LIFE Project Number

LIFE09 ENV/GR/00289

Mid-term Report
Covering the project activities from 01/09/2010 to 29/02/2012

Reporting Date
20/07/2012

LIFE+ PROJECT NAME or Acronym

ACEPT-AIR

Data Project

Project location	Athens, Thessaloniki, Volos
Project start date:	01/09/2010
Project end date:	31/08/2014 **Extension date:**
Total budget	€ 1,750,040
EC contribution:	€ 836,449
(%) of eligible costs	49.0

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1. List of abbreviations

Aerosol and Particle Technology Laboratory	APTL
Air Quality Standards	AQS
Aristotle University of Thessaloniki	AUTH
Athens Metropolitan Area	AMA
Biogenic Volatile Organic Compounds	BVOCs
Centre for Research and Technology-Hellas	CERTH
Chemical Mass Balance	CMB
Communication & Information Resource Centre Administrator	CIRCA
CORe INventory AIR emissions	CORINAIR
European Environmental Agency	EEA
European Monitoring and Evaluation Programme	EMEP
European Soil Database	ESDB
Forum for Air quality Modelling	FAIRMODE
Global Atmospheric Watch	GAW
Greater Volos Area	GVA
International Atomic Energy Agency	IAEA
Joint Research Centre	JRC
Management Board Committee	MB
National Centre for Scientific Research "Demokritos"	NCSR "D"
National Technical University of Athens	NTUA
Non-Methane Volatile Organic Compounds	NMVOCs
Operational Platform	OP
Particulate matter	PM
Particulate matter with aerodynamic diameter less than 10 μm	PM_{10}
Particulate matter with aerodynamic diameter less than 2.5 μm	$PM_{2.5}$
Positive Matrix Factorization	PMF
PRODuction COMmunautaire	Prodcom
Quality Assurance / Quality Control	QA/QC
Selected Nomenclature for reporting of Air Pollutants	SNAP
Spanish National Research Council (Consejo Superior de Investigaciones Científicas)	CSIC
Steering Committee	SC
Technical Committee	TC
Technical University of Crete	TUC
Thessaloniki Metropolitan Area	TMA
United Nations Economic Commission for Europe	UNECE
University of Thessaly	UTH

3. Executive summary

3.1. General progress

During the reporting period (September 2010 – February 2012), ACEPT-AIR project has generally progressed in accordance with the foreseen actions', milestones' and deliverables' timetable. The coordinating and associated beneficiaries have worked in close collaboration in order to ensure the successful implementation of the project and its financial management. Three plenary meetings have taken place until this stage of the project implementation. Progress of the project has been documented in two reports: the Inception report, submitted to the E.C. on the 4th of April 2011 and Progress Report I, submitted to the E.C. on the 14th of November 2011.

A major part of the work performed during this period is related to the field measurement campaigns in the three urban centres. Preparations were finalized during spring and early summer of 2011. The measurements covered a warm and cold period (June – September 2011 and January – March 2012) and required strict programming and increased personnel employment by the three beneficiaries involved: NCSR "D", AUTH and UTH. In the framework of the organization and implementation of the field campaigns, NCSR "D" and AUTH have had the opportunity to work closely with stakeholders, such as the Ministry of Environment, Energy and Climate Change, the Coalition of 21 Local Authorities of North and East Athens and the Municipality of Thessaloniki.

PM_{10} and $PM_{2.5}$ concentrations for the three studies areas (Athens, Thessaloniki and Volos) during the field campaigns have been estimated. The filters collected are now being analyzed for the quantification of their chemical constituents (ions, metals and elemental / organic carbon). Initial results obtained from the campaigns have been presented in the 1st formal informative meeting for stakeholders, held in the Municipality of Chalandri, Athens, on December 14th, 2011. The meeting also aimed at informing stakeholders and other interested parties on the project objectives, actions and progress and at documenting initial feedback.

In parallel to the measurement campaigns, historical data on PM_{10} and $PM_{2.5}$ concentrations and chemical composition in the three studied areas have been collected and a historical database of QA/QC data has been compiled. Part of this historical data was further utilized for the application of new source apportionment techniques. The effect of the technique applied on the obtained results is being examined. At a next step, when analysis of the filters collected during ACEPT-AIR field campaigns is complete, source apportionment techniques will be applied to the new datasets as well.

TUC and AXON Envirogroup Ltd have been progressing in emission inventories compilation. Work on the development of the operational platform (OP) of the Policy tool has also started. All partners have been providing views and feedback to AXON Envirogroup Ltd, who has been progressing in the OP development. In addition, initial feedback by stakeholders regarding their needs in relation to the scenarios to be examined by the Policy tool has been provided during the 1st informative meeting for stakeholders. Further feedback is expected in the framework of meetings planned for the following months with each stakeholder separately.

A number of dissemination activities have been also performed. Project objectives and initial outcome have been publicized through:

- The project website
- Informative leaflets
- Notice board at the three studied areas
- Press releases / articles
- Papers in scientific journals and international conferences.

The project progress is being monitored by three external evaluators. The Project Manager has submitted to them all reports documenting progress (Inception and Progress Report I and all monthly reports) and remains in constant contact with them. In addition, the three evaluators have been invited to participate in the 3rd plenary meeting. Following the meeting, they have prepared and submitted to the Project Manager their first Evaluation Report, which is attached to this report.

3.2. Assessment as to whether the project objectives and work plan are still viable

The overall evaluation of the progress that has been achieved so far indicates that the project will be implemented as scheduled and with no major problems. Work in all actions has been advancing in accordance with the foreseen timetable, with only minor problems and delays, which are presented below. A detailed description of the work accomplished for each action, is given in Part 5, leading to the conclusion that the project work plan is viable and the objectives and deliverables of the project will be accomplished A list of Actions, Deliverables and Milestones (as foreseen and actually performed) is presented in **ANNEX XIX**.

3.3. Problems encountered

- A number of technical problems have been encountered during the field measurement campaigns. These setbacks were related to instruments malfunction and loss of electric power during sampling. In general, quality and sufficient quantity of data was secured by extending the measurement period. The most significant loss of data occurred during the GVA campaign, where one of the two PM_{10} samplers did not function for 2/3 of the measurement period, resulting in limited data on PM_{10} mass concentrations and filters available for major and trace elements' analysis. A longer measurement period was planned for the winter campaign in this city, in order to compensate for these losses.
- A small delay (of one month) has been presented in finishing the application of alternative source apportionment techniques to historical data sets. Nevertheless this delay will not affect the general progress of this action.
- A delay has been observed on the organization of the stakeholders' informative seminar for the year 2011. The initial planning had to be cancelled due to lack of participation by stakeholders. A more central location and more convenient period of the year have been selected and the meeting was finally held on the 14th December 2011, at the Municipality of Chalandri, in Athens. In general, the implementation of Action 6 "Two-way direct interaction process with stakeholders" is progressing with no major problems but there is a concern regarding their continuing active involvement in view of the economic and political crisis Greece is currently facing. The project beneficiaries will put all their efforts in order to preserve collaboration with the National, regional and local authorities and to ensure their active participation throughout the project's implementation period.
- The implementation of Action 10 "Monitoring of Project progress" has presented major delays in the beginning of the project. The action's content, objectives and timetable have been amended in the framework of the Inception Report. Following the acceptance of the

amended action plan, work is progressing according to schedule and no further problems were encountered.

4. Administrative part

4.1. Project management

The implementation of the project ACEPT-AIR LIFE09 ENV/GR/000289 was initiated by the coordinating beneficiary N.C.S.R. "Demokritos" on September 2010. The project kick-off meeting was organized on the 14th of October 2010, at the premises of the Institute of Nuclear Technology & Radiation Protection, N.C.S.R. "D", where representatives of all four associated beneficiaries attended. The meeting programme, minutes and list of participants were included in the Inception Report (Annex I). Following the kickoff meeting, the coordinating beneficiary has assigned, in collaboration with the associated beneficiaries, the members of the three decision making bodies (Management Board Committee, Steering Committee and Technical Committee), presented below in paragraph 4.2. In addition, the partnership agreement has been signed by all beneficiaries on the 2nd of February 2011. Subsequently, the first instalment has been paid to all associated beneficiaries, according to the payment scheme set at the partnership agreement. A copy of the partnership agreement was included in the Inception Report (Annex IV).

On the 15th of March 2011, Mrs G. Valaoras, representative of ASTRALE Monitoring Team, visited NCSR "D" in the framework of the yearly routine control. Mrs Valaoras met with the Project Manager as well as the Financial Manager, and was informed on the progress of the project (technical and financial). The developed Cost Centre as well as all financial documentation was presented. Mrs. Valaoras provided the Coordinating Beneficiary with a number of recommendations concerning the organization of the Cost Centre and the preparation of reports submitted to the Committee. Following the control visit, on March 28th, 2011, the 2nd plenary meeting was held at the premises on NCSR "D", with the participation of Mrs. Valaoras as well. The meeting programme, minutes and list of participants were included in the 1st Progress Report (Annex I).

On the 3rd and 4th of November 2011, the project 3rd plenary meeting took place. The meeting was held at the premises of NCSR "D" again. During the first day the coordinating and associated beneficiaries discussed on issues related to progress of project implementation and planning of future work, as well as financial issues. The main issues raised were:

- Update on the total costs incurred - Need to decide on changes in cost categories to be requested from the E.C.
- Progress on interaction with stakeholders, and specifically planning of the 1st formal informative meeting which had been postponed due to low participation by the part of stakeholders during the initial scheduling of the event on June 2011.
- Assessment of implementation of summer measurement campaigns, performed during July – September 2011; Problems to be resolved before the winter campaigns start; Analysis of collected samples; Evaluation of results obtained.
- Methodological approaches and difficulties encountered in the framework of emission inventories compilation.
- Progress on the development of the operational platform for the Policy tool; Main characteristics to be determined (form of final results, specific functionalities of the tool, etc.)

On the second day, partners were joined by two of the external evaluators, Dr. X Querol (CSIC) and Prof. R Harrison (University of Birmingham). All three evaluators were scheduled to participate in the meeting but Prof. A. Chaloulakou (NTUA) was not able to attend. A meeting with Prof. Chaloulakou was rescheduled for the middle of January 2012, as it is described in detail in section 5.1.10 (Action 10: "Monitoring of project progress"). Before the official beginning of the meeting, Dr. Querol and Prof. Harrison had the opportunity to visit the Environmental Radioactivity Laboratory of NCSR "D" and to be informed on its activities and infrastructure. During the meeting partners presented in detail the progress achieved in relation to each action, communicated to the evaluators the problems encountered and discussed on the next steps planned in order to ensure the successful implementation of the project and the best exploitation of results obtained. The evaluators provided valuable feedback on scientific issues, based on their extensive experience and relevant works performed in their countries. The meeting programme, minutes and list of participants are included in **ANNEX I**.

During the reporting period, two reports (Deliverables for Action 1: "Project Management") have been submitted:

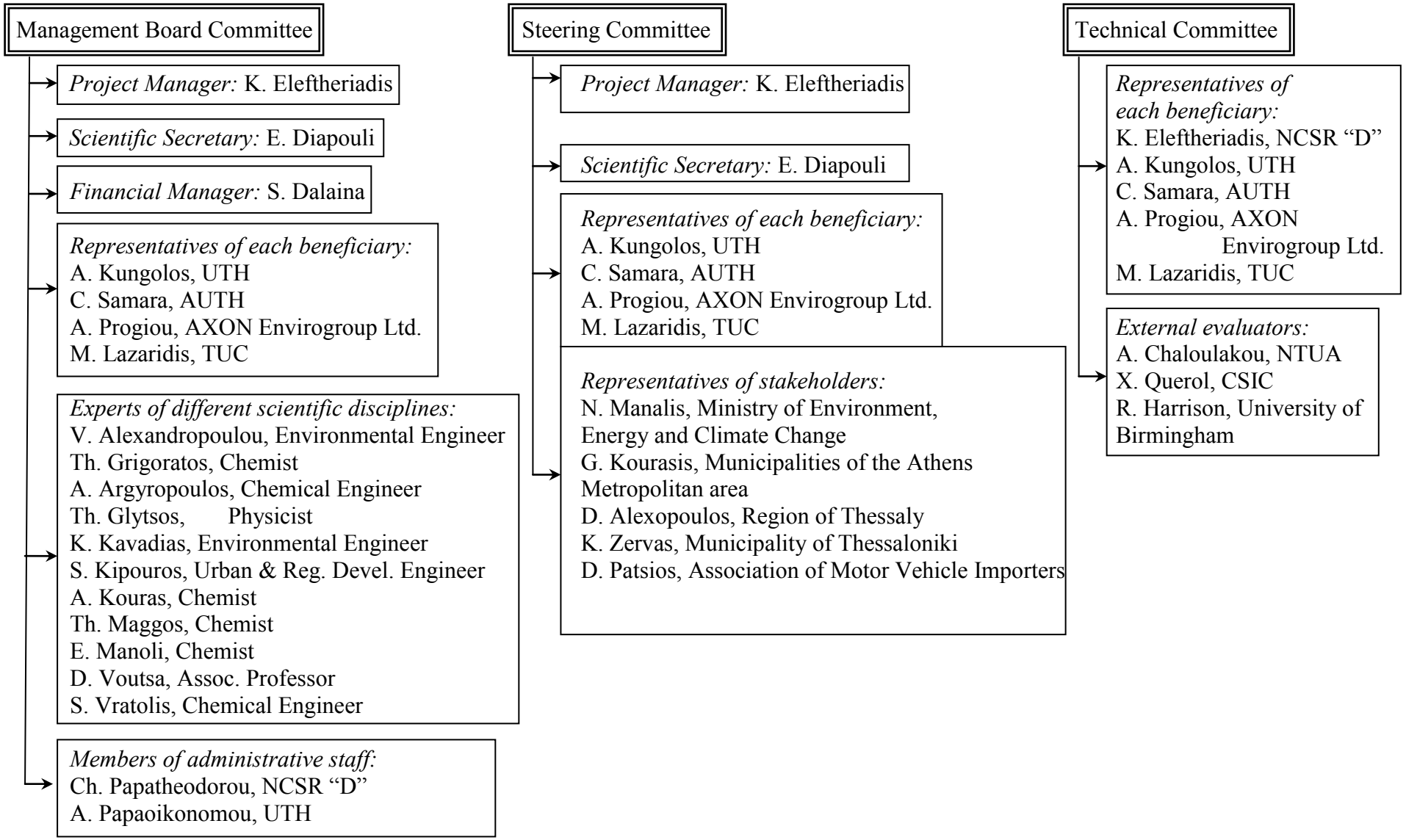
- Inception Report, submitted to the E.C., as well as to the Monitoring Team, on the 4th of April, 2011 and
- 1st Progress Report, submitted to the E.C., as well as to the Monitoring Team, on the 14th of November 2011.

According to the current state of implementation, the management of the project by the three decision making bodies (MB, SC, TC) has been successful in assuring a satisfactory progress, documented by the achievement of deliverables and milestones on time, in accordance with the modified project time schedule and list of deliverables and milestones, presented in **ANNEX XIX**. The next plenary meeting as well as the annual control visit of ASTRALE Monitoring Team has been scheduled for the 16th of March 2012. The meeting and control visit will take place in Athens.

4.2. Project's management structure - Organigramme of the project team

The project management structure is based on three decision making bodies: the Management Board Committee (MB), the Steering Committee (SC) and the Technical Committee (TC). The members of the three bodies have not changed during the reporting period, except for the Financial Manager. Mrs K. Daniel has resigned from the position of Financial Manager on the 1st of July 2011. After detailed evaluation of the remaining applicants, Mrs S. Dalaina was recruited and assumed the position of Financial Manager, starting from October 2011. Detailed data on all personnel working on ACEPT-AIR project during the reporting period is given in **ANNEX II.** The organigramme of the project management team is presented below:

ACEPT-AIR Management Team



4.3. Submitted reports

The Inception Report has been submitted on the 4th of April 2011 and the 1st Progress Report on the 14th of November 2011.

4.4. Extension of project duration

Based on the current progress of the project, no extension of its duration is necessary.

5. Technical part

5.1. Actions

The project is progressing in general in accordance with the foreseen actions' timetable, as modified in the Inception Report (Annex XI) and included as well in the present report (**ANNEX XIX**). The activities performed during the reporting period are related to actions 1 - 10. Actions 11 and 12 are scheduled to start during 2013.

The detailed description of the progress achieved during the reporting period, demonstrated by the activities and resulting outputs corresponding to each action, is presented below:

5.1.1. Action 1. Project Management

All activities related to action 1 are described in section 4. The main objectives met and resulting outputs during the reporting period are:

- The three decision making bodies (MB, SC and TC) have been formed.
- The partnership agreement has been signed by all beneficiaries and the first instalment has been transferred by the coordinating beneficiary to the associated beneficiaries.
- Three plenary meeting have taken place at the premises of N.C.S.R "Demokritos":
    - The kick-off meeting (14th of October 2010)
    - The 2nd Plenary Meeting (28th of March 2011), with the participation as well of Mrs Valaoras, as representative of ASTRALE Monitoring Team.
    - The 3rd Plenary Meeting (3rd and 4th of November 2011), with the participation as well of two of the external evaluators, Dr. X. Querol and Prof. R. Harrison.
- Two reports have been submitted to the E.C., as well as to the Monitoring Team:
    - The Inception Report (4th of April 2011)
    - The 1st Progress Report (14th of November 2011).

According to the current state of implementation, the management of the project by the three decision making bodies (MB, SC, TC) has been successful in assuring a satisfactory progress, as documented by the achievement of the following deliverables and milestones, in accordance with the modified time schedule presented in the Inception Report (Annex XI) and included as well in this report (**ANNEX XIX**):

Deliverables:

D1: Inception Report

D2: Progress Report n°1

Milestones:

M1: Preparation and submission of the Inception Report

M2: Preparation and submission of the Progress Report n°1

5.1.2. Action 2. Construction of PM concentration databases

During the reporting period, the collection and quality control assurance of historical data sets has been completed. NCSR "D" and AUTH have conducted a detailed literature review of research works studying concentration levels of PM, as well as their main constituents, at the three urban areas (Athens, Thessaloniki and Volos). The historical data have been examined with respect to sampling protocols, sampling and analytical methods and data analysis. Following strict quality control procedures, the collected data have been introduced in a historical database. Indicative results for PM concentrations and chemical speciation are presented in **ANNEX III**. Part of the results obtained from this work has been presented in the European Aerosol Conference 2011, held in Manchester, U.K. on September 2011. The conference abstract and poster are included in **ANNEX XVI**.

In addition, work on the construction of an updated PM concentrations database for the three studied areas has been progressing according to schedule. The first 9 months of the project were dedicated to the overall organization of the measurement campaigns, which required increased personnel and equipment resources. NCSR "D", UTH and AUTH collaborated for the preparations which included:

- Procurement of consumable material and equipment (Photo of samplers purchased in Annex IV)
- Calibration of sampling and analytical equipment
- Development of the measurement protocol (aerosol parameters to be studied, samplers to be deployed, filters material, measurement sites, duration and frequency of sampling).
- Recruitment of additional personnel needed for the realization of the measurement campaigns and chemical analysis of collected PM samples.
- Organization of mobile laboratory measurements: The Aerosol and Particle Technology Laboratory (APTL), from the Centre for Research and Technology-Hellas (CERTH) of Thessaloniki, has been sub-contacted for the mobile laboratory measurements. The contract between NCSR "D" and APTL was signed on the 15th of June 2011 and was included in the 1st Progress Report (Annex V).

Two sampling campaigns were scheduled, covering warm and cold period. Warm period campaign was realized during summer months of 2011 (June – September), while cold period campaign were still in progress at the end of the reporting period. The studied areas and measurement periods are presented below:

Athens Metropolitan Area (AMA):
Site 1: Demokritos urban background station (member of the GAW network), in Northeast part of AMA
Site 2: Nea Smyrni station of the National Monitoring Network, in the South of AMA
Warm period campaign: 7/7 – 4/8/2011 and 12/9 – 2/10/2011
Cold period campaign: 16/1 – 12/2/2012 and 21/3 - 10/4/2012

Thessaloniki Metropolitan Area (TMA):
Site 1: Urban Traffic site in the commercial city centre
Site 2: Urban Background site in the upper part of the city
Warm period campaign: 30/6 – 1/10/2011
Cold period campaign: 10/2 – 6/4/2012

Volos Greater Area (VGA)

Site: University of Thessaly, Department of Planning and Regional Development, in the city centre
Warm period campaign: 5/8 – 6/9/2011
Cold period campaign: 20/2 – 17/3/2012

The same measurement protocol was employed for both warm and cold campaigns. A detailed description is given in the 1st Progress Report (Section 5.1.2: "Action 2. Construction of PM concentration databases"). Maps of the studied areas and photographs were also included in the 1st Progress Report (Annex III).

The collected filters were conditioned in controlled environmental conditions and weighed for the determination of PM_{10} and $PM_{2.5}$ concentrations. The samples were then stored in order to be analyzed for specific particle constituents:

- Elemental and organic carbon, by Thermal / Optical method
- Ions, by Ion Chromatography
- Major and trace elements, by Atomic Absorption Spectrometry and X-Ray Fluorescence.

Samples analysis has started and is still in progress.

The results obtained so far from the fixed site measurement campaigns are presented in **ANNEX IV**. PM_{10} and $PM_{2.5}$ concentrations have been determined for all three cities and both seasons. In addition, organic and elemental carbon concentrations have been determined for all warm season samples, while ion concentrations for only part of the Athens and Thessaloniki warm season samples have been obtained.

In addition to fixed site measurements, the mobile measurement platform (Mobilab) of the Aerosol and Particle Technology Laboratory (APTL) of CERTH has been sub-contracted for sampling in a variety of areas, representative of specific PM sources. The contract between NCSR "D" and CERTH was included the 1st Progress Report (Annex V).
Mobilab was equipped with the following instrumentation:

- Scanning Mobility Particle Sizer (SMPS) and Optical Particle Counter (OPC) for the measurement of particles number size distribution
- Photometer for the determination of PM mass concentration
- Portable aethalometer for the determination of black carbon
- Ambient NOx Monitor
- GPS system in order to monitor the vehicle's exact position over time.

All instruments were connected to an inlet situated on top of the vehicle. A different inlet was installed for the AMA and TMA measurements but both inlets were designed in such a way as to allow sampling of atmospheric air, while minimizing the effect of the vehicle's exhaust. Photos of the vehicle while conducting measurements in AMA and TMA are included in **ANNEX V**.

Mobilab was employed during both warm and cold season in AMA and TMA. The measurement protocol was similar during both seasons. Specifically, during the day the vehicle was moving in preselected routes, while a GPS was continuously recording its position. Measurements were continued during night time, with the vehicle parked in areas on interest. During night time measurements, a MOUDI impactor was also employed for the gravimetric measurement of mass concentration size distribution. The exact measurement periods for each city are presented below:
AMA: 12 – 23/9/2011 and 30/1 – 10/2/2012

TMA: 22/8 - 2/9/2011 and 13 - 24/2/2012
The areas and routes covered during warm and cold season campaigns in both cities are depicted in **ANNEX V**.

Mobilab data analysis is still in progress. Indicative results from the summer campaigns in AMA and TMA are presented in **ANNEX VI**.

Results from the fixed site and mobile measurement campaigns have been presented during the 1st informative meeting for stakeholders, on the 14th December 2011. In addition research papers have been or will be presented in a number of international conferences:

- 10th International Conference on Carbonaceous Particles in the Atmosphere, Vienna, Austria, 26 – 29 June 2011
- 6th International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Region (MESAEP2011), Ioannina, Greece, 24 - 27 September 2011
- Urban Environmental Pollution, Amsterdam, The Netherlands, 17 – 20 June 2012
- European Aerosol Conference (EAC), Granada, Spain, 2-7 September 2012
- 1st Thessaly Environmental Conference, Skiathos island, Greece, 8 – 10 September, 2012.

The submitted abstracts as well as the posters presented are included in **ANNEX XVI**.

Field campaigns are known to be subject to a number of difficulties and / or technical problems, resulting in partial loss of experimental data or poor data quality. Setbacks during ACEPT-AIR campaigns were related to instruments malfunction and loss of electric power during sampling. In general, quality and sufficient quantity of data was secured by extending the measurement period. The most significant loss of data occurred during the GVA campaign, where one of the two PM_{10} samplers did not function for 2/3 of the summer measurement period, resulting in limited data on PM_{10} mass concentrations and filters available for major and trace elements' analysis. A longer measurement period was planned for the winter campaign in this city, in order to compensate for these losses.

In general, progress achieved in relation to action 2 has been satisfactory, as documented as well by the achievement of the following deliverables and milestones:

Deliverables:

D6: PM_{10} and $PM_{2.5}$ concentration databases for the three urban areas (AMA, TMA and VGA) – Achieved prior to foreseen data (31/07/2012)

Milestones:

M6: Collection of historical data sets and quality control assurance

M21: Completion of sampling campaign – Achieved prior to foreseen data (05/2012)

5.1.3. Action 3. Source apportionment application

During the reporting period work was mainly focused on the review of historical source apportionment results. The tasks completed are summarized below:

- A literature review of source apportionment results for the three urban areas (AMA, TMA and GVA) has been performed. A summary of the results is presented in **ANNEX VII**. A review of the source apportionment studies carried out at and their major findings (sources identified and source contribution estimates) have been presented in the European Aerosol Conference 2011 (Manchester, U.K., 4 - 9 September 2011). The submitted abstract and the presented poster are included in **ANNEX XVI**.

- The collection of existing data concerning chemical source profiles for use in CMB source apportionment has been completed. A summary of the source profiles to be used during source apportionment are presented in **ANNEX VIII**.
- An optimized CMB procedure, the Robotic CMB (RCMB), is being tested in historical PM_{10} data from TMA and GVA. This technique is planned to be employed for the source apportionment of new PM_{10} and $PM_{2.5}$ data obtained from the LIFE+ project measurement campaigns.
- New multivariate statistical methods (Chemical Mass Balance, CMB and Positive Matrix Factorization, PMF) have been applied to historical data sets collected in the framework of Action 2. This work was planned to be completed by the end of February 2012. There was a small delay but final results will be available by the end of March 2012. The outcome of the application of the new source apportionment techniques will be compared with the initial results reported concerning these historical datasets.

Work in action 3 is progressing in general according to the foreseen time schedule with no major problems. A slight delay has been presented in finishing the application of alternative source apportionment techniques to historical data sets. Nevertheless this delay will not affect the general progress of this action. The only milestone/deliverable planned to be achieved during the reporting period is:
Milestones:
M18: Completion of PMF and CMB application on historical data sets (completed with 1 month delay on March 2012).

5.1.4. Action 4. Construction of emission inventories

Work on this action is progressing in two directions, related to the estimation of (i) natural emissions (beneficiary responsible TUC) and (ii) anthropogenic emissions (beneficiary responsible AXON Envirogroup Ltd.) for the three studied areas (AMA, TMA, VGA). The specific tasks undertaken during the reporting period are presented below. Work on these tasks is still in progress.

Natural emissions:

- Collection of the necessary data to create a spatially, temporally and chemically resolved emission inventory from natural sources for the three areas of interest (AMA, TMA and GVA) has been completed. Specifically, input data include:
    - Land cover map (European Environmental Agency, EEA)
    - Meteorological parameter values (Temperature, Relative Humidity, Air velocity, Photosynthetically active radiation)
    - Soil texture map (European Soil Database, ESDB v2.0 2004).
- Collection of the annular gaseous pollutants (NOx, SOx, NMVOCs, CO, and NH_3) emissions (tn/yr) from the UNECE/EMEP database has been completed.
- Calculation of secondary PM based on aerosol formation potential factors for the different gaseous precursors (NOx, SOx, NMVOCs and NH_3).
- Estimation of windblown dust emissions based on the land cover, soil texture, wind friction velocity and threshold friction velocity.
- Estimation of emissions of sea salt particles for two distinct cases:

- Open-ocean emissions are computed as a function of air velocity, particle radius and density, and relative humidity (without taking into account the direct spume mechanism, which is excluded due to high uncertainty).
- Sea-shore emissions are computed as a function of air velocity, particle diameter and density, relative humidity and the solute weight fraction in natural sea salt solutions.

- Calculation of emissions of BVOCs using methodologies presented in the EMEP/CORINAIR Guidebook (2007), with modified environmental correction factors for light and temperature dependence of emissions. Emission potentials and foliar biomass densities are adapted from the EMEP/CORINAIR Guidebook (SNAP codes 11) in accordance with predominant species of Greek flora (Ministry of Rural Development and Food, FILOTIS database for the natural environment of Greece). Different foliar biomass densities and emission potentials are used for the growing (summer) and dormant (winter) season.
- The effect of forest fires to the emission from natural sources are incorporated in the calculations.
- Quantification of African dust load during dust outbreaks according to the method proposed by Escudero et al. (Atmospheric Environment, Vol. 41, pp. 5516-5524, 2007), included also in the "Guidance to member states on PM_{10} monitoring and inter-comparisons with the reference method" (EC Working Group on Particulate Matter, 2002).

Initial results have been presented in:
- *Scientific journals:*
  Air Quality, Atmosphere and Health
  Journal of Environmental Monitoring
  Water, Air & Soil Pollution
- *International conference:*
  European Aerosol Conference 2011, Manchester, U.K., 4-9 September 2011

Abstracts and posters presented are included in **ANNEX XVI**.

Anthropogenic emissions:

- Identification of the special characteristics of each study area: Athens, Thessaloniki and Volos. Previous studies for the areas of interest were investigated in order to clarify local air quality problems.
- Collection of available data concerning: a) traffic loads, b) mean traffic speeds, c) traffic composition and d) fleet characteristics data (composition and population) in the areas of study has been completed.
- Processing and analysis of fleet data (statistical) and of available traffic data in order to a) complement with traffic characteristics data the parts of the study area with missing information and b) specify the diurnal variation of traffic loads and speeds.
- Study and processing of traffic and fleet characteristics data in terms of engine technology categories for each vehicle type. Data for the areas of Athens and Thessaloniki have already been processed

- Discussions for the preparation of the most suitable grid that will be used for the allocation of total road traffic emissions for all three areas of study have already been accomplished.
- Development of the methodology that will be applied for the spatial and temporal disaggregation of traffic data.
- Quality control and consistency control of existing traffic data and fleet data
- Calculation of road traffic emissions (model application). The calculations of yearly road traffic emissions for the Greater Athens area have already been completed. Emissions calculations have been carried out for the period 1990-2010. For Thessaloniki and Volos, the corresponding inventories are also in progress.
- Compilation of industrial emissions inventories. AXON Envirogroup has subcontracted the National Technical University of Athens (Prof. I. Ziomas) for the compilation of industrial emission inventories. The contract has been included in the 1st Progress Report (Annex VII).

  The air pollution inventory for the Industrial Sector includes emissions deriving from Fuel Combustion and emissions related to the actual (Industrial) Production Processes themselves. The estimated emissions reflect the overall contribution of the Industry to the deterioration of air quality in the Greek territory. The NTUA team has in its possession a detailed database of all the high emissive industrial plants in Greece, including energy power plants. Production quantities, consumption of fuels and also of raw material data are included in the database, whereas information on the exact location of each plant is also recorded, based on the information provided by the plants in the framework of their reporting obligations under the E.U. Emissions Trading Scheme. Aggregated statistical data (including confidential data in some cases) provided by national and international sources such as the Hellenic Statistical Authority (Prodcom), the Ministry of Development (national energy balance), EUROSTAT etc are also introduced in the database, whereas information provided by the plants on the basis of personal communication with the NTUA team is also included. The collected data permit the estimation of emissions from the following main air pollutants: CO, NOx, SOx, $PM_{2.5}$, PM_{10}, NMVOC, NH_3. The emission factors used are provided by the EMEP/EEA air pollutant emission inventory guidebook that has been released by the EEA in 2009.
  The Industrial Inventory is divided in the following subcategories:
  - Combustion in energy and transformation industries
  - Mineral Production
  - Chemical Production
  - Metal Production
  - Other Production (mainly from Pulp & Paper and Food industries)
  - Solvents

In addition to emission inventories compilation, the temporal evolution of PM concentrations and anthropogenic and natural emissions is being studied. The reduction in emissions needed in order to meet the current air quality standard (AQS) for PM_{10} is being estimated, based on the rollback equation (Seinfeld J.H. and Pandis S.N., Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, J. Wiley, New York, 1998). Results for several PM monitoring stations in the areas of interest have been already produced. Initial results from natural and anthropogenic emission inventories and the estimation of necessary reductions of emissions have been presented in the 1st Progress Report (Annex VIII). Additional results are included in the present report (**ANNEX IX**).

No major problems were encountered during the implementation of this action, except for the lack of up-to-date traffic data for all areas of interest. The problem was dealt by utilizing other available statistical data for the calculations, such as fuel consumption, fleet population, length of existing road network and classification of roads. Emission inventories compilation is progressing according to the foreseen time schedule of deliverables and milestones. The first deliverable is expected to be completed as planned, while the first milestone has been already accomplished:

Deliverables:

D10: Emission inventories for the three urban areas (AMA, TMA, GVA), for anthropogenic and natural sources, for the past decade (2000-2010) – To be completed by the end of August 2012

Milestones:

M18: Completion of data collection

5.1.5. Action 5. Development of the Policy Tool operational platform

Work on this action started in the beginning on March 2011. During the 2nd plenary meeting of March 28th 2011, all beneficiaries discussed lengthy on various issues concerning the Policy tool under development. The main issues raised were: possible problems during the development of the operational platform (OP), scenarios to be included, desirable output of the Policy tool (form of presentation of final results), possibilities of intervention to the Policy Tool's databases and scenarios allowed to partners and end-users. The meeting's minutes have been included in the 1st Progress Report (Annex I). After the meeting, AXON Envirogroup Ltd. has documented all feedback given by the partners and has started working on the development of the operational platform of the tool, accordingly. Progress achieved during the reporting period is presented below:

- The main objectives covered by the tool have been identified:
  - Complete overview of the PM concentrations measured and calculated emissions at the three studied areas
  - Estimation and direct presentation of the effects of specific interventions on PM concentrations in selected Greek regions
  - Access in relative information described in scientific papers and other material published in the international press.
- The structure of the tool's operational platform has been determined. It shall comprise of three interconnected yet clearly separated parts ('3-tier approach'):
  - the Database and programming related to manage it
  - the Business Logic ('Business Tier') that includes the code referring to the update and calculations to be performed
  - the Presentation Interface
- Work on the development of the main database and presentation interface has been progressing.

Data Management and Storage

Incorporation of data into the main Database is in progress. The Database will include all the information collected and produced in the framework of the project:

- Field Measurement Data and the corresponding Source Apportionment results (including Historical Data when available)
- Emission Data (provided by inventory calculations)
- Other Data (mainly refers to Pollution Control Measures)
- Parameter Data (mainly Regions, Sectors and the naming of Key Categories).

The 'Field Measurement' and 'Emission Inventory' Data will be provided by year, geographic region and sector concerned. In order to do so, each data entry will require a Region and Sector specification. For this reason the database shall include a special data category under the name of 'Parameter Data' to permit the user to specify the geographical and sectoral structure of the database.

The 'Other Data' section will include all additional information that may refer to some indicative measures related to Emissions' Reduction or to the material that needs to be accessible in the Library. Data referring to the Measures available to control the PM emissions may also include information on the estimated cost based on the availability of previous adopted policies.

Presentation Interface

The main component of the tool, and the one with the highest importance for the majority of users, is the Presentation Interface, since it is the main communication medium between the user and the database. The Interface has to be designed in a way to be user friendly, easy to handle and operational at the same time. Views of the interface as its development progresses are presented in **ANNEX X**.

No major problems were encountered until now in the implementation of this action. The development of the OP is in itself challenging. Nevertheless, the continuous cooperation of the partners and the relatively long time period foreseen for this action, are expected to provide with enough resources for the successful completion of the action on time and the development of a fully functioning, and in agreement with stakeholders' needs, Policy tool.

The work in this action is progressing in accordance with the foreseen time schedule. The first deliverable and milestone to be accomplished are due in several months:

Deliverables:

D14: Operational Platform (OP) for the "ACEPT-AIR" Policy tool – To be accomplished by February 2013.

Milestones:

M24: Development of OP modules (database, integration of source apportionment) – To be accomplished by August 2012.

5.1.6. Action 6. Two-way direct interaction process with stakeholders

Following the project's kickoff meeting, the Project Manager sent formal letters to the five stakeholders, informing them that ACEPT-AIR has been approved for funding and is now in its implementation phase. A copy of the letters was included in the Inception Report (Annex II). Since then, informal communication between the beneficiaries and stakeholders has taken place regularly. NCSR "D" is in close contact with the Ministry of Environment, Energy and Climate Change and the Coalition of 21 Local Authorities of North and East Athens and provides them with updates on the project progress. Similarly, AUTH is in contact with the Municipality of Thessaloniki, UTH with the Regional Union of Magnesia and N. Sporades

(former Prefecture of Magnesia) and AXON Envirogroup Ltd. with the Association of Motor Vehicles Importers – Representatives.

During the field measurement campaigns, NCSR "D" and AUTH collaborated closely with the Ministry of Environment, Energy and Climate Change, the Coalition of 21 Local Authorities of North and East Athens and the Municipality of Thessaloniki. All three stakeholders assisted in site selection / preparation issues and were constantly held informed of the progress of the measurement campaigns. In addition, NCSR "D" has contacted the Coalition of 21 Local Authorities of North and East Athens to examine the possibility of organizing short-term measurements at a number of municipalities. There was increased interest by the part of the municipalities and Mobilab was employed in order to conduct measurement in as many sites as possible.

Apart from the informal communication with stakeholders, yearly informative and training meetings are planned throughout the project implementation period. The main objectives of these meetings are to inform stakeholders on project progress and register their feedback, as well as promote interaction between stakeholders. The first formal informative meeting was scheduled to be organized by August 2011. An effort has been made to organize the meeting in the framework of the 3rd International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2011). CEMEPE 2011 was organized by AUTH and UTH in Skiathos Island during June 19 - 24, 2011, and all project partners were planning to participate, while initial results of ACEPT-AIR were to be presented. Nevertheless, the meeting was cancelled due to limited participation from the stakeholders' part.

The meeting was rescheduled in a more central location a few months later. The Coalition of 21 Local Authorities of North and East Athens has volunteered to host the event in one of its municipalities. The event was held on the 14th December 2011, at the Municipality of Chalandri, in Athens, with a total of 42 participants. Representatives of the Ministry of Environment, Energy and Climate Change, a number of Municipalities of the wider Athens area, the Municipality of Thessaloniki and the Prefecture of Magnesia have attended. In addition, Mrs. G. Valaoras, representative of ASTRALE Monitoring Team, and Prof. A. Chaloulakou, member of the external evaluation team, were among the participants. During the meeting the beneficiaries presented the main objectives and actions of the project, as well as initial results from the summer measurement campaign and the compilation of emission inventories. The presentations were followed by a discussion between beneficiaries and stakeholders, regarding the results presented as well as the stakeholders' role during the implementation of the project. The meeting's formal invitation, programme, minutes, as well as photos are included in **ANNEX XI**. The meeting's minutes have been sent to all stakeholders, as well as other interested parties (such as Municipalities in the AMA not belonging to the Coalition of 21 Local Authorities of North and East Athens).

The implementation of this action is progressing without major problems. There was increased interest by the part of stakeholders and their assistance during the organization of the measurement campaigns, as well as feedback on the project objectives, actions and progress achieved have been valuable. Nevertheless there is a concern regarding their continuing active involvement in view of the economic and political crisis Greece is currently facing. The personnel and other budget cuts inflicted to the municipalities mainly may result to partial neglect of certain social and political aspects, such as the protection of the environment and public health. It is our aim to make all efforts in order to preserve our

collaboration with the National, regional and local authorities and to ensure their active participation throughout the project's implementation period.

Presently work on this action has been progressing according to the foreseen time schedule and planned deliverables and milestones:

Deliverables:

D16: Training material composed for the stakeholders' seminars – To be completed by August 2013 (No training material was needed for the 1st stakeholders' meeting since it had only an informative nature.)

D17: Minutes of the views and comments expressed in the framework of the interaction process with stakeholders – To be completed by September 2013 (Minutes of the 1st informative meeting documenting the stakeholders' views and comments are already available and included in **ANNEX XI**.)

Milestones:

M12: Organization of informative and training seminars, intended only for stakeholders – The first meeting has been already organized with a small delay in December 2011.

M24: Organization of informative and training seminars, intended only for stakeholders – The second meeting will be planned for autumn/winter 2012.

5.1.7. Action 7. Active application of the Policy Tool

Work on this action has started on October 2011. The first task undertaken relates to the identification of stakeholders' needs, in relation to the scenarios to be examined by the Policy tool. Initial feedback by stakeholders was provided during the 1st informative meeting, on the 14th of December 2011. Their views were documented in the meeting's minutes (**ANNEX XI**). Following the meeting, the Project Manager sent a letter to all stakeholders inviting them formally to provide feedback regarding the Policy tool under development. The letter is included in **ANNEX XII**. A series of meetings is planned for the following months with each stakeholder separately, in order to discuss their views and needs, as the development of the Policy tool is progressing.

Work on this action is progressing with no major problems. All deliverables and milestones are due later, at the last year of the project's implementation.

5.1.8. Action 8. Organization of open forum and International Conference

Work on this action has started on June 2011. NCSR "D" and UTH have met to discuss the time schedule for this action. The Forum has been decided to take place after the first results from the initial application of the Policy Tool are available. Regarding the International Conference, both partners have agreed on organizing it during the last year of the project, when most of ACEPT-AIR objectives will have been reached, so that the project value in respect to environmental policy and air pollution mitigation may be communicated at a national and international level.

Deadlines for the deliverables and milestones of this action have been changed accordingly in the amended Table of Deliverables and Milestones included in **ANNEX XIX**:

Deliverables:

D21: Minutes of the open forum organized in a Report form (due date changed from 30/4/2012 to 31/7/2014)

D22: Proceedings of the international conference (due date changed from 30/4/2012 to 31/8/2014)

Milestones:

M18: Organization of the open forum (Quantification of participation among stakeholders invited) (due date changed from 2/2012 to 7/2014)

M24: Publication of the forum's outcomes on the project's web site (due date changed from 8/2012 to 8/2014)

M42: Organization of the international conference (Extent of participation of foreign expert groups) (due date changed from 2/2014 to 8/2014)

5.1.9. Action 9. Dissemination and mobilization of society

Work on this action has started on January 2011. The first task undertaken was the creation of the project's website (http://www.aceptair.prd.uth.gr) which is functioning since the end of January 2011 and is being updated regularly. Statistical data on the monthly website visits are presented in **ANNEX XIII**.

A number of other dissemination activities were also performed during the reporting period:

- Notice boards advertising the project have been installed at the three studied cities (Athens, Thessaloniki and Volos). Photos are included in **ANNEX XIV**.
- An informative leaflet, in Greek and English, was produced and is being distributed by all beneficiaries. A copy of the leaflet was included in the 1st Progress Report (Annex XIV).
- N.C.S.R. "D" and AXON Envirogroup Ltd have participated in the LIFE09 Regional Kick-off Meeting, held in Athens on the 17th February, 2011. The project manager delivered a short presentation regarding the project's aims, main activities and anticipated results. This meeting provided also the opportunity for contact and exchange of experience with other LIFE Projects held in Greece and Cyprus. Common objectives were found with project 09 ENV/CY/252 "PM3 - Particulates monitoring, modelling and management", coordinated by the Department of Labour Inspection, Ministry of Labour and Social Insurance of Cyprus. The project manager of PM3, Mr. S. Kleanthous, has been invited and visited N.C.S.R. "Demokritos". He has been guided to the Environmental Radioactivity Laboratory and the Demokritos Urban Background Station. Mr. Kleanthous has shown special interest on the Laboratory's accreditation on ELOT EN ISO/IEC-17025 for sampling and measurement of PM_{10} in atmospheric air. ACEPT-AIR and PM3 project managers discussed on the two projects' specific objectives and common research interests. Further collaboration is expected by both parties.
- A short article, summarizing the project aims, methodologies and expected results, has been published in the Parliament Magazine - Green Week Special Issue (Issue 328, May 16th 2011). During Green Week, which is the European Commission's biggest annual event, the magazine has been presented in the delegates pack to everyone arriving from across the EU. An extra distribution to delegates attending the LIFE for our Environment conference in Brussels on 25th-26th May has been also planned. The magazine is available online at: http://www.theparliament.com/digimag/issue328. The article was included in the 1st Progress Report (Annex XII).
- A number of press releases have been also issued in. All press releases are uploaded at the project website (http://www.aceptair.prd.uth.gr/Publications.html). Copies of the first two press releases were included in the 1st Progress Report (Annex XII). Copies of the remaining press releases are included in the present report (**ANNEX XV**). Information of the type of publication (frequency of publication, target audience, local, regional or

international) and method of dissemination are also provided for each press release (**ANNEX XV**).

- Prof. C. Samara has sent informative leaflets accompanied with a cover letter to local and regional authorities in the area of Thessaloniki, announcing the implementation of the project. A copy of the letter is included in **ANNEX XVI**.
- A number of papers advertising the project and providing initial results have been submitted to peer review scientific journals or presented in international and national conferences. A list of all papers, as well as their abstracts and photos of posters presented are included in **ANNEX XVII**.

Work on this action is progressing with no major problems, as it is documented by the achieved deliverables and milestones:

Deliverables:

D23: Informative notice boards, in Athens, Thessaloniki and Volos
Articles in the local and national press – The target of two press releases has been reached but more articles and/or press releases are planned for the following months.
Informative leaflets – A total of 2000 leaflets have been distributed.

D25: The project website – The target of 120 visitors per month was reached during the first two months of operation of the website (February and March 2011). During the following seven months the number decreased but the dissemination activities performed in the course of the project (including the production and distribution of the leaflets) seem to have achieved an increase in the public interest, leading to much higher monthly numbers of visitors (above the target of 120).

D27: Technical publications in international journals and proceedings of international conferences

Milestones:

M6: Creation of the project website

M12: Information material

5.1.10. Action 10. Monitoring of project progress

In the framework of the preparation of the Inception report, The Management Board and Steering Committees have reviewed the monitoring scheme described in the initial proposal and have concluded that both the methods employed and expected results are not clear and feasible in certain cases. For this reason, an amendment of action 10 has been proposed and included in the Inception Report (Annex X).

Following the submission of the Inception report, and its acceptance by the E.C., work on this action has progressed according to the amended objectives and timetable. The Project Manager has contacted the three external evaluators (Prof. A. Chaloulakou, NTUA, Dr. Xavier Querol, CSIC and Prof. Roy Harrison, University of Birmingham), requested and acquired their official consent of participation to the project.

Since then, the Project manager has remained in contact with the external evaluators, informing them on the project progress both through personal communication but also formally, through submission to them of all the reports prepared in the framework of the project implementation (Inception and 1st Progress reports and all monthly reports).

It has been foreseen in the amended work plan of this action that the external evaluators shall participate in two plenary meetings at the end of the 1st and 3rd year of the project. These meetings aim to provide the opportunity to the evaluators to meet all partners, get informed in

more detail on the scientific progress achieved and discuss relevant issues or request clarifications where needed. According to this planning, all three evaluators have been invited to attend the 3rd plenary meeting, during its 2nd day (4th of November 2011). Dr. X. Querol and Prof. R. Harrison attended the meeting, while Prof. A. Chaloulakou was unable to due to some important last minute personal obligation. During the meeting the evaluators were informed in detail on the progress achieved in relation to each action and on the problems encountered. They provided valuable feedback and discussed with the beneficiaries on the work plan, as well as on the best exploitation of results obtained. The meeting's programme and minutes are included in **ANNEX I**. The minutes were sent to all three evaluators.

Prof. Chaloulakou had the opportunity to get informed on the progress and results obtained, as well as meet and discuss with the project's beneficiaries and stakeholders during the 1st informative meeting for stakeholders, which she was able to attend. In addition, a new meeting was scheduled between herself, the Project Manager and the Scientific Secretary. The meeting was held at the premises of NCSR "D" on the 13th of January 2012. Prof. Chaloulakou was informed by the Project Manager on the project progress and the results achieved so far and discussed with him in length on the methodological approaches to be used for emission sources characterization and development of the Policy tool. Minutes of the meeting are included in **ANNEX XVIII**.

Following the meeting with the beneficiaries and based on the material submitted to them in the form of progress reports, the three external evaluators have prepared and submitted to the Project Manager their 1st evaluation report, summarizing their comments and suggestions as the implementation of the project progresses. The reports are attached to the present report.

Work on this action is progressing with no major problems, as documented by the deliverables / milestones achieved:
Deliverables:
D28: Documented efficiency quantified in the 1st (of two) Evaluation Report
Milestones:
M26: Publication of the 1st Evaluation Report (attached in Mid-term report)

5.1.11. Action 11. Action plan formulation for PM reduction

Work on this action is scheduled to begin on February 2013.

5.1.12. Action 12. After-life communication & continuation plan

Work on this action is scheduled to begin on July 2013.

The overall evaluation of the progress that has been achieved so far indicates that the project will be implemented as scheduled and with no major problems. A list of Actions, Deliverables and Milestones (as foreseen and actually performed) is presented in **ANNEX XIX**.

5.2. Envisaged progress until next report.

According to the amended list of Deliverables and Milestones, included in the Inception Report (Annex XI) and in the present report (**ANNEX XIX**), the next report (Progress Report II) is scheduled to be submitted on March 2013. The main tasks planned for the following months, up to the submission of Progress Report II are presented below:

Action 1:

- Two plenary meetings are scheduled for the following year: The first one is planned for autumn of 2012 and the second one for spring of 2013.
- Work on the compilation of Progress Report II, to be submitted on March 2013

Action 2:

- Analysis of the filters collected during the summer and winter campaigns in the three studied areas, for the determination of ionic species, metals and elemental and organic carbon. Chemical analysis is expected to be completed by August 2012 (as foreseen in the list of Milestones) and Deliverable D7 "PM_{10} and $PM_{2.5}$ chemical composition databases for the three urban areas (AMA, TMA and VGA)" is expected to be achieved according to the foreseen time schedule (by October 2012).
- Completion of statistical analysis of data obtained by Mobilab during the summer and winter measurement campaigns in Athens and Thessaloniki

Action 3:

- Comparison of results obtained by the application of new multivariate statistical methods to historical data sets with the initial source apportionment results
- Profile update for some sources (particularly for vehicular emissions)
- Application of source apportionment techniques to new data sets, acquired during summer and winter field campaigns is expected to be completed by November 2012 (as foreseen in the list of Milestones). Deliverables D8 "The chemical profile and respective contribution of aerosol sources on each region (AMA, TMA, GVA) in the $PM_{2.5}$ and PM_{10} fractions" and D9 "The temporal variation in source chemical composition and strength" are expected to be achieved according to the foreseen time schedule (by January 2013).

Action 4:

- Completion of emission inventories for the three urban areas (AMA, TMA, GVA), for anthropogenic and natural sources, for the past decade (2000-2010) is expected to be achieved by August 2012 (as foreseen in the list of Milestones).
- Completion of spatial and temporal disaggregation of emissions for the past decade (2000-2010) is expected to be achieved by November 2012 (as foreseen in the list of Milestones).
- Deliverables D10 "Emission inventories for the three urban areas (AMA, TMA, GVA), for anthropogenic and natural sources, for the past decade (2000-2010)" and D11 "Spatial and temporal disaggregation of emissions for the past decade (2000-2010)" are expected to be completed on time (August and November 2012, respectively).

Action 5:

- Completion of OP modules development is expected to be achieved by August 2012 (as foreseen in the list of Milestones).
- Testing of OP modules by means of historical data is expected to be completed by December 2012 (as foreseen in the list of Milestones).
- Integration of modules and completion of the OP development is expected to be completed by February 2013 (as foreseen in the list of Milestones). Accordingly,

deliverable D14 “Operational Platform (OP) for the “ACEPT-AIR” Policy tool” is expected to be completed on time (February 2013).

Action 6:

- Continuous contact of partners with stakeholders
- Organization of the 2nd informative meeting for stakeholders, scheduled for autumn/winter 2012. The beneficiaries have decided to organize the yearly meetings for stakeholders during autumn or winter and during summer (as planned in the initial time schedule) since there was limited attendance by the part of stakeholders, due to the summer vacations.

Action 7. Active application of the Policy Tool

- Interaction with stakeholders in order to get feedback on key issues and specific management needs - A series of meetings is planned for the following months with each stakeholder separately, as mentioned in section 5.1.7: “Action 7. Active application of the Policy Tool”.
- Development of future scenarios to be examined by the Policy tool

Action 8:

- The International Conference has been decided to be held at the last year of the project (probably on May, 2014).
- The open forum is scheduled to take place after the completion of the ACEPT-AIR Policy tool and the early results of Action 7.

Action 9:

- Frequent update of project’s website
- Publication of articles in local and national press
- Organization of teachers’ informative seminars – Teachers’ seminars will be organized during the summer of 2012 and they are scheduled to be performed during the school year 2012-2013 (as foreseen in the amended list of Milestones, in **ANNEX XIX**). Deliverable D24 “Informative material composed for the teachers’ seminars” is planned to be completed on time (August 2012).
- Dissemination of projects results in conferences / journals

Action 10:

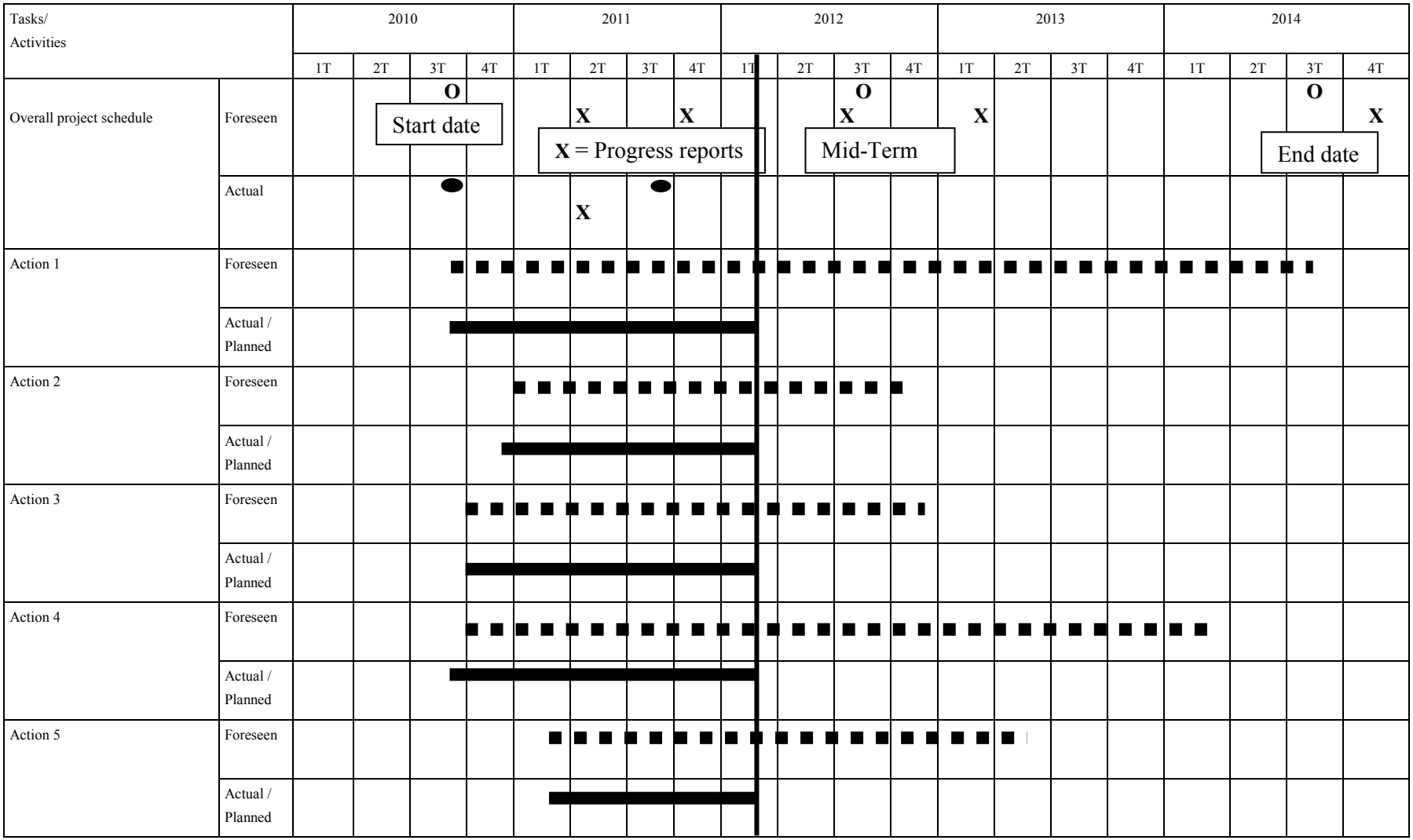
- The Evaluation Reports submitted to the Project Manager will be studied by all partners and relevant issues raised or suggestions will be considered.
- Submission of Mid-term and monthly reports to the external evaluators and continuation of their communication with the Project Manager
- The evaluators will participate in one more plenary meeting during the 3rd year of the project.

Action 11:

- Work on this action is scheduled to start on February 2013.

The foreseen timetable, as well as actual schedule of all actions, is presented in the following Gantt chart:

Foreseen and actual timetable of actions



Tasks/ Activities		2010				2011				2012				2013				2014			
		1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
Action 6	Foreseen																				
	Actual / Planned																				
Action 7	Foreseen																				
	Actual / Planned																				
Action 8	Foreseen																				
	Actual / Planned																				
Action 9	Foreseen																				
	Actual / Planned																				
Action 10	Foreseen																				
	Actual / Planned																				
Action 11	Foreseen																				
	Actual / Planned																				
Action 12	Foreseen																				
	Actual / Planned																				

5.3. Impact:

Environmental Policy & Governance: The implementation of the project to date has firstly initiated close contact of the partners with the stakeholders, which has resulted in the transfer of experience and technical know-how on PM concentrations monitoring, in particular to the Ministry of Environment, Energy and Climate Change and municipalities of Athens and Thessaloniki.

The initial results from the summer and winter field measurement campaigns are available to all stakeholders, or other interested local or national Authorities, providing additional data on the current air quality situation in the three urban centres studied. The mobile measurements performed by Mobilab allowed for the study as well of a number of different areas in Athens and Thessaloniki, which are not covered by the National Monitoring Network. An initial presentation of the results has been performed during the 1st formal informative meeting with stakeholders, where other interested parties attended as well.

Indirect impacts: A number of municipalities in Athens have expressed an interest in acquiring and installing PM monitoring equipment in their regions.

5.4. Outside LIFE:

- The high level of expertise of NCSR "D" associated with PM_{10} accreditation and related QA/QC procedures has been also pivotal to the co-ordination of an Inter-comparison exercise for PM_{10} samplers, organized under the auspices of IAEA and the Regional European project RER/2/005 and resulted in the enhancement of QA/QC among National Environmental authorities in the Balkan Region and some Greek partner organizations and project stakeholders (Ministry of Environment, Energy and Climate Change).
- The Project Manager Dr. K. Eleftheriadias gave a speech at the opening session of the Conference EcoTexnologia 2011, held at NCSR "D" on March 12th 2011, related with "The effects of PM in the environmental pollution and public health".
- Prof. C. Samara gave a speech during the opening session of the 21st Hellenic Conference on Chemistry (Thessaloniki, December 9-12, 2011) entitled "Airborne Particulate Matter: Chemical composition and bioactivity".
- The capacity for source apportionment techniques to serve as useful instruments for advancing Air Quality management in the EU have been highlighted in the FAIRMODE (Forum for Air quality Modelling) initiative hosted by E.C. Joint Research Centre (JRC) in January 2012. Dr. K. Eleftheriadis participated in the meeting, representing the scientific community in Greece applying those techniques and using them in demonstration projects like ACEPT-AIR. The minutes of the discussions and presentations were made public in the EU CIRCA web page. NCSR "D" and AUTH declared their intention to contribute further to the FAIRMODE inter-comparison exercises.

6. Financial part

6.1. Costs incurred (summary by cost category and relevant comments).

Budget breakdown categories	Total cost in €	Costs incurred from the start date to 29.02.2012 in €	% of total costs
1. Personnel	1,207,256	459,658.06	38.1%
2. Travel and subsistence	126,267.20	24,036.80	19.0%
3. External assistance	83,500.00	7,534.50	9.0%
4. Durable goods	77,000.00		50.5%
Infrastructure			
Equipment	77,000.00	38,847.06	50.5%
Prototype			
5. Land purchase / long-term lease	0		0%
6. Consumables	96,800.00	39,150.45	40.4%
7. Other Costs	51,617.00	15,985.01	31.0%
8. Overheads	107,600.00	37,718.55	35.1%
TOTAL	1,750,040.20	622,930.40	35.6%

In general, total costs, as well as costs per category, incurred are in agreement with the project progress (~ 38 % of project duration has been reached by February 2012).

Travel expenses are relatively low in relation to project progress. Travel costs corresponding to dissemination of the project's outcome in conferences are expected to increase at a later stage, when the most significant results will have been obtained.

Regarding the purchase of equipment, the PM samplers needed for field measurements have been already purchased. The remaining costs correspond to analytical equipment for PM chemical and physical characterization. Increased spending in this category early in the project was foreseen since this equipment (durable goods) is needed for the implementation of the measurement campaigns and the subsequent analysis of the collected samples. It should be noted here that a larger amount was reported for "Equipment costs incurred" in Progress Report I in relation to the present report. The cause of this discrepancy is that part of the amount stated in Progress Report I was finally attributed to consumables (replacement parts which were purchased along with equipment) and to other costs (bank transfer fees).

According to the analysis of incurred costs by the end of February 2012, the total amount spent corresponds to more than 180% of the first pre-financing payment; thus the threshold of 150% has been already reached.

6.2. Auditor Data

Organization Name: NEXIA EUROSTATUS A.E. CERTIFIED AUDITORS
Company's Reg. No.: 141
Address: Head Office: 34, Frantzi Amvrosiou Street, 11745, Athens, Greece
Branch: 108, Kallistratous Street, 15771, Athens, Greece

Name of the auditor: Charalambides Antonios
Auditor's Reg. No.: 18041

7. List of Annexes

ANNEX I: ACEPT-AIR 3rd Plenary Meeting
ANNEX II: Personnel working during the reporting period: September 2010 – February 2012, on ACEPT-AIR project
ANNEX III: Historical database – Concentration trends and chemical composition
ANNEX IV: Results from the fixed site sampling campaigns
ANNEX V: Mobilab measurements – Photos of the vehicle and routes covered
ANNEX VI: Initial results from Mobilab measurements in AMA and TMA
ANNEX VII: Results from previous source apportionment studies
ANNEX VIII: Source chemical profiles for CMB source apportionment
ANNEX IX: Emission inventories compilation – Estimation of emission reductions needed for compliance with AQS - Indicative initial results
ANNEX X: Description of initially developed menus and indicative views of the Policy tool presentation interface
ANNEX XI: 1st formal informative meeting for stakeholders: Invitation, Programme, Minutes, Selected photos
ANNEX XII: Letter to stakeholders regarding the Policy tool
ANNEX XIII: Statistics of project website visits
ANNEX XIV: Notice board installed in the three studied cities
ANNEX XV: Press releases
ANNEX XVI: Letter to local and regional authorities
ANNEX XVII: Publications in scientific journals and presentations in international conferences
ANNEX XVIII: Meeting with Prof. Chaloulakou in the framework of Action 10: "Monitoring of the project progress"
ANNEX XIX: List of Actions, Deliverables and Milestones

CHECKLIST MID-TERM REPORT

ITEM	MID TERM REPORT
Technical Report (including annexes) Electronic format and paper number of copies:	1 to the Commission 1 to the Mon. Team
	-
Financial Report (Use BASE/ Standard Statement of Expenditure and Income): check list of forms below number of copies – 1 set of originals signed and stamped for the Commission:	1 to the Commission 1 to the Mon Team
Standard statement of expenditures and income (Cover Note) – Signed	Yes
Coordinating beneficiary's Certificate	Yes
Project consolidated statement of expenditure	Coordinating Beneficiary
Project Statement of Income (Finance Plan)	Coordinating Beneficiary
Associated beneficiary statement of expenditure to be completed by all beneficiaries (coordinating beneficiary and associated beneficiaries)	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F1 – Direct Personnel Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F2 - Travel and subsistence Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F3 - External Assistance Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F4.a – Infrastructure Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F4.b – Equipment Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F4.c – Prototype Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F5 - Land Purchase or long term lease of land / use rights (ONLY FOR LIFE NATURE)	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F6 – Consumables	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
LIFE Form F7 – Other Costs	To be provided by all beneficiaries (coordinating beneficiary and associated beneficiaries)
Justification over/under spending >10%	yes
Auditor Data provided	yes