



Drogi zaufania

Zwiększanie Potencjału Na Rzecz Bezpieczeństwa Ruchu Drogowego

Building Road Safety Capacity



**INFRASTRUKTURA
I ŚRODOWISKO**
NARODOWA STRATEGIA SPÓJNOŚCI



Generalna Dyrekcja
Dróg Krajowych i Autostrad

UNIA EUROPEJSKA
EUROPEJSKI FUNDUSZ
ROZWOJU REGIONALNEGO



Training and certification of Road Safety Experts for the application of **Road Safety Audit** and **Road Safety Inspection** procedures to selected **secondary roads**

Experience from the project PILOT4SAFETY

Xavier Cocu, Belgian Road Research Centre (BRRC), Belgium

Peter Saleh, Austrian Institute of Technology (AIT), Austria



Belgian Road Research Centre
Your partner for sustainable roads

CONTENT



- SECONDARY ROADS ... our focus point
- EU DIRECTIVE ROAD INFRASTRUCTURE SAFETY MANAGEMENT ... the background & an opportunity
- EXCHANGE OF KNOWLEDGE ... our motivation
- INTERESTING ACHIEVEMENTS
 - Road Safety Manual
 - Common Curriculum & Training
 - Execution of RSA & RSI with a mixed team
- EXAMPLE: Road Safety Inspection on a 1st class road

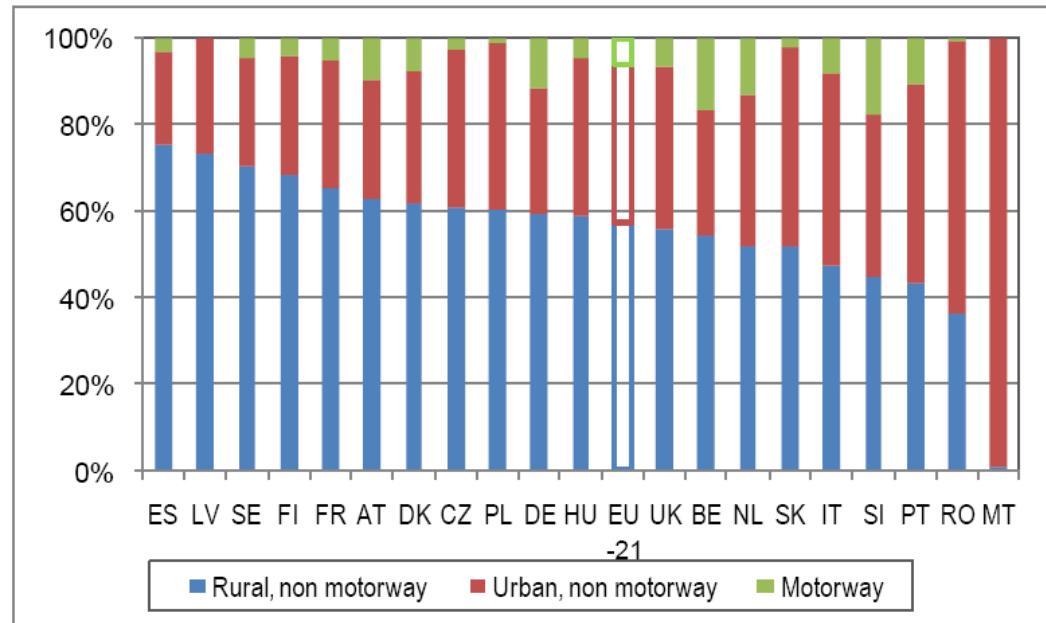
PROJECT BACKGROUND



- 19/11/2008: Publication of the Directive 2008/96/EC on Road Infrastructure Safety Management
- Field of Application: TEN-T Network = just a part of EU Highways

Figure 8: Distribution of fatalities by type of road, EU-21, 2009

- In the EU-21, more than half of all fatalities occurred on rural non-motorway roads.



EE, EL and IE excluded because road type is unknown for more than half of fatalities. Fatality data for 2008 for SE.

Source: CARE Database
Date of Query: November 2011

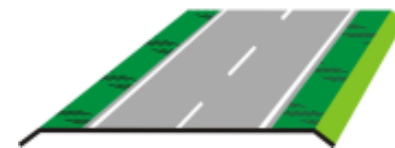
PROJECT BACKGROUND



PROJECT FACTS



Pilot project for **common EU Curriculum** for Road Safety experts:
training and application on **Secondary Roads**



- Directive 2008/96/EC on Road Infrastructure Safety Management
- Co-funded by DG MOVE
- June 2010 – May 2012

- Partnership:



PROJECT SCHEME



Agreement between the participants about the mutual acceptance of the “Temporary” Certificate (exchange of auditors) in 5 European regions in Italy, Greece, Spain, Denmark and Czech Republic

Development of a common Road Safety course and tools (Manual)

Training in Brussels for local auditors, based on common course and tools,



“Temporary” Certificate
Valid only within the project lifetime

1 RSA and 1 RSI on selected designs and road stretches in each Participating Region, with at least one auditor coming from another Region
FINAL EVALUATION AND RECOMMENDATIONS

PROJECT ACHIEVEMENTS

RSA/RSI Curriculum Plans

4 parts/modules:

- Preliminary Part
- Basics about RSA / RSI
- The Audit / Inspection Process
- Practical Part



Alignment of this EU-based program to the specific regional/national circumstances!

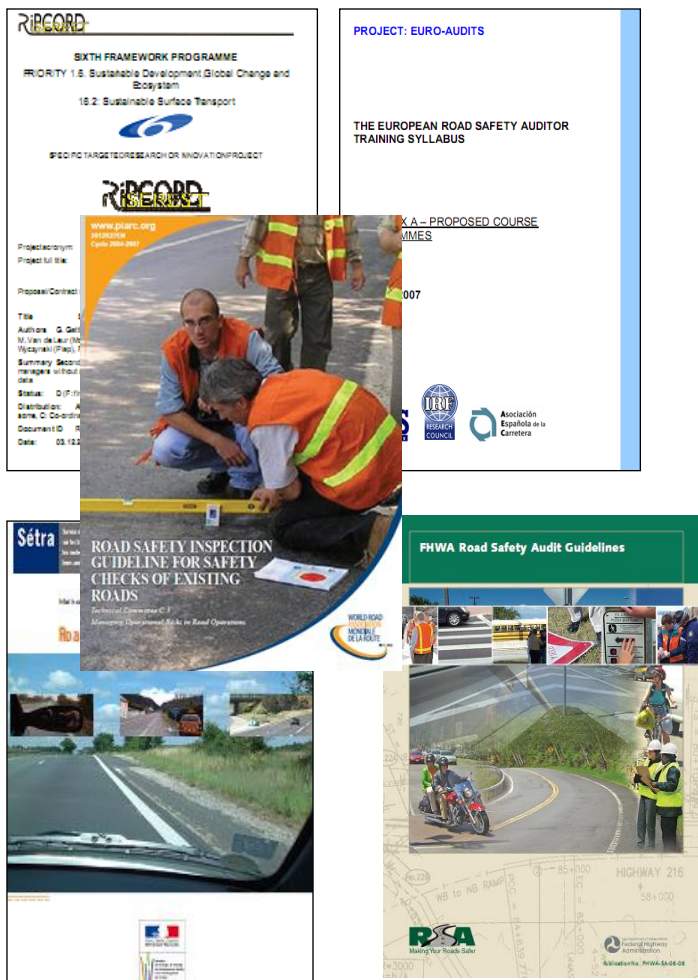
- Interactive – Practical – Participants contribution
- Include wishes and expectations of the trainees

PROJECT ACHIEVEMENTS

Training manual/materials

1. Analysis of the existing manuals

2. Partners expertise



PROJECT ACHIEVEMENTS

RSA & RSI Training sessions

Lectures on Safety Basics & Audit / Inspection Processes

+ Presentation / Experience from the trainees

+ Case studies and practical RSA/RSI (own project)

Geometric parameters affecting road safety



I. - Straight sections (5)



- ☐ Road surface conditions
- ☐ (Roadside / Shoulder)
- ☐ Geometry and road signs

Vertical alignment

- ☐ Generalities
- ☐ Downhill & uphill grades
- ☐ Uphill grades
- ☐ Vertical curves

I. - Sight distance (3)



Straight road section:

- At any point: available sight distance sufficient for a driver traveling at a reasonable speed (V85) to stop his vehicle safely without hitting a stationary object located on his path = **stopping sight distance**

- Required sight distance: determined using mathematical equations:

$$SSD = \frac{V_i \times t}{3.6} + \frac{V_i^2}{254 \left(f_1 \pm \frac{G}{100} \right)}$$

$$SSD = \frac{V_i \times t}{3.6} + \frac{V_i^2}{254 \left(\frac{a}{g} \pm \frac{G}{100} \right)}$$

V_i : initial speed (km/h)
 t : reaction time (s)
 f_1 : longitudinal friction coefficient
 G : slope (%)
 a : deceleration rate (m/s²)
 g : acceleration due to gravity (9,8 m/s²)

width

Width recovery zone	Recovery zone Condition
2 m to 2,5 m	Paved
2 m	
1,75 m to 2 m	Stabilised or paved
0,75 m to 1,5 m	



Preliminary part

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Task 5 – RSI Training / Preliminary part

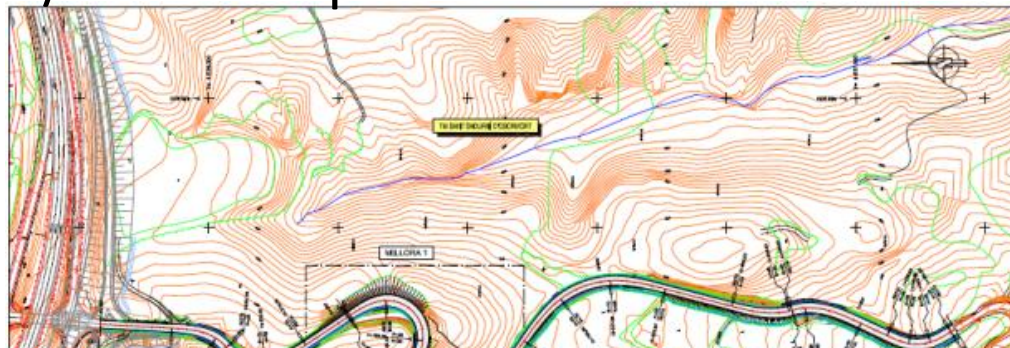
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PROJECT ACHIEVEMENTS

Execution of practical RSA & RSI in the 5 participating regions

- Audit Brief / Audit Report / Audit Response



- Mixed Teams

Team composition	Host country	Observer
Randers (1) + CDV (2)	Randers (Denmark)	BRRC
Generalitat de Catalunya (1) + Randers (1)	Generalitat de Catalunya (Spain)	FEHRL
Astral (2) + Region of C. M. (3)	Astral (Italy)	FEHRL
Region of C. M. (2) + Generalitat de Catalunya (1)	Region of Central Macedonia (Greece)	FEHRL
CDV (2) + Astral (1) + one invited from Lund University	CDV (Czech Republic)	BASt

Table 2: Team of the RSI carried out in the five regions and the observer.

CONCLUSION

- SECONDARY ROADS ...
A focus point → a main focus for improving road safety
- EU DIRECTIVE ROAD INFRASTRUCTURE SAFETY MANAGEMENT ...
An opportunity for combining road safety & cost benefits
- CURRICULUM & TRAINING ...
An unique opportunity to exchange about rules, practices & experiences between the representatives of the participating Regions
- EXECUTION OF RSA & RSI WITH A MIXED TEAM ...
An Unbiased view of topics, a transfer of experience from abroad, an exchange of experience between auditors

EXAMPLE:

Road Safety Inspection on a 1st class road

- Length of the section: 13 km
- 2-lanes road in rural/semi-rural area
- 16 000 vehicles/day
- Supposed by the road authority to be a “critical road section according to accident risk”



Process followed



EXAMPLE:

Road Safety Inspection on a 1st class road

Inspection Report

Inspection team members

Giudice Riccardo, lead inspector
Regione Lazio - Italy



Pavel Tucka inspector, CDV
Radim Striegler inspector, CDV



Dates

Inspection Brief reception: -

Initial meeting: 17th October 2011



Inspection Date (or Period): 18 th October 2011

Draft report (if any): -

Data and documentation:

Accident Record CDV and map of location, photos and film in night.



Site visit(s):

The site was visited by the Inspection Team on 18 th October 2011.



The weather was cloudy (4°). The traffic conditions were regular working day and in day time and night time also.

EXAMPLE:

Road Safety Inspection on a 1st class road

Inspection Report

ITEMS RESULTING FROM THE INSPECTION: Content

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EXAMPLE:

Road Safety Inspection on a 1st class road

PILOT4SAFETY
Task 5: RSI training



Problem 1.3:

Drainage ditches present in one or in both side of the road.

Observations

There aren't any protections to avoid that cars go down in drainage ditches.



Risk

Serious accident risk in case of crash in drainage ditches.

Recommendations

Highly Recommended, Potential High Impact: Installation of guardrails; Coverage of draining ditches.

Inspection Report

EXAMPLE:

Road Safety Inspection on a 1st class road

Problem 14.1:

There are two railways crossing (about km.0+100 and km.7+150).

Observations

In the night the signs are not visible.

In both railways crossing there are private accesses near railway crossings that may be dangerous.



Risk

In case of accident in junction (main road/private access) it is not possible close the railways crossing so there is a situation of crash train/cars.

Recommendations

Control signs retro reflection.

Close the private access.

Inspection Report

EXAMPLE:

Road Safety Inspection on a 1st class road

3. Alignment

Problem 3.1:

Poor visibility in the curve.

Observations

The incoming left turn is poor of visibility, in particular during the night time.



Risk

Potential accidental risk due to poor visibility in combination with the speed limit (90 km/h).

Recommendations

Curveboards and guardrails.

Inspection Report

DELIVERABLES

New Curriculum for Road Safety Experts (D1)

Safety Prevention Manual for secondary roads (D2)

Next steps to common EU training of road safety experts (D7b)

Reports – Dissemination/Events –
Evaluation results - Exploitation Plan:
<http://pilot4safety.fehrl.org>



CONTACTS

Xavier COCU – BRRC & PIARC TC 3.2 member
x.cocu@brrc.be

Peter SALEH – AIT & PIARC TC 3.2 member
p.saleh@ait.at

PILOT4SAFETY project coordinator

Adewole ADESIYUN – FEHRL Deputy Secretary general
Adewole.Adesiyun@fehrl.org