

## 2nd International Workshop on Evaluation of Eurocode 7, Pavia, Italy, April 2010

# Role of JRC in the implementation and Further Development of the Eurocodes

Artur Pinto  
**Joint Research Centre**  
**Institute for Protection and Security of the Citizen**  
European Laboratory for Structural Assessment



## Outline

1. JRC support to the Eurocodes - Framework
2. Support to the Implementation (informatics tools, ...)
3. Training and International Promotion
4. Progress on Implementation (National Annexes, Legislation, ...)
5. New Mandate – Future Work
6. Extension to all Basic Works Requirements (BWRs)

## JRC support to the Eurocodes

1. Pre-normative and co-normative research  
(1994 - ...)
2. Support to the Implementation and Further Development  
(2005 - ...)

## Research in support of the Eurocodes (Tests performed at ELSA - JRC)

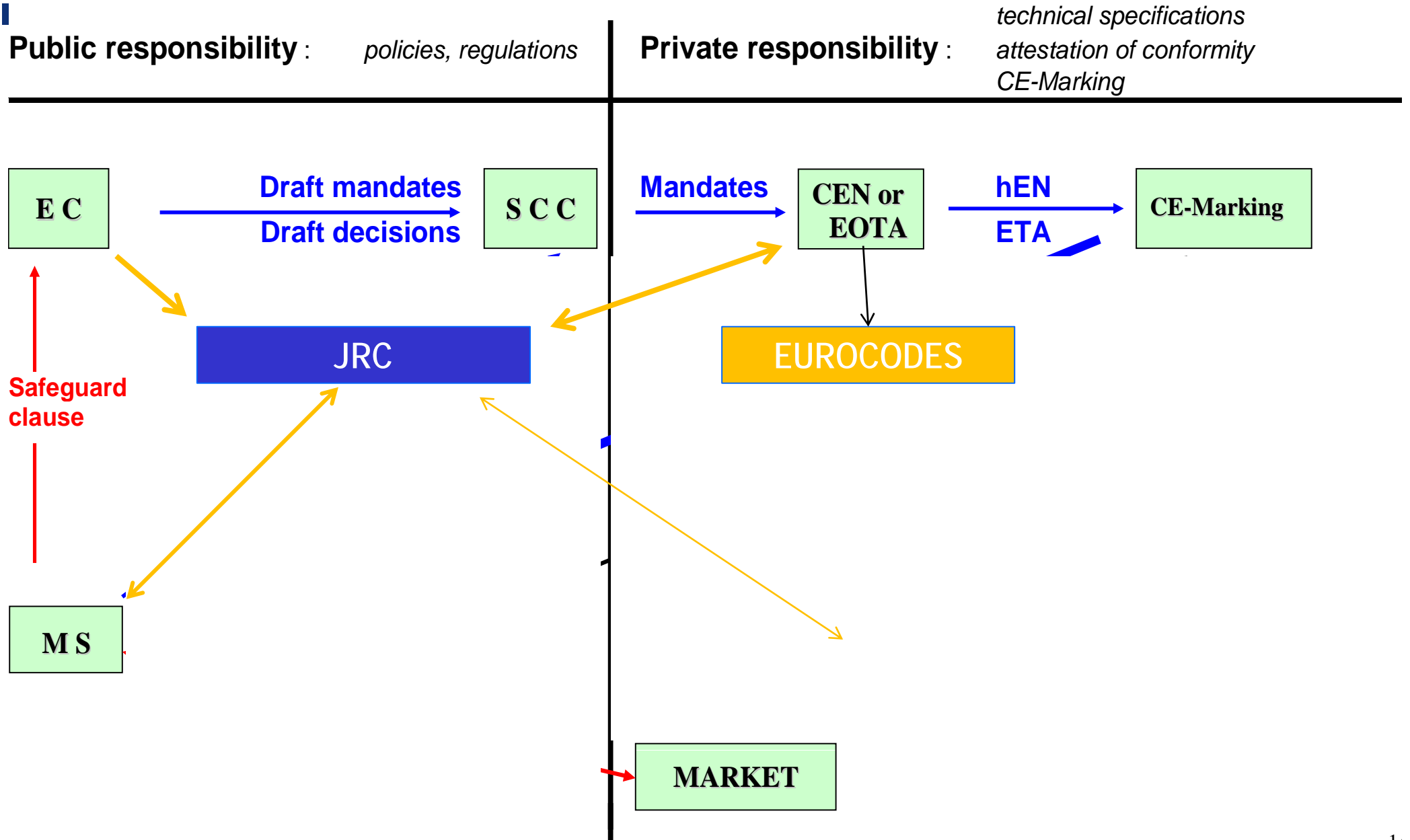
- Bridges Designed to EC2 and EC8: Irregularity, Non-synchronous motion, ...
- Design of Frame structures with infill masonry walls
- Composite buildings: Semi-rigid connections, ...
- Existing buildings (60~70's): Assessment, Repair and Strengthening
- Existing bridges (60~70's): Assessment, Strengthening and Repair
- Seismic isolation/dissipation



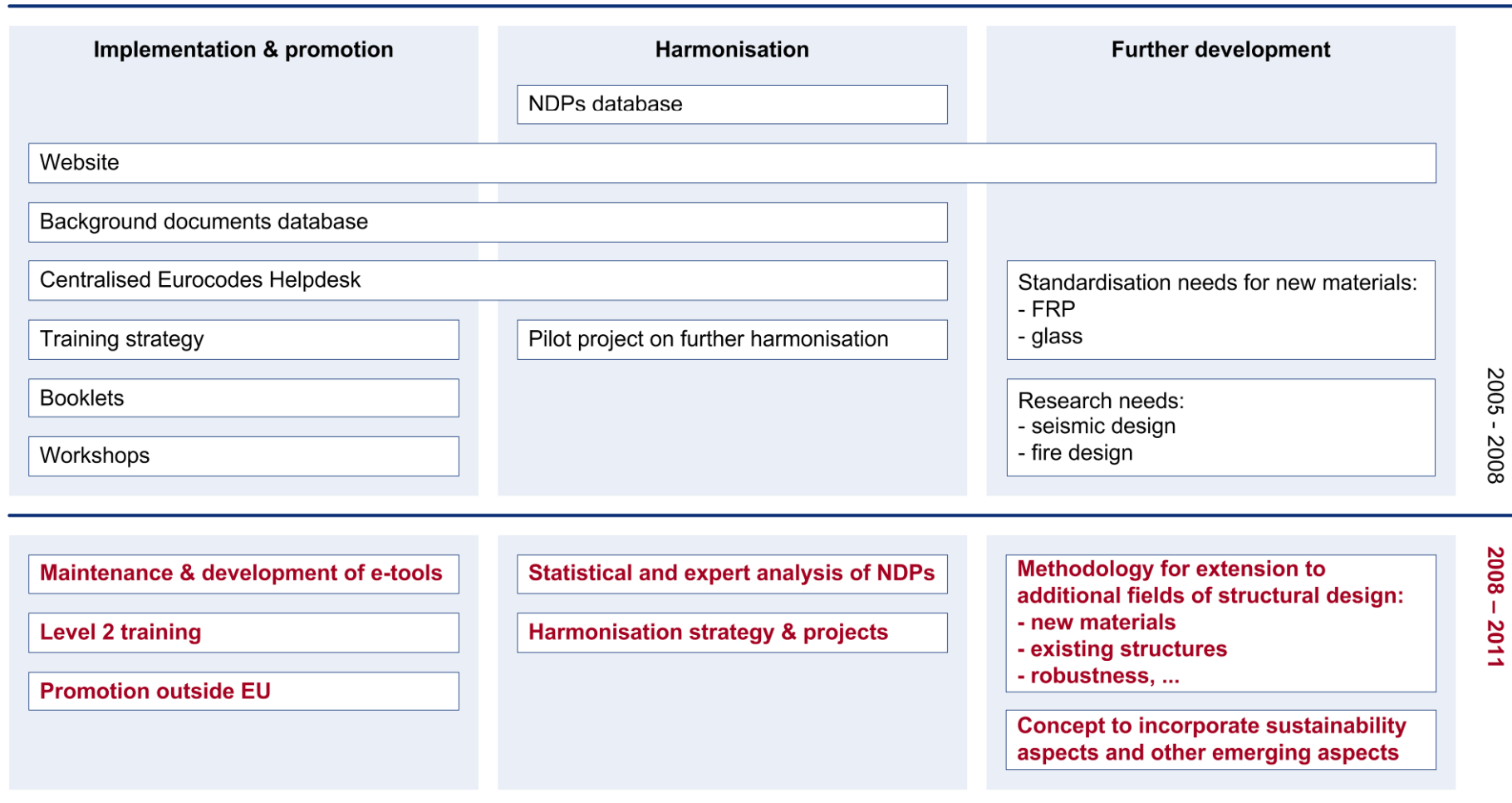
## Support to the Implementation and Further Development (2005 - ...):

1. **Administrative Arrangement** between DG ENTR and JRC:  
Implementation, Strategies for training and Promotion,  
Strategies for further Development  
(2005-2008)
2. **Memorandum of Understanding (MoU)**, DG ENTR - JRC:  
Achieve full implementation, Implement Strategies (Training,  
promotion, further Harmonization, Further Development,  
Extension to other fields, Emerging issues!  
(2008-2011)

# THE MANAGEMENT OF THE CPD : SHARED RESPONSIBILITY



# MoU JRC-DG ENTR (2008 – 2011)





## Development of specific informatics tools (IT tools):

1. Database for the NDPs (NDPs database) (31/03/06)
2. Eurocodes Website (30/11/06)
3. Database for Background Documents
4. Centralized help-desk for maintenance


<http://eurocodes.jrc.ec.europa.eu>

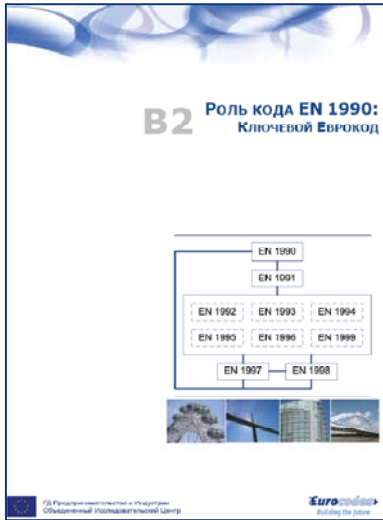


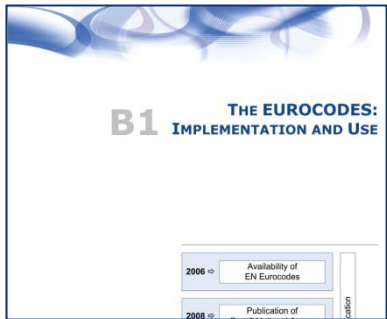
The screenshot shows the homepage of the Eurocodes website. At the top left is the Eurocodes logo with the tagline "BUILDING THE FUTURE". To the right is a banner image showing people working at computers. Below the banner is the European Commission logo and text: "EUROPEAN COMMISSION Directorate General Enterprise and Industry Directorate General Joint Research Centre". Navigation links include "Login | Site map | About | FAQ | Links". A sidebar on the left lists menu items: "About the EN Eurocodes", "Parts and Packages", "EU Legislation & Standardisation", "Implementation", "Designing with the Eurocodes", "Maintenance", "Further Harmonization", and "Research & Development". The main content area features the heading "The EN Eurocodes" followed by a paragraph: "The EN Eurocodes are a series of 10 European Standards, EN 1990 – EN 1999, providing a common approach for the design of buildings and other civil engineering works and construction products. They are the recommended means of giving a presumption of conformity with the essential requirements of the Construction Products Directive for construction works and products that bear the CE Marking, as well as the preferred reference for technical specifications in public contracts. [...]". Below this is a blue bar for "Upcoming events" with two entries: "18 February, Brussels: [Eurocodes: Background and Applications](#)" and "18 February, Brussels: [Eurocodes: Background and Applications](#)". On the right, there is a "Highlights" section with a blue button and a background image of a modern building.

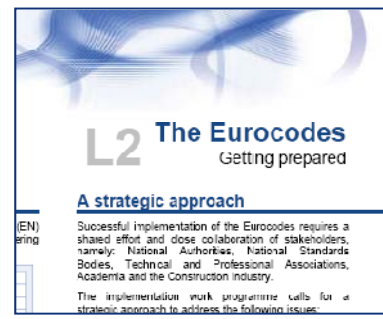


# Training and international promotion









Awareness material









International workshops





Training workshops

# Eurocodes: Background and Applications

## Brussels, 18-20 February 2008





## Training and promotion: future actions

- Project on **Strategy for international promotion: Participation in the meetings of the Monitoring and Steering Committee**; co-operation with the contractor (BSI)
- **Level 2/3 training Workshops**  
(introduction to single EN / design examples)
  - positive assessment of previous workshops
  - request for **technical details** and **examples**
  - duration of workshops: 2-3 days
  - prepare worked examples
  - **publication** will be available on website
  - planned in collaboration with TC250/SCs



## Level 2/3 training workshops

The following workshops on Eurocodes were proposed:

- Eurocode 2: **Design of Reinforced Concrete Buildings**  
Programme coordination: Giuseppe Mancini (SC2)  
2 days, 2010/11
- Eurocode 8: **Seismic Design of Buildings** (RC and Steel)  
Programme coordination: Eduardo Carvalho (SC8)  
**2 days, 25-26 Oct 2010, Lisbon**
- **Design of Bridges with the Eurocodes**  
Programme coordination: Steve Denton (HG Bridges)  
**3 days, 4-6 Oct 2010, Vienna**

 **EUROCODES**  
Bridges: Background & Applications

**BRIDGE DESIGN TO EUROCODES**

4-6 October 2010  
Vienna

**First announcement**



Organised by  
Austrian Federal Ministry of Transport, Innovation and  
Technology  
ON – Austria Standards Institute

European Commission: DG Enterprise and Industry and  
Joint Research Centre

with the support of  
CEN/TC250, CEN Management Centre and  
Member States

# Workshop “Eurocodes: training for trainers”

## Moscow, Russia, 2010

Organized by the Russian authorities with the support of TAIEX  
(EU-Russia cooperation on standardisation for construction)

Duration: 3 days, October 2010

### Topics:

EN 1990 - Eurocode: Basis of structural design

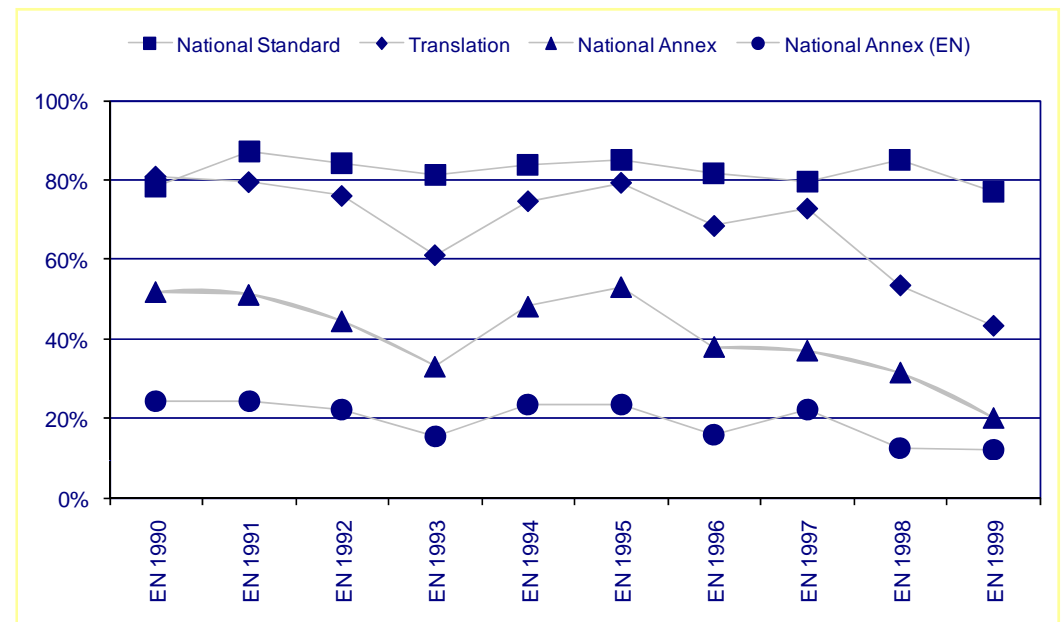
EN 1991 - Eurocode 1: Actions on structures

EN 1992 - Eurocode 2: Design of concrete structures

# Implementation Progress

# Progress of national implementation (ENC: 25/01/10)

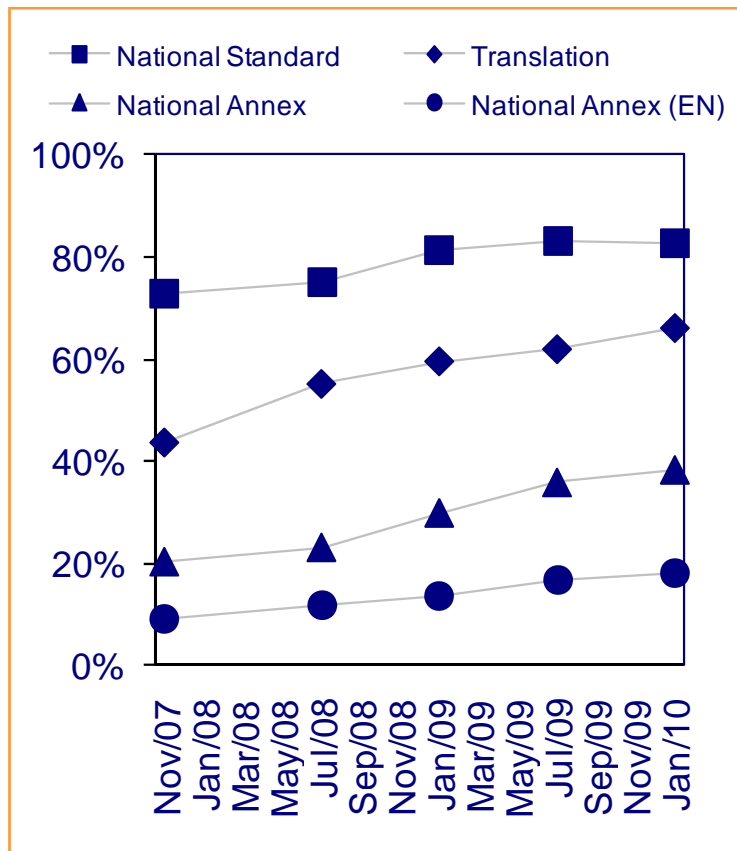
- Information from 25 EU MS
- **National Standards: 83%**
- **National Annexes: 38%**
- National Annexes (EN): 18%
- **Adaptation of national regulation: 2010**
  - Poland: 2011 (EN 1999)
  - Latvia: 2012 (EN 1999)



Progress of implementation in EU Member States



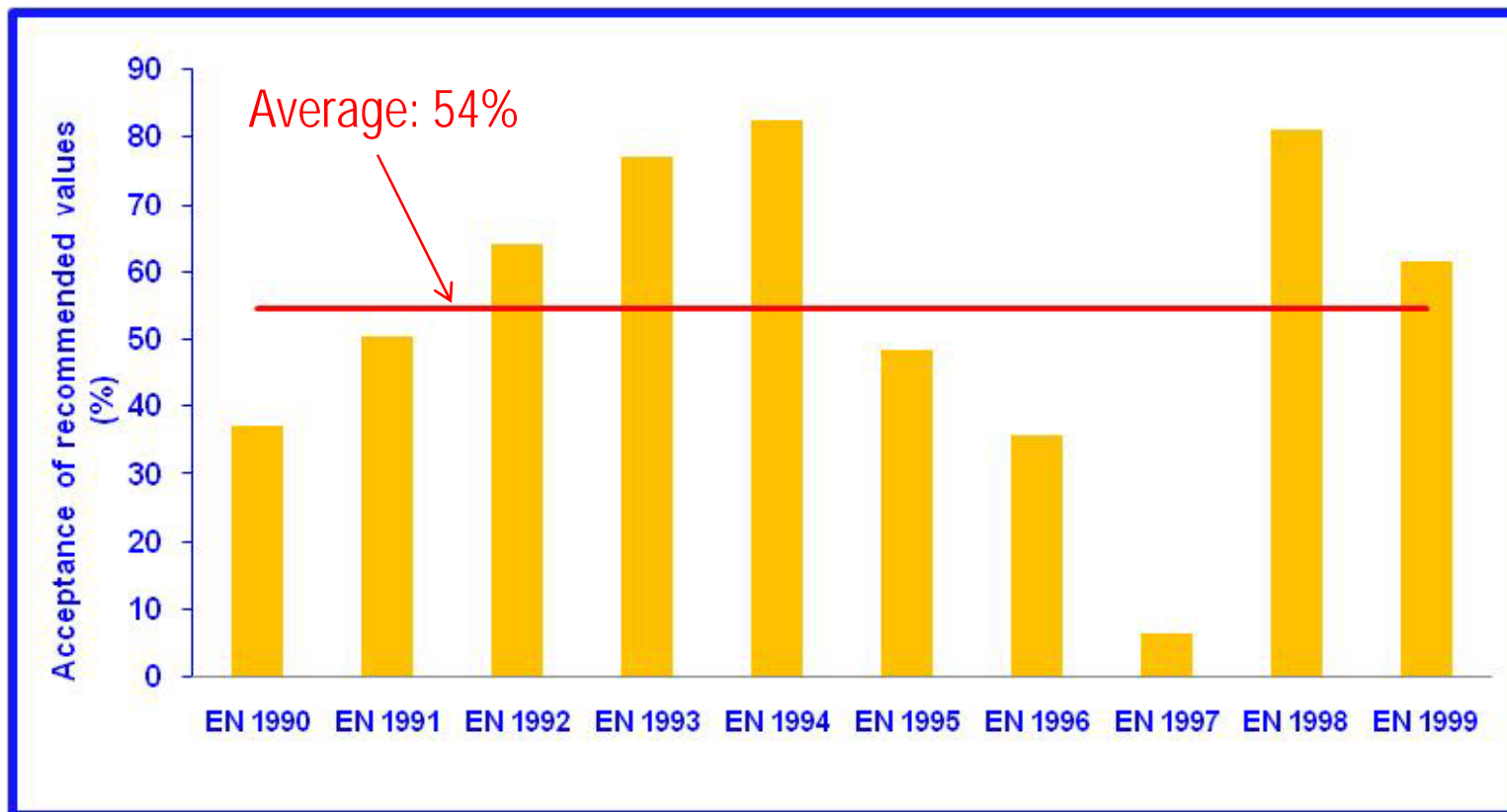
## Progress of national implementation (November 2007 – January 2010)



	Translation	National Standard	National Annex	National Annex (EN)
All countries	56% (50)	72% (68)	35% (29)	17% (13)
EU-27	66% (62)	83% (83)	38% (36)	18% (17)
EFTA	29% (6)	49% (25)	40% (9)	23% (0)
EU Candidate	6% (6)	0% (0)	0% (0)	0% (0)

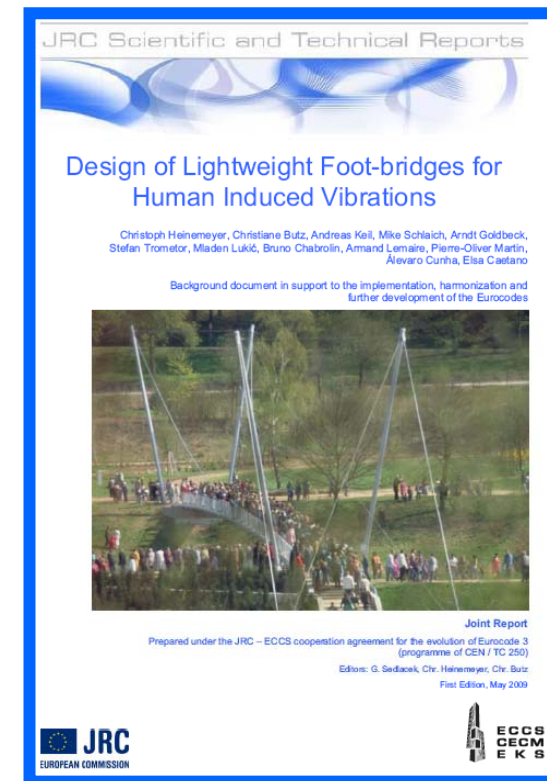
Progress of implementation on January 2010  
(in parentheses the situation on July 2009)

## NDPs database: acceptance of recommended values (19/01/10)



## JRC reports in collaboration with CEN/TC250

- Classification of documents:
  - **Prenormative** reports
  - **Background** documents
  - **Scientific/technical** information
- Published at the request of the relevant subcommittee
- **Review** by CEN/TC250 and JRC
- Available on Eurocodes website
- Prenormative reports will contain a first draft of the proposed Eurocode part and could be converted to **CEN Technical Specifications**



## Further Developments (Near Future)

# New Mandate: Shaping revision/update (2015 - ...)

## 3.2 List of projects

General: No ranking/priorities at this stage

### 3.2.1 New Eurocodes or Eurocode parts

- a. Assess existing buildings
- b. Structural Glass
- c. Fibre Reinforced Polymers
- d. Membrane Structures
- e. Robustness

### 3.2.2 Development Existing Eurocodes

- a. Harmonization – Reduce NDPs
- b. Innovation/Design methods/Calculations
- c. Sustainability/Structural Design
- d. Incorporate ISO standards
- e. Simplification of rules (specific/well defined)

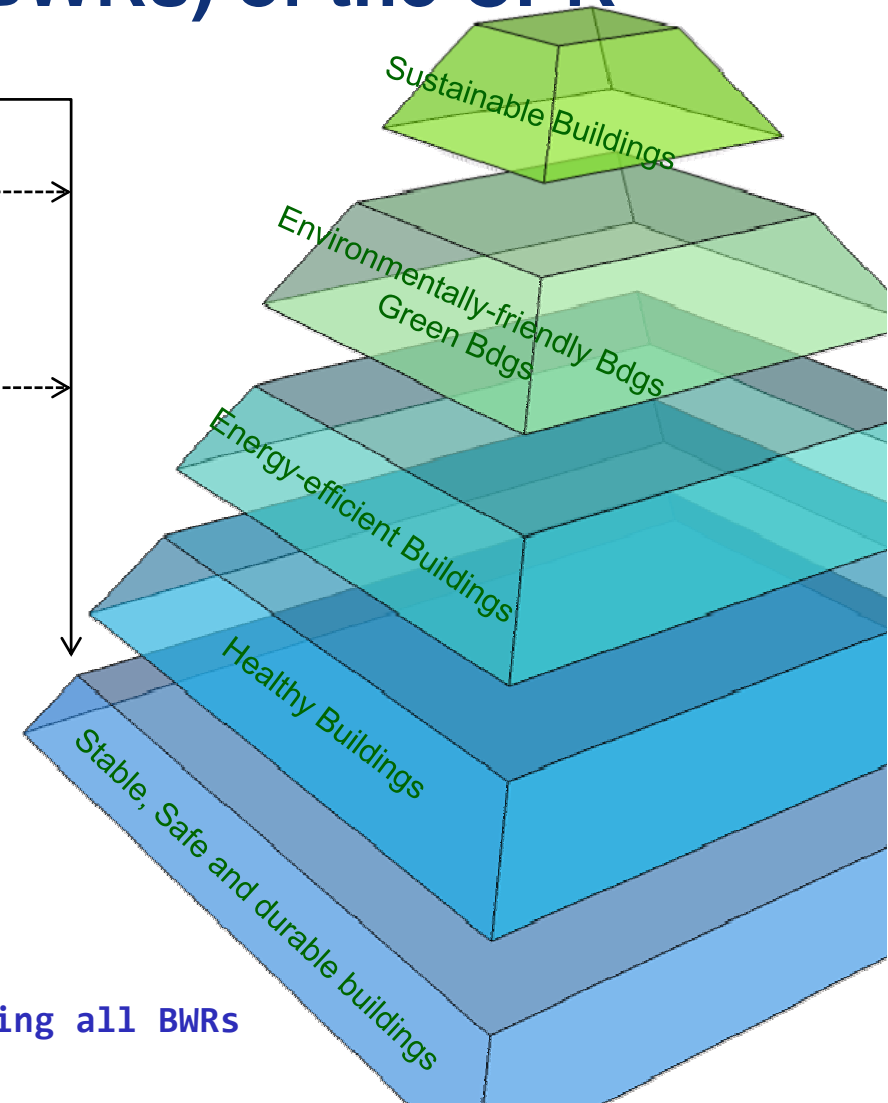


## Further developments:

- New Standards: New materials, Existing structures,
- New CPR (from Directive to Regulation)
- GOAL:  
Standards for all Basic Works Requirements (BWRs) (a complete and comprehensive set of interoperable standards)

## Basic Works Requirements (BWRs) of the CPR

- **BWR1** - MECHANICAL RESISTANCE AND STABILITY
- **BWR2** - SAFETY IN CASE OF FIRE
- **BWR3** - HYGIENE, HEALTH AND THE ENVIRONMENT
- **BWR4** – SAFETY IN USE
- **BWR5** – PROTECTION AGAINST NOISE
- **BWR6** – ENERGY ECONOMY AND HEAT RETENTION
- **BWR7** – SUSTAINABLE USE OF NATURAL RESOURCES



There is a Vision ... a Dream !?

A set of Interoperable European Standards addressing all BWRs



## The approach towards a set of EN standards addressing all BWRs

- Head-Standard (or Harmonized Methodology) should be developed for each BWR”
  - “This **Head-Standard** :
    - ✓ Would allow for integrated performance quantification
    - ✓ Should follow a Eurocodes-type NDPs approach
    - ✓ Should allow to set minimum performance requirements (Member States tuning)”

## Further development: documents to revise/draft

Type of Document	BWR1	BWR2	BWR3	BWR4	BWR5	BWR6	BWR7
Interpretative Document	✓	✓	✓	✓	✓	✓	New ID
<b>CEN EN Standards</b>	<b>EN1990 Basis of Design</b> Eurocodes Product standards other standards	<b>Head-Standard</b> Eurocodes Product standards other standards	<b>Head-Standard</b> other standards	<b>Head-Standard</b> Product standards other standards	<b>Head-Standard</b> other standards	<b>Head-Standard</b> EPBD standards	<b>Head-Standard</b> other standards
<b>EOTA</b>	ETAs, ETAGs	As for BWR1	...				...
<b>Guidance Papers</b>	Application and use of Eurocodes	As for BWR1	...				...
<b>Commission Recommendations</b>	2003/887/EC: Implementation and use of Eurocodes	As for BWR1	...				...

Thank you for your attention

<http://eurocodes.jrc.ec.europa.eu>

**AGREED SCHEDULE**

