vratsa	Yes	Yes		
REI - Pleven	Yes	Yes	Yes	
REI - Ruse	Yes	Yes	Yes	Yes

REI - Smoljan	Yes	Yes		
REI - Burgas	Yes	Yes	Yes	Yes
REI - St.Zagora	Yes	Yes		Yes
REI - Haskovo	Yes	Yes		Yes
REI - Shumen	Yes	Yes		
REI - Plovdiv	Yes	Yes	Yes	Yes
REI - Turnovo	Yes	Yes		Yes
REI - Montana	Yes	Yes		Yes
REI - Blagoevgrad	Yes	Yes		
REI - Sofia	Yes	Yes		
REI - Pazardjik	Yes	Yes		
REI - Varna	Yes	Yes	Yes	Yes

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Annex 7 Indicative price list

Equipment (prices are rough estimates)	No of Units	**Unit cost**	Total cost TF	BC co-financing	Total indicative
Hardware purchase for the QA of the AAQ-Network in Bulgaria	1	50 000	37 500	12500	50 000
Hardware purchase for the AAQ-Data Centre in the EEA	1	50 000	37 500	12500	50 000
Software license for the central AAQ-database	1	150 000	112 500	37500	150 000
Software license for Dissemination of AAQ-Data	1	50 000	37 500	12500	50 000