





Strategic Noise Mapping in Hungary Budapest



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The project



Scope of the work

The general scope of the project work is twofold:

- 1) Show up ways to strategic noise mapping in accordance with Directive 2002/49/EC in a new Member State.
- 2) Estimate the costs involved by strategic noise mapping (separately for data collection, production of maps and information of the public).

The project work was done in close co-operation with the Hungarian Ministry of the Environment and Water Management.



Working Phases

The project starting date was 25 April 2004. The legal duration of the contract was 12 months.

The project work can be divided into four phases:

- 1) **Inception Phase**
- 2) **Preparatory Phase**
- 3) **Study Phase**
- 4) **Report Phase**



Inception Phase

The main tasks within the Inception Phase were ...

- ... to develop a **system to support the communication** of the project partners and the involved authorities and organisations
- ... to examine the possible assessment methods (Interim and Hungarian methods) and to clarify which **assessment methods** to use for the task "Strategic noise mapping in Hungary"



Preparatory Phase

The main tasks within the Preparatory Phase were ...

- ... to define the **required input-data** to calculate noise levels according to Annex II of the *END*
- ... to get an overview over the **available input-data for Budapest** to calculate noise levels according to Annex II of the *END*
- ... to **define an area for a pilot study** (affected by road traffic noise, railway noise and industrial noise) which is representative for the City of Budapest



Study Phase

The main tasks within the Study Phase were ...

- ... to **conduct the pilot study** for the defined area based on the requirements of the *Directive 2002/49/EC*
- ... to **estimate both time and costs** needed to map the whole City of Budapest

Report Phase

To prepare **reports** and to present the final report in Budapest in form of a **workshop**



Timetable

Reports		Project work				Meetings							
Work step		5/04	6/04	7/04	8/04	9/04	10/04	11/04	12/04	1/05	2/05	3/05	4/05
1	Inception report												
2	Internet communication platform												
3	Proposals for assessment methods												
4	Inception meeting												
5	Availability of input-data												
6	Suggestions for pilot area												
7	Progress report A												
8	Progress meeting A												
9	Carrying out pilot study												
10	Progress report B												
11	Progress meeting B												
12	Estimation of time + costs												
13	Final draft report												
14	Preparation of the workshop												
15	Workshop												
16	Final report												



System to support the communication

- To support the communication between team members an **Internet-based platform “Contact Office”** has been prepared and set up.
- All project partners as well as the authorities and organisations involved have had access to this communication platform during the term of the project.
- All data, papers or documents relevant for the project as well as dates, responsibilities and tasks have been provided within the Contact Office during the duration of the project.

Recommendation of assessment methods for Hungary

- To use the **Hungarian noise emission models for road and railway noise** because they are required to take into account the particularities of the Hungarian national situation
- To use a **common noise propagation method for the ground-based noise source types** (road-, railway-, industrial noise) MSZ 15036:2002 using the meteorological correction of ISO 9613-2 to calculate long-term noise levels .



Required input-data

- Emission Model
- Propagation Model
- Rating Model
- Exposure Model

		Directive 2002/49/EC - Hungarian Computation Methods		
		Road	Rail	Industry
Emission Model		LR 21 302:2000 + amendment 2003	MSZ 07:2904:1999 + amendment 2003	LW, LV, LV*
	Geographical source data	road centrelines as polylines with (x, y, z) co-ordinates in each node; z is relative above the ground	rail centrelines as polylines with (x, y, z) co-ordinates in each node; z is relative above the ground	source position as either point, polyline or polygons with (x, y, z) co-ordinates in each node; z is relative above the ground
	Traffic density	traffic counts for each of the three vehicle classes; must comply with Annex III of UT 2-1:110; can be obtained from Országos Közúti Adatbank, OKA (AKMI)	traffic counts for each of the 4 train categories; must comply with MSZ-15-153:21992; can be obtained from train schedules	does not apply
	Condition of infrastructure	see description of road traffic input data	see description of railway input data	does not apply
	Sound power levels	does not apply; calculated from the above	does not apply; calculated from the above	Sound power level LVV for point sources; sound power density level LVV* for line sources and LVV* for area sources
Propagation Model		MSZ 15036:2002		
	Buildings	closed polygons with (x, y, z) co-ordinates in each node; z is relative above the ground		
	Walls/screens	polylines with (x, y, z) co-ordinates in each node; z is relative above the ground		
	Terrain level data	preferred: terrain level contour lines with (x, y, z) co-ordinates in each node; alternatives: single (x, y, z) points or raster data; grid of points; z MUST be absolute		
	Temp./rel. humidity	average yearly temperature and humidity for the site		
	Wind & stability (CO)	either local data or defaults in dB: CO.day=3.0; CO.evening=1.5; CO.night=0.0		
Rating Model		Lden equation of 2002/49/EC & Commission Recommendation (2003)16/EC		
	Rating periods, duration	local time: day=06:00 to 18:00; evening=18:00 to 22:00; night=22:00 to 06:00		
Exposure Model		Requirements of ANNEX IV and VI of Directive 2002/49/EC		
	Buildings with attributes	hospitals, schools, etc. (see ANNEX VI)		
	Population data	ideally per building; statistical sectors possible; substitutes: average areas occupied for 1 person and average floor height; can be obtained from the Hungarian Central Statistical Office		



Pilot area(s)

Based on a definition of the conditions for a pilot area and the analysis of the situation of the different districts of Budapest the following decisions were taken:

- **V. District of Budapest**

As pilot area for the reason that it is representing a typical urban situation with masses of traffic in an agglomeration according to Directive 2002/49EC

- **XI. District of Budapest**

As an additional example for industrial noise

- **Budaörs**

As an additional example for a major road and a major railway outside agglomerations (or as an example for suburbs) according to Directive 2002/49EC



Conduction of the Pilot Study

- **Preparation of calculation software**
- **Supplement of input data**
- **Preparation of digital noise models**
- **Noise mapping**
 - Strategic noise maps
 - Façade noise levels of the buildings

