

Transportation noise and health effects

131 agglomerations: 103,715,627 inhabitants (21% of EU-27 population)

≥55 dB(A): 56,001,200 (54%) EU citizens

≥65 dB(A): 15,754,500 (15%) EU citizens

Status: June 2011



Sum

≥55 dB(A): 89,438,444 EU citizens

≥65 dB(A): 23,411,583 EU citizens

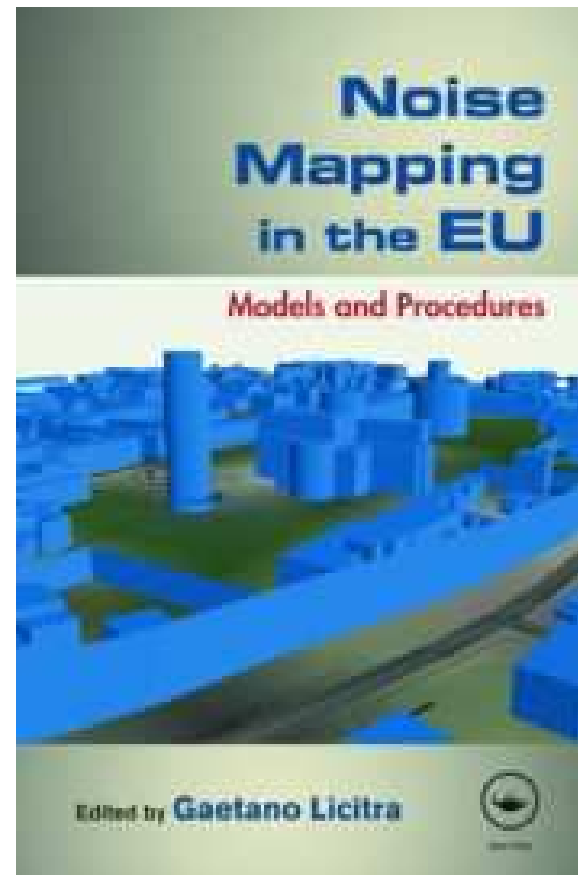
Workshop – IFC Pisa 6 ottobre 2014

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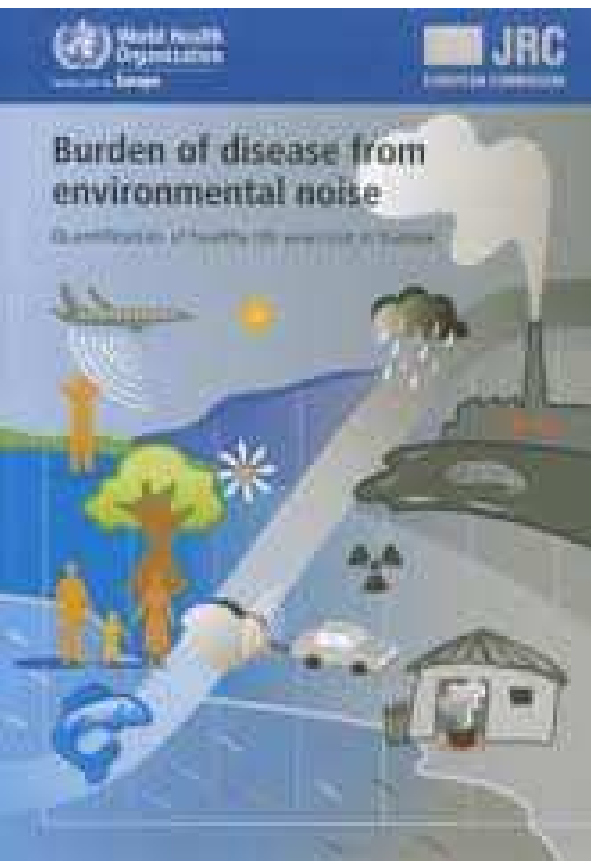
Transportation noise in EU

- Directive 49/2002/CE issued to define noise maps and action plans starting from 2007 every 5 years;
- In Italy only few agglomerations produced maps for each transportation source and industrial noise. Detailed noise maps are available for airports and railways, highways and part of regional and relevant roads;
- Action plans are few in agglomerations, available for infrastructures, but they are slow to be implemented.



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Environmental Noise Burden Of Disease WHO Disability Adjusted Life Years (DALYs)



Every year in the EU cities, at least:

- 61 000 DALYs for ischaemic heart disease
- 45 000 DALYs for cognitive impairment
- 903 000 DALYs for sleep disturbance
- 22 000 DALYs for tinnitus
- 654 000 DALYs for annoyance

1~1.6 million healthy life years are lost every year from traffic noise in the EU cities.

Sleep disturbance and annoyance related to road traffic noise comprise the main burden

DALY per rumore in Toscana

Calcolati per Pisa, Livorno, Prato e Firenze i Daly per disturbo da rumore, effetti sul sonno, acufeni

Pisa: calcolo dei DALY per rumore stradale e ferroviario

<i>Tipologia di rumore</i>	<i>%HA</i>	<i>Numero di persone altamente disturbate</i>	<i>DALY</i> <i>(DW=0.02)</i>
Stradale	3%	2950	59
Ferroviario	5%	4365	85
			<i>(DW=0.07)</i>
Stradale	5%	4767	334
Ferroviario	0,30%	232	16



TOTALE 7000 anni DALY nelle città indagate

(Palazzuoli, Licitra, Chiari, Congresso SIET 15 ottobre 2014 Firenze)

Pisa airport monitoring system

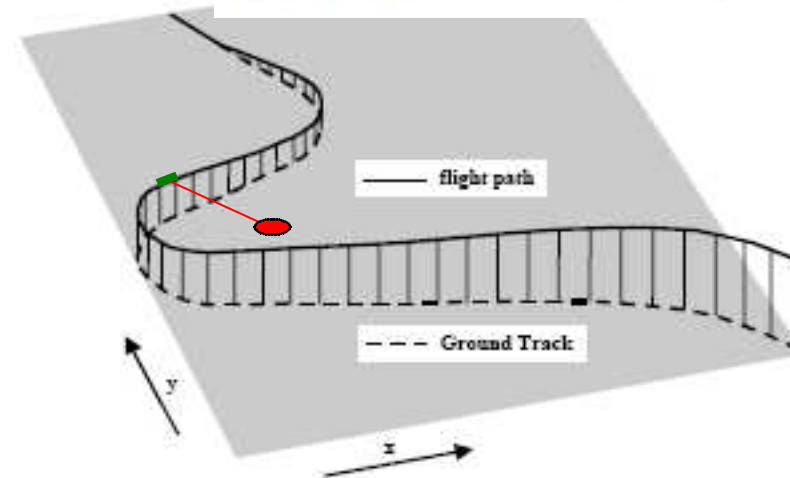
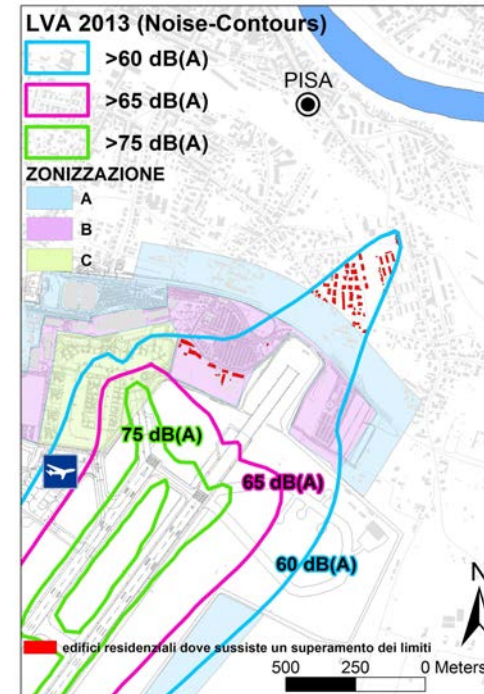
- 4 units along the projections on the ground of the flight trajectories



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3D flight-paths: AIS signals

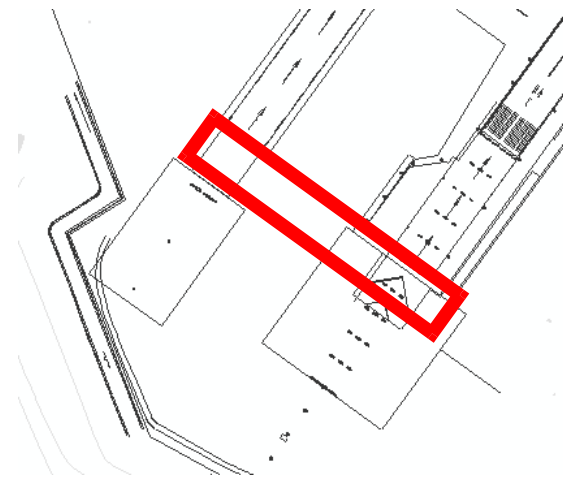
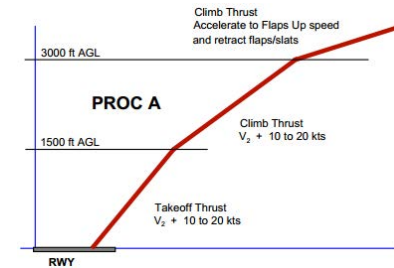
- Cheap flight tracking system instead radar tracks;
- Reconstruction and implementation of the 3D flight paths.



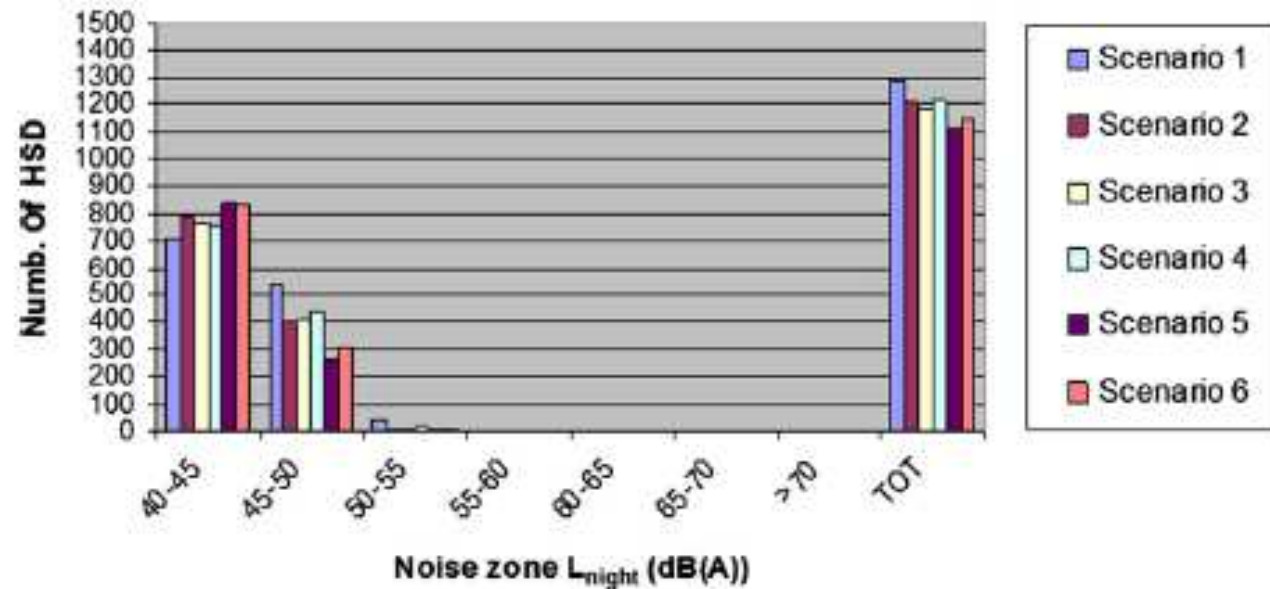
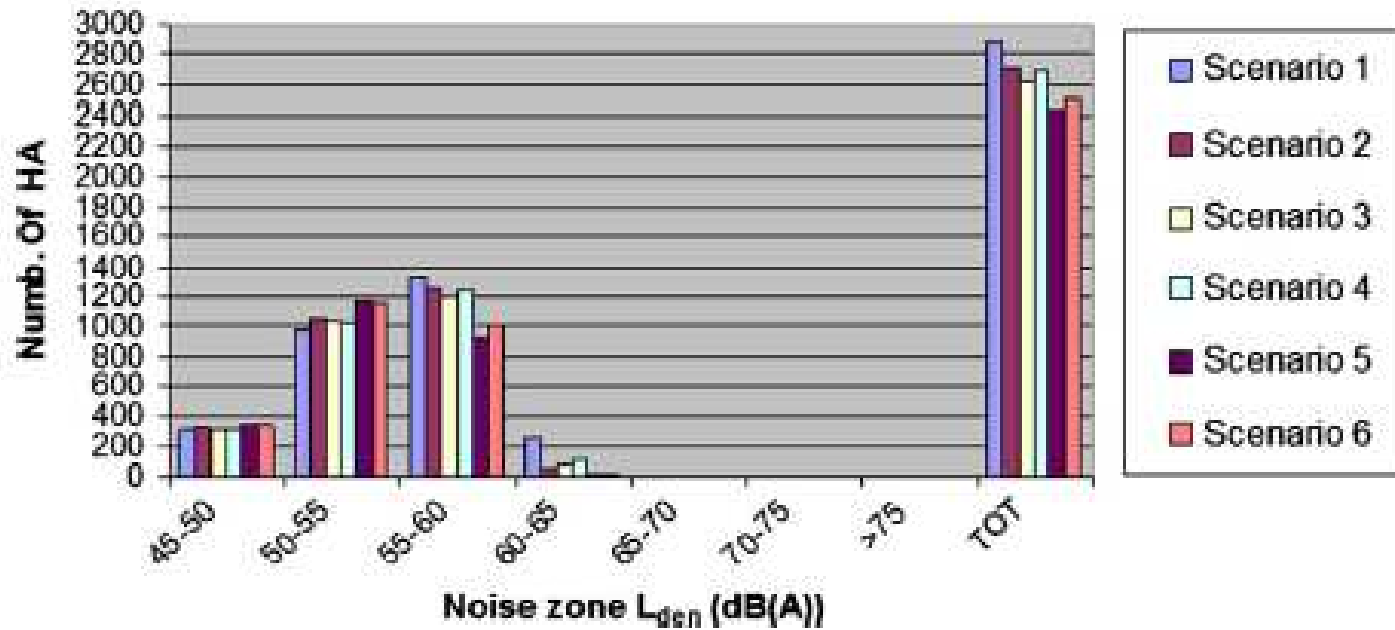
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Future scenarios including solutions

- **Scenario 1:** Current departure procedure;
- **Scenario 2:** ICAO A procedure (INM);
- **Scenario 3:** 400 m of setback of the departure profile with current procedure;
- **Scenario 4:** 260 m of setback of the departure profile with current procedure;
- **Scenario 5:** 400 m of setback of the departure profile with ICAO A procedure (INM).
- **Scenario 6:** 260 m of setback of the departure profile with ICAO A procedure (INM).



Distribution of HA and HSD people



Perspectives for IPCF/IFC studies

- New cheap devices (low cost network);
- New meas. systems;
- New maps oriented to effects;
- New airport noise indicators ;
- New railway noise annoyance sources studies;
- New annoying sources (movida);
- New solutions (low emission pavements);

