FINNISH METEOROLOGICAL INSTITUTE

МИНИСТЕРСТВО ЗА ЖИВОТНА СРЕДИНА И ПРОСТОРНО ПЛАНИРАЊЕ

TWINNING INTERIM QUARTERLY REPORT number: 5

European Agency for Reconstruction

TWINNING PROJECT

INTERIM QUARTERLY REPORT

Project Title: Air Quality Improvement

Partners: The Finnish Meteorological Institute and the Ministry of Environment and Physical Planning

Date: 19th December 2007

Agency Contract Number 05MAC01/13/102

Twinning Contract number: MK05/IB-EN-01

Section 1: Project data

Twinning Contract Number	MK05/IB-EN-01
Project Title:	Air Quality Improvement
Twinning Partners (MS and BC)	The Finnish Meteorological Institute and the Ministry of Environment and Physical Planning
Report Number:	5
Period covered by the report:	1.9.-.30.11.2007
Duration of the project:	1.9.2006-29.2.2008
Rapporteur:	• Harri Pietarila, Member State Project Leader (MS PL) • Svetlana Gjorgjeva, Beneficiary Country Project Leader (BC PL) • Tiina Harju, Resident Twinning Advisor (RTA)

19.12.2007

Harri Pietarila, MS Project Leader Svetlana Gjorgjeva, BC Project Leader

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

List of Abbreviations and Acronyms

AQFD	Air Quality Framework Directive
BC	Beneficiary Country
BTX analyser	An analyzer which measures benzene, toluene and xylene isomers in the air, also called BTEX analyser
CADASTRE	Cadastre of Air Polluters and Pollutants in the Republic of Macedonia, 2004 (also KATASTAR)
CARDS 2004 project	CARDS 2004 project “Environmental management strengthening”
CARDS 2005 project	CARDS 2005 project "Strengthening of Environmental management, former Yugoslav Republic of Macedonia"
CAR- FMI	Model for estimating the concentrations originating from traffic (FMI)
CCEA	Climate Change Enabling Activities Office
CEN	European committee for standardization
CLRTAP	Convention on Long-Range Transboundary Air Pollution
CRF	Common Reporting Format (UNFCCC)
DD	Daughter Directive
DeNOx	Nitrogen oxide (NOx) reduction
EAR	European Agency for Reconstruction
ECMWF	European Centre of Medium Range Weather Forecast
EEA	European Environment Agency
EMEP	European Monitoring and Evaluation Program (monitoring and evaluation of long range transmission of air pollution)
ETC-ACC	European Topic Centre – Air and Climate Change
EPER	European Polluting Emissions Register
EPRTR	European PRTR
FEA	Federal Environmental Agency (Umweltbundesamt)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

FMI	Finnish Meteorological Institute
FWD	Framework directive (92/62/EC)
GC	Gas chromatograph or gas chromatography
HM	Heavy metals (or trace elements)
HMA	Hydro-Meteorological Administration
ICEIM-MANU	Macedonian Academy of Sciences and Arts, Research Center for Energy, Informatics and Materials
IEC	The International Electrotechnical Commission
ISO	The International Organization for Standardization
KATASTAR	see CADASTRE
KS	Key Source
LAT	Lower Assessment Threshold
LCP	Large Combustion Plants (EU Directive)
LPS	Large Point Sources
MEIC	Macedonian Environmental Information Centre
MEPP	Ministry of Environment and Physical Planning
MPP	Meteorological PreProcessor (FMI)
MS	Member State
NCCC	National Climate Change Committee
NE	Not estimated
NEC	Net Emissions Ceiling (EU Directive)
NITL	National Inventory Team Leader
NFP	National Focal Point
NFR	Nomenclature for reporting (CLRTAP)
N.N.	No Name
NPAA	National Programme for the Adoption of the Acquis (European Union)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

PL	Project Leader
PM	Particulate Matter
PMT	Photo Multiplier Tube
PRTR	Pollutant Release and Transfer Register
QA/QC	Quality Assurance and Quality Control
RIHP	Republic Institute for Health Protection
RTA	Resident Twinning Advisor
SCR	Selective Catalytic Reduction
SEA	Secretariat for European Affairs
SOP	Standard Operation Procedure
SRS	Sector of Regulation and Standardisation of the MEPP
SSO	State Statistical Office
SYKE	Finnish Environment Institute
TOC	Table of Concordance
UAT	Upper Assessment Threshold
UBA	Umweltbundesamt, Austria
UDM-FMI	Urban Dispersion Modelling System for stationary sources (FMI)
UNFCCC	United Nations Framework Convention for Climate Change
UNECE	United Nations Economic Council for Europe
VBS	Visual Basic Script
VOC	Volatile organic compounds
VTT	Technical Research Centre of Finland

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Section 2 and 3: Content

This section describes the activities of the project. It is divided in five sections.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

2A - BACKGROUND

Policy Developments

During the reporting period covered by the fifth quarterly report, the following activities related to a further development of the legislation through transposition of Directives relevant to air, have been carried out in the Ministry of Environment and Physical Planning:

1. The activities that are related to the air legislation and are given in NPAA are regularly updated and are developing according to the plan. In this period the WEB application was filled in according to the SEP requirements, as new method for updating NPAA.
2. The Rulebook for the methodology for the inventarization and determination of the emission levels of the pollutants in the atmosphere in tones per year for all types of duties, as well as other data for delivery of the programme for monitoring of the air in Europe (EMEP) is announced in “Official Gazette of RM” no. 142 dated 26.11.2007.
3. The project progress monitoring that is related to preparation of TOC and implementation tables for the directives (96/62/EC; 99/30/EC; 2002/3/EC; 2001/80/EC; 200/69/EC; 2004/107/EC) is ongoing. There was a meeting where the representatives of MEPP were informed for the two phases i.e. phase 1 up to the end of February and phase to the end of April. The activities in the phases are review and update of the existing TOC and implementation tables of air quality directives.
4. MEPP made review of the Prepared Sector Strategy for approximation, within the CARDS 2005 Project "National Strategy for Environmental Approximation" which should be accepted by the Government of R. Macedonia.
5. The project “Participation of the West Balkan Countries in the work of the Community Agencies - EEA (2005-2006); Air emissions” is extended for the period 2007-2008. To the request of the coordinator of the project FEA – Vienna a report was sent regarding the current situation of the emission inventories and the requests of the future project related to this issue. Until now there is no information for the further development of the project.
6. Regarding the national indicators, working groups were created classified per sectors, that held regular working meetings and the task was to adopt the proposed list of indicators and if possible to amend the proposed list of indicators.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Project Assumptions

It has been expressed in the article 2 of the working plan in the Twinning contract that the Twinning project Air Quality Improvements relates to article 103 of the SAA, which mentions that "the Parties shall develop and strengthen their cooperation in the vital task of combating environmental degradation, with the view to supporting environmental sustainability". It adds that "Cooperation should focus on several priorities", including "combating air pollution, environmental impact assessment and strategic environmental assessment, continuous approximation of laws and regulations to Community standards".

The assumptions given in the Twinning contract are shown in the following table.

Table 1. ASSUMPTIONS from the Twinning contract

Component Number	Assumptions	Status
I	Cooperation and outputs of CARDS 2004 and CARDS 2005 projects	Fulfilled
	Translation of legislation and documents	Partly fulfilled
	Co-operation with the relevant stakeholders functional	Partly fulfilled
II	Results from CARDS 2003 Regional available	Fulfilled
	Activity data is available and its quality meets the requirements	Partly fulfilled
	Software and hardware meets the requirement	Partly fulfilled
	Skilful personnel available and enough personnel resources	Partly fulfilled
	Stakeholders available and willing to cooperate	Partly fulfilled
III	Cooperation and outputs of CARDS 2004	Fulfilled – CARDS2004 finished
	Emission data, other activity data and AQ	

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

	measurement data available and its quality meets requirements	Partly fulfilled
	Dispersion model and GIS tools existing and meets requirements	Partly fulfilled
	Enough personnel resources available	Fulfilled
	Enough resources for producing and distributing promotion materials	Not yet current issue
IV	Skilful personnel available	Partly fulfilled
	Hardware and Software requirements met	Not fulfilled
	Enough resources for new spare parts and/or equipments	Not fulfilled, no new spare parts procured in year 2007 in the MEPP, no enough fund for repairing equipments/engine of the van in the mobile laboratory
	New detector and a sample injection system for GC procured in the Environmental Laboratory	Partly fulfilled (no need for a new detector)
	New equipments and spare parts for mobile emission laboratory procured	Not fulfilled, specifications given in the tender announcement in April 2007 and for the second tender published by the EAR in August 2007, a contract signed between

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

		the EAR and companies
V	BC human resources and computer meets requirements	Fulfilled – two persons for training
	Resources for model procurement available	Fulfilled – the models of the FMI given free of charge
	Co-operation with HMA	Partly fulfilled – after negotiation between MEPP &HMA needed data available without extra cost but encoded form – MS Experts will make a programme for decoding, one meteorologist from the HMA to validate meteorology data in the MEPP
	GIS, emission and meteorological data available	Partly fulfilled – meteorology data available for Skopje area, emission data for point sources, country specific traffic emission coefficients available

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Project assumptions and the status of their fulfilment coming from the missions taken place in the reporting period:

I COMPONENT – Guidelines and Secondary Legislation

- Cooperation with and outputs of CARDS 2004 and CARDS 2005 projects – fulfilled: The CARDS 2004 produced a first version of the Decision on Zones and Agglomerations, which has been further discussed, reviewed and commented during the missions.
- Co-operation with the relevant stakeholders functional – partly fulfilled: The cooperation with the BC experts worked well, especially with MEPP personnel. Key persons from RIHP and HMA also attended main meetings. The suggestion HMA expert to include a section on the comparison of manual methods for air quality monitoring with the continuous instruments was accepted. At later stages further cooperation with stakeholders such as municipalities, doing programmes and action plans, and all performers of air quality measurements, are recommended.

II COMPONENT – Emission Inventories

Transport

- Activity data available and its quality meets the requirements
  - Started. The number of road vehicles for the year 2006 is available and has been inputted to the Copert 4 model. Other activity data needed for the Copert 4 model is identified and efforts will be made to get this data. The problem is the lack of transport research in the BC. During the mission an expert from Skopje University (UKIM) presented results of a new household survey in Skopje. This survey gives essential information on car usage in the city area. This kind of research activity is a very welcome start for the production of such data that is needed for the Copert 4 model.
    Detailed activity data for railway and air transport is available for the year 2006 but has not yet been exploited.
- Software and hardware meets the requirements
  - Fulfilled. Both Copert 3 and Copert 4 transport emission calculation models have been installed and are in use.
- Skilful personnel available and enough personnel resources
  - Fulfilled. The main problem is not the lack of the personnel resources in the MEPP but the lack of the input data for the models. Substantial traffic and transport research work would be needed mainly from other parties than the MEPP (e.g. Universities).
- Stakeholders available and willing to cooperate

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

- Fulfilled. During the missions eight different organisations outside the MEPP (Universities, Ministries and firms) have been contacted and negotiated. All stakeholders have been informed of the importance of the cooperation and all have promised to cooperate.

III COMPONENT – Preliminary Air Quality Assessment

- Cooperation and outputs of CARDS 2004
  - Fulfilled. Cooperation has been established with CARDS 2004 project and the results, data and reports of the project have been delivered to the Twinning project.
- Emission data, other activity data and AQ measurement data available and its quality meets requirements
  - Partly fulfilled. AQ measurement data for years 2004−2006 available. Point source emission data available for year 2004 and total emissions for several years. Traffic emission data available only for Skopje area and total amount for the whole BC. Missing data concerns the emissions of small scale wood burning which may have significant air quality effects locally. Probably this data have to be left out of the preliminary assessment report. The data sets mostly fulfil the requirements of the preliminary assessment.
- Dispersion model and GIS tools existing and meets requirements
  - Partly fulfilled at the moment. GIS tool MapInfo which meets the requirements is in use at the MEIC department and the BC personnel can independently work with the software. Dispersion model for stationary sources (UDM-FMI) is in active use, but the model for mobile sources (CAR-FMI) will be taken into active use during the next mission in the component 5. First dispersion modelling results produced with UDM-FMI are available for preliminary assessment.
- Enough personnel resources available
  - Fulfilled. Persons working in the component 3 are Leader of the component Marijonka Vilarova, RTA Counterpart Aleksandra Nestorovoska Krsteska and BC Experts Arminda Rushiti and Margareta Cvetkovska.
- Enough resources for producing and distributing promotion materials
  - Not yet valid issue. To be seen in future.

IV COMPONENT – Air Quality Measurements and Laboratory Work

- Skilful personnel available
  - Partly fulfilled for the calibration laboratory. The calibration methods of the laboratory are the static injection method, dynamic dilution method and gas phase titration method. The methods are described more details in previous mission report (2/2007). The use of static injection method has not been intensive but the technical staff (TS)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

the laboratory is very capable to achieve a good level of practice for operation of the method. The target level for repeatability is 1 %. To achieve it TS needs to practice the use of the static injection method continuously.

  - Almost fulfilled. The skills and experience of the MEPP personnel involved in the activities of air monitoring program and the calibration laboratory and hence participating in drafting the QA/QC plan have increased. Also the calibration laboratory staff has obtained good experience and exercise when participating in laboratory intercomparison in Essen in October.

- Hardware and Software requirements met
  - Not fulfilled. No money available in the MEPP at the moment. It has not been either possible to finance hardware and software requirements by the EAR.
- Enough resources for new spare parts and/or equipments
  - Partly fulfilled. No spare parts in the procurement list to be financed by MEPP from the annual budget have been ordered. There has been a lack of equipments to establish the traceability chain from the reference laboratory to the measurement station (e.g. field calibrator, ozone calibrator, devices to obtain span and zero checks at the stations in Skopje). In addition there has been also a lack of equipments and reference standards that are needed to realize the traceability of the calibration method at the reference laboratory to the SI unit (high quality gas standards, temperature and pressure standards, flow measurement device). These problems will be solved when new equipments came through the tender have been taken into use. The number of the spare parts in the reference laboratory for the analyzers is substantial, but fit for the purpose with respect to the experience of the most frequently needed spare parts in the BC. However the possibility to purchase spare parts right after the malfunctioning of the analyzer occur is difficult due to the existence of the supplier and the lack of consumable funds.

V COMPONENT – Dispersion Modelling

- Co-operation with HMA
  - Partly fulfilled. After negotiation between MEPP &HMA needed data would be available without extra cost but encoded form. Therefore MS expert's help would be needed to solve the problem. The better script will be looked for this purpose. In September it was decided between State Secretary Dejan Panovski and the Head of the HMA Gjorgji Kotev that one meteorologist from the HMA will validate meteorology data of the MEPP in the future. Details will be confirmed later. General contract has already been signed.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

2B - ACHIEVEMENT OF MANDATORY RESULTS

According to the Twinning contract the project has been assisting in implementing the air quality framework directive, in preparing relevant secondary legislation and in upgrading skills required to operate a significantly developed automatic ambient air quality monitoring network with supporting laboratory services. The project has 5 components (guidelines and secondary laws, emission inventories, preliminary air quality assessment, air quality measurements and laboratory works, and dispersion modelling).

Further steps for the developments in legislation and developing automatic ambient air quality monitoring network with supporting laboratory services have been taken in the Twinning project. A proposal for the future National System for air emission inventories and an establishment of a central national database for air emission inventories to improve emission inventories have been done.

A lack of transport and traffic research in the BC is a hinder of fulfilling the emission inventory work properly. This situation affects many other sectors (preliminary assessment, modelling) as emission inventory as well.

A plan to improve methodologies of preliminary assessment has further developed. The additional measurements etc. needed to improve the preliminary assessment will be carried out during next year. Developments in the air quality data management have been achieved. Two suggestions for revised zoning have been given to improve the preliminary air quality assessment.

For ambient air quality assessment and management including air quality modelling the availability and quality of relevant meteorological data is very important. Recommendations concerning the importance of the modernization and automation of the observation network including the upper air soundings, data acquisition, easily accessible database system and the data quality control have been given to strengthen the capabilities of the HMA in the future.

Technical staff has trained on calibrations of the analyzers in the reference laboratory, calculation of the results, implement and assist in the preparation of SOP for maintenance and calibration of monitors in the reference laboratory and monitoring station. The QA/QC Plan is further drafted.

The practical training on using dispersion modelling in air quality assessment in the use of updated versions of a dispersion model (UDM-FMI) and a traffic

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

model (CAR-FMI) and practical and theoretical instructions have been given how to evaluate the model results against air quality measurements, thus improving the capabilities of the BC to environmental impact assessment and strategic environmental assessment. Also some true dispersion modelling results are available for the use of preliminary assessment.

All the benchmarks which were achieved from the start of the project has been listed and indicated which of the mandatory results are completed or close to completion. Those which were achieved in the reporting period are written by italicization.

Mandatory Results

I COMPONENT – Guidelines and Secondary Legislation

1. *The EU air quality legislation based on the already harmonized air quality directive further aligned*
    - *GAP analysis –completed*
    - *Table of Concordance - completed*
2. *A Draft sub legislations on Air Quality completed*
    - *Draft Sub legislation existing –completed*
        - *A Rulebook on Monitoring and Reporting approved by MEPP and drafted but not yet approved by the relevant ministries*
        - *Rulebook on Plans and Programmes approved by MEPP – drafted but not yet approved by the relevant ministries*
        - *The CARDS 2004 produced a first version of the Decision on Zones and Agglomerations, which has been further discussed, reviewed and develop.*
3. About 50 persons trained and training material and instructions manual prepared
    - About 25 pages manual – Manual has divided to three parts. MS Experts have prepared together with BC experts three drafts: A Practical and Technical Guidance to Monitoring and Quality Assurance, Toolbook on Monitoring and Reporting, Guidelines for preparing Programmes and Action Plans. BC Experts will finalise the manuals.
    - Training for 50 people arranged – not yet current, at the end of project (May 2008)

II COMPONENT – Emission Inventories

Transport

1. *Institutional capacity and tools improved for maintaining emission data*

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

inventories and improved tools

- *Capacity of personnel and tools improved –completed.*
  - *Altogether three experts at the MEPP work with the transport emissions. Both Copert 3 and Copert 4 transport emission calculation models have been installed and are in use. Thus the capacity has been improved substantially.*

2. *Report on compliance with EU based national emission system and priority list for improvement*
   - *Priority list – completed.*
     - *A plan for the improvement of the transport emission calculations and preparation of transport emission inventory in the BC has been prepared by the MS.*
3. *Improvement of National methodology for air emission inventories for the country*
   - *Improved methodology and inventories – completed*
     - *A methodology to upgrade the transport emission inventory to the Tier 2 level has been introduced (software, training and plan).*
4. *Capacities improved and draft training materials prepared on emission inventories and reports – completed*
     - *The Copert 3 and Copert 4 models have good user manuals both for the methodology and actual working. The problem is where to get reliable input data. For this a paper (Plan for the preparation and improvement of the transport emission inventory in the BC) has been written (see an appendix in MS Expert Kari Makela's mission report, September 2007). During all training sessions possible data sources have been discussed. Because the data sources vary from country to country, BC has to find the possible sources by itself. Special training material is not needed.*
     - *The transport emission inventory results will be integrated to the main inventory reporting systems, thus separate reporting of transport emissions is not needed.*
     - *Support to EPER reporting – not planned activity in transport emissions*

III COMPONENT – Preliminary Air Quality Assessment

1. *Improvement of methodology for preliminary assessment*
   - *Improved preliminary air quality assessment – close to completion.*
     - *Dispersion modelling results are still needed to further improve the air quality assessment.*
     - *The practical work concerning the improvement of*

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

methodology included training of MapInfo program and basic data analysis. Report examples of preliminary assessments were presented and the outlook of the preliminary assessment report was discussed.

- *Maps of spatial distribution of concentrations and emissions were produced and the emission data available was integrated within the preliminary assessment.*

2. *Revised agglomerations and non-agglomeration zones established with CARDS 2004 project*
   - *Zone and agglomeration definition ready – completed.*
     - *Proposal of CARDS 2004 project analysed and commented. Two options for a revised zoning has been proposed. The zonings consist of one agglomeration (Skopje) and 2−3 zones (3.2.1. MS Experts Birgitta Alaviippola and Harri Pietarila).*
3. *A preliminary assessment of ambient air quality has been worked out and reported to the EEA*
   - *Preliminary air quality assessment reported*
     - *Started. A draft version of the contents of the report is prepared. The analysis of the achieved results and combination of the dispersion modelling results to the assessment will be finalised in January 2008.*
4. Awareness raised on the importance of the air quality monitoring system
   - Workshop
     - Not current yet, but the discussions have started regarding available funding in the MEPP. This mandatory result is planned to be fulfilled in spring 2008 by organising a workshop and the expenses will be covered by MEPP.

IV COMPONENT – Air Quality Measurements and Laboratory Work

1. *Operation of the calibration laboratory improved and the staff is trained*
   - *Operation of the laboratory improved – partly completed*
     - The technical staff is capable for preparing the gas mixtures individually. However more exercise is needed to reach the target level of 1 % in repeatability.
2. *Capacity built for operation, maintenance, calibration and repairs of air quality monitoring stations and samplers*
   - *Capacity of people improved – partly completed.*
     - *The technical staff is capable of operating the station monitors, obtaining the calibrations at the reference laboratory and repair of air quality monitors. However more work can be made at the station because the field calibrator and working gas standards*

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

are now available. Spare parts, tube connectors and sampling tubes needs to have with during the station trips. This will avoid unnecessary transport of faulty monitors to the reference laboratory and back to the station.

3. *A draft QA/QC plan has been worked out*
   - *A draft QA/QC plan – close to completion. The QA/QC Plan consists of 20 chapters. Writing of chapters has been continued between missions and will be finalised in December 2007/January 2008. In addition, several records, registers and plans belonging to the quality system have been drafted.*
   - *The topics to be covered by the Standard Operation Procedure (SOP) for maintenance and calibration of monitors was listed and discussed. The SOPs are used as procedures to complete the different tasks in the laboratory and in the field measurements according to the same procedure. The plans for maintenance of the stations and records for maintenance are already prepared by the German Expert Joachim Seewoester from the ZIM project. Therefore more work has to be done on the understanding of the quality system and the importance to follow the SOP. The preparation of the SOP has not been started yet and a list of the SOPs needed at the laboratory and at the field station was prepared. The written SOPs will be part of the QA/QC plan to the laboratory*
4. Plan for improvement and training for data management has been completed
   - Improvement plan – close to completion
   - Staff trained - started
5. Plan for improvement and training for GCs analysis for air samples has been completed
   - Improvement plan – completed
   - Staff trained – partly completed
6. The operation of a Mobile Emission Laboratory is improved and the staff received proper training for emissions measurements
   - Operation improved – started, no tenders for the first tender announcement, new one opened by 26 September 2007 (opened by the EAR). Equipment should arrive by the end of year 2007.
   - Staff trained – not done, same reason as above
7. Specifications and priority list for mobile emission laboratory
   - Specifications and priority list – completed, continued for the second tender announcement. See above about the tender and *equipments.*

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

V COMPONENT – Dispersion Modelling

1. *An air quality model has been supplied and implemented*
   - *Operational model for dispersion calculation procured and implemented at the MEIC - completed.*
     - *Two Air Quality models (UDM-FMI, CAR-FMI) have been installed. A new version of UDM-FMI including updated statistical routines and user interface has been provided. The script for generating the calculation grids for UDM-FMI was updated to allow creation of grids with varying resolution.*
2. *Methods to provide meteorological and emission dataset for dispersion modelling has been established*
   - *Meteorological and emission dataset available* – close to completion
     - *Before the mission software for converting raw meteorological measurement (synop) data to excel-format was provided to HMA. During the mission it was decided that for building up a continuous operative meteorological data feed from HMA to MEPP, HMA will need a slightly modified (simpler) version of the script/application converting the station data to EXCEL-format. MS Experts will assist in finding the suitable converting software.*
     - *HMA will send the meteorological data (EXCEL-files) operationally to MEPP. The most practical way to do this is to install an automated send-script to MEPP. A first version of this type of script and some practical notes for installing it have been given. MEPP is expected to assist in installing the data-send script in HMA computer, with the help of relevant FMI experts*
3. *The staff is trained in use and validation of the model results*
   - *Staff trained – close to completion, also course material developed. Also training on evaluation of the model calculations against measured air quality concentrations has been given. A freeware software package (BOOT) was recommended for the practical evaluation work.*
4. *Real case studies prepared*
   - *Real case studies – close to completion*
     - *Almost completed for point source emissions, started for traffic emissions.*

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

2C. ACTIVITIES IN THE REPORTING PERIOD

The CARDS 2005 project is closed and final documents are finalised. Thereby a co-operation between the Twinning project and the CARDS 2005 project is finished.

A fifth steering committee meeting was held 27 September 2007 in the Ministry of Environment and Physical Planning. The following participants were involved in the steering committee meeting:

1. Dejan Panovski, State Secretary, MEPP – chairman
2. Svetlana Gjorgjeva, BC PL, MEPP
3. Gordana Kozuharova, MEPP – chairman after statements
4. Aleksandra N. Krsteska, RTA Counterpart and Leader of Component 3
5. Harri Pietarila, MS, PL, FMI
6. Tiina Harju, RTA, FMI
7. Ivan Borisavljevic, EAR
8. Liljana Todorova Talevska, Hydro-Meteorological Administration (HMA)
9. Mihail Kocubovski, Republic Institute for Health Protection (RIHP)
10. Martina Toceva, RTA Assistant

Absent

11. Dimitar Malinovski, EAR
12. Jane Sapardanovski, Ministry of Economy
13. Dejan Gjorsoski, European Commission – absent
14. Mate Gjorgievski, Secretariat for European Affairs (SEA)
15. Meri Georgievska, Secretariat for European Affairs (SEA)

State Secretary Dejan Panovski and MS PL Harri Pietarila participated in the press conference during the steering committee.

Activities during short-term experts' missions in the reporting period:

I COMPONENT – Guidelines and Secondary Legislation

MS expert Marina Froehlich from 4th September to 6th September 2007

- 1.3.1 Draft Instruction to assist the application of secondary legislation – considering air quality
  - A Practical and Technical Guidance to Monitoring and Quality Assurance in a form of a manual.

  RTA Counterpart Aleksandra N. Krsteska, BC Experts Marijonka Vilarova, Arminda Rushiti, Igor Atanasov and Ljupco Grozdanovski from the MEIC in the MEPP and BC Expert Liljana Todorova Talevska (HMA) were involved in the activity,

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

MS Component Leader Alec Estlander from 1st October to 5th October 2007

- Activity 1.2.2 Drafting of the sub legislation – 2004/224/EC and 96/62/EC regarding National Plans and Programs, 2 days
  BC experts Marijonka Vilarova and Alexandra N. Krsteska from the MEIC in the MEPP were involved in the activities.
- Activity 1.2.4 Amendments of the CAFÉ Directive on the air quality law, 3 days
  BC experts Marijonka Vilarova, Alexandra N. Krsteska and Arminda Rushiti from the MEIC in the MEPP and Biljana Stavrevska from SRS in the MEPP were involved in the activity.

MS expert Wolfgang Spangl from 2nd October to 5th October 2007

- Activity 1.3.1 Draft instructions to assist the application of secondary legislation considering air quality, 4 days
  - Toolbook on monitoring and reporting covering
    - implementation of the monitoring and reporting system
    - monitoring, including quality assurance
    - data management, including data exchange between responsible institutions
    - data validation
    - national and international reporting

  BC experts Marijonka Vilarova and Alexandra N. Krsteska from the MEIC in the MEPP were involved in the activities.

MS expert Lorenz Moosmann from 2nd October to 4th October 2007

- Activity 1.3.1 Draft instructions to assist the application of secondary legislation considering air quality, 3 days
  - Guidelines for Drafting Programmes and Action Plans to Support the Rulebook on Plans and Programmes.

  BC experts Marijonka Vilarova, Aleksandra N. Krsteska from the MEIC in the MEPP were involved in the activities.

In addition the following extra task was done during the mission, based on an idea from MS experts, and on the request of the BC representatives:

- Plan for an Information Campaign

Many meetings between the BC and MS experts were held concerning these activities during the missions.

II COMPONENT – Emission Inventories

MS expert Kari Makela from 24th September to 28th September June 2007

- 2.1.2. Support to construct the database and its content for preparation of the reports to relevant international bodies, 1 day

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

- 2.3.3. Support to update the National Methodology for air emissions inventories for the country with special attention on subjects that need improvements such as emission from farming, emissions from wood burning, emissions from road traffic, emissions from air traffic and railroad traffic, emissions from off-road machinery, 3 days
- 2.4.1. Improve capacities to develop comprehensive training program (supporting training materials) on emission inventories and reports, 1 day

  BC experts Marijonka Vilarova, Igor Paunovski and Driton Idrizi from the MEPP were involved in the activities.

The work during the mission aimed at ensuring the development process of the transport emissions. The process of the preparation of the transport emission inventory will be established after the Twinning Project. The completion of the available but lacking input data was agreed to be fulfilled by the BC experts after the mission and if possible before the end of the project. The basic data still lacking: Sulphur and lead content of the fuels used, density of fuels, monthly minimum and maximum temperatures and Fuel Reid Vapour Pressure RVP. Further contacts to the neighbouring countries for the cooperation in the emission inventory work are recommended.
During the mission MS expert Kari Mäkelä prepared a plan for the improvement of the transport emission calculations in the BC. The quality of the inventory results depends strongly on the research work to be done outside the MEPP.
During the mission Copert 3 and Copert 4 models were studied to show the BC experts the need for input data especially for railway transport and other non-road equipments (working machines).
The meeting with the transport expert (Dr. Zoran Krakutovski) from the Skopje University (UKIM) was especially fruitful. The University has carried out a household survey in Skopje which produces information of the usage of the car that is necessary for the Copert 4 model. It was agreed that the University and the MEPP will start negotiations of cooperation in introducing the research results to the Copert 4 model.

MS expert Santtu Mattila from 26th November to 30th November 2007 will be reported in the following reporting period (approved by the EAR).

III COMPONENT - Preliminary Air Quality Assessment

MS expert Birgitta Alaviippola from 24th September to 28th September 2007, 5 working days &
MS expert Harri Pietarila from 24th September to 27th September 2007, 2 working days (2 other working days for project management)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

- 3.2.1 Revision of agglomeration and non-agglomeration zones
  BC experts Marijonka Vilarova, Aleksandra N. Krsteska and Arminda Rushiti from the MEPP were involved in the activity.

The main tasks of the mission were to give proposals for the new zoning and to go through the first draft version of the preliminary assessment report and give some recommendations. New zoning maps were drawn after giving the proposals for the new zoning

MS expert Birgitta Alaviippola from 12th November to 16th November 2007, 5 working days

- 3.3.1 Reporting and visualization of the assessment results
  BC experts Marijonka Vilarova, Aleksandra Nestorovska Krsteska, Arminda Rushiti from the MEPP and RTA Assistant Martina Toceva were involved in the activity.

Following developments in the air quality data management has been achieved during the mission:

- Air quality data from years 2004 and 2005 was processed and statistics calculated.
- Basic data validation and correction methods were trained

The main tasks of the mission were to finalize the air quality data processing and to make the first conclusions about the air quality in different parts of the BC.

Following activities carried out during the mission:

- Comments on the draft version of the preliminary assessment report
- MS Experts checked the processed air quality data and the calculated statistics. BC Experts the air quality measurement data from year 2004 and drawed line graphs for visual data validation.
- Advices to correct measurement data
- Training of basic data validation
- Dispersion modelling results with UDM-FMI will be finished by 10th of December and will be added after that to the preliminary assessment report.

IV COMPONENT – Air Quality Measurements and Laboratory Work

MS Expert Jari Walden 3rd September to 7th September 2007

- Activity No. 4.1.4 Training technical staff on calibration of instruments, 5 working days
  BC experts Ljupco Grozdanovski and Igor Atanasov from the MEPP were involved in the activity.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Addition to the activity in the Twinning contract MS expert has helped a lot BC experts to calculate results of the intercomparison measurements done 8-12 October in Essen.

The activity 4.1.4 was already dealt during the previous mission (Mission report no: 2/2007 by Jari Walden). However, due to the fact that the laboratory is participating the intercomparison exercise organised by the World Health organization (WHO) and the Reference Laboratory for Air Pollution of the European Commission (EC-JRC/ERLAP) it was decided to review the capability of the laboratory on this topic as well. The intercomparison exercises is organised to the national reference laboratories being part of the quality control procedures according to the council directive 96/62/EC and therefore important event to the laboratory to show the consistency of the measurement capability among the European reference laboratories.
The activities under this item were to make repeated measurements for preparation of gas mixtures of carbon monoxide, nitric oxide and sulphur dioxide. In addition to this the gas phase titration method was used for defining the converter efficiency of the NO_2 converter at the NOx-analyzer.

Work done during the mission:

- The technical staff of the national reference laboratory has used the gas dilution method operated with the mass flow controllers in routine basis but not the static injection system. The training for conducting the static injection system was given during the previous mission. However the routine for using the method has not exceeded the target level.
- The operation of the gas dilutor is skilful by the technical staff. The use of gas phase titration and also a calibration of the ozone analyzer with the gas dilutor were not used since the last training and new training was given.
- Calibrations of the analyzers were obtained with the static injection method and to calibrate the gas dilution method.
- Training on the calculation of the results
- Implement and assist in the preparation of SOP for maintenance and calibration of monitors were started

MS Expert Veijo Pohjola 11th June to 15th June 2007

- Activity No. 4.3.1. Developing draft QA/QC plan, 5 working days
  BC Experts Aleksandra Nestorovska – Krsteska, Marijonka Vilarova, Margareta Cvetkovska, Arminda Rushiti and Ljupco Grozdanovski were involved in the activity from the MEPP.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

- The text of the draft QA/QC Plan was reviewed, improved and even some part of the QA/QC plan was completed. Also recommendations from MS expert of the component 1 were considered.
- It was decided that QA/QC Plan will be made to cover only the State Automatic Monitoring system, not the other two measurement networks taken care by HMI and RHI. Also the handling of industrial data was left out of the scope of the Plan.
- It was agreed that BC Expert checks the Macedonian laws to see whether there are any requirements for the duration of document and data storing.

Activity 4.7.1. Preparation a draft specification and priority list of instrument

A new tender "Supply for Equipment and Consumables for the MEPP" (Lot 1 and Lot 2) was announced in the local newspaper 23/24 August 2007 and on the official EAR website.
The deadline for sending tenders was 26 September 2007. Equipment and consumables should be delivered by the end of year 2007 (60 days delivery time after signing the contract).

V COMPONENT – Dispersion modelling

MS expert Ari Karppinen from 29th October to 2nd November 2007

- Activity 5.1.1. Specification and procurement of an appropriate system for AQ modelling on local scale (Gaussian point source dispersion modelling system), 1 day
  - updated UDM-FMI statistics routine for calculating new EU limit values
  - UDM-FMI grid generation updated – bigger grids / different resolutions
- Activity 5.2.1. Investigate available meteorological data from HMA and Skopje airport and develop methods to provide meteorological data for dispersion modeling, 1 day
  - made a clear/detailed plan on the practical meteorological data transfer from HMA to MEPP
  - Meeting with HMA to decide and plan the future practical steps to initiate the data transfer

  BC Component Leader Igor Paunovski, BC Expert Driton Idrizi and RTA Tiina Harju were involved in the activity.

- Activity 5.3.1. Training course on dispersion modeling and demonstrate methods for validation of AQ models and for scenario making, 1 day
  - provide practical and theoretical guidance on model evaluation

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

RTA Counterpart Aleksandra N. Krsteska, BC Leader of Component 5 BC Component Leader Igor Paunovski, BC Expert Driton Idrizi, BC Expert Marijonka Vilarova, RTA Tiina Harju, RTA Assistant Martina Toceva were involved in the activity.

- Activity 5.3.2. Develop training course materials, 2 days
  - modified the dispersion model output suitable for evaluation purposes
  - prepared training material for evaluation software BOOT
  - prepared training material for practical evaluation work

  BC experts Igor Paunovski and Driton Idrizi from the MEPP were involved in the activity.

One working day for the activity was written in the mission report for March 2007 but it was charged for the activity 5.3.1. Therefore now one working day for the activity 5.1.1 is written again (done) in this mission report and also charged for it.

MEETING in the HMA, 31/10/2007.
PARTICIPANTS: MS Expert Ari Karppinen, Head of HMA Weather forecasting department Rada Avramoska, BC Leader of Component 5 Igor Paunovski, BC Expert Driton Idrizi, RTA Tiina Harju,
DECISIONS:

- HMA will provide a continuous flow of meteorological data to MEPP. Some minor technical issues have to be solved before the practical data transfer can be initiated.
- MS expert Ari Karppinen, BC Leader of the component 5 Igor Paunovski and BC expert Driton Idrizi will provide the necessary technical assistance to HMA to initiate the operational meteorological data transfer
- HMA will provide continuous assistance in the quality control of meteorological observation conducted by MEPP

MS expert Sari Lappi from 12th November to 16th November 2007

- Activity 5.4.1 Use of dispersion modelling for air quality in a couple of real cases, 5 days
- Activity 5.2.2 Preparation of emission and other input data for dispersion modelling

  BC expert Driton Idrizi and partly BC expert Igor Paunovski, RTA counterpart Aleksandra N. Krsteska, RTA Assistant Martina Toceva and BC Expert Marijonka Vilarova from the MEPP were involved in the activities.

Two working days for the activity 5.2.2 and 3 working days for the activity 5.4.1 were written in the mission report for June 2007 but all five working days

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

was charged for the activity 5.2.2. Therefore now all five working days will be written in this mission report for the activity 5.4.1 and also charged for it.

During the last mission of Ari Karppinen a new version of UDM-FMI was installed in MEPP: The model was improved to include a statistical programme for calculation concentrations comparable to EU limit values and the grid generator was also improved and tested. A new grid was prepared for modelling the emission of the largest point sources of Skopje. The emissions of Toplifikacija energy production plants (Zapad, Istok, Sever and 11 Oktomvri), chemical industry plant Ohis, ESM Power plant and Pivara brewery can be included in one modelling since they are situated close enough to one another. Okta oil refinery's emissions were modelled again with the new version of UDM-FMI.

Several BC experts were familiarized on processing emission data for dispersion model applications by practising of creating emission time series for multiple point sources (see above given names).

The area around the Centar air quality measuring station was chosen as the first case study for CAR-FMI modelling. The traffic data (amounts and variation) for those streets was collected from the study made in 1998 by the Japan International Cooperation Agency (JICA). No newer data available.

The modelled concentration data in Mapinfo for Okta oil refinery was processed and the results were reported. The report "dispersion of exhaust gases from Okta oil refinery in Skopje, Macedonia" is attached here. The data, are gained with measurements in 2004, has been taken from the Cadastre. After the mission it has been gone through measurement results from the OKTA refinery. Those two results differes significantly – measurement results are much higher than data taken from the Cadastre.

The MS experts' mission reports are in appendices of this report.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

2D. TIMING AND DELAYS

Adherence to time schedule

During the reporting period twelve missions (together 13 but last one will be reported in the next quarterly report, see 2C. ACTIVITIES IN THE REPORTING PERIOD). The time schedule for the activities taken from the working plan is shown in a following table. All the activities which have planned and taken place from the start of the reporting period until the end of the reporting period are marked with a cross and pink colour in the relevant box. The activities which have started earlier and now continued are marked with a circle and blue colour in the relevant box. In general the crosses show the time of the MS Expert's missions. Actually the activities have been done also before and after the missions in the BC.

One MS expert has continued in Component 2. Emission inventories activity 2.3.3. This mission will be reported in the next quarterly report.

Two of three BTX analysers in the monitoring stations have been prepared. The analysers were brought to Vienna on the way to an intercomparison measurement organised 8-12 October 2007 in Essen and the experts of the EAS Enviment (supplier) repaired them. Therefore it is possible to give training on BTX analysers (activity 4.3.2.) in February 2008 (earliest and latest suitable time).

Activity 5.3.1.Training course on dispersion modeling and demonstrate methods for validation of AQ models and for scenario making planned in the Twinning contract for 4/2007 & activity 5.3.2. Develop training course material (together with activity 5.1.1.) planned for 6/2007 have already started in the previous reporting periods and continued in the reporting period.

Also activities 5.2.2. Preparation of emission and other input data for dispersion modelling & 5.4.1. Use of dispersion modelling for air quality assessment in couple of cases have continued in the following reporting period.

There is no delayed more than three months.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Table 2. A time schedule in the reporting period.

CARDS Twinning Project Air Quality Improvement

Reporting

Reports

	September, Year 2007 XIII					October, Year 2007 XIV					November, Year 2007 XV				
I COMPONENT - GUIDELINES AND SECONDARY LEGISLATION															
1.1.1 Review current secondary legislation, and preparation of Table of concordance for…															
1.1.2. Analysis of the needed sub legislation for further implementation of first, second and fourth…															
1.2.1. Drafting the sub legislation of monitoring and reporting for ambient air quality under the FWD…															
1.2.2. Drafting of sub legislation - 2004/224/EC and 96/62/EC…															
1.2.3. Drafted Guidelines on establishing agglomeration and non-agglomeration zones															
1.2.4. Amendments of the CAFE directive on air quality law						x	x	x	x	x					
1.3.1. Draft instructors to assist the application of secondary legislation - …	x	x	x	x	x	x	x	x	x	x					
1.3.2. Capacity building of stakeholders to use Manual															
II COMPONENT - EMISSION INVENTORIES															
2.1.1 Identify and appoint stakeholders															
2.1.2. Support to construct the database and its content for prepartion of the reports…	x	x	x	x	x										
2.2.1. Identify data gaps for compliance with EU-based national air emission system…															
2.2.2. Preparing a Draft list of priorities for recommended improvements															
2.3.1. Support to develop a National Emission Factors and inventory methods															
2.3.2. Support to develop collection of activity data											reporting in QR6 (below)				
2.3.3. Support to update the National Methodology for air emissions inventories…	x	x	x	x	x						○	○	○	○	○
2.4.1. Improve capacities to Develop comprehensive training program…	x	x	x	x	x						reporting in QR6 (below)				
2.5.1. Support to EPER reporting in general											x	x	x	x	x
III COMPONENT - PRELIMINARY ENVIRONMENTAL ASSESSMENT															
3.1.1. Analyses and review the outcome of CARDS 2004 projects															
3.1.2. Improvement of methodology for preliminary assessment taking accoount…															
3.1.3. Integrate emission inventory data and dispersion modelling…															
3.2.1. Revision of agglomeration and non agglomeration zones	x	x	x	x	x										
3.3.1 Reporting and visualization of the assessment results											x	x	x	x	x
3.4.1 Perform campaign to promote results for public															
IV COMPONENT - AIR QUALITY MEASUREMENTS AND LABORATORY WORK															
4.1.1. Review of the present situation at the calibration laboratory															
4.1.2 Preparing a Plan for improvement of calibration laboratory															
4.1.3. Sharing EU MS country's experience and training on air quality monitoring															
4.1.4 Training technical staff on calibration of instruments															
4.1.5. Calibrate and check instruments in cooperation with technical staff															
4.2.1. Training technical staff on repair maintenance															
4.2.2. Implement and assist in the preparation of SOP for maintenance and…	x	x	x	x	x										
4.2.3. Training technical staff on repair and maintenance for BTX analysers						will be 2/2008									
4.2.4. Training on maintenance of eletronic compounds of the analysers in the monitoring stations															
4.3.1. Developing draft QA/QC plan						x	x	x	x	x					
4.3.2. Training on QA/QC plan										will be 12/2007 & 1/2008					
4.4.1. Review of present situation for data management system															
4.4.2. Identified needs for furthered development of the software															
4.4.3 Plan and specification for procurement of new data management software															
4.4.4. Training on validation, management, analysis and introducing methods for presentation…															
4.5.1. Review of present situation in Central Environmental Laboratory on GCs analysis…															
4.5.2. Preparing a plan for improvement of chemical laboratory…															
4.5.3. Arrange and perform training courses for staff concerning standard operation procedures…											will be 2/2008 (tender				
4.6.1. Check instruments of mobile emission laboratory and prepare plan for improvement…															
4.6.2. Check the results of improvements															
4.6.3. Training course (part 1) on emission measurements; basic principles															
4.6.4. Training course (part 2) on emission measurements; advanced emission…															
4.7.1. Preparation a draft specification and priority list of investments…															
V COMPONENT - DISPERSION MODELLING															
5.1.1. Specification and procurement of an appropriate system for AQ modelling…							○	○	○	○	○				
5.2.1. Investigate available meteorological data from HMA and Skopje airport and…							○	○	○	○	○				
5.2.2. Preparation of emission and other input data for dispersion modelling															
5.3.1. Training course on dispersion modelling and demonstrate methods for ….							○	○	○	○	○				
5.3.2. Develop training course materials							○	○	○	○	○				
5.4.1. Use of dispersion modelling for air quality assessment in couple of real cases															

Activities planned
x Activities planned and done
x Activities done
○ Activities started in time and now continued

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Recuperation of delays

A time schedule for the following reporting period (3 months) is shown in the next table. During the following reporting period twelve missions are scheduled after discussions about suitable dates for MS and BC experts.

Activity 1.3.2. Capacity building of stakeholders to use manual and activity 3.4.1. Perform campaign to promote results for public will take place in the workshop planned to be organised in May 2008.

Two of three BTX analysers in the monitoring stations have been prepared in Vienna by the EAS Enviment (supplier). Then it is possible to give training on BTX analysers (activity 4.3.2.) in February (earliest and latest suitable time).

Activity 4.4.4 Training on validation, management, analysis and introducing methods for presentation and assessment data for MS expert Timo Salmi (5/2997) has changed to activity 4.2.4. Training on maintenance of electronic compounds of the analysers in the monitoring stations for MS expert Harri Granath (2/2008). MS expert Helena Saari (5/2007) was repleaced by Birgitta Alaviippola (1/2008) in the same activity 4.4.4. by the same side letter (number 8, 27.9.2007). Later it was found out according to discussions between MS and BC Expert that needs are at the moment mainly related to technical and programming issues. Therefore MS Expert Birgitta Alaviippola can not help on it.

In December it will be decided whether any MS expert's contribution would be useful for the needs. It is known that a new data management software will not be received during the project and practical training can not be arranged.

It is earliest time for the activity 4.5.3. Arrange and perform training courses for staff concerning standard operation procedures of target compounds for GC analysis for air samples (Include staff from HMA and RIHP Institute of Chemistry from the university and other stakeholders in training courses) to take place in February because tender procedure took long time and consumables (the end of year 2007) from the tender will be needed for the activity. It is the same reason for the activitities relating to emission measurements and the mobile laboratory: 4.6.2. Check the results of improvements; 4.6.3. Training course (part 1) on emission measurements; basic principles & 4.6.4. Training course (part 2) on emission measurements; advanced emission measurements techniques and emission measurement audit on selected industrial source.

There is a need for an extra mission in the component 5.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Table 3. A time schedule for the following reporting period (next three months).

CARDS Twinning Project Air Quality Improvement

Reporting

Reports

	December, Year 2007					January, Year 2008					February, Year 2008				
	XVI					XVII					XVIII				
I COMPONENT - GUIDELINES AND SECONDARY LEGISLATION															
1.1.1 Review current secondary legislation, and preparation of Table of concordance for…															
1.1.2. Analysis of the needed sub legislation for further implementation of first, second and fourth…															
1.2.1. Drafting the sub legislation of monitoring and reporting for ambient air quality under the FWD…															
1.2.2. Drafting of sub legislation - 2004/224/EC and 96/62/EC…															
1.2.3. Drafted Guidelines on establishing agglomeration and non-agglomeration zones															
1.2.4. Amendments of the CAFE directive on air quality law															
1.3.1. Draft instructors to assist the application of secondary legislation - …															
1.3.2. Capacity building of stakeholders to use Manual	will be in 5/2008														
II COMPONENT - EMISSION INVENTORIES															
2.1.1 Identify and appoint stakeholders															
2.1.2. Support to construct the database and its content for prepartion of the reports…															
2.2.1. Identify data gaps for compliance with EU-based national air emission system…															
2.2.2. Preparing a Draft list of priorities for recommended improvements															
2.3.1. Support to develop a National Emission Factors and inventory methods															
2.3.2. Support to develop collection of activity data															
2.3.3. Support to update the National Methodology for air emissions inventories…															
2.4.1. Improve capacities to Develop comprehensive training program…															
2.5.1. Support to EPER reporting in general															
III COMPONENT - PRELIMINARY ENVIRONMENTAL ASSESSMENT															
3.1.1. Analyses and review the outcome of CARDS 2004 projects															
3.1.2. Improvement of methodology for preliminary assessment taking accoount…															
3.1.3. Integrate emission inventory data and dispersion modelling…															
3.2.1. Revision of agglomeration and non agglomeration zones															
3.3.1 Reporting and visualization of the assessment results	will be 1/2008														
3.4.1 Perform campaign to promote results for public						will be 5/2008									
IV COMPONENT - AIR QUALITY MEASUREMENTS AND LABORATORY WORK															
4.1.1. Review of the present situation at the calibration laboratory															
4.1.2 Preparing a Plan for improvement of calibration laboratory															
4.1.3. Sharing EU MS country's experience and training on air quality monitoring															
4.1.4 Training technical staff on calibration of instruments															
4.1.5. Calibrate and check instruments in cooperation with technical staff															
4.2.1. Training technical staff on repair maintenance															
4.2.2. Implement and assist in the preparation of SOP for maintenance and…															
4.2.3. Training technical staff on repair and maintenance for BTX analysers															
4.2.4. Training on maintenance of eletronic compounds of the analysers in the monitoring stations															
4.3.1. Developing draft QA/QC plan															
4.3.2. Training on QA/QC plan						will be 12/2007&1/2008									
4.4.1. Review of present situation for data management system															
4.4.2. Identified needs for furthered development of the software															
4.4.3 Plan and specification for procurement of new data management software															
4.4.4. Training on validation, management, analysis and introducing methods for presentation…															
4.5.1. Review of present situation in Central Environmental Laboratory on GCs analysis…															
4.5.2. Preparing a plan for improvement of chemical laboratory…															
4.5.3. Arrange and perform training courses for staff concerning standard operation procedures…											was planned 11/2007*				
4.6.1. Check instruments of mobile emission laboratory and prepare plan for improvement…															
4.6.2. Check the results of improvements						changed by side letter to 9/2007*									
4.6.3. Training course (part 1) on emission measurements; basic principles	changed by side letter, will be 2/2008*														
4.6.4. Training course (part 2) on emission measurements; advanced emission…						changed by side letter, will be 2/2008*									
4.7.1. Preparation a draft specification and priority list of investments…															
V COMPONENT - DISPERSION MODELLING															
5.1.1. Specification and procurement of an appropriate system for AQ modelling…															
5.2.1. Investigate available meteorological data from HMA and Skopje airport and…															
5.2.2. Preparation of emission and other input data for dispersion modelling															
5.3.1. Training course on dispersion modelling and demonstrate methods for ….															
5.3.2. Develop training course materials															
5.4.1. Use of dispersion modelling for air quality assessment in couple of real cases															

Activities planned
Activities added by side letters
Activities start in time but now continue
Extra missio needed. If it'll be approved → side letter
* Equipment&consumables late (TENDER)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

2E. ASSESSMENT Overall

Assessment of progress

The contracts of seven experts, being well trained and experienced during the Twinning project, will expire in December 2007. A contract of one person working in the Twinning project already ended 4 December 2007. He is still continuing working in the MEPP. According to the final information given in the monthly meeting 5 December 2007 the contracts will be extended by one year.

The Ministry of Environment and Physical Planning have had an announcement for vacancy for 21 positions in October and it will be in place at the beginning of year 2008. One of those will be for the MEIC working on the Division for CADASTRE and Modelling. Addition to these positions later two times four posts were opened. One of them with experience required for the Central Environmetal Laboratory being responsible person for emission measurements (inclunding the Mobile Emission Laboratory) and one of them to MEIC (working on the CADASTRE, experience not required).

Overall the progress achieved during the project and missions has been really good.

There is a need for additional measurements (in the MEPP's budget for year 2008) for the preliminary assessment to have better picture on the air quality in different parts of the country. All of the needed data can not be anymore provided during the Twinning project because the advisable minimum measurement time is one year.

Capacity of technical personnel has improved for operation, maintenance, calibration and repairing of instruments in the monitoring station and calibration instruments in the calibration laboratory (reference laboratory). However more work shall be made at the station in the future when the field calibrator and working gas standards are available. Continuous practise and working will be needed by the BC staff to reach and keep the required level of calibration operation.

The workout for the draft QA/QC plan has been continued. The work was carried out in co-operation with the BC experts interviewing and counselling them.

In the strategy plan of the Ministry (MEPP) the accreditation of the calibration

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

laboratory is planned to be carried out. According to the plan the preparation work for accreditation will be started in 2007 and the accreditation certificate is planned to be received in 2009. The schedule for this target seems to be very strict and not very realistic taking into consideration that the preparation work is very time consuming. However, for the personnel in MEIC the accreditation of the calibration laboratory is very important and necessary. When drafting the QA/QC Plan this target must be kept in mind because the Plan will be part of the basic material to be used in accreditation work.

In October Counsellor Kirsti Hyyppa from the Ministry for Foreign Affairs of Finland contacted RTA Tiina Harju concerning the planned Deputy Prime Minister Konevska-Trajkovska's state visit to the MS. Meetings between Deputy Prime Minister Konevska-Trajkovska's and with Minister for Foreign Affairs Ilkka Kanerva and Minister of Migration and European Affairs Astrid Thors was scheduled for 30th October. Counsellor Kirsi Hyyppa and RTA Tiina Harju prepared material for the meetings to be discussed concerning the needed human resources and financial support to fulfill needed requirements in the Twinning project and also in the future on the air quality field in the BC.

Unfortunately it was not possible to raise those issues because Deputy Prime Minister Konevska-Trajkovska's state visit to the MS was cancelled due to her other obstacles.

MS Expert Kari Makela's work has been done. A few days of his expert days will be changed to the final meeting to be able to be present as the Leader for Component 2.

A extra mission would be needed for activities 5.2.2. Preparation of emission and other input data for dispersion modelling & 5.4.1. Use of dispersion modelling for air quality assessment in couple of cases. Therefore it will be asked for a permit from the EAR 18 December in the meeting between EAR (Programme Manager Ivan Borosavljevic, Task manager Dimitar Malinovski), FMI (MS PL Harri Pietarila and RTA Tiina Harju) and MEPP (BC PL Svetlana Gjorgjeva) to organise an extra mission for it. If the EAR will give a permit for it (meeting 18.12.2007) the mission will take place in February 2008.

Component 1.Guidelines and Secondary Legislation

Overall the progress achieved during the missions was to be considered really good. All mandatory activities were completed during the missions, and one extra task related to the mandatory activities were undertaken, for the benefit of the MEPP and its personnel. In addition, during the visit to the calibration laboratory, experiences and information were exchanged and actual technical questions answered.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Component 2. Emission Inventories

Transport

Last mission relating to transport emission inventory was in September. During the missions the MEPP's knowledge of the process needed for the transport emission calculations has clearly increased. The capacity of both the personnel and software now enables gradual progress in upgrading the transport emission inventory to the higher Tier 2 method level. Unfortunately, much of the input data of good quality that is needed for the emission inventory models can only be produced through progressive research work. Further contacts to the neighbouring countries for the cooperation in emission inventory work may help to solve these common problems.

Road transport has the biggest share of the total transport emissions. Copert 4 model is a good tool for the calculations. The calculation results are promising but much of the input data needs verifications by scientific research. A plan for the improvement of the transport emission inventory made by MS expert lists the incompleteness of the data and also the possible data sources for improvement.

The emission inventory of railways and air transport needs good cooperation between the MEPP and technical personnel of the operators. Qualified calculation results are more easily attained in these transport modes than in the road transport because the type of vehicles and movements are better known by the operators of these modes.

Other non-road transport including working machines is the most complicated sector of the emission inventories. Much of the data will be only coarse estimations but should still be included because of the completeness of the inventory. The suitable tool for calculations is Copert 3, already installed at the MEPP.

The biggest wide-ranging problem in the transport emission inventory is the lack of data from relevant institutions (Ministry of Transport, Fund for Roads) and scientific research concerning transport vehicles, daily mobility and driving behaviour etc. This kind of information is also needed for other purposes than the emission inventories like traffic safety research, economical forecasting etc. The household survey recently made in the Skopje University (UKIM) is an example of the research that is necessarily needed. All efforts to increase this kind of research is highly recommended. Cooperation between financiers (Ministries) and research institutes (Universities) is essential to form a consensus of needs and resources.

Component 3. Preliminary Air Quality Assessment

The work is going along quite well. Preparing of the preliminary assessment report has been started. The AQ data from years 2004−2006 has been processed, but some data corrections are still needed and the data should be

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

more deeply analysed. The measurement data from years 2002 and 2003 should also be processed in order to have data at least from the last five years for the assessment of exceedances of thresholds. The measurement and modelling results need to be described and analyzed in the report. Also the outlook of the report needs to be improved.
Ideally five years of data are needed for the purpose of the preliminary assessment of the air quality, since if the assessment threshold has been exceeded three times during the last five years, it can be stated, that the threshold has been actually exceeded.

Component 4. Air Quality Measurements and Laboratory Work

Even the activity 4.1.4 was partly repeated because the importance of the participation of the intercomparison exercise at Essen in Germany, the MS noted the good will of the technical staff to try their best in these repeatability studies. Excellent progress was met also in using the excel sheets for calculation of the calibration results.

The preparation of the SOPs was mostly left to the technical staff. To complete the task is rather a question of the lack of time than the knowledge of the technical issues.

The progress achieved during the mission has to be considered good although all discussions could not be carried out in the planned extent (see mission report). However, the major part of the QA/QC Plan was drafted.

Component 5. Dispersion Modelling

The modelling component has nearly achieved all the pre-defined goals. Models are installed on the local servers – and local staff has been trained to use them. The last issue, practical model calculations with real data and the evaluation of the modelling results continued during the last scheduled mission in November for the component 5. There is still need to continue real cases studies.

Cross cutting issues

At the moment there are twenty BC experts named into the Twinning project, fifteen of them from the MEPP, three of them from the HMA and two of them from the RIHP. Addition to these BC experts two other female BC experts from the MEPP were involved in the Twinning project at the beginning of the project but at the moment they are on the maternity leave (another one since 8 Mach 2007 & other one since June 2007).

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Table 4. Number of BC experts involved in the Twinning project.

	MEPP	HMA	RIHP	**Total**
Women	7	1	1	**9**
Men	8	2	1	**11**
Total	**15**	**3**	**2**	**20**

A share of female and male BC experts is equal – both somewhere 50 %, slightly more male. Three of the BC experts are ethnic Albanians, from which one female and two males, and seventeen of them ethnic Macedonians, from which 8 females and 9 males.. A share of the ethnic Albanians in the Twinning project is 15 %.

Most of the key persons in the Twinning project as BC PL, RTA counterpart, BC component leaders are female. Only one BC component leader is male and other four key persons are female, one BC PL, one RTA counterpart & BC component leader, two BC component leader from which one is BC component leader of two components.

Improving a basis of an air monitoring system and an operation of national ambient air monitoring network in the BC during the Twinning project will have a positive impact on the environment and human health as the data collected will enable the country to cure areas where pollution levels are unacceptably high. By implementation of a prepared national legislation in the Twinning project according to the EU directives the air quality of the country would be improved.

Issues

No problems with management or co-operation. The co-operation between MS and BC experts has been good.

There is still a lack of human resources to fulfil all responsibilities on air quality field. More human resources would be needed especially for emission inventory (Component 2). The MEPP has announced about two posts for this (see 2E. ASSESSMENT Overall, Assessment of progress)

I COMPONENT – Guidelines and Secondary Legislation

There were no problems in the management of the mission, as all tasks and the share of work were agreed in close cooperation between all parties, and

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

all issues were discussed openly as a continuous process.
It was very helpful that another MS expert was also present during the mission. Therefore it was easy to get detailed information on the project regarding the calibration laboratory.

II COMPONENT – Emission Inventories

Transport
There were no problems in the management of the mission, as all tasks and the share of work were agreed in close cooperation between all parties, and all issues were discussed openly as a continuous process.

III COMPONENT – Preliminary Air Quality Assessment

Between the missions BC Experts have gone forward slowly with the preliminary assessment report because technical problems with the Central database occurred in that period. For that reason the progress made during the last mission was not so considerable but anyway significant.
No issues in the management of the mission or in the co-operation between partners.

IV COMPONENT – Air Quality Measurements and Laboratory Work

Co-operation between the MS and BC partners worked well during the mission. The MS expert wishes to thank BC staff for the excellent cooperation and hospitality during the mission.
Some problem was caused by limited time resources of the technical BC Experts (maintenance engineers). Hence it was not possible to discuss all the unwritten items of the QA/QC Plan in detail.

Two of the BTX analyzers have been repaired by the supplier on the way to the Intercomparison measurement in Essen (8-12 October 2007) and now the N_2 bottles (purity 6.0, before used purity 5.0) should be purchased by the MEPP for running those analyzers in the air quality monitoring stations and the MS Expert Pirjo Kuronen's mission related to training on BTX analysers will take place 18.-22.2.2008 which was the first and last suitable time for MS expert within running time of the project after hearing the reparation of the analysers.

V COMPONENT – Dispersion Modelling

No problems in the management of the mission or in the co-operation the MS and BC experts.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Recommendations

I COMPONENT – Guidelines and Secondary Legislation

The sustainability of the project should be ensured. For this it is a necessity to have key personnel employed on a permanent basis, so that not the experts, who have been well trained and obtained fruitful international experience, are either sacked or will strive to find other jobs. Also it has to be secured that experience is maintained in times when key people could be leaving because of attaining an age when pension is nearing.
Further efforts should be made to tackle especially the traffic emissions, and other sources of particulate air pollution (including possibly PAH and HM), which seems to be the most severe air pollution problem in the BC. Some of these issues, like car, heavy duty vehicle and bus exhausts, require good cooperation with other ministries.
The number of zones and agglomerations in the BC is strongly recommended, to reduce monitoring requirements and costs, and give more flexibility (see also component 3 recommendations later on).

II COMPONENT – Emission Inventories

Transport
The emission inventories should be continuous. A big part of the transport emission inventory process concerns collection of the input data. It is recommended that the input data for the emission models is collected every year even if the finalising of the inventory may be prevented because of the lack of resources. For continuous time series of the emissions it is essential that the data has been collected on time every year..

III COMPONENT – Preliminary Air Quality Assessment

The MS Experts´ proposals for revised zoning and the minimum numbers of sampling points for fixed measurements in the two zoning options have been presented in the mission report (Birgitta Alaviippola and Harri Pietarila, September 2007).

It means that in addition to the minimum number of stations given in the mission report also urban background stations are needed to be established in zones other than Skopje (altogether 2−3 stations). It is possible to consider if someone of the existing industrial stations could act as an urban background for NO2 and PM10 or if some station could be moved to an environment describing better urban background conditions.
According to the First Daughter Directive and the Rulebook every zone where the UAT for PM10 or NO2 is exceeded have to have at least one urban

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

background station and one traffic oriented station. At the moment traffic stations exist outside Skopje in Kocani, Veles, Bitola and Tetovo, but the only urban background station is situated in Gazi Baba in Skopje.

MS Expert suggests that BC Experts should correct the air quality measurement data before publishing the results. So far it is not possible to correct the data according to calibration results, because they have not done in the BC, but some rough zero correction with MS Excel is possible. The data management has significant effect on calculated statistical values. BC Expert should obtain knowledge about the real background concentration before data correction. MS Experts can tell the real background concentration in their own country.

IV COMPONENT – Air Quality Measurements and Laboratory Work

Methods for controlling electronical records, especially the measurement data, should be improved/initiated. The procedures should be defined for protecting and backing up records stored electronically and to prevent unauthorized access to or amendment of these records.
The QA/QC Plan is the document in which the QA/QC objectives, principles and procedures of the quality management system are generally described. The quality management system should also include documents which are needed to ensure effective planning, operation and control of its processes. These documents, e.g. SOPs, instructions etc. must be made for all critical procedures which affect the quality of air pollution data.
Assuring the quality is a continuous process. This provides continuous development and updating of quality system and documentation. For this the organization needs competent and motivated personnel. The MEPP should assure the proper and adequate training for the personnel also after the Twinning project so that the principle of continuity does not die within the development projects. Personnel training programmes should be scheduled regularly and they should meet the requirements of the present and future tasks of the personnel.

MS experts gave recommendations asked by the BC regarding to calibration laboratory and maintenance of network during the mission

- Ensure the availability of frequently needed spare parts and consumables; on stock in the laboratory.
- Organise yearly routine maintenance of all analysers to prevent malfunctions is necessary.
- Operate analysers in the calibration laboratory as well as calibrators on a continuous basis to avoid the loss of time for warm up and stabilisation/lack of repeatability of results.
- Build up an office working place with necessary electronic connections

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

to the database at MEPP in calibration lab for the technicians so that it is the main working place of technicians. Routine meetings in the ministry should be limited to once a week.
- Ensure high quality meterological data needed in air quality assessment by cooperation with HMA and MEPP
- Organise regular calibration of the analysers (4 times a year) in the stations and establish traceability chain for measurements
- Calibration and maintenance of stations should be organised in groups due to the location of stations to make operation more cost-effective.
- Appoint a manager/group leader with natural science/technical education with workplace at the calibration laboratory.
- Contract new trained personnel needed and existing personnel on permanent bases in Calibration lab, network, data control
- Ensure necessary funds to maintain air quality monitoring for prolonged periods of time.

Upgrading the software for the management of data from automated stations is necessary for several tasks:
- visualisation, data checking, validation and correction of data,
- automated generation of daily air quality reports
- automated generation of reports on exceedances of information and alert values
- statistical analysis of data for monthly and annual reports
- preparation of monthly, summer and annual ozone reports to EC
- preparation of data-files for the Exchange of Information/DEM.

Mobile Emission Laboratory

It is necessary to nominate a responsible person for emission measurements and the mobile emission laboratory to be able to develop activities. The MEPP has announced about this post (see 2E. ASSESSMENT Overall, Assessment of progress)

V COMPONENT – Dispersion Modelling

Using good quality emission and other technical input data is essential for achieving reliable results from the modelling. The most essential input data needed for the UDM-FMI is available and the BC experts are able to do the modelling in practice. However, it is essential that the input data is checked before modelling by an emission expert to decrease the possibility of errors in the data.

Modelling the traffic emission can in principle be done with CAR-FMI in MEPP. However, the results will most likely include significant uncertainties

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

due to lack of information when creating emission factors and uncertainties in traffic data. The traffic data available are almost 10 years old and in format that can be hard to understand (e.g. identifying where the traffic measuring points are on the map). Modelling traffic NOx-emissions requires background measurement data for NO2 and O3 concentrations (from Lazaropole or Gazi Baba). That data seems to be very uncertain or non-existent and therefore NO2 modelling will be very difficult. In Skopje there is no O3 measurement in background station (Gazi Baba). O3 measurement is needed necessarily for air monitoring, not only for modelling. The CAR-FMI model will produce more accurate results when emission and traffic data will be updated in time.

Already started cooperation covering shared data between HMA and MEPP is crucial for dispersion modelling in the future.

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

3 – EXPENDITURES

Twinning Contract number: MK05/IB-EN-01 – 05MAC01/13/102 ***Makedonia - 2006***

Section 3: Expenditures 1st September 2007-30th November 2007

PROVIDE TOTAL FIGURES OF DISBURSEMENT IN THE REPORTING PERIOD FOR KEY GROUPS OF COSTS

Travels (12 Missions, fifth quarter year period)

Expert fees	16 565,00 €	
Twinning Management costs	24 847,50 €	
Per diems	8 692,00 €	
Air tickets	5 619,39 €	
Taxi fares (22:00-7:00)	247,18 €	
Visiability	11,42 €	
		Actual travel costs 1st Sep 06- 30th Nov 07
Total	*55 982,49 €*	*289 298,27 €*

RTA remuneration and allowances

	Actual costs 1st Sept - 30th Nov 07	Actual costs 1st Sep 06 – 30th Nov 07 The whole project	Original budget The whole project
Tiina Harju			
1. Salary+labour costs	18 155,36 €	89 123,36 €	106 452,00 €
Remaining budget			*17 742,00 €* 413,36 charged to contingencies
2. RTA Allowances	14 300,24 €	76 786,78 €	100 888,00 € (original budget+side letter 6, contingencies)
Remaining budget			*24 101,22 €*
4. RTA Assistant salary	1 386,37 €	6 977,35 €	9 000,00 €
Remaining budget			*2 022,65 €*
Total	33 841,97 €	172 887,49 €	216 340,00 €
Remaining budget			*43 865,87 €*

TOTAL COSTS / fifth quarter year period (travels and RTA costs) 89 824,46 €

TRAVELS: COSTS BY ACTIONS 1ST SEPT 2006 – 30TH NOV 2007:

Amount paid in Euro	Original budget, the whole project or new budget (side letter)	Remain to the next periods or other actions
3. RTA training		
1 092,68 €	1 323,00 €	0 € (reallocated to 4.2.3.)
5. Project Preparation		
13 741,56 €	16 668,00 €	0 € (reallocated to 4.2.3.)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Amount paid in Euro	Original budget, the whole project or new budget (side letter)	Remain to the next periods or other actions
Project co-ordination		
26 480,50 €	***54 382,00 €***	***27 901,50 €***
6. Project Activities		
1.1.1. Review current secondary legislation, and preparation of Table of concordance		
5 919,65	6 620,00	0 € (reallocated to 4.2.3.)
1.1.2. Analysis of the needed sub legislation for further implementation of daughter directives		
5 505,00	5 560,00	0 € (reallocated to 1.2.4.)
1.2.1. Drafting the sub legislation of monitoring and reporting for ambient air quality		
21 274,18	23 441,00 (side letter)	2 166,82 €
1.2.2. Drafting of sub legislation		
23 776,08	**24 053,95 (side letter 4)**	**277,87 €**
1.2.3. Review of a rulebook for zones and agglomerations prepared by the CARDS 2004 project		
2 915,60	3 069,00 (side letter)	153,40 €
1.2.4. Amendments of the CAFÉ directive on the air quality law		
3 703,00	**3 876,00 (side letter 4)**	**173,00 €**
1.3.1. Draft Instructions to assist the application of secondary legislation-considering air quality		
12 809,87	**21 502,50 (side letter 4)**	**8 692,63 €**
2.1.1. Identify and appoint stakeholders		
6 503,80	7 070,00	0 € (reallocated to 4.2.3.)
2.1.2. Support to construct the database and its content for preparation of the reports		
8 779,05	**9 228,00**	**448,95 €**
2.2.1. Identify data gaps for compliance with EU-based national air emission system and reporting requirements		
2 885,00	2 124,00	-761,00 €
2.2.2. Preparing a Draft a list of priorities for recommended improvements		
2 578,44	3 356,00	777,56 €
2.3.1. Support to developing a National Emission Factors and inventory methods		
4 836,30	7 042,00	2 205,70 €
2.3.2. Support to develop collection of activity data		
12 835,00	13 726,00 (side letter 7)	891,00 €
2.3.3. Support to update the National Methodology for air emissions inventories for Macedonia		
5 104,41	**10 818,00**	**5 713,59 €**
2.4.1. Improve capacities to Develop comprehensive training program (supporting training materials)		
1 039,00	**4 918,00**	**3 879,00 €**
3.1.1. Analyses and review of the outcomes of CARDS 2004 project		
4 312,13	4 730,00	0 € (reallocated to 1.2.4.)

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Amount paid in Euro	Original budget, the whole project or new budget (side letter)	Remain to the next periods or other actions
3.1.2. Improvement of the methodology for preliminary assessment		
3 805,73	4 730,00	924,27 €
3.1.3. Integrate emission inventory data and dispersion modelling to the preliminary assessment		
4 642,74	4 730,00	87,26 €
3.2.1. Revision of agglomeration and non-agglomeration zones		
5 986,48	**6 354,00**	**367,52 €**
3.3.1. Reporting and visualization of the assessment results		
4 477,86	**9 460,00**	**4 982,14 €**
4.1.1. Review of the present situation at the calibration laboratory		
2 009,90	2 294,00	0 € (reallocated to 4.2.3.)
4.1.2. Preparing a Plan for Improvement of calibration laboratory		
2 403,00	2 436,00	33,00 €
4.1.3. Sharing EU MS country's experience and training on air quality monitoring		
21 284,40	15 973,00 (side letter 5)	15 973,00 € and 5 311,40 € charged to Contingencies
4.1.4. Training technical staff on calibration of instruments		
2 132,00	2 294,00	0 € (reallocated to 1.2.4.)
4.1.5. Calibrate and check instruments in cooperation with technical staff		
2 376,00	2 435,00	0 € (reallocated to 1.2.4.)
4.2.1. Training technical staff on repair maintenance		
4 389,63	4 730,00	0 € (reallocated to 1.2.4.)
4.2.2. Implement and assist in the preparation of SOP for maintenance and calibration of monitors		
4 622,00	**4 730,00**	**108,00 €**
4.3.1. Developing draft QA/QC plan		
8 867,82	**9 460,00**	**592,18 €**
4.4.1. Review of present situation for data management system		
2 019,18	2 294,00	0 € (reallocated to 1.2.4.)
4.4.2. Identified needs for furthered development of the software		
1 602,00	1 624,00	22,00 €
4.4.3. Plan and specification for procurement of new data management software		
801,00	2 810,00	2 009,00 €
4.5.1. Review of present situation in Central Environmental Laboratory on GCs analysis for air samples		
1 977,07	2 294,00	0 € (reallocated to 1.2.4.)
4.5.2. Preparing a Plan for improvement of chemical laboratory		
5 180,51	7 166,00	0 € (reallocated to 1.2.4.)
4.5.3. Training for GC analysis of air samples		
9 701,30	17 105,00	7 403,70 €

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

Amount paid in Euro	Original budget, the whole project or new budget (side letter)	Remain to the next periods or other actions
4.6.1. Check instruments and plan for improvement of mobile emission laboratory		
3 560,98	3 856,00	0 € (reallocated to 1.2.4.)
4.7.1. Draft specification and priority list of investments		
4 505,00	6 996,00	293,00 € (side letter 5) (2 198,00 € reallocated to 4.1.3.)
5.1.1. Specification and procurement of an appropriate system for AQ modelling on local scale		
4 364,94	**4 730,00**	**365,06 €**
5.2.1. Investigate meteorological data and develop methods to provide it for dispersion modelling		
4 454,77	**4 730,00**	**275,23 €**
5.2.2. Preparation of emission and other input data for dispersion modeling		
4 505,78	4 730,00	224,22 €
5.3.1. Training course on dispersion modelling and methods for validation and for scenario making		
4 387,29	**4 730,00**	**342,71 €**
5.3.2. Develop training course materials		
4 711,22	**4 730,00**	**18,78 €**
5.4.1. Use of dispersion modeling for air quality assessment in couple of real cases		
4 438,42	**4 730,00**	**291,58 €**

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 4.2.2. (5 days)**										
	Mission of expert **[Jari Walden]**	03/09/2007-07/09/2007			**ARRIVAL 2nd Sept 2007 12:30 in Skopje AND DEPARTURE 7th Sept 2007 16:55 from Skopje]**						
	Fees	03/09/2007-07/09/2007	70018	28.9.2007	**[5 X 250,00]**			1 250,00			
	Flat rate compensation	03/09/2007-07/09/2007	55483	30.11.2007	**1,5*1250,00**			1 875,00			
	Per diem	03/09/2007-07/09/2007	29066, 68145	17.9.2007, 20.9.2007	**[5]** x 164,00			820,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	03/09/2007-07/09/2007	68145	20.9.2007	**[2. CLASS]**			636,44			
	Local travel to location Airport-Home	8.9.2007	68143	20.9.2007	**Taxi 22:00-7:00**			40,56			
	Total							**4 622,00**			
xx	**Activity no. 1.3.1. 3 days**										
	Mission of expert **[Marina Fröhlich]**	3/9/2007-6/9/2007			**ARRIVAL 3rd Sept 2007 15:30 in Skopje AND DEPARTURE 6th Sept 2007 16:55 from Skopje]**						
	Fees	3/9/2007-6/9/2007	30354	8.10.2007	**[3 X 441,00]**			1 323,00			
	Flat rate compensation	3/9/2007-6/9/2007	30354, 55483	8.10.2007, 30.11.2007	**1,5*1323**			1 984,50			
	Per diem	3/9/2007-6/9/2007	30354	8.10.2007	**[3]** x 164,00			492,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	3/9/2007-6/9/2007	30354	8.10.2007	**[2. CLASS]**			335,79			
	Local travel to location										
	Total							**4 135,29**			
xx	**Activity no. [3.2.1. 5 day]**	23/9/2007-28/9/2007									
	Mission of expert **[Birgitta Alaviippola]**	23/9/2007-28/9/2007			**ARRIVAL 23rd Sept 2007 14:00 in Skopje AND DEPARTURE 28th Sept 2007 15:00 from Skopje]**						
	Fees	23/9/2007-28/9/2007	70019	15.10.2007	**[5 X 250,00]**			1 250,00			
	Flat rate compensation	23/9/2007-28/9/2007	55483	30.11.2007	**1,5*1250**			1 875,00			
	Per diem	23/9/2007-28/9/2007	29070	2.10.2007	**[5]** x 164,00			820,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	23/9/2007-28/9/2007	68164	4.10.2007	**[2. CLASS]**			431,26			
	Local travel to location	23/9/2007-28/9/2007	29070	2.10.2007	**Taxi Airport-Home 28.9.**			32,23			
	Total							**4 408,48**			

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. Project Co.ord. (2 days) 3.2.1. (2 days)**	23/8/2007-27/8/2007									
	Mission of expert Harri Pietarila	23/8/2007-27/8/2007			**ARRIVAL 24th Sept 2007 00:30 in Skopje AND DEPARTURE 27th Sept 2007 15:30 from Skopje]**						
	Fees	23/8/2007-27/8/2007	70019	15.10.2007	**[4 X 250,00]**			1 000,00			
	Flat rate compensation	23/8/2007-27/8/2007	55483	30.11.2007	**1,5*1000,00**			1 500,00			
	Per diem	23/8/2007-27/8/2007	29069	1.10.2007	**[4]** x 164,00			656,00			
	Helsinki - Skopje Air ticket	23/8/2007-27/8/2007	68168	8.10.2007	**[2. CLASS]**			431,26			
	Local travel (Taxi) to location Helsinki Airport - home							23,33			
	Total							**3 610,59**			
xx	**Activity no. [2.1.2. (day), 2.3.3. day), 2.4.1. (day)]**										
	Mission of expert **[Kari Mäkelä]**	24/9/07-28/9/07			**ARRIVAL 24th Sept 01:00 in Skopje AND DEPARTURE 28th Sept 15:30 from Skopje]**						
	Fees	24/9/07-28/9/07	70020	31.10.2007	**[5 X 350,00]**			1 750,00			
	Flat rate compensation	24/9/07-28/9/07	19863, FMI 55483	16.11.2007, 30.11.2007	**1,5*1750,00**			2 625,00			
	Per diem	24/9/07-28/9/07	29071	12.10.2007	**[5]** x 164,00			820,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	24/9/07-28/9/07	19863	16.11.2007	**[2. CLASS]**			449,26			
	Local travel (Taxi) to location Airport - Skopje Hotel	24.9.2007	29071	12.10.2007	**Taxi 22:00-7:00**			12			
	Local travel (Taxi) to location Helsinki Airport - home	28.9.2007	29071	12.10.2007	**Taxi 22:00-7:00**			38,89			
	Total							**5 695,15**			
xx	**Activity no. 1.2.2. 2 days, 1.2.4. 3 days**										
	Mission of expert Alec Estlander	01/10/2007-05/10/2007			**ARRIVAL 1st Oct 2007 12:00 in Skopje AND DEPARTURE 7th Oct 2007 16:55 from Skopje]**						
	Fees	01/10/2007-05/10/2007	19899	19.11.2007	**[5 X 450,00]**			2 250,00			
	Flat rate compensation	01/10/2007-05/10/2007	19899, FMI 55483	19.11.2007, 30.11.2007	**1,5*2250**			3 375,00			
	Per diem	01/10/2007-05/10/2007	19899	19.11.2007	**[4]** x 164,00			656,00			
	Helsinki - Skopje Air ticket	01/10/2007-05/10/2007	19899	19.11.2007	**[2. CLASS]**			520,44			
	Total							**6 801,44**			

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 1.3.1. 4 days**	2/10/2007-5/10/2007									
	Mission of expert Wolfgang Spangl	2/10/2007-5/10/2007			**ARRIVAL 1st Oct 2007 15:30 in Skopje AND DEPARTURE 8th Oct 2007 16:55 from Skopje]**						
	Fees	2/10/2007-5/10/2007	30388	30.10.2007	**[4 X 441,00]**			1 764,00			
	Flat rate compensation	2/10/2007-5/10/2007	30388, FMI 55483	30.10.2007, 30.11.2007	**1,5*1764,00**			2 646,00			
	Per diem	2/10/2007-5/10/2007	30388	30.10.2007	**[4]** x 164,00			656,00			
	Helsinki - Skopje Air ticket	2/10/2007-5/10/2007	30388	30.10.2007	**[2. CLASS]**			335,79			
	Total							**5 401,79**			
xx	**Activity no. 1.3.1. Draft Instructions to assist the application of secondary legislation - considering air quality…**										
	Mission of expert **[Lorenz Moosmann] 3 days**	2/10/2007-4/10/2007			**ARRIVAL 1st Oct 2007 15:30 in Skopje AND DEPARTURE 8th Oct 2007 16:55 from Skopje]**						
	Fees	2/10/2007-4/10/2007	30388	30.10.2007	**[3 X 326,00]**			978,00			
	Flat rate compensation	2/10/2007-4/10/2007	30388, FMI 55483	30.10.2007, 30.11.2007	**1,5*978**			1 467,00			
	Per diem	2/10/2007-4/10/2007	30388	30.10.2007	**[3]** x 164,00			492,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	2/10/2007-4/10/2007	30388	30.10.2007	**[2. CLASS]**			335,79			
	Total							**3 272,79**			
xx	**Activity no. 4.3.1. 5 days**										
	Mission of expert Veijo Pohjola	14/10/2007-19/10/2007			**ARRIVAL 14th Oct 2007 14:45 in Skopje AND DEPARTURE 19th Oct 2007 15:30 from Skopje]**						
	Fees	14/10/2007-19/10/2007	70020	31.10.2007	**[5 X 250,00]**			1 250,00			
	Flat rate compensation	14/10/2007-19/10/2007	55483	30.11.2007	**1,5*1250**			1 875,00			
	Per diem	14/10/2007-19/10/2007	29072	23.10.2007	**[5]** x 164,00			820,00			
	Helsinki - Skopje Air ticket	14/10/2007-19/10/2007	68198	5.11.2007	**[2. CLASS]**			431,26			
	Local travel (Taxi) to location Helsinki Airport - home	19.10.2007	29072	23.10.2007	**Taxi 22:00-7:00**			37,78			
	Total							**4 414,04**			

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 5.1.1. 1 day, 5.2.1. 1 day 5.3.1. 1 day, 5.3.2. 2 days + flights**	28/10/2007-2/11/2007									
	Mission of expert Ari Karppinen	28/10/2007-2/11/2007			**ARRIVAL 28th Oct 2007 15:00 in Skopje AND DEPARTURE 2nd Nov 2007 15:20 from Skopje]**						
	Fees	28/10/2007-2/11/2007	70021	15.11.2007	**[5 X 250,00]**			1 250,00			
	Flat rate compensation	28/10/2007-2/11/2007	55483	30.11.2007	**1,5*1250,00**			1 875,00			
	Per diem	28/10/2007-2/11/2007	29074	7.11.2007	**[5]** x 164,00			820,00			
	Helsinki - Skopje Air ticket	28/10/2007-2/11/2007	68202	8.11.2007	**[2. CLASS]**			725,26			
	Local travel (Taxi) to location Helsinki Airport - home	2.11.2007	29074	7.11.2007	**Taxi 22:00-7:00**			22,96			
	Total							**4 693,22**			
xx	**Activity no. 3.3.1.**										
	Mission of expert **[Birgitta Alaviippola] 5 days**	11/11/2007-16/11/2007			**ARRIVAL 11th Nov 2007 23:45 in Skopje AND DEPARTURE 16th Nov 2007 17:05 from Skopje]**						
	Fees	11/11/2007-16/11/2007	70022	30.11.2007	**[5 X 250,00]**			1 250,00			
	Flat rate compensation	11/11/2007-16/11/2007	55483	30.11.2007	**1,5*1250**			1 875,00			
	Per diem	11/11/2007-16/11/2007	29103	20.11.2007	**[5]** x 164,00			820,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	11/11/2007-16/11/2007	68216	22.11.2007	**[2. CLASS]**			493,42			
	Local travel (Taxi) to location Helsinki Airport - home	17.11.2007	29103	20.11.2007	**Taxi 22:00-7:00**			39,44			
xx	**Total**							**4 477,86**			
xx	**Activity no. 5.4.1.**										
	Mission of expert **[Sari Lappi] 5 days**	11/11/2007-16/11/2007			**ARRIVAL 11th Nov 2007 23:45 in Skopje AND DEPARTURE 16th Nov 2007 17:05 from Skopje]**						
	Fees	11/11/2007-16/11/2007	70022	30.11.2007	**[5 X 250,00]**			1 250,00			
	Flat rate compensation	11/11/2007-16/11/2007	55483	30.11.2007	**1,5*1250**			1 875,00			
	Per diem	11/11/2007-16/11/2007	29103	20.11.2007	**[5]** x 164,00			820,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**	11/11/2007-16/11/2007	68216	22.11.2007	**[2. CLASS]**			493,42			
xx	**Total**							**4 438,42**			

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Resident Twinning Adviser [Tiina Harju]**								(3 months)		
	Gross salary	30.9.2007, 31.10.2007 and 15.11.2007, 30.11.2007	70018, 70020, 70021, 70022	28.9.2007, 31.10.2007 15.11.2007 and 30.11.2007	2 x **MONTHLY SALARY (Sept + Oct) 3553,20 + 1 x 124,36 salary increase of October, payed in November 15th + 3 677,56 (salary of November)**			10 908,32	10 659,60		248,72
	Non wage labour costs	30.9.2007, 31.10.2007 and 15.11.2007, 30.11.2007	70018, 70020, 70021, 70022, 55483	28.9.2007, 31.10.2007 15.11.2007 and 30.11.2007	2 x 2025,80 (Sept + Nov) + 70,89 (of th increase of Oct) + 2096,69			6 219,18	6 077,40		141,78
	6%of sal+non wage	30.11.2007	55483	30.11.2007	1 X 335,00 + 2 x 346,43			1 027,86	1 005,00		22,86
	RTA 50 % allowances (RTA costs reports)				**(Monthly cost reports)**						
	Total							**18 155,36**	**17 742,00**		**413,36**
xx	**RTA Assistant Martina Toceva (acting on a freelance basis) salary costs**	30.9.2007, 31.10.2007 and 30.11.2007	28.9.2007 29067 31.10.2007 29073 30.11.2007 29105	28.9.2007 31.10.2007 30.11.2007	28.9.2007 454,55 eur 31.10.2007 454,55 eur 30.11.2007 477,27 eur			1 386,37	1 500,00		
	Total							**1 386,37**	**1 500,00**		
xx	**Activity no. [5.Project Co-ordination Visiability costs]**	30.11.2007	29105	30.11.2007	Project stamp	700 MKD	61,3	**11,42**	**2 976,33**		

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget (left after previous periods)	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. [Project co-ordination]**										
	Mission of expert **[Harri Pietarila 2 days], Visiability costs**	23/9/2007-27/9/2007 30.11.2007 Project Stamp									
	Fees				**[2 X 250,00]**			500,00			
	Flat rate compensation				**1,5*500,00**			750,00			
	Per diem				**[2]** x 164,00			328,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**				**[2. CLASS]**			431,26			
	Local travel to location				**Taxi**			23,33			
	Visiability costs: Stamp for RTA				**Project Stamp**			11,42			
	Total							**2 044,01**	**29 945,51**		
xx	**Activity no. [1.2.2. Drafting of sub legislation-2007/224/EC and 96/62/EC regarding National plans and programs**										
	Mission of expert [Alec Estlander, 2 days]	1/10/2007-5/10/2007									
	Fees				**2 x 450,00**			900,00			
	Flat rate compensation				**1,5 x 900,00**			1 350,00			
	Per diem				**2 x 164**			328,00			
	Air ticket				**[2. CLASS]**			520,44			
	Local travel to location				**Taxi**						
	Total							**3 098,44**	**3 376,31**	**(side letter 4, new budget)**	
xx	**Activity no. [1.2.4. Amendments of the CAFE directive on the air quality law]**										
	Mission of expert **[Alec Estlander]**	1/10/2007-5/10/2007									
	Fees				**3 x 450,00**			1 350,00			
	Flat rate compensation				**1,5 x 1350**			2 025,00			
	Per diem				**2 x 164**			328,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**				**[2. CLASS]**						
	Local travel to location Home-Airport				**Taxi**						
	Total							**3 703,00**	**3 876,00**	**(side letter 4, new activity)**	

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget (left after previous periods)	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 1.3.1. Draft Instructions to assist the application of secondary legislation- considering air quality**										
	Mission of expert Marina Fröhlich 3, Wofgang Spangl 4, Lorenz Moosmann 3]	4/9/2007-6/9/2007 2/10/2007-5/10/2007 2/10/2007-4/10/2007									
	Fees				**[3 x 441,00] 4 x 441,00 3 x 326,00**			4 065,00			
	Flat rate compensation				**1,5*4065,00**			6 097,50			
	Per diem				**[10]** x 164,00			1 640,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**				**[2. CLASS]**			1007,37			
	Local travel to location										
	Total							**12 809,87**	**21 502,50**	**(side letter 4, new budget)**	
xx	**Activity no. 2.1.2. Support to construct the database and its content for preparation of the reports**										
	Mission of expert Kari Mäkelä 1 day	24/9/2007-28/9/2007									
	Fees				**[1 x 350,00]**			350,00			
	Flat rate compensation				**1,5*350,00**			525,00			
	Per diem				**[1]** x 164,00			164,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**						
	Local travel (Taxi) to location Helsinki Airport - home										
	Total							**1 039,00**	**1 487,95**		
xx	**Activity no. 2.3.3. Support to update the National Methodology for air emissions inventories for Macedonia**										
	Mission of expert Kari Mäkelä 3 day + flights	24/9/2007-28/9/2007									
	Fees				**[3 x 350,00]**			1 050,00			
	Flat rate compensation				**1,5*1050,00**			1 575,00			
	Per diem				**[3]** x 164,00			492,00			
	Air ticket **[PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]**				**[2. CLASS]**			449,26			
	Local travel to location Home-Airport				**Taxi**			50,89			
	Total							**3 617,15**	**9 330,74**		

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget (left after previous periods)	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 2.4.1. Improve capacities to Develop comprehensive training program (supporting training materials)**										
	Mission of expert [Kari Mäkelä 1 day]	24/9/2007-28/9/2007									
	Fees				**[1 x 350]**			350,00			
	Flat rate compensation				**1,5*350**			525,00			
	Per diem				**[1]** x 164,00			164,00			
	Air ticket [PLACE OF DEPARTURE Helsinki -DESTINATION Skopje]				**[2. CLASS]**						
	Local travel to location										
	Total							**1 039,00**	**4 918,00**		
xx	**Activity no. 3.2.1. Revision of agglomeration and non-agglomeration zones**										
	Mission of expert Harri Pietarila 2 days Birgitta Alaviippola 5 days	23/9/2007-27/9/2007 23/9/2007-28/9/2007									
	Fees				**[2 x 250,00+5 x 250,00]**			1 750,00			
	Flat rate compensation				**1,5*1 750,00**			2 625,00			
	Per diem				**[7]** x 164,00			1 148,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			431,26			
	Local travel to location							32,22			
	Total							**5 986,48**	**6 354,00**		
xx	**Activity no. 3.3.1. Reporting and visualization of the assessment results**										
	Mission of expert Birgitta Alaviippola 5 days	11/11/2007-16/11/2007									
	Fees				**[5 x 250,00]**			1 250,00			
	Flat rate compensation				**1,5*1250,00**			1 875,00			
	Per diem				**[5]** x 164,00			820,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			493,42			
	Local travel Taxi Airport-home							39,44			
	Total							**4 477,86**	**9 460,00**		

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget (left after previous periods)	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 4.2.2. Implement and assist in the preparation of SOP for maintenance and calibration of monitors**										
	Mission of expert Jari Walden 5 days	3/9/2007-7/9/2007									
	Fees				**[5 x 250,00]**			1 250,00			
	Flat rate compensation				**1,5*1250,00**			1 875,00			
	Per diem				**[5]** x 164,00			820,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			636,44			
	Local travel Taxi Airport-home							40,56			
	Total							**4 622,00**	**4 730,00**		
xx	**Activity no. 4.3.1. Developing draft QA/QC plan**										
	Mission of expert [Veijo Pohjola]	14/10/2007-19/10/2007									
	Fees				**[5 x 250,00]**			1 250,00			
	Flat rate compensation				**1,5*1250,00**			1 875,00			
	Per diem				**[5]** x 164,00			820,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			431,28			
	Local travel Taxi Airport-home							37,78			
	Total							**4 414,04**	**5 006,22**		
xx	**Activity no. 5.1.1. Specification and procurement of an appropriate system for AQ modeling on local scale**										
	Mission of expert [Ari Karppinen 1 day]	28/10/2007-2/11/2007									
	Fees				**[1 x 250,00]**			250,00			
	Flat rate compensation				**1,5*250,00**			375,00			
	Per diem				**[1]** x 164,00			164,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**						
	Local travel Taxi Airport-home										
	Total							**789,00**	**1 154,06**		

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget (left after previous periods)	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 5.2.1. Investigate meteorological data and develop methods to provide it for dispersion modelling**										
	Mission of expert [Ari Karppinen 1 day]	28/10/2007-2/11/2007									
	Fees				**[1 x 250,00]**			250,00			
	Flat rate compensation				**1,5*250,00**			375,00			
	Per diem				**[1]** x 164,00			164,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			0			
	Local travel Taxi Airport-home							0			
	Total							**789,00**	**1 064,23**		
xx	**Activity no. 5.3.1. Training course on dispersion modelling and methods for validation and for scenario making**										
	Mission of expert [Ari Karppinen]	28/10/2007-2/11/2007									
	Fees				**[1 x 250,00]**			250,00			
	Flat rate compensation				**1,5*250,00**			375,00			
	Per diem				**[1]** x 164,00			164,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			0			
	Local travel Taxi Airport-home							0			
	Total							**789,00**	**1 131,71**		
xx	**Activity no. 5.3.2. Develop training course materials**										
	Mission of expert [Ari Karppinen 2 days + flights]	28/10/2007-2/11/2007									
	Fees				**[2 x 250,00]**			500,00			
	Flat rate compensation				**1,5*500,00**			750,00			
	Per diem				**[2]** x 164,00			328,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			725,28			
	Local travel Taxi Airport-home							22,98			
	Total							**2 326,22**	**2 345,00**		

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

ANNEX I : Expenditures (See excel file - Expenditure Report Template)
Twinning Contract number: MK05/IB-EN-01 - 05MAC01/13/102 Makedonia -2006 -
Section 3: Expenditures

Section No.	Name of services / goods purchased or direct costs	Date(s) of services	Invoice number	Date of invoice	Breakdown and clarification	Amount paid in local currency (if applicable)	INFO-EURO exchange rate	Amount paid in EUR	Amount foreseen in original budget (left after previous periods)	Amount introduced by side letter /amendment	Amount charged to contingenc ies
xx	**Activity no. 5.4.1. Use of dispersion modeling for air quality assessment in couple of real cases**										
	Mission of expert [Sari Lappi 5 days]	11/11/2007-16/11/2007									
	Fees				**[5 x 250,00]**			1 250,00			
	Flat rate compensation				**1,5*1250,00**			1 875,00			
	Per diem				**[5]** x 164,00			820,00			
	Helsinki - Skopje Air ticket				**[2. CLASS]**			493,42			
	Local travel .Taxi Airport-home							0			
	Total							**4 438,42**	**4 730,00**		
xx	**Resident Twinning Adviser [Tiina Harju]**								(3 months)		
	Gross salary	30.9.2007, 31.10.2007 and 15.11.2007, 30.11.2007	70018, 70020, 70021, 70022	28.9.2007, 31.10.2007 15.11.2007 and 30.11.2007	**2 x MONTHLY SALARY (Sept + Oct) 3553,20 + 1 x 124,36 salary increase of October, payed in November 15th + 3 677,56 (salary of November]**			10 908,32	10 659,60		248,72
	Non wage labour costs	30.9.2007, 31.10.2007 and 15.11.2007, 30.11.2007	70018, 70020, 70021, 70022, 55483	28.9.2007, 31.10.2007 15.11.2007 and 30.11.2007	2 x 2025,80 (Sept + Nov) + 70,89 (of th increase of Oct) + 2096,69			6 219,18	6 077,40		141,78
	6%of sal+non wage	30.11.2007	55483	30.11.2007	1 X 335,00 + 2 x 346,43			1 027,86	1 005,00		22,86
	RTA 50 % allowances (RTA costs reports)				**[Monthly cost reports]**						
	Total							**18 155,36**	**17 742,00**		**413,36**
xx	**RTA Assistant Martina Toceva (acting on a freelance basis) salary costs**	30.9.2007, 31.10.2007 and 30.11.2007	28.9.2007 29067 31.10.2007 29073 30.11.2007 29105	28.9.2007 31.10.2007 30.11.2007	28.9.2007 454,55 eur 31.10.2007 454,55 eur 30.11.2007 477,27 eur			1 386,37	1 500,00		
	Total							**1 386,37**	**1 500,00**		

REPORT OF RTA COSTS IN SEPTEMBER 2007

TWINNING PROJECT
Project Title: Air Quality Improvement
Twinning Contract Number: MK05/IB-EN-01
Agency Contract Number: 05MAC01/13/102

Name of services / goods purchased or direct costs	Date(s) of services	Invoice No.	Date of invoice	Breakdown and clarification	Costs, €	Notes
Daily Allowances (50%)	from [date] to [date] 1.-30.9.2007	No. of MS administration document against which payment has been made to the RTA 29067	Date of this MS administration document 28.9.2007	[No of days] * 50% [per diem] 30 days* 93.5 €/day	2805.00	1. The applicable rates are fixed at the time of the signature of the Twinning Contract for its entire duration. They are not subject to revision during the lifetime of the project. 2. This is checked against the dates of travel to/from place of duty for the first and last quarter respectively
Monthly allowance for special economically priced return tickets	Period 1.-30.9.2007	Quotation No. 29067	Quotation date 28.9.2007	[Name of travel agency that has issued the quotation] [No. of months] * [flat rate as stated in the quotation] AREA, 1 month * 600 €	600.00	1. Only applicable, if no removal of personal belongings or any other costs related to accompanying family members are charged to the project. 2. Eligible from the second month of secondment
Accommodation	from [date] to [date] 1.9.2007-30.9.2007	No. of receipt FMI: 55331	Date of receipt FMI paid 11.9.2007	[Starting date of lease] [Name of landlord] (for first report only and after that if changed) [No. of months] * [monthly rent] 1.11.2006, Marija Boskovska, 1 month * 1 250,00 €/month	1 250,00	1. Full month's rent can be claimed even if some of the period is beyond the period reported in the Quarterly Report. 2. The first month for which rent is claimed must not overlap with the period claimed under "Allowances for first 30 days". In case of overlap the first rent is reduced accordingly
Taxi Flight 22:00-07:00	13.9.2007	29067	28.9.2007	Transfer from the airport, Helsinki- home, Espoo 44.0 €	44.00	Taxi Flight 22:00-07:00
Taxi Flight 22:00-07:00	16.9.2007	29067	28.9.2007	Transfer from the airport, Skopje - home, Skopje 12.00 €	12.00	Taxi Flight 22:00-07:00
TOTAL					**4711.00**	

RTA in Twinning Project Air Quality Improvement

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

REPORT OF RTA COSTS IN OCTOBER 2007

TWINNING PROJECT
Project Title: Air Quality Improvement
Twinning Contract Number: MK05/IB-EN-01
Agency Contract Number: 05MAC01/13/102

Name of services / goods purchased or direct costs	Date(s) of services	Invoice No.	Date of invoice	Breakdown and clarification	Costs, €	Notes
Daily Allowances (50%)	from [date] to [date] 1.-31.10.2007	No. of MS administration document against which payment has been made to the RTA 29073	Date of this MS administration document 31.10.2007	[No of days] * 50% [per diem] 31 days* 93.5 €/day	2898.50	1. The applicable rates are fixed at the time of the signature of the Twinning Contract for its entire duration. They are not subject to revision during the lifetime of the project. 2. This is checked against the dates of travel to/from place of duty for the first and last quarter respectively
Monthly allowance for special economically priced return tickets	Period 1.-31.10.2007	Quotation No. 29073	Quotation date 31.10.2007	[Name of travel agency that has issued the quotation] [No. of months] * [flat rate as stated in the quotation] AREA, 1 month * 600 €	600.00	1. Only applicable, if no removal of personal belongings or any other costs related to accompanying family members are charged to the project. 2. Eligible from the second month of secondment
Accommodation	from [date] to [date] 1.10.2007- 30.10.2007	No. of receipt FMI: 55405	Date of receipt FMI paid 22.10.2007	[Starting date of lease] [Name of landlord] (for first report only and after that if changed) [No. of months] * [monthly rent] 1.11.2006, Marija Boskovska, 1 month * 1 250,00 €/month	1 250,00	1. Full month's rent can be claimed even if some of the period is beyond the period reported in the Quarterly Report. 2. The first month for which rent is claimed must not overlap with the period claimed under "Allowances for first 30 days". In case of overlap the first rent is reduced accordingly
Taxi Flight 22:00-07:00	6.10.2007	29073	31.10.2007	Transfer from the airport, Helsinki- home, Espoo 45.80 €	45.80	Taxi Flight 22:00-07:00
Taxi Flight 22:00-07:00	10.10.2007	29073	31.10.2007	Transfer from the airport, Skopje - home, Skopje 700 MDK = 11.42 €	11.42	Taxi Flight 22:00-07:00
TOTAL					**4 805.72**	

RTA in Twinning Project Air Quality Improvement

REPORT OF RTA COSTS IN NOVEMBER 2007

TWINNING PROJECT
Project Title: Air Quality Improvement
Twinning Contract Number: MK05/IB-EN-01
Agency Contract Number: 05MAC01/13/102

Name of services / goods purchased or direct costs	Date(s) of services	Invoice No.	Date of invoice	Breakdown and clarification	Costs, €	Notes
Daily Allowances (50%)	from [date] to [date] 1.-30.11.2007	No. of MS administration document against which payment has been made to the RTA 29105	Date of this MS administration document 30.11.2007	[No of days] * 50% [per diem] 30 days* 93.5 €/day	2805.00	1. The applicable rates are fixed at the time of the signature of the Twinning Contract for its entire duration. They are not subject to revision during the lifetime of the project. 2. This is checked against the dates of travel to/from place of duty for the first and last quarter respectively
Monthly allowance for special economically priced return tickets	Period 1.-30.11.2007	Quotation No.29105	Quotation date 30.11.2007	[Name of travel agency that has issued the quotation] [No. of months] * [flat rate as stated in the quotation] AREA, 1 month * 600 €	600.00	1. Only applicable, if no removal of personal belongings or any other costs related to accompanying family members are charged to the project. 2. Eligible from the second month of secondment
Taxi Flight 22:00-07:00	21.11.2007	29105	30.11.2007	Transfer from the airport, Helsinki- home, Espoo 45.00 €	45.00	Taxi Flight 22:00-07:00
Accommodation	from [date] to [date] 1.11.2007- 30.11.2007	No. of receipt FMI: 55441	Date of receipt FMI paid 12.11.2007	[Starting date of lease] [Name of landlord] (for first report only and after that if changed) [No. of months] * [monthly rent] 1.11.2006, Marija Boskovska, 1 month * 1 250,00 €/month	1 250,00	1. Full month's rent can be claimed even if some of the period is beyond the period reported in the Quarterly Report. 2. The first month for which rent is claimed must not overlap with the period claimed under "Allowances for first 30 days". In case of overlap the first rent is reduced accordingly
TOTAL					**4 700.00**	

RTA in Twinning Project Air Quality Improvement

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk

APPENDICES

- **MS Experts' mission reports**

Finnish Meteorological Institute
P.O. Box 503, FI-00101 Helsinki
Tel. +358-9-19295432, Fax. +358-919294129
www.fmi.fi

Ministry of Environment and Physical Planning
Drezdenska 52, 1000 Skopje
Tel. +389 2 3066-930, Fax. +389 2 3066-931
www.moepp.gov.mk