



Hungary-Romania
Cross-Border Co-operation
Programme 2007-2013

Two countries, one goal,
joint success!



BROCHURE

Project title:

Contribution to sustainable development by assessing
the transboundary air pollution upon the cultural &
turistical heritage in HU – RO border

Project code:
HURO/1001/139/1.3.4

www.hungary-romania-cbc.eu
www.huro-cbc.eu
www.mec.upt.ro/transaircultur



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DESCRIPTION OF THE PROJECT PART

DESCRIPTION OF THE PROJECT PART, SHORT:

The project titled "CONTRIBUTION TO SUSTAINABLE DEVELOPMENT BY ASSESSING THE TRANS-BOUNDARY AIR POLLUTION UPON THE CULTURAL & TURISTICAL HERITAGE IN HU – RO BORDER" will be performed in the frame of the Hungary – Romania Cross Border Co-operation Programme, 2007-2013 (www.huro-cbc.eu), with the sponsorship of the European Union and the European Regional Development Fund, as well as with the co-sponsorship of Hungary and Romania. The aim of the project part is to assess the impact of air pollution in Szeged region with special interest to the cultural and natural touristic heritage. Mobile online air pollution measurements will be performed with controlled standard methods, furthermore statistical procedures will be applied to assess air pollution threshold exceedances in Szeged region. An important result of the project part will be to prepare an action plan in order to protect air quality in the surroundings of buildings of architectural and historical importance, as well as in areas frequently visited by tourists.

DESCRIPTION OF THE PROJECT PART, LONG:

AIMS

- We will contribute to maintain the official web page of the project, then we will organize the opening event and a workshop with a main consideration of increasing environmental awareness, with special interest to our cultural/architectural values; furthermore, we will make initiations for air quality related protection of our cultural-architectural heritage;
- Computer based survey and GIS mapping of cultural, architectural and touristic objects of Szeged region, as well as mobile online air pollution measurements will be performed in Szeged area;
- We will identify long-range transport systems influencing the measured pollutant values; we will prepare a study with aim-oriented maps for the environment of the cultural/architectural/touristic spots;

REASON

- The project deals for the first time with the environmental aspects of regional development in association with touristic aims, embedding local objects of cultural and historical value to an European-wide protection of heritage so that it calls the attention to natural areas having been protected, as well as to new or known areas to be developed with identifying air quality potential and risks in their surroundings;



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- Main sources of air pollution of chemical origin are industry, traffic and heating of buildings. Industrial emissions in Szeged are negligible. Heating of buildings occurs with gas; hence, the most important source of air pollution here is traffic. In Szeged, among motor vehicles taking part in the traffic, ratio of motor cars is the highest (84%). Though, through the newly built highways around Szeged and the renewed motor vehicle park air pollution has been moderated, at the same time motor vehicle park has been increasing, enhancing air pollution load.
- Geographical factors (basin character), climatic components (continentality coming from the basin character and, as a result of it, high aridity index), architectural factor (specific city structure), as well as specifications and other characteristics of motor vehicles (less severe standards, old cars) promote enrichment of air pollutants;
- In Szeged, considering the main air pollutants (CO, NO, NO₂, NO_x, O₃, PM₁₀, SO₂), mean annual concentrations of NO_x and PM₁₀ are 2,2-fold and 30-fold higher (in the latter case in several years even 40-fold higher) than their thresholds, respectively!
- Based on the above, air quality of Szeged can be considered low that warrants performing the aims of the project.

CONTENTS

- Considering EU guidelines, we will define cultural, architectural and touristic objects of Szeged, and then their GIS database will be prepared;
- In-situ mobile air quality monitoring will be performed;
- Spots of online measurements will be selected on the locations of the cultural/architectural objects and traffic data;
- Instruments and methods are based on the following reference standards: EN 14626:2005 NDIR for CO and CO₂, EN 14211:2005 chemiluminescence for NO_x, EN 14212:2005 fluorescence for SO₂, EN 12341:2002 gravimetry for PM₁₀, EN 12619:2002 flame ionisation for VOC, furthermore EN 14625:2005 ultraviolet for O₃;
- Long-range transport systems influencing the measured PM₁₀ concentrations will be identified;
- Using data from "in situ" mobile monitoring measurements, distribution of air pollutants will be studied for the Szeged region;
- In the knowledge of the measured pollutants concentrations and emission factors, a study will be prepared for the surroundings of the cultural/architectural/touristic locations, in which we will forecast the possible future air pollution episodes, furthermore we will make suggestions for avoiding them;



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DESCRIPTION OF THE PROJECT PART

04. 01, 2012 – 07. 31, 2012

AP1

The task will be to keep contact with the Romanian partner, cooperation and planning activities and to harmonize them. We will keep up communication activity continuously during the project period; however, this will be especially important in the first third of the project. Flyers will be spread, we will contribute to the contents of the web page established by the Lead Partner with input information (descriptions, results, photos) and ,after finishing the project, we will take part in its freshening for five years. Besides, we will organize an opening event and a workshop with the participation of the Lead partner and Project Partner 2, with the aim of increasing environmental awareness, with special interest to our cultural/architectural values. In addition, a TV-interview will be prepared and through the press media we will make initiations for air quality related protection of our cultural/architectural heritage.

Outputs: organizing 1 opening event and 1 workshop (June 29, 2012), preparation of 1 video film (20 minutes), preparation of photos (200 pieces), 1 TV interview (Szegedi Városi Televízió), 1 press media report (Szegedi Egyetem Magazin), programme booklet (40 pieces);

08. 01, 2012 – 11. 30, 2012

AP 2

Based on our sources, regarding EU guidelines, first we will define cultural, architectural and touristic objects of the Szeged region. These will be embedded into the data set (name of the object, short description, coordinates, weather standards, authentic air pollution data, potential predictions, etc.). Objects stored in this way, will be located on GIS based maps. These maps will form the base of the following programme package. Protection of historical, architectural and natural locations through a device developed in this way counts a novelty, since such an initiation has not been occurred in this region.

„In-situ” mobile air quality monitoring will be performed in the neighbourhood of the most important, formerly documented cultural/architectural objects in order to perform direct air pollution (CO, NO_x, SO₂, O₃, PM₁₀ and VOC) measurements and to determine possible risks. In Csongrád County 4 mobile air quality measurements series will be performed. In several phases of the field measurements test examinations will also happen that will ensure a reliable evaluation of the results of the project. Spots of the online measurements will be selected on the locations of the cultural/architectural objects, as well as on traffic data.



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DESCRIPTION OF THE PROJECT PART

Instruments and methods used are based on the following reference standards. EN 14626:2005 NDIR for CO and CO₂, EN 14211:2005 chemiluminescence for NO_x, EN 14212:2005 fluorescence for SO₂, EN 12341:2002 gravimetry for PM₁₀, EN 12619:2002 flame ionisation for VOC, furthermore EN 14625:2005 ultraviolet for O₃.

Outputs: composition of a database for cultural, architectural and touristic objects in the Szeged region and their GIS mapping; air quality measurements on 4 occasions in the Szeged region;

12. 01, 2012– 03. 31, 2013

AP3

This is the last technical work package of the project that consists of two parts. Chapter 1: it concentrates on identifying long-range transport systems that influence the measured PM₁₀ levels, using cultural/architectural locations embedded into the database. Here "HYSPLIT" method and the generally used "ISC" programme will be applied. Chapter 2: using data coming from "in situ" mobile measurements, it will study the distribution of air pollutants in the Szeged region. Visualization of the results will happen by the help of the "CalRoads" and "ISC3View" programmes. At last, in the knowledge of the measured pollutant levels and emission factors, we will make a study for the surroundings of the cultural/architectural/touristic locations, in which we will predict possible future air pollution episodes; furthermore, we will take suggestions for avoiding them. Maps will also be inserted into the work package report.

This work package can be considered a professional novelty, since this is the first occasion when researchers deal with environmental aspects of regional development in association with touristic objectives, embedding local historical objects into an European wide protection of heritage so that they call the attention to natural locations having been protected, as well as to new and known locations to be developed in the future by identifying air quality potential and risks in their surroundings.

Methodologies of numerical simulation will be applied in this work package. At the beginning of the work package, the task of the requested expert will be the preparation of the best application for the simulation. Results received will be used not only for controlling the actual air pollution, but for prediction aims and determining the possible risks, as well.

Outputs: identification of long-range transport systems that influence the measured PM₁₀ concentrations; preparation of a study with inserted maps on the surroundings of cultural/architectural/touristic locations;

DECLARATION FOR EXCLUDING RESPONSIBILITY:

Contents of the present brochure do not necessarily reflect the official standpoint of the European Union.



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