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# MISSION AND VISION

CITA aims to enable our members to play an influential role in the development and implementation of policies for safe and sustainable road usage.



CITA provides the forums to create, assess and promote best practice, ensuring safe and compliant vehicles throughout their life-cycle.



# 5 PILLARS



**MAIN ACTIVITIES**

**CONFERENCES**

PROJECT MANAGEMENT

**STUDY REPORTS**

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REGIONAL ADVISORY GROUPS

PUBLICATIONS

**WORKING GROUPS**

RECOMMENDATIONS

QUESTIONNAIRES

PROJECT RESOURCES RESEARCH

QUERIES & SURVEYS

LIBRARY

FUTURE+

SEMINARS

# MEMBERS



8 JUNE 2016

# SET STUDY

SUSTAINABLE EMISSION TESTING

# SET STUDY – SUSTAINABLE EMISSION TESTING



Estimates of the health impacts attributable to exposure to air pollution indicate that fine **particulate matter (PM2.5) concentrations in 2011 were responsible for about 458 000 premature deaths in Europe (over 40 countries ), and around 430 000 in the EU-28**, originating from long-term exposure.

Source: European Environment Agency, Air Quality in Europe - 2014

## CITA Public Studies: TEDDIE Study – Diesel emissions

### DIRECTIVE 2014/45/EU

“On the basis of an **assessment of equivalence, Member States may authorize the use of OBD** in accordance with the manufacturer’s recommendations and other requirements”

# SET STUDY – SUSTAINABLE EMISSION TESTING

## REASONS

Emissions exceed the limits constantly

Following-up of the TEDDIE study

Equivalence OBD/tailpipe regarding 2014/45/EU

Tampering emission systems

IMPROVED TEST PROCEDURE TO DETECT GROSS POLLUTER  
SHORT TERM REDUCTION OF POLLUTANTS



**5% of the vehicle fleet causes 25% of all pollutant emissions\***

Identification of additional  
approx. 5% to 7% gross  
polluters

**Eliminates**

approx. 25% to 35% of  
all pollutants

\*European Commission: Impact Assessment SWD(2012) 206 final

# FIELD TESTS

## KEY FINDINGS

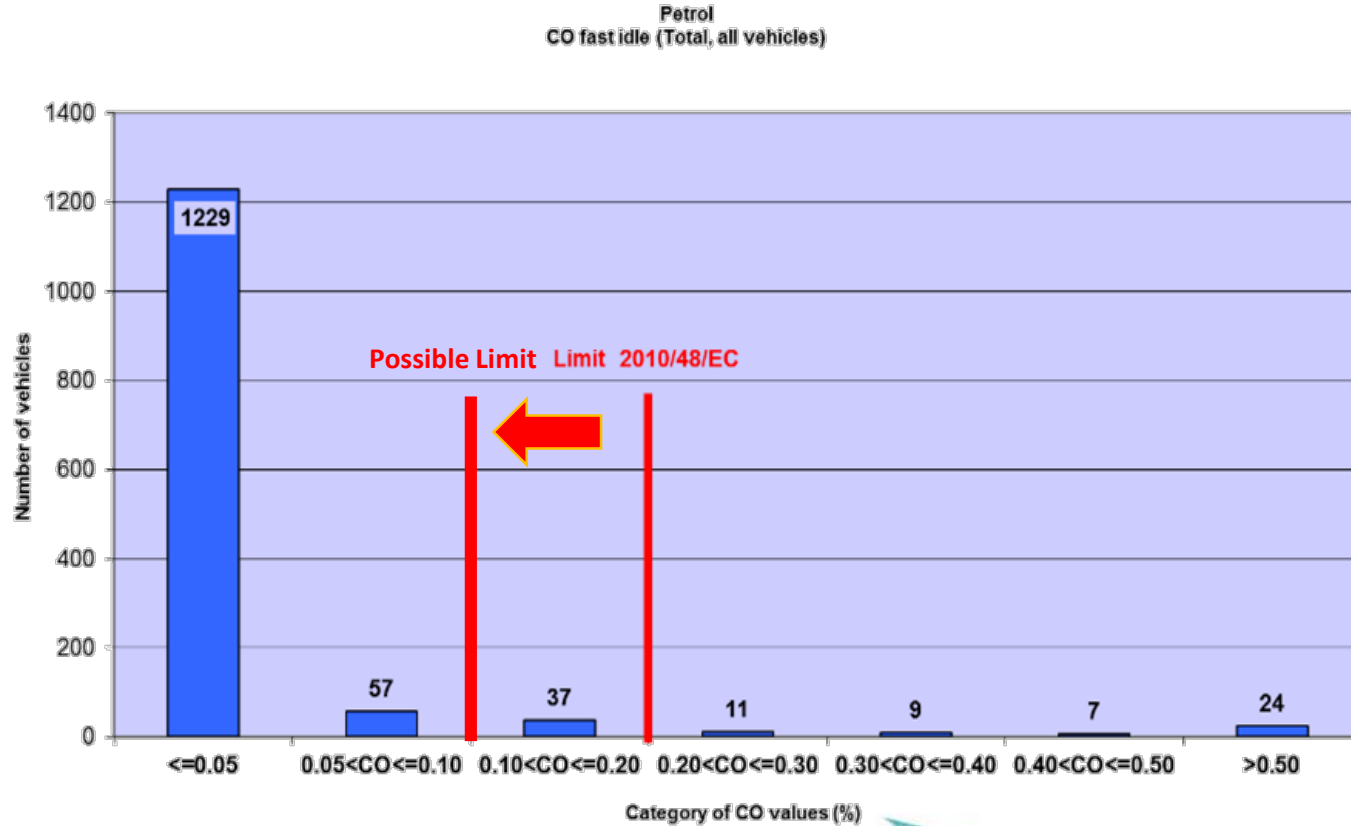
## PARTICIPATING PTI TEST CENTRES – NUMBER OF TESTS

- Belgium – GOCA
- France – Dekra
- Germany – TÜV SÜD
- Germany – TÜV Nord
- The Netherlands – RDW
- Sweden – Bilprovningen
- Sweden – Opus Bilprovningen
- Spain – Applus
- Spain – Certio
- Spain – Itevelesa
- Spain – Itvasa
- Spain – SyC
- Spain – Veiasa

Number of Tests	DIESEL	PETROL
Euro 3	48	35
Euro 4	1052	818
Euro 5	464	435
Euro 6	5	7
no declaration	85	79
Total	1654	1374

# SET STUDY – SUSTAINABLE EMISSION TESTING

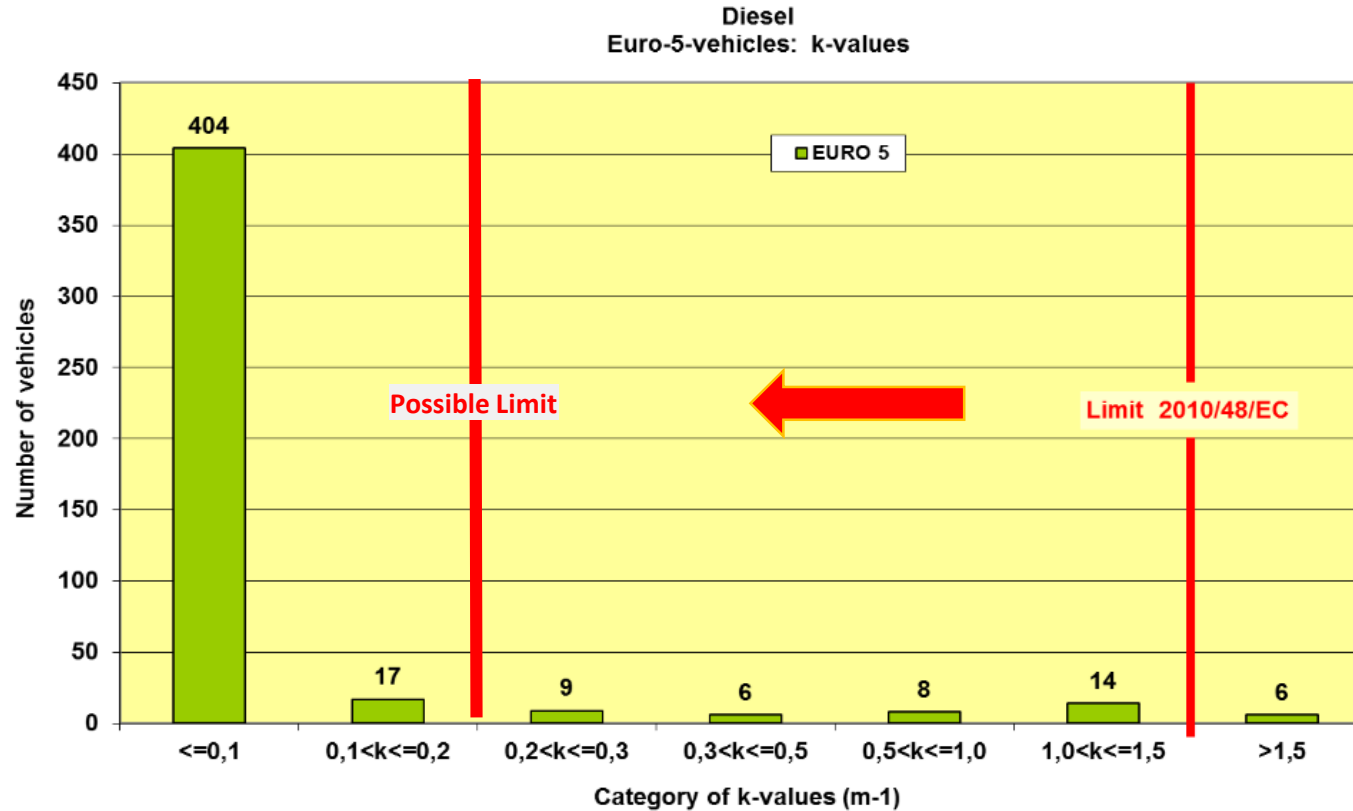
## Limits of Petrol Vehicles



Majority of vehicles has CO concentrations below 0.05 vol.% CO, current threshold is 0.2 vol.% CO: introduction of new limits for CO might be applicable

# SET STUDY – SUSTAINABLE EMISSION TESTING

## Limits of Diesel Vehicles

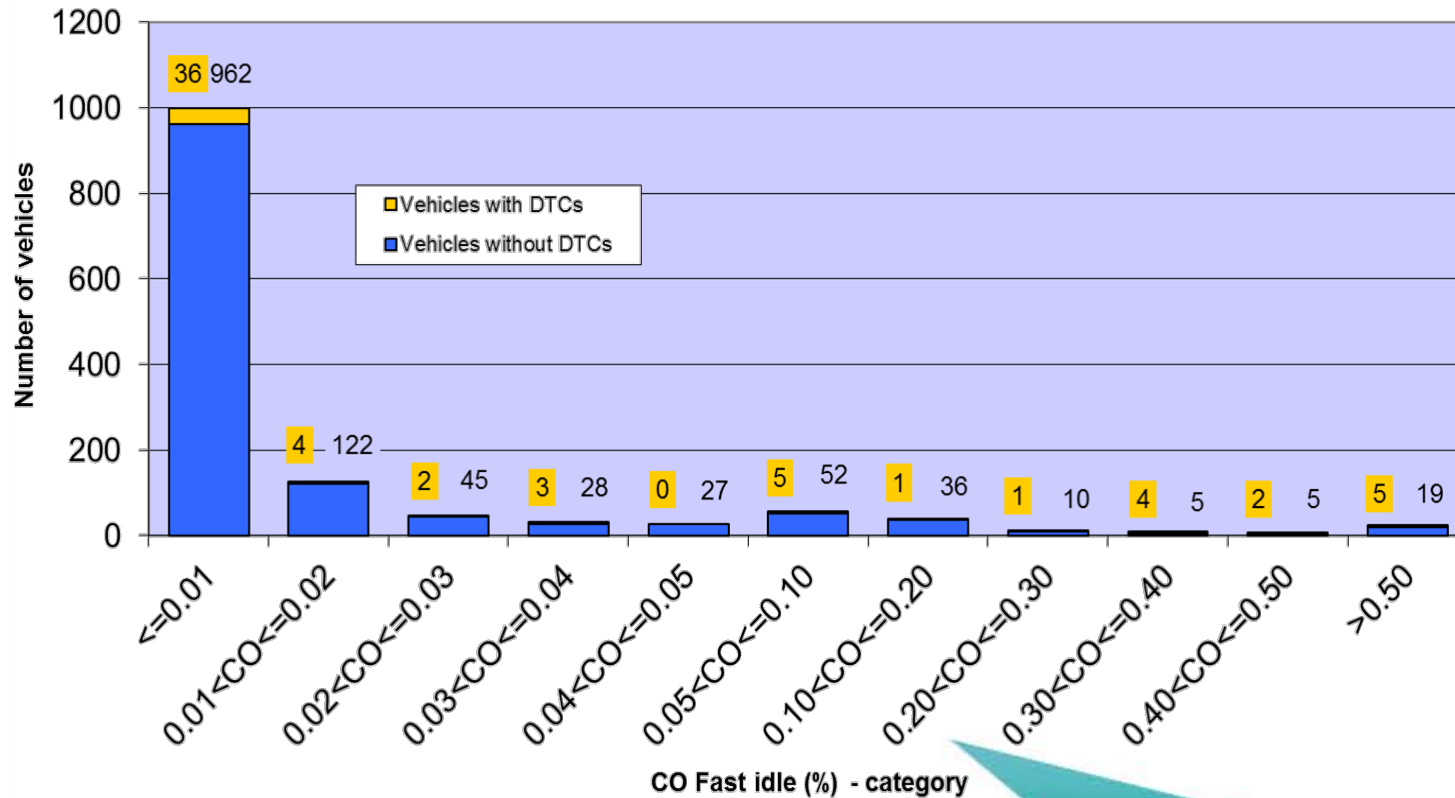


Majority of EURO 5 vehicles has PM concentrations below 0.1 k-value, current threshold is 1,5 k-value: Introduction of new limits for PM might be applicable

# SET STUDY – SUSTAINABLE EMISSION TESTING

## DTC -Reading versus CO – Measurement Petrol Vehicles

Petrol - over all EURO classification

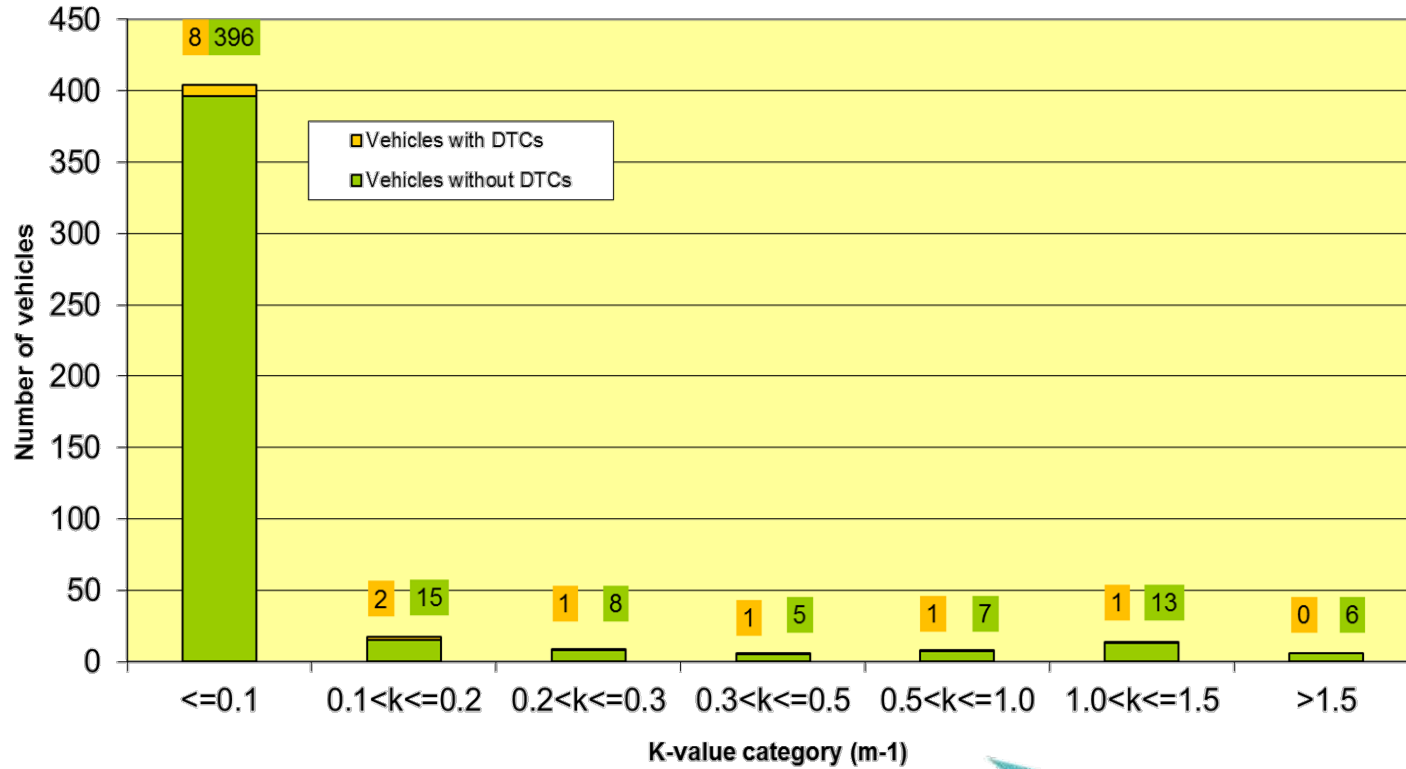


No direct correlation between DTC - Reading and CO - measurement

# SET STUDY – SUSTAINABLE EMISSION TESTING

## DTC - Reading versus k – value Diesel Vehicles (EURO 5)

Diesel - EURO 5



No direct correlation between DTC – Reading and k-value measurement

# COST/BENEFIT ANALYSIS



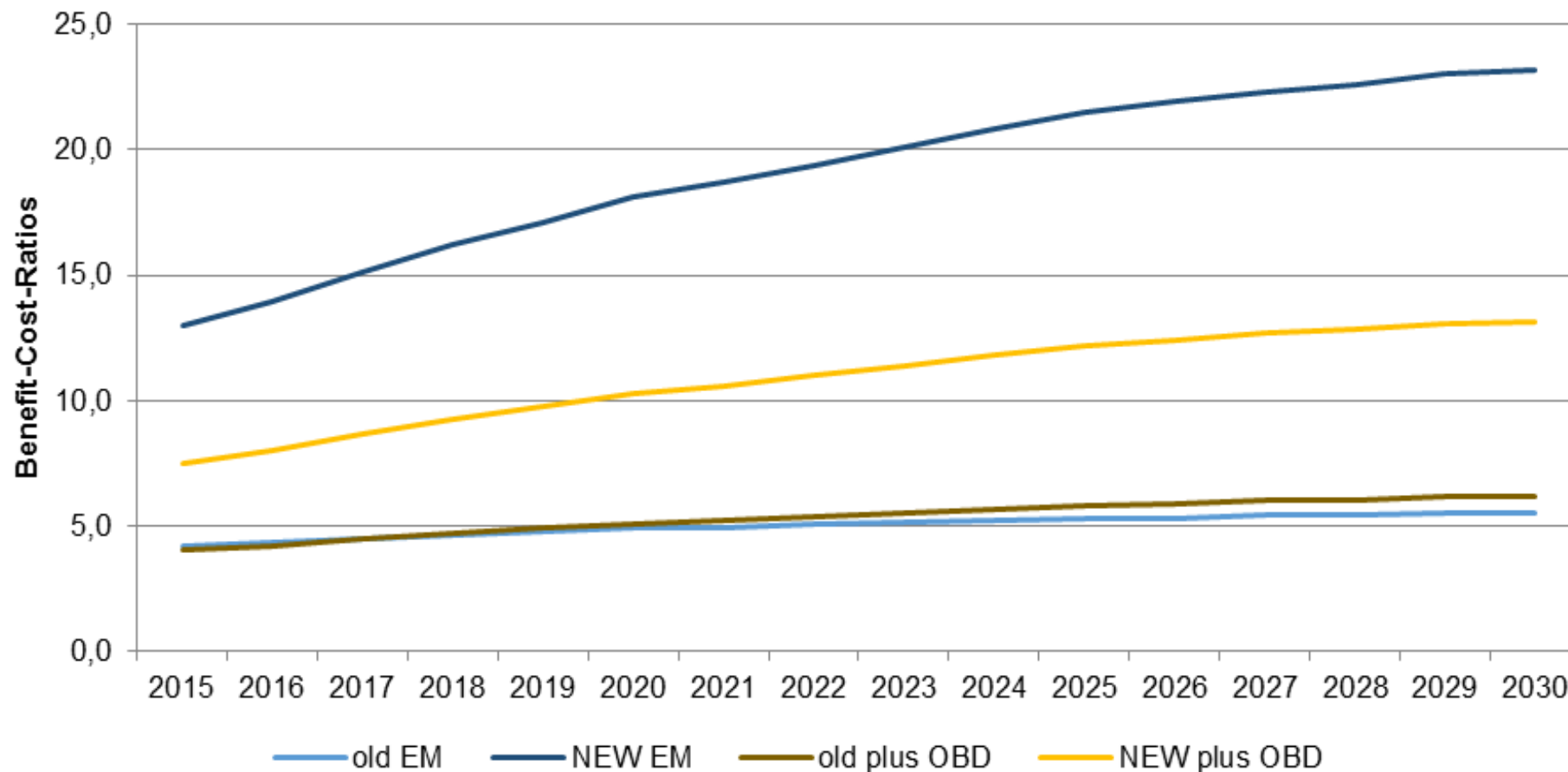
# Share of failed vehicles

	Total tested vehicles	State of threshold	Threshold	Share of failed vehicles (%) <i>only by exhaust emission testing</i>	share of failed vehicles (%) <i>only by OBD testing</i>	Share of failed vehicles (%)
All petrol – CO high idle (%)	1374	old	>0.2	3,7	4,6	7,4
	1374	proposed	>0.1	6,4	4,6	10,0
Diesel EURO 5 - k-value (m-1)	464	old	>1.5	1,3	3,0	4,3
	464	proposed	>0.2	9,3	3,0	11,4

Modern emission test detects more gross polluter

# SET STUDY – SUSTAINABLE EMISSION TESTING

## Benefit – Cost Ratio



Old thresholds    Old thresholds plus OBD    New thresholds plus OBD    New thresholds

# SET STUDY – CONCLUSION

# SET STUDY – SUSTAINABLE EMISSION TESTING

## CONCLUSION

Mandatory Combination  
of OBD and Tailpipe test

New thresholds:  
CO max. 0.1 % (EURO 4)  
Plate value or K-value max. 1.0 m<sup>-1</sup> (EURO 4)  
K-value max. 0,2 m<sup>-1</sup> (EURO 5)

**MOST EFFECTIVE CONTRIBUTION TO AIR QUALITY AND HEALTH**  
**SHORT TERM REDUCTION OF POLLUTANTS**  
**HIGH BENEFIT-COST RATIO**

### FURTHER ACTIVITIES



Further investigation are necessary to refresh the periodic emission test and include also NO<sub>x</sub> measurement (SET II study)

Future solutions should be developed for

- Inexpensive test methods to measure NO<sub>x</sub>
- Applicable limit values for NO<sub>x</sub>



**THANK YOU FOR YOUR TIME!**

*FULL PROJECT AVAILABLE AT*  
*WWW.CITAINSP.ORG*



secretariat@citainsp.org  
+32 (0)24690670

21 – 25 Rue de la Technologie | 1082 Brussels, Belgium