#### STANDARD SUMMARY PROJECT FICHE

#### 1. Basic Information

1.1. 1.2.	Desiree number: Title:	RO-0006.14 IMPLEMENTATION OF THE ENVIRONMENTAL ACQUIS
1.3.	Sector:	Environment (EN)
1.4.	Twinning component:	RO/2000/IB/EN/01
		Development of an environmental approximation
		strategy with particular reference to the financial
		mechanism
1.5.	Location:	Romania

## 2. Objectives

2.1. *Wider objective:* Fostering the Environmental Acquis implementation measures at central and local level

2.2. *Immediate objective:* Supporting institutional development of Environmental bodies to handle transposition of the environmental acquis (according to the subsidiarity principle):

- a) To strengthen the capacity of central environmental administration
- b) To set-up capacities for regional management at the level of 8 selected EPAs (according to the Regional Development Plan) and ensure better communication between the local EPAs
- c) To build up capabilities at central and local level in the area of environmental assessment procedures for infrastructure investments in line with the requirements of the EU (EIA Directive 85/337/EEC as amended by 97/11/EC) and other national requirements
- d) To increase the institutional capacity of public bodies to identify and run timely investment projects
- e) To implement a demonstration pilot project in the area of air quality

#### 2.3. Accession Partnership and NPAA priority

Accession Partnership - Short term:

a) Strengthen the environmental administration both at national and regional levels

b) Complete transposition and enforce the EIA Directive

c) Develop a plan for financing investments based on estimations of costs of alignment and realistic sources of public and private finance year by year

#### Accession Partnership – Medium term:

a) Develop the monitoring and enforcement capacity in particular through decentralisation to environmental protection agencies.

# 3. Description

# 3.1. Background and Justification

In the field of environment, the institutional framework, which is necessary to actually implement the directives once transposed into the national legislation is still weak. Consequently the objective of the project is to reinforce the different levels of environmental administration (central, regional and local) to make them able to participate in the proper transposition and implementation of the EU environmental Acquis as well as the enforcement of other national environmental legislation. The project will address the needs of the major institutional actors at both central and local levels. It will assess the existing situation by examining the mission and the functioning of these bodies and their operation with other relevant bodies with a view to identifying any necessary restructuring or improvement to ensure the effective and efficient delivery of the environmental policy. It will also identify and strengthen the Regional Environmental Protection Agencies among the local EPAs.

## 3.2. Linked Activities

## PHARE projects

The EU and diverse bilateral assistance programmes have supported the development of the MoWFEP since 1991. First Institutional Development Programme, financed via PHARE has concluded in 1992 the main directions of basic institutional strengthening, and a Master Plan for development the National Integrated Monitoring System for Environment. Other specific PHARE projects covered diverse area of work, namely the monitoring system (1992-1995).

Under Phare 1998 Programme, the environment sector received 3 MEURO for a project entitled "Strengthen the Institutional and Administrative Capacity to Manage Environmental Policy in Romania in conformity with the Acquis Communautaire", out of which two twinnings, one for waste sector and one for water sector, and one component referring to Technical Assistance at central and local level.

The PHARE has also supported the Ministry by a comprehensive strategic paper focused on approximation: DISAE programme (started under PHARE multi-country), structured in 2 major components:

i) ROM-101: Assistance to Romania in the management of the environmental approximation process

It was the first project, which assisted the Ministry to develop its internal management and technical capacity in relation to the environmental approximation process. ii) ROM-102: Development of the Romanian implementation programme for approximation of EU environmental legislation

#### World Bank Projects

In 1996-1998, the World Bank financed a project to develop the management capacity of the Administration of the Biosphere Reserve Danube Delta, extended to 2000.

In 1997 – 1999, the World Bank has initiated an assistance programme to mitigate the industrial pollution, entitled "Pollution Abatement Project".

#### Bilateral Assistance

Danish EPA is expected to carry out an extended assistance activity envisaged to the coming 4 years, total amount of around 4 MEURO, to support the transposition of the framework directive on air quality and its subsequent directives, as well as the related institutional strengthening at central and local level in the aim of effective implementation.

#### Elaboration of the Planning tools

Following the first Environmental Action Plan, elaborated in 1995 (with Danish assistance) and up-dated in 1999, the MoWFEP has developed other strategy papers.

## 3.3. Results

1. Development of an environmental approximation strategy, based on directive specific transposition plans, and with particular reference to financial mechanism for its implementation.

2. Setting-up capacities for regional management at the level of the 8 selected EPAs (according to the Regional Development Plan)

- institutional framework in accordance with the regional management requirements
- procedures at local and regional level to initiate and implement local and regional Environmental Action Plans

3. Establishment of an institutional and legislative framework that will allow a proper enforcement of the EIA Directive.

4. A demonstrative pilot investment in air quality monitoring in place at local level.

#### 3.4. Activities

a) Twinning at central level to develop the environmental approximation strategy with particular reference to financial mechanism

The institutional building project will strengthen the capacity to transpose and enforce the Acquis, along with the ability to handle financing needs which still proves to be critical. MoWFEP has conducted a number of strategies and Action Plans, which state the objectives, priorities and measures to be implemented.

The pre-accession instruments (PHARE, SAPARD and ISPA) along with the available domestic resources will provide only part of the necessary funds to finance the required investments. The PHARE technical assistance aims to reinforce the efficiency of the financial Community instruments by improving the Romanian institutional capacity in order to assess the financial implications of approximation in the field of environment, set up clear priorities to allocate funds and promote the leverage effect of the funds available in order to attract additional funds from other International Financial Institutions, bilateral funds and private sources.

This twinning activity is further described under point 6.2.

#### b) TA to ensure compliance with Environmental Impact Assessment Directive

Indeed the aim of this directive is to put in place a procedure that ensures that environmental consequences of projects are identified and assessed before authorisation is given. The public can give its opinion and all results are taken into account in the authorisation procedure of the project. It is therefore a decisive tool for integrating environmental considerations into other sectors and for ensuring transparency and public participation. Proper implementation of this directive is of particular importance in the context of EU assistance to infrastructure projects through ISPA, PHARE and SAPARD. Implementation of this directive will be shared by different administrative levels and therefore capabilities need to be built at central, regional and local level.

The main activities foreseen are the following ones:

- draft regulations and associated administrative procedures for having an EIA procedure consistent with the EU's EIA Directive
- identification of the key players to be responsible for issuing and managing the EIA at national, regional and local levels
- preparation of handbooks and guidelines for implementation
- assistance to local office to ensure proper implementation of the program
- preparation of a programme for the national, regional and local environmental officers who are to be trained in technical and administrative matters related to EIA
- training at central level (around 20 persons) and local level (around 100 persons)
- if necessary, limited short term assistance for the preparation of terms of reference for this component

c) TA for strengthening the local EPAs and developing regional EPAs

The project aims at strengthening regional and local EPAs, and to initiate and implement local and regional Environmental Action Plans. Capabilities to involve in the decision-making process of major stakeholders in the target area will be reinforced by both expanding the EPAs responsibilities and tasks and by calling on-board other local decision-makers. The features of the local EPAs are to be inter-waving by composing them into regional EPS, as mirroring the Regional development idea in the economic sphere.

The main activities foreseen are the following ones:

- technical assistance to local and regional EPAs to develop and implement their Local (respectively Regional) Environmental Action Plans,
- establishment of a training programme for local and regional EPAs
- training especially in the Regional EPAs, since new tasks are to be handled by the new REAPs. Training will be directed mostly towards 80 experts from REPAS and toward 80 experts from the LEPAs
- limited assistance for the procurement of communication equipment to facilitate the communication between central level, regional level and local level
- if necessary, limited short term assistance for the preparation of terms of reference for this component

In each regional EPA, an expert will be dispatch in order to assist the activity developed in the respective EPA. The division of costs between regional level and local level will be around 50%- 50%.

## d) Local pilot investment project in the EPA of Bucharest for air quality monitoring

Following the recommendation of the Master Plan for development the National Integrated Monitoring System for Environment (Phare project RO91.05), the monitoring of the ambient air quality and the opportunities for improving the management of the monitoring system at the level of municipality is considered to be a priority.

Presently, Bucharest city has 3 non-automatic air control networks, with 20 sampling points in total (all of them are not operational). None of the sampling points has meteo station. The data processing gathering from this network consists in monthly reports with average concentrations, maximum concentrations and over-passing frequency on each pollutant. Because this network is not working in "real time" the exceed values of each pollutant are known a day after the sample was taken. Some representative pollutants for large urban areas – CO and O3 – are not measured. The air emission monitoring is not present in Bucharest city because the lack of equipment at potential sources.

It is proposed to upgrade this air emission monitoring system in order to establish an operational monitoring system, linked through EPA Bucharest with local administration and also with the national monitoring system. This type of automatic monitoring network involves:

- air quality monitoring real time
- meteorological monitoring real time
- calibration systems
- data transmission system real time
- data acquisition systems and specific integrated software and hardware

The procurement of the following equipment is foreseen (indicative – see annex 4 for more detailed information):

- 8 monitoring stations
- specific software & engineering
- dispatching at EPA
- 1 mobile laboratory for air quality control,
- 1 mobile unit for technical interventions and stations mobility
- 1 complete laboratory for electronic maintenance and service, calibration kits)
- spare parts & consumables for 2 years

Some technical assistance will be provided for:

- training and institutional building
- if necessary, review of the technical specification and preparation of tender documentation

#### 4. Institutional Framework

The MoWFEP is the beneficiary of the project.

#### 5. Detailed Budget

		Phare Suppo	ort			
(in MEURO)	Investment Support	Institution Building	Total Phare (I+IB)	National co- financing (*)	IFI	TOTAL
Twinning at central level to develop the environmental strategy with particular reference to financial mechanism	-	0.8	0.8	0	0	0.8
TA to ensure compliance with the environmental Impact Assessment Directive	-	1.7	1.7	0	0	1.7
TA for strengthening the local EPAs and developing regional EPAs	-	2.5	2.5	0	0	2.5
Local pilot investment project in the EPA of Bucharest for air quality monitoring	2.5	0.5	3	1	0	4
TOTAL	2.5	5.5	8	1	0	9

(\*) Romanian co-financing is designated mainly to cabin chassis, low-tension equipment and electrical assemblage, and will come from the national budget

#### 6. Implementation arrangements

#### 6.1. Implementing Agency

Tendering, contracting, accounting and financial reporting will be carried out through the CFCU, which will be the Implementing Agency.

There will be an overall contract co-ordinator on the side of the MWFEP, which will be the Implementing Authority. Day-to-day local counterparts will be allocated to ensure the effective and efficient local contribution.

## 6.2. Twinning

The Twinning component will follow the general rules of twinning projects. In the event that no suitable twinning proposal is forthcoming, this component of the project will instead be implemented through conventional technical assistance.

<u>Title:</u> development of an environmental approximation strategy with particular reference to financial mechanism

<u>Budget:</u> 0.8 Meuro (including short-term technical assistance)

<u>Beneficiary and contact person:</u> Ministry of Waters, Forests and Environmental Protection, Mr. Mihai Cozariuc, General Director, General Directorate for European Integration, Programmes, Projects and International Relations (tel: +40 1 312 25 99; tel/fax: +40 1 312 55 07; e-mail: cozariuc@mappm.ro)

Specific Objectives:

- Develop a legislative programme for transposition, including detailed and realistic timetables for legal drafting (by the relevant technical unit), inter-ministerial consultations, legal checking for compliance with EU Directives, estimated dates for the formal approval
- Develop an implementation programme for the main directives, with emphasis on those implying big investments and financial efforts
- Strengthen the administrative capacity to co-operate with the state and private owned institutions in designing most suitable strategies and to explore the financial opportunities
- Develop specific mechanism in accordance with the National Environmental Fund for solving the environmental liabilities of the state owned companies to be restructured
- Identify and develop specific economic instruments for solving the main environmental problems in sectoral approach
- Increase the capacity of the General Directorate to integrate financial, institutional and legislative issues within the environmental strategies which are providing for international (EU) assistance
- To develop procedures for including budget amounts for specific environmental improvements within other ministries budget lines

#### Activities of the PAA

- Collect all available information from: the Progress Monitoring project carried out by the Commission with the assistance of Milieu Consultants (Tables of Concordance and Implementation Questionnaires), outputs of the screening exercise, the existing drafts in the technical units of the ministry, the existing approximation strategies (waste and water from twinners, IPPC and air pollution from DEPA), the work carried out by the inter-ministerial working groups etc
- Prepare the transposition programme and establish a system for monitoring and follow-up implementation of the transposition programme
- Co-ordinate the activity of the inter-ministerial working groups
- Identify additional staff and training needs
- Identify the investments needed to implement the most costly directives (in the sector of water, waste and air) and detailed financing programmes including financial sources available and timetables
- Co-operate with the EPU on cost assessment in different sectors, on developing the economic instruments, adequate tariff system and application of the "polluter pays" principle

Guaranteed results/Expected outputs:

- Integrated strategy for transposition of the acquis
- Increased capacity of the General Directorate to benefit from the international aid available for the implementation of this strategy
- Increased negotiation potential
- Legislative programme for transposition
- Implementation programme for the most costly directives

<u>Required inputs</u>: one PAA for at least 18 months (24 months if possible). The activity of the PAA will be assisted by short-term experts, depending on the activity that has to be carried out. If necessary, a limited assistance will be provided for the purchase of computer equipment for data management (such as the financial information).

#### Profile of the PAA

Extended experience in public administration at central level, economist or accountant in a large administrative unit or private company, knowledge of environmental management, most preferably in funding mechanisms.

Ability to use the institutional resource for identifying and controlling the financial flows both in-house and outside may be an advantage for properly running the project.

## 6.3. Non-standard aspects

The DIS Manual will strictly be followed.

#### 6.4. Contracts

The contracts will follow the project activities, for each component being concluded one contract, under one overall framework contract on the basis of ToR.

# 7. Implementation schedule

- 7.1. Start of tendering/call for proposals: October 2000
- 7.2. Start of project activity: January of 2001
- 7.3. *Project Completion:* end 2002 (mid 2003 for twinning)

# 8. Equal opportunity

Balanced representation in both co-ordinating bodies and Consultants will be monitored. Gender breakdown of trainees and Consultants employed will be recorded to ensure measurement of equal participation in project by women and men.

## 9. Environment

The investment will be carried out to improve the environment status.

## **10. Rates of return**

Financial rate of return %: N/A

Economic internal rate of return %: N/A

*Have the feasibility studies been completed and when?* A study was developed in 1995, as a contract between the Municipal Authority and ICIM (The National Institute for Environmental Research and Development)

# 11. Investment criteria N/A.

## 11.1. Catalytic effect

The strengthening of the MoWFEP is a prerequisite to further implement a realistic environmental policy, and can only be supported through a Phare grant.

## 11.2. Co-financing

The project will bring additional resources to the existing domestic allocation at central and local levels.

## 11.3. Additionality

IFIs and namely the World Bank will continue their programmes to assist the private sector, especially whenever privatisation comes into force.

## 11.4. Project readiness and Size

All the necessary technical details have been detailed and listed. The project is ready to be contracted.

# 11.5. Sustainability

The project observes the subsidiarity principle, giving responsibilities and management capacity to the lowest level allowing proper adoption of the Environmental Acquis.

# 11.6. Compliance with state aids provisions

The project does not finance any entity on private market.

## 12. Conditionalities and sequencing

To ensure transparency and accountability of the use of funds, a calendar of progress review meetings on a six months basis focused on improving the capacity to develop and manage National Environment Policy under the new market conditions will be established.

The component to be implemented through twinning requires the full commitment and participation of the senior management of the beneficiary institution. In addition to providing the twinning partner with adequate staff and other resources to operate effectively, the senior management must be whole-heartedly involved in the development and implementation of the policies and institutional change required to deliver the project results.

#### **List of Annexes**

Annex 1: Logframe matrix Annex 2: Implementation Chart Annex 3: Contracting and Disbursement Schedule Annex A. Main technical specifications for sub-project n°4

# Annex 1

L	OGFRAME PLANNING N	IATRIX	Programme name: and number:	Date of drafting:
Institutional Building To Strength Transpose, Implement And Enfor		nmental Administration Capacity To	Contracting period expires: 30.11.2002	Disbursement period expires: 30.11.2003
Project number: RO-0006.14			Total Budget: 9 (MECU)	Phare contribution: 8 (MECU)
Wider Objective	Indicators of Achievement*	How, When and By Whom Indicators Will Be Measured	Assumptions and F	Risks
<ul> <li>Fostering the Environmental Acquis implementation measures at central and local level</li> </ul>	No. of Guidelines and Indicative Documents related to legal body of the Acquis	<ul> <li>NARD</li> <li>Consultant and the national counterpart</li> </ul>	Assumes investr influenced, meas within project tim	sured and recorded
Immediate Objectives	Indicators of Achievement*	How, When and By Whom Indicators Will Be Measured	Assumptions and F	<b>≀isks</b>
<ul> <li>Supporting institutional development of environmental bodies to handle transposition of the environmental Acquis</li> <li>Strengthen the capacity of central environmental administration</li> <li>Increase the institutional capacity of public bodies to identify and run timely investment projects</li> <li>Increase the capacity of different institutions to handle cross – institutional budget lines</li> <li>Build up capabilities at central and local level in the area of</li> </ul>	<ul> <li>Planning for institutional running and development</li> <li>Fitting of available financial resources with the previously identified need</li> <li>Investment managed at whole project life cycle by public bodies</li> <li>Financial Planning for cross- sectoral issues</li> <li>Capacity of EPAs to deal with EIA Directive procedures</li> <li>Contribution of EPAs to the EIAs procedure</li> <li>Public participation and EPAs capacity to monitor and assess financial aspects of</li> </ul>	<ul> <li>Various ministries' communications</li> <li>Consultant and the national counterparts</li> <li>Municipal representatives communications</li> </ul>	<ul> <li>proposed Nation law gets through</li> <li>Similar mechanis</li> <li>Training depend staff and staff tim</li> <li>Pressure of othe priorities</li> <li>Co-operation wit assistance comin</li> <li>Delays in establi</li> </ul>	sms to be developed s on level of turnover of ne availability r national legislative h other similar ng from other donors shing the 8 REPAs hin each county for pacity of the tween Bucharest

<ul> <li>environmental assessment procedures for infrastructures investments in line with the requirements of the EU</li> <li>Set-up capacities for regional management at 8 selected EPAs</li> <li>Ensure better communication between the local EPAs</li> <li>Implement a demonstration pilot project in the area of air quality</li> <li>Develop institutional framework able to manage air pollution problems at regional level</li> <li>Outputs</li> </ul>	<ul> <li>the infrastructure investment</li> <li>Capacity of REPAs to act as turning-point for EPAs</li> <li>Own contribution to EAP</li> <li>Effective use of resources on unit of information</li> <li>Connections between LEAPs</li> <li>Keeping pace with the modifications in the on-going economic activities</li> <li>Impact of the pilot on further development</li> <li>Air monitoring information flow</li> </ul>	How, When and By Whom Indicators Will Be Measured	Assumptions and Risks
<ul> <li>Environmental approximation strategy, based on directive specific transposition plans with particular reference to financial mechanism for implementation</li> <li>Local multi-stakeholders involvement</li> <li>Improved skills of the civil servants</li> <li>Legislation drafted</li> <li>Procedures to enforce legislation on EIA</li> <li>Institutional framework for a proper enforcement of the EIA Directive</li> <li>Awareness raising and knowledge of the EU's EIA procedure for public</li> </ul>	<ul> <li>Effective Strategy, measured by the deepness of financial details</li> <li>Indications of stakeholders input within planning documents</li> <li>More effective administration management</li> <li>Laws passed</li> <li>Norms and enforcement Guidelines elaboration</li> <li>Proper elaboration of Studies of Different Institutions</li> <li>Number of trained staff</li> <li>No. of LEAPs and 8 REPAs</li> <li>8 REPAs in place</li> <li>Reached objectives</li> <li>Increased level of national co-</li> </ul>	<ul> <li>Consultant and national counterparts</li> <li>Screening exercise</li> <li>NARD</li> <li>REPA</li> </ul>	<ul> <li>Co-operation with local stakeholders</li> <li>Delays in legislation passing</li> <li>Romanian EIA legislation allows EIA Directive transposition</li> <li>Training depends on level of turnover of staff and staff time availability</li> <li>Interest of stakeholders in LEAPs and REAPs</li> <li>Permissive county legislation</li> <li>Existing monitoring system could integrate air monitoring data</li> <li>Lack of financial resources for replication of the demonstration system</li> </ul>

<ul> <li>participation</li> <li>LEAPs and 8REAPs developed</li> <li>8 REPAs in place</li> <li>Operation of institutional co- operation within each county</li> <li>Better use of existing financial resources addressed by the REAPs</li> <li>Operational monitoring points</li> <li>Monitoring system able to be up-graded with economic evolution</li> <li>Elaboration of blueprint for similar monitoring systems</li> <li>Demonstration system to be replicated</li> </ul>	financing <ul> <li>Operational points</li> <li>Guidelines (Handbook)</li> <li>No of proposals for replication</li> </ul>		
Inputs	Indicators of Achievement*	How, When and By Whom Indicators Will Be Measured	Assumptions and Risks
<ul> <li>Twinning support through long and short term experts to the ministry</li> <li>Training courses and in-house training</li> <li>Local in-kind support</li> <li>Support offered by the consultants</li> </ul>	<ul> <li>No. of training courses</li> <li>Allocation of the necessary resources for the activity</li> <li>Enforcement procedure similar to the EU practice</li> <li>No. of trained staff</li> </ul>	<ul> <li>Consultant and national counterpart</li> <li>NARD</li> <li>REPA</li> </ul>	<ul> <li>Delays in starting date of the activity</li> <li>Un-appropriate communication with local staff</li> <li>Training depends on level of turnover of staff and staff time availability</li> <li>Problems with local financial support</li> </ul>

\* Must be quantified and measurable

# **ANNEX 2 - DETAILED TIME IMPLEMENTATION CHART FOR PROJECT NUMBER RO-0006.14**

# (Institutional Building To Strengthen The Central And Local Environmental Administration Capacity To Transpose, Implement and Enforce The Most Critical Directives)

			20	00	)							20	01	L										2	00	2							2003											
calendar months	J	A	S	0	N	D	J	F	Μ	A	Μ	J	J	A	S	0	N	D	J	F	N	<b>1</b>	A N	м.	J.	J	A	5 (	0	N	D	J	F	Μ	A	Μ	J	J	A	S	0	N	N	D
Twinning at central level																																												
Selection of Twinner and preparation of the Covenant																																												
Twinning																																												
TA to ensure compliance with EIA Directive																																												
Preparation of the tender documentation																																												
Tendering																																												
Project activity																																												
TA to strengthen the local EPA																																												
Preparation of tender documentation																																												

Tendering																							
Project activity																							
Pilot Investment Project																							
Preparation of the technical design																							
Preparation of tender documentation																							
Tendering																							
Works																							
Training																							
	С	= Do = Co = In	onti	racti	ing ntati	ion																	

# ANNEX 3 - CUMULATIVE CONTRACTING AND DISBURSEMENT SCHEDULE (MEURO)

(Institutional Building To Strengthen The Central And Local Environmental Administration Capacity To Transpose, Implement and Enforce The Most Critical Directives)

CONTRACTING	31/03/01	30/06/01	30/09/01	31/12/01	31/03/02	30/06/02	30/09/02	31/12/02	31/03/03	30/06/03	30/09/03	31/12/03
Twinning at central level			0.8	0.8	0.8	0.8	0.8	0.8				
TA to ensure compliance with EIA Directive	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7				
TA to strengthen the local EPAs	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5				
Pilot Investment Project (I)			2.5	2.5	2.5	2.5	2.5	2.5				
Pilot Investment Project (IB)				0.5	0.5	0.5	0.5	0.5				
Total Programme	4.2	4.2	7.5	8.0	8.0	8.0	8.0	8.0				
DISBURSEMENT	31/03/01	30/06/01	30/09/01	31/12/01	31/03/02	30/06/02	30/09/02	31/12/02	31/03/03	30/06/03	30/09/03	31/12/03
Twinning at central level					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
TA to ensure compliance with EIA Directive		0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.7	1.7	1.7	1.7
TA to strengthen the local EPAs		0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.5	2.5	2.5	2.5
Pilot Investment Project (I)					0.4	0.8	1.2	1.6	2.0	2.5	2.5	2.5
Pilot Investment Project (IB)							0.2	0.3	0.4	0.5	0.5	0.5
Total Programme (in Meuro)		0.5	1.0	1.5	2.5	3.5	4.7	5.8	7.1	7.8	7.9	8.0

# Annex A - Main technical specifications of the air emission monitoring network (sub-project n°4)

- 8 fixed monitoring stations for air quality (6 stations in significant urban areas 2 in traffic areas, 2 in industrial areas, 2 in residential areas 1 station outside urban area for background pollution and 1 central station at EPA);
- all these stations have meteorological monitoring: temperature, wind speed, wind direction, atmospheric pressure, humidity, solar radiation;
- pollutants: SO2, CO, NOx, O3, HCT, particulate matter, aerosols (and others, if necessary, according to the specificity of the area) in  $\mu$ g/m3 or mg/m3; analysing methods: mass- spectrometry, infrared absorption, UV photometry,  $\beta$  absorption;
- all these parameters measured in real time will be averaged (by specific software) at 30 min, 24 hours, monthly and annual;
- each station will have analysing equipment with automatic calibration systems;
- each station will have data acquisition system (DAS) and data transmission system (DTS); all data will be transmitted by radio to EPA dispatching;
- each station will have electricity supply system, climatisation system, security and alarms system, integrated with DAS and DTS;
- each station is configured in one type of compact modular cabin;
- at EPA Bucharest will function the central dispatching of this network and data processing system (software, hardware in doubled configuration for data assurance in case of faults with connections for all stations, radio-transmission system and peripheral annexes);
- the whole network will have a great flexibility: facile handling for moving to other places when is necessary, facile possibilities of station configuration (analysers and number of parameters for monitoring), possibility of extension for other 10 12 stations in the next stage; possibility of interfacing with future self-monitoring air emissions of the largest industries and traffic monitoring system;
- additional:
  - 1 mobile laboratory for air quality control (air quality and emissions, meteo, DAS, DTS and GPS) interconnected with the fix monitoring network
  - 1 mobile unit (4x4) for technical interventions and stations mobility
  - 1 complete laboratory at EPA for electronic maintenance and service
- this network will be operated by a special team of specialists and technicians from EPA Bucharest (after training periods);