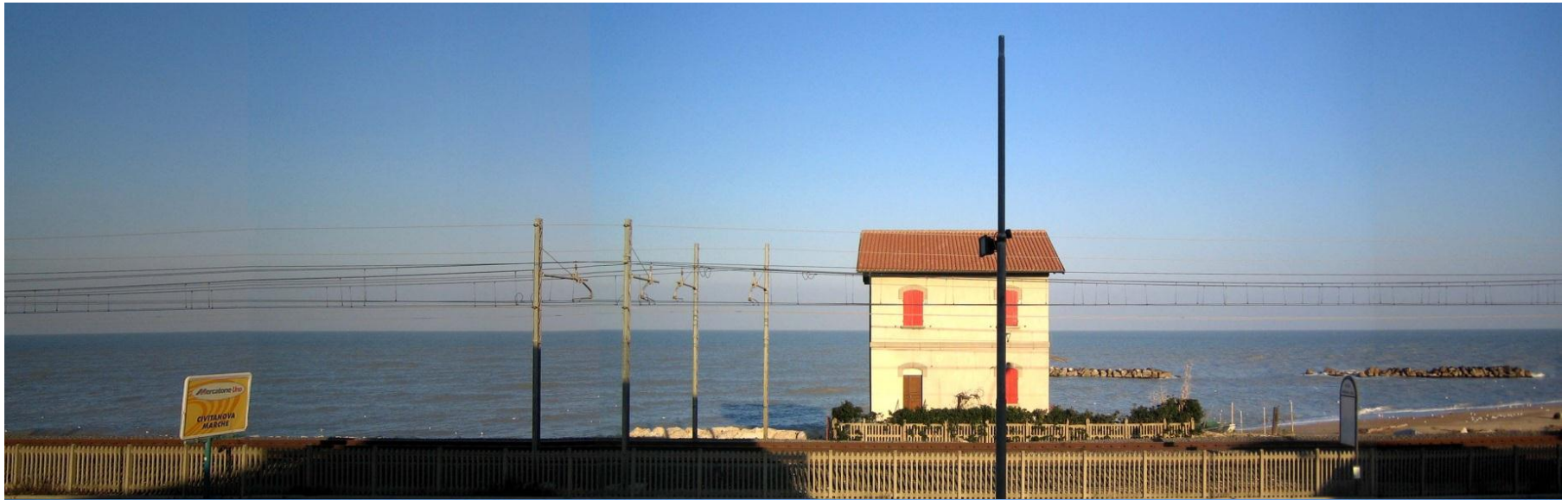


Adam de Coster – title: card players – 1620

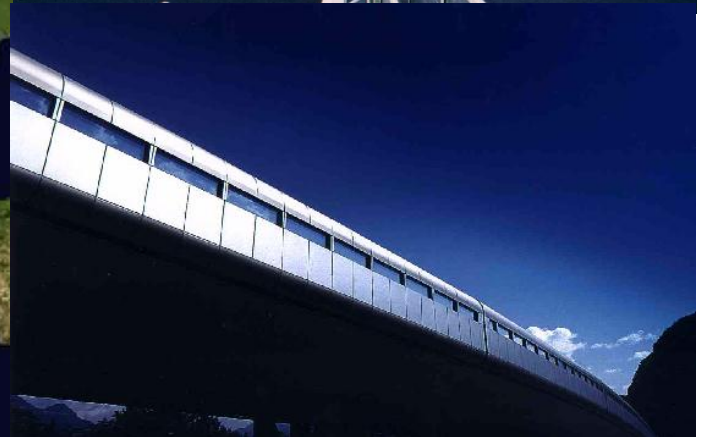


The game isn't worth the candle !



***SUSTAINABLE APPROACH ?
The game isn't worth the candle !***





General information



SEVENTH FRAMEWORK PROGRAMME

Theme: Transport (including Aeronautics)

FP7-SST-2008-RTD-1

Activity: 7.2.1 - The greening of Surface Transport

Area: 7.2.1.1 - The Greening of Products and Operations

Topic: SST.2008.1.1.3 – Holistic Noise and Vibration Abatement

Project duration: 36 months

Total cost: 2,5 million (DG RTD contribution: 1,95 m€)

Project team including 13 partners from 8 EU countries

FINAL EVENT:

Monday 10 December 2012

Radisson Blu EU Hotel, rue d'Idalie 35, Brussels

9.30 - 16.30

partners

Atech acoustic technologies



arsenal research
Ein Unternehmen der Austrian Research Centers



CSTB
le futur en construction



KATHOLIEKE UNIVERSITEIT
LEUVEN

Foundation
cidaut 
Transport and Energy Research and Development

bast
Bundesanstalt für Straßenwesen

RWTH AACHEN 
UNIVERSITY

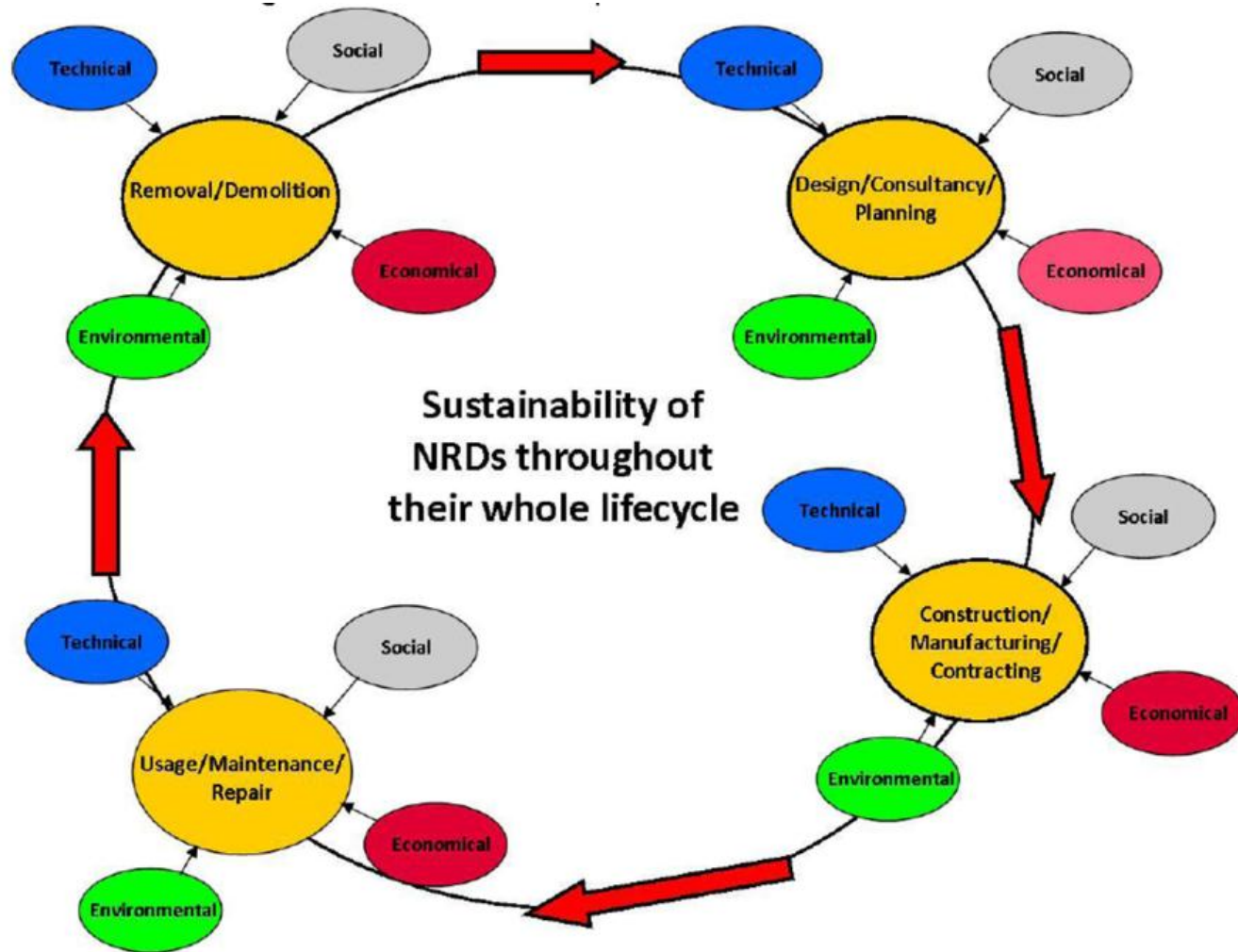


SCOPE OF WORK:

To improve the knowledge of the actual performances of Noise Reducing Devices (NRDs) placed along surface transport infrastructures as highways or railways.

QUIESST TASK : SUSTAINABILITY

To provide a relevant method for assessing the overall sustainability of ground transport noise reducing devices.



QUIESST SUSTAINABILITY TASK

Multi Criteria Analysis (MCA) for Sustainability Assessment

62	Removability of the noise barrier at the end of its life
63	Acoustic elements service life as stated by the manufacturer
64	Acoustic durability in-situ
65	Maintenance requirements
66	Constructed technologies for easy maintenance
67	Maintenance frequency
68	<u>Buildability</u>
69	Buildability/constructability of the noise barrier
70	<u>Flexibility and adaptability</u>
71	Climate change (i.e. durability)
72	Ability to change existing noise barrier as required (e.g. increase height if needed)
73	<u>Land use</u>
74	Loss of land
75	Soil pollution
76	Ecotoxicity of soil
77	Drainage requirements
78	Accommodating water flow through barrier under normal conditions
79	Special drainage considerations to address flood risk
80	<u>Flora and fauna</u>

- To identify relevant criteria (over 100 identified)
- Methods used to generate informations (LCC, CO2 footprint)
- To select Quantitative / qualitative indicators
- To select measurement units
- Weighting/normalization criteria
- Select an appropriate Multi Criteria Decision Making (i.e. SAW, PROMETHEE, ELECTRE)
- To perform calculation

QUIESST SUSTAINABILITY TASK
Possible application in Product Standard

**Costruction Product Regulation (CPR) will soon reply existing Directive.
Sustainability is the new 7° Essential Requirment**

CPD	CPR
1- Mechanical resistance and stability	1- Mechanical resistance and stability
2- Safety in case of fire	2- Safety in case of fire
3- Hygiene, health and the environment	3- Hygiene, health and the environment <i>throughout the life cycle + safety of workers</i>
4- Safety in use	4- Safety and accessibility in use
5- Protection against noise	5- Protection against noise
6-Energy economy and heat retention	6-Energy economy and heat retention Energy efficiency of construction work during construction and dismantling
	7-Sustainable use of natural resources

QUIESST SUSTAINABILITY TASK : Applications



NRDs surface can be use for advertisement boards or photovoltaic modules.

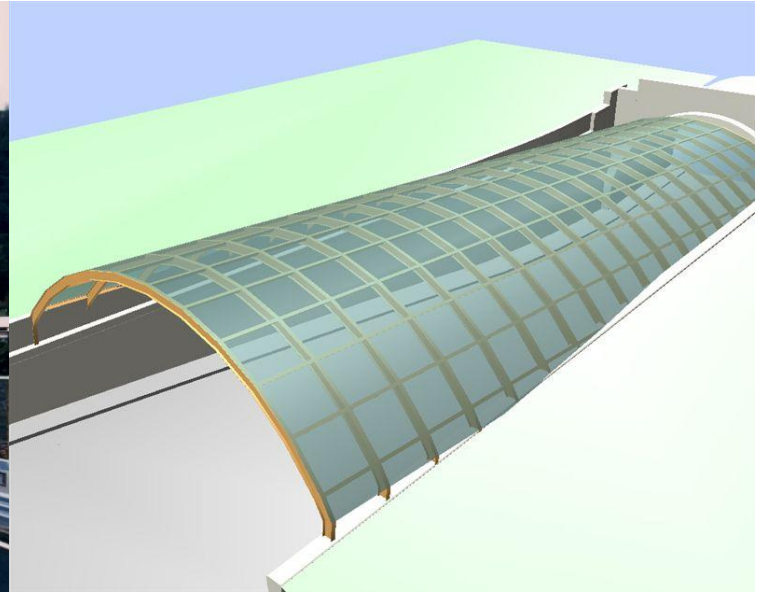
Is this a sustainable approach?

NRDs are almost always payed by public funding.

Are there possible income funds to cover costs ?



QUIESST SUSTAINABILITY TASK : Applications



Artificial tunnel built as NRDs for buildings closed to tunnel entrance to save energy used for internal tunnel lighting.

Material recycling is widely used for NRDs production. I.e.:

Recycled plastic for acoustic cassettes

Mineralized wooden chip for sound absorbing beton panels

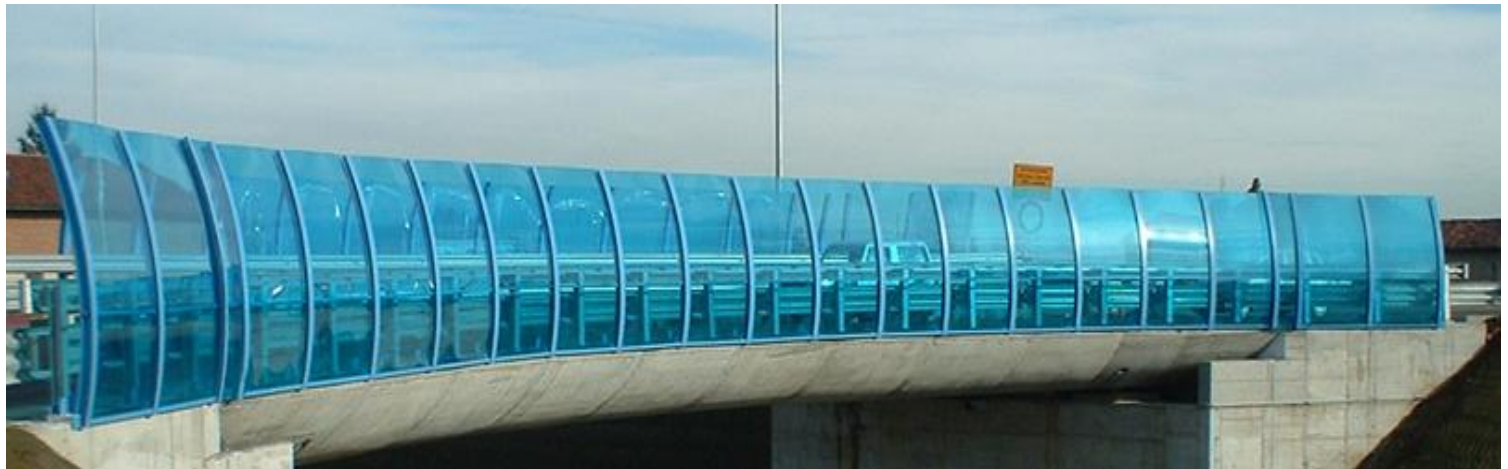
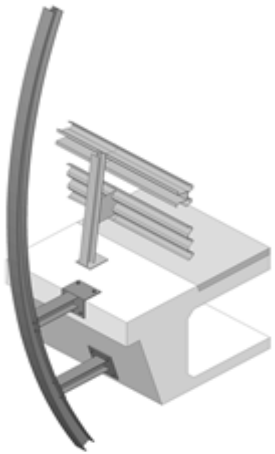


QUIESST TASK: Global Acoustic Performance



Major cost of NRDs are driven by sound absorption and shape.

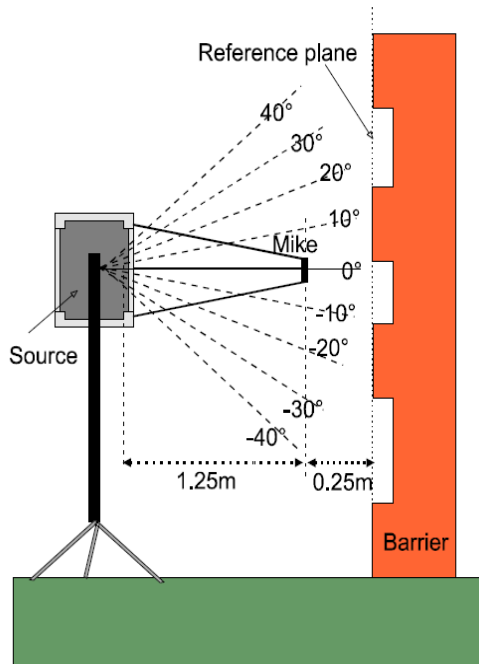
To master the NRD performance in the far field considering both sound absorptive characteristics and shape



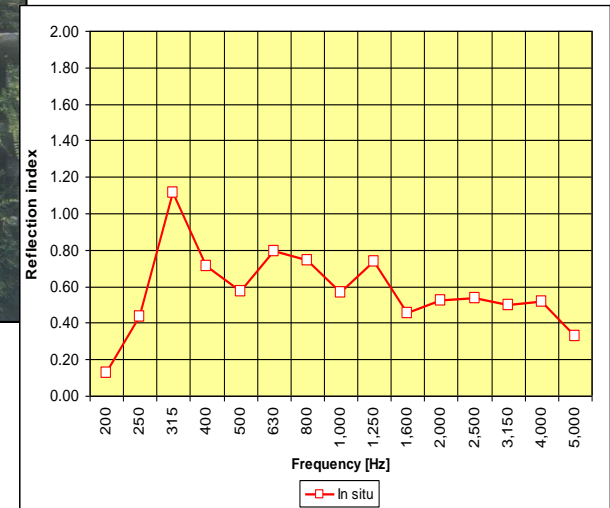
QUIESST TASK: IN SITU MEASUREMENT METHOD « ADRIENNE »

In situ methods for NRDs testing proved to be relevant tools for Road Authorities and Manufacturers

To characterize NRDs in-situ taking into consideration the problems faced in ADRIENNE project.
To find compare in situ and lab test results



$$DL_{RI} = 2 \text{ dB}$$



QUIESST TASK – HOLISTIC APPROACH

Input: the “true” intrinsic performances / optimized combination of their intrinsic acoustic characteristics and design shapes.

Target: achieve the best situation in order not only to reduce noise, but also the amount of people exposed to noise (cost / benefit ratio)



Quiesst deliverables will be disseminated with the help of



European Noise Barrier
Federation www.enbf.org

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