

**BUILDING CAPACITIES FOR ELABORATION  
OF NDPs AND NAs OF THE EUROCODES IN  
THE BALKAN REGION**

**4-5 November 2014, Skopje**



# **JRC support to the implementation and use of the Eurocodes**

**S. Dimova, F. Taucer, R. Apostolska, A. Pinto**



# Outline

1. Implementation
2. Harmonization
3. Promotion and training
4. Eurocodes website



**Implementation**

# Support to the Implementation of the Eurocodes

## Who?

- **European Commission** (DG ENTR and DG JRC)
- **In cooperation** with: CEN, Member States, and National Standardization Bodies (NSBs)

## How?

- **Informatics tools** (Eurocodes website, helpdesk, NDPs database, publications database, ...)
- **Training Workshops** (Level 1, Level 2/3)



# Implementation of the Eurocodes

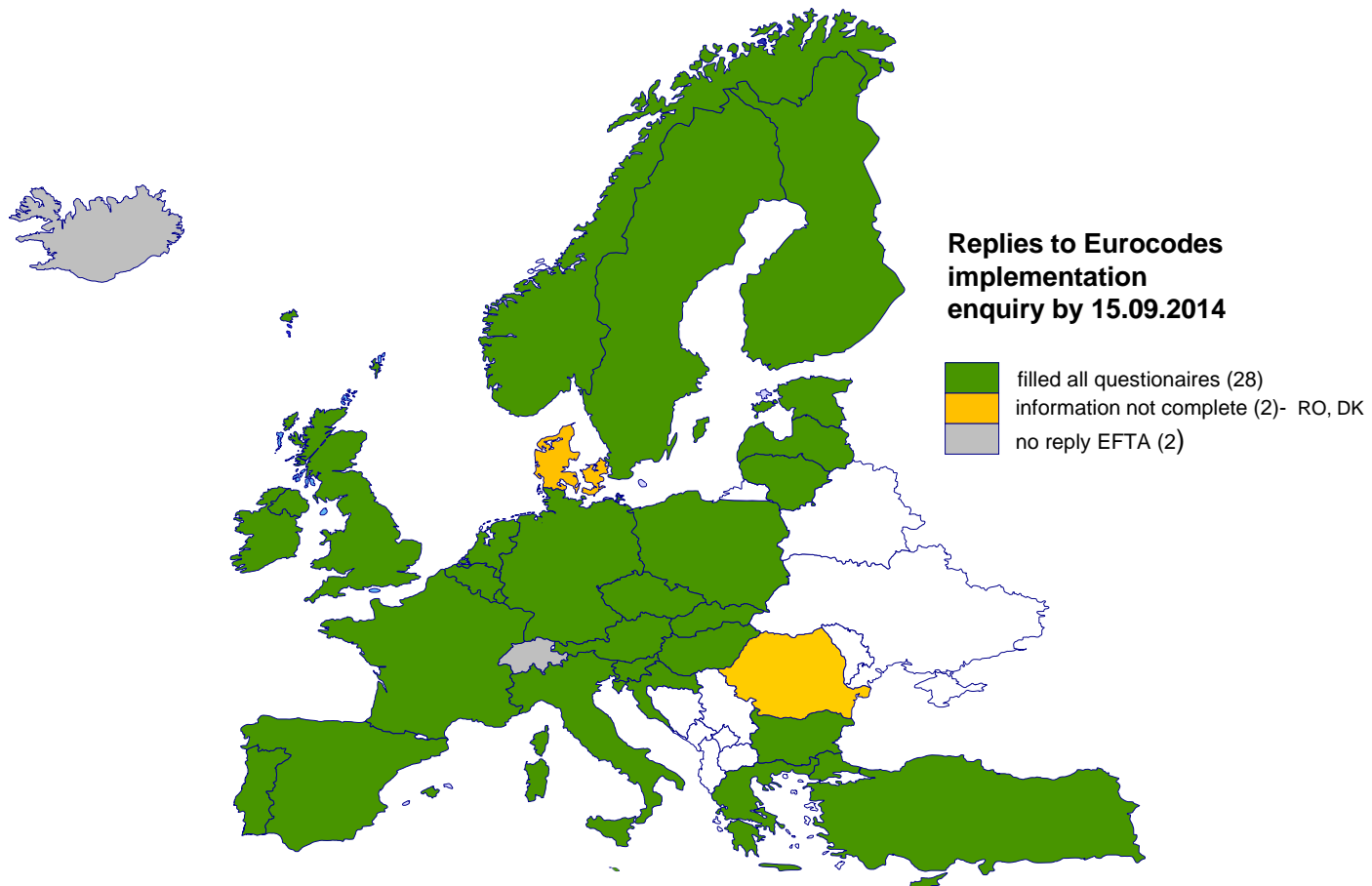
## 2014 enquiry by DG ENTR and DG JRC

PART 1 - STATE OF IMPLEMENTATION OF EUROCODES IN THE EU MEMBER STATES													
To be compiled by the relevant national authorities													
<b>National Authorities</b>													
Country:													
Date:		Compiled by:											
EN Eurocodes parts	This EN part was or will be implemented in your country?	Amendment of relevant national regulations to allow the use of the Eurocodes			Is the use of the Eurocodes obligatory in your country?		Is the use of the Eurocodes restricted (e.g. additional requirements, calculations, certificates, etc.)?		Is there a regulatory framework in your country enforcing the use of the Eurocodes in public procurement?		Comments (experience, problems encountered, solutions found)		
		Was it necessary for the implementation?	If yes, date (or envisaged date) of such amendment?		Is the use of this EN part obligatory in your country?	If yes, please provide title reference of to the regulation	Is the use of this EN part restricted?	If yes, which restrictions apply?	Framework for use of this EN part in public procurement	If yes, please provide title reference of to the regulation			
			(Yes/No)	(Month) <sup>(1)</sup>									
EN 1990 <sup>(2)</sup>	Please select	Please select											
EN 1990 - Annex A2	Please select	Please select											
EN 1991-1-1	Please select	Please select											
EN 1991-1-2	Please select	Please select											
EN 1991-1-3	Please select	Please select											

PART 2 - STATE OF IMPLEMENTATION OF EUROCODES IN THE EU MEMBER STATES													
To be compiled by the national standardisation body													
<b>NSBs</b>													
Country:													
Date:		Compiled by:											
EN Eurocodes parts	This EN part was or will be implemented in your country?	Date of publication of the EN part as national standard		The EN part was completely translated in National language?	National Annexes		Is the use of this EN part obligatory in your country?	Is the use of the Eurocodes restricted (e.g. additional requirements, calculations, certificates, etc.)?		Are there national standards on structural design used in parallel with the Eurocodes?			Comments (experience, problems encountered, solutions found)
		(Month) <sup>(1)</sup>	(Year)		Date of publication	Available in English?		Is the use of this EN part restricted?	If yes, which restrictions apply?	National standards used in parallel with this EN part?	If yes, please provide reference	If yes, what is their correspondence to this EN part?	
EN 1990 <sup>(2)</sup>	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1990 - Annex A2	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1991-1-1	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1991-1-2	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1991-1-3	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1991-1-4	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1991-1-5	Please select			Please select			Please select	Please select	Please select		Please select		
EN 1991-1-6	Please select			Please select			Please select	Please select	Please select		Please select		

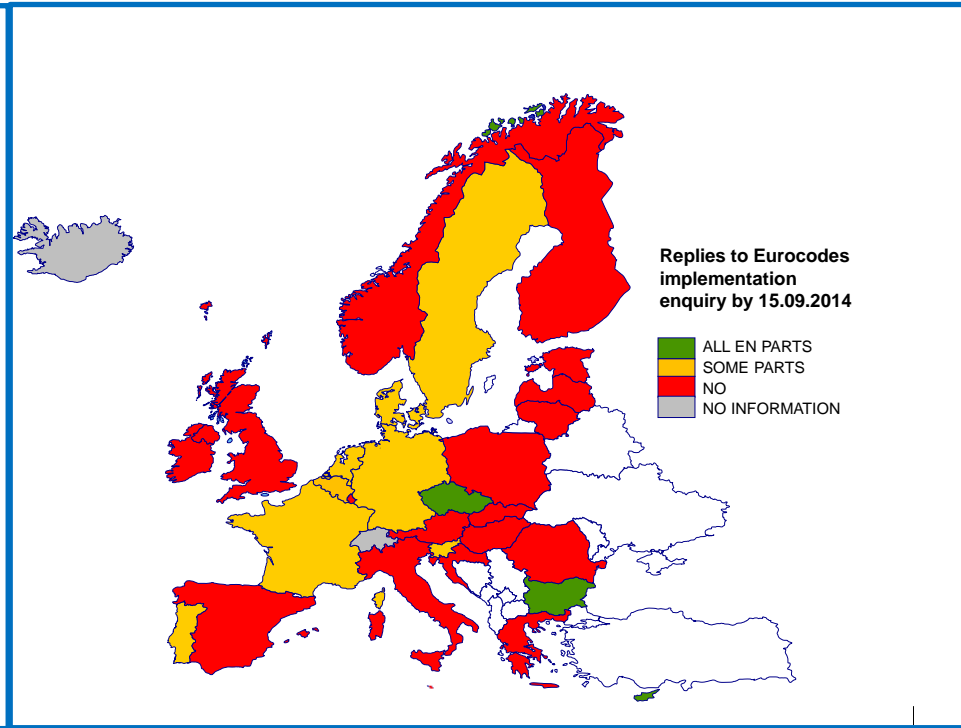
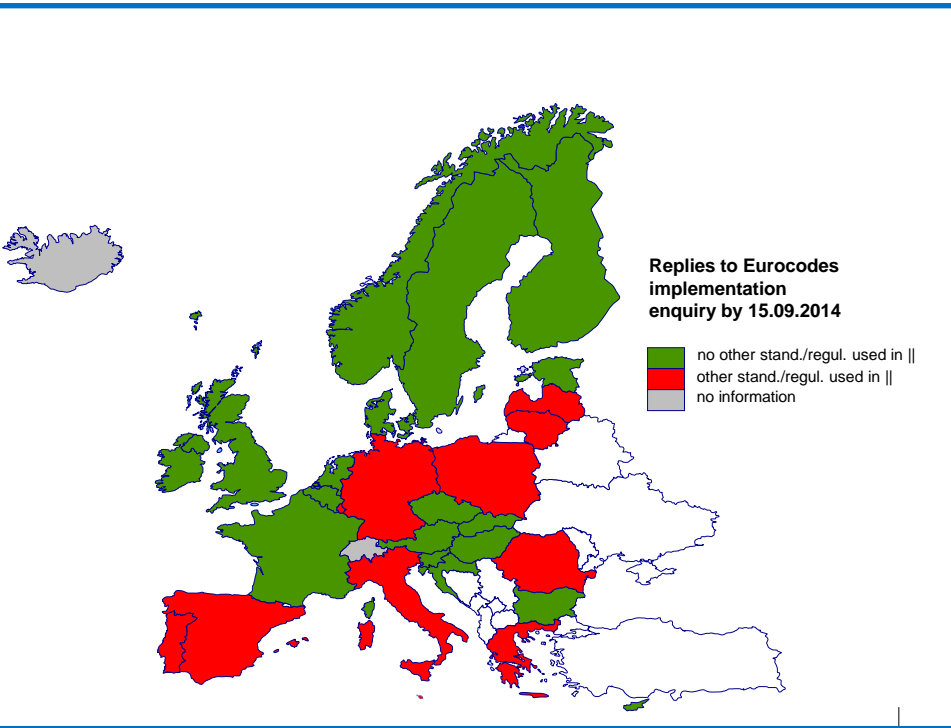
# Replies to the enquiry



# Are/will be the Eurocodes implemented in EU & EFTA MS?



# Eurocodes implementation



No other standards/regulations (will be) used in parallel

Are/will be the Eurocodes obligatory?







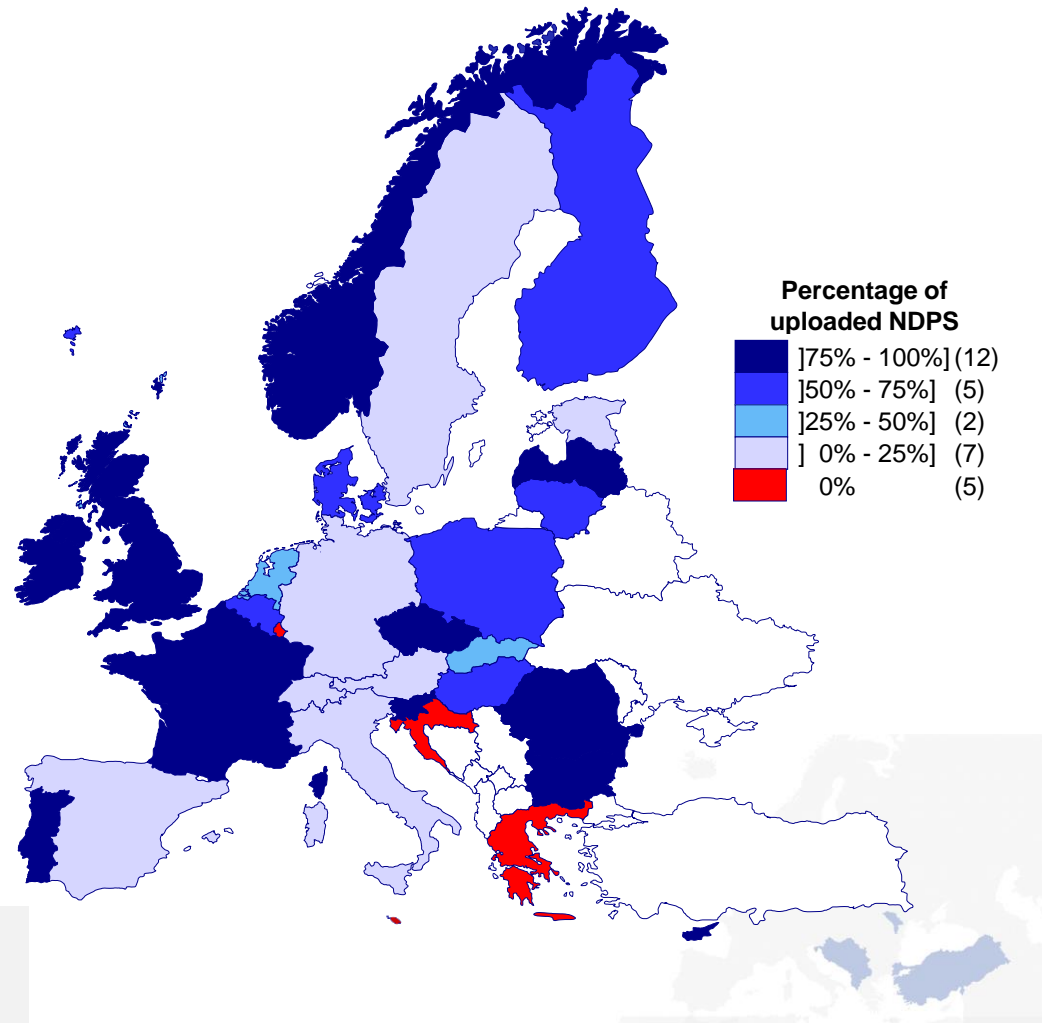
## Harmonization – NDP database

# NDPs database – progress of uploading by Country

(by 4 September 2014, % calculated on published NAs)

Out of **31 countries**  
(28 EU MS + 3 EFTA MS):

- **26** Registered and **uploading**  
(all MS registered)
- **4** Registered, **not uploading yet**  
(4 MS - Croatia, **Greece**,  
**Luxembourg** and **Malta**,)
- **1 Not registered**  
(Iceland)

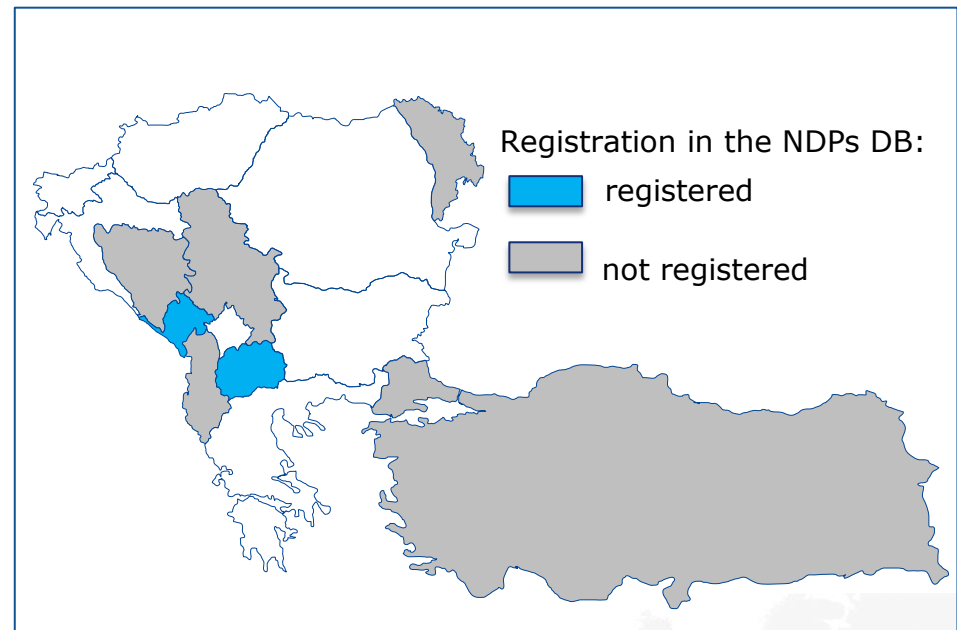


## Use of the NDPs database by the Balkan non-EU countries (by 30 October 2014)

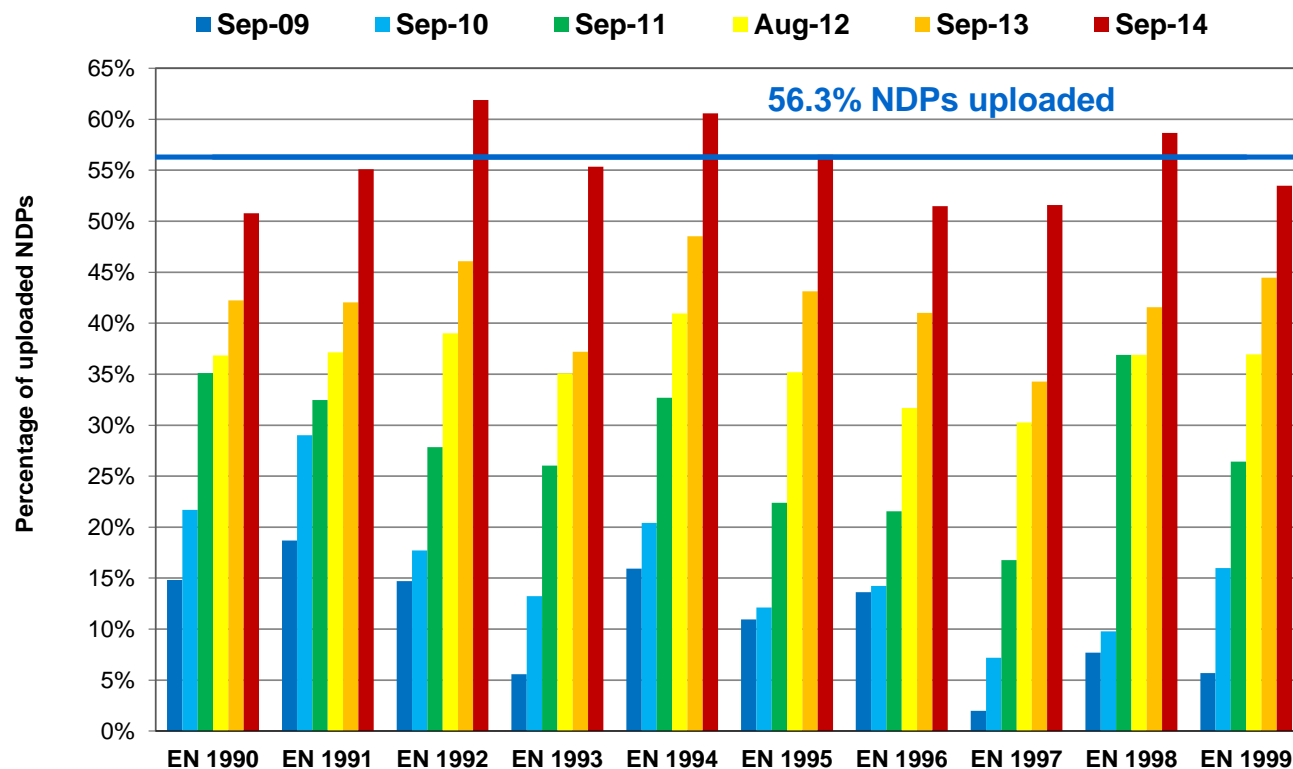
**Out of 7 countries – 2 registered:**

- **fYRoM** – registered in 2013, last entry – 10 September 2014
- **Montenegro** -registered in 2012, last entry – 15 December 2013

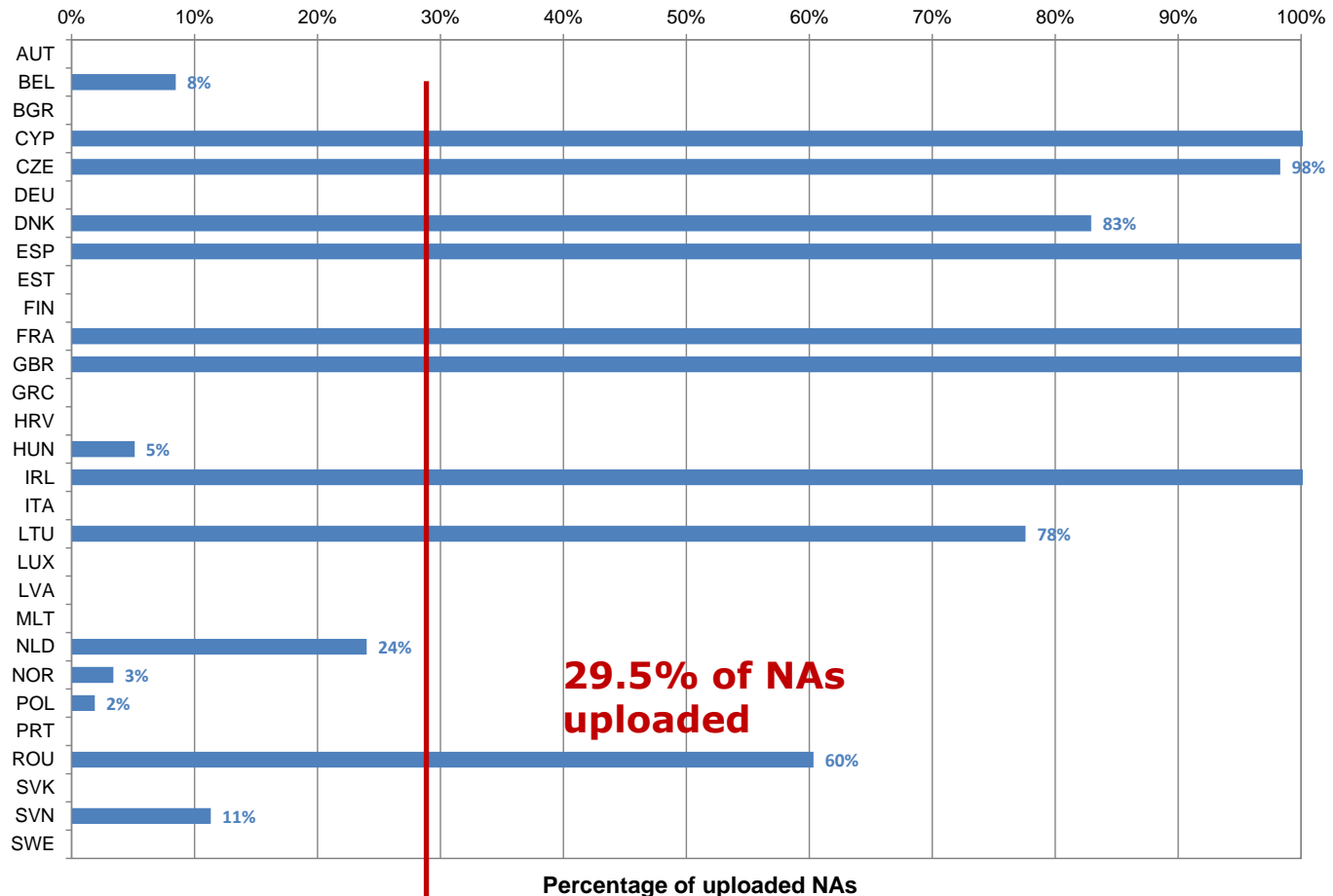
**To start registration procedure interested National Authorities or National Standardization Body shall express interest by e-mail to: [Ndp.Admin@jrc.ec.europa.eu](mailto:Ndp.Admin@jrc.ec.europa.eu)**



# NDPs database – progress of uploading by Eurocode (04 Sep 2014) calculated on published NAs

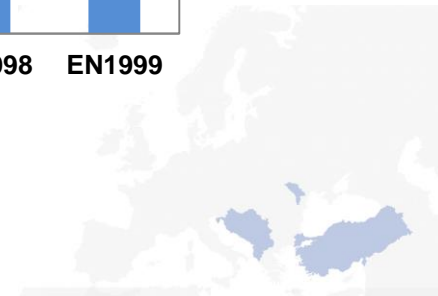
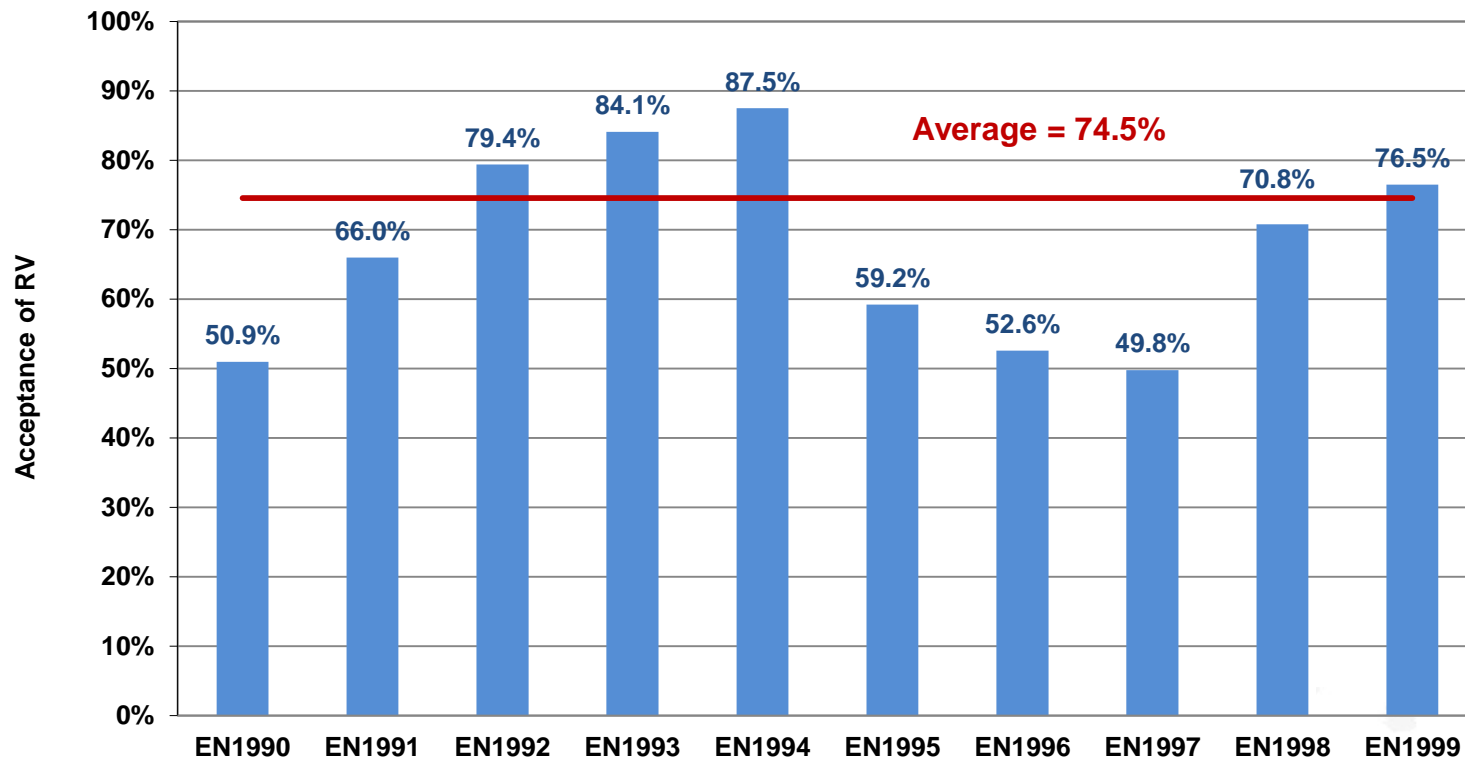


# National Annexes – progress of uploading by country (by 4 September 2014) **Expected = 1421 NA**



# NDPs database: acceptance of recommended values

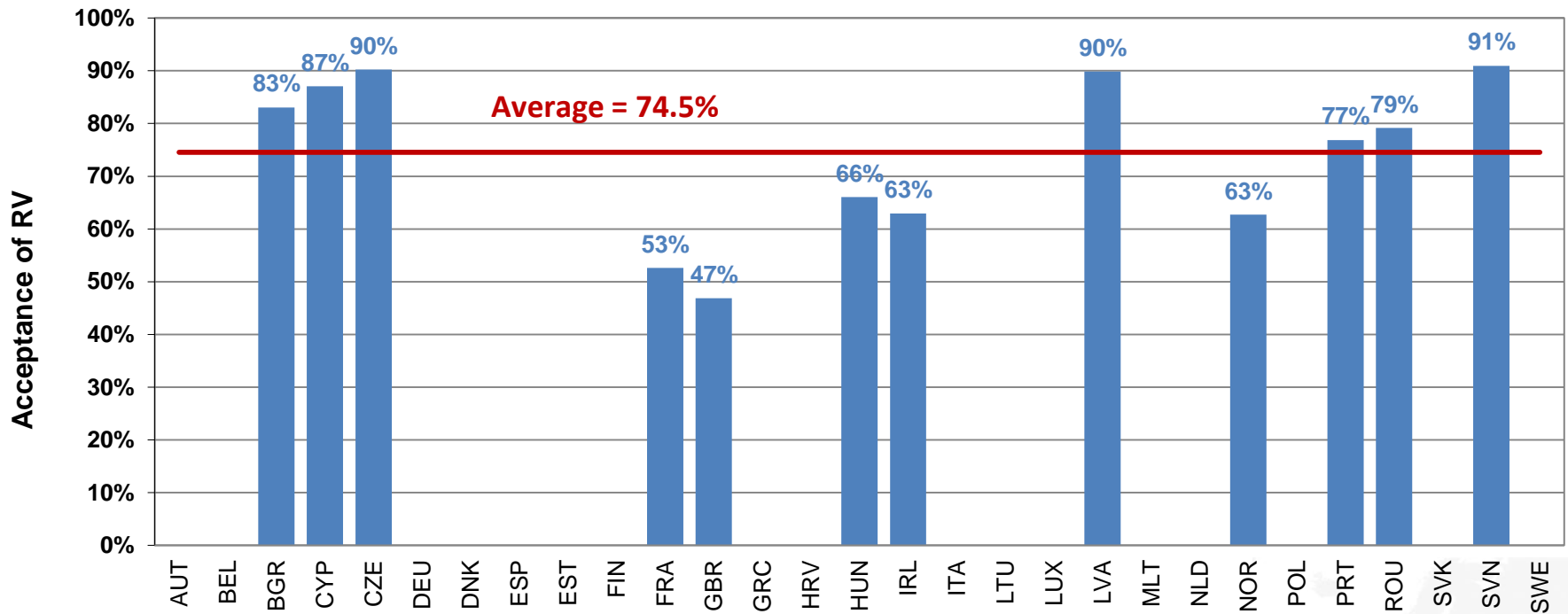
(analysis based on 56.3% of data available by 4 September 2014)



## NDPs database: acceptance of recommended values

(analysis based on 56.3 % of data available by 4 September 2014)

12 countries with > 75% NDPs uploaded



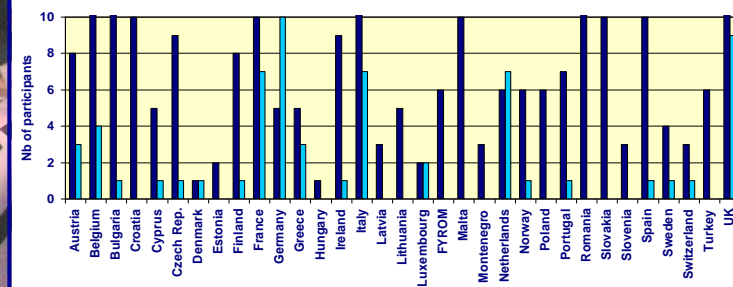


**Promotion and training**


# Eurocodes: Background and Applications

Brussels, 18-20 February 2008

- 320 participants, 60 lecturers
- all Eurocodes covered (-EC6)



# Eurocodes: Training and Promotion




**EUROCODES**  
Background and Applications

“Dissemination of information for training” workshop



18 February  
Charlemagne Conference Centre  
rue de la Loi 170, Brussels



19-20 February  
Palais des Académies  
rue Ducale 1, Brussels

Organised by  
European Commission  
DG Enterprise and Industry, Joint Research Centre

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



## With Worked Examples



Workshop on  
**BRIDGE DESIGN TO EUROCODES**  
with worked examples

4-6 October 2010, Vienna  
Austrian Federal Ministry for Transport, Innovation and Technology

2010



**EUROCODE 8**  
Background & Applications

**SEISMIC DESIGN OF BUILDINGS**  
Workshop with worked examples

10-11 February 2011, Lisbon  
Laboratório Nacional de Engenharia Civil (LNEC)

2011



**EUROCODE 2**  
BACKGROUND & APPLICATIONS

**DESIGN OF CONCRETE BUILDINGS**  
WORKSHOP WITH WORKED EXAMPLES

20 - 21 OCTOBER 2011  
BRUSSELS, BELGIUM

2011



**EUROCODES**  
BACKGROUND AND APPLICATIONS

**STRUCTURAL FIRE DESIGN**

27-28 NOVEMBER 2012  
BRUSSELS, BELGIUM

2012



**EUROCODES**  
BACKGROUND AND APPLICATIONS

**GEOTECHNICAL DESIGN**  
WITH WORKED EXAMPLES

13-14 JUNE 2013  
DUBLIN, IRELAND

2013



**Eurocodes**  
Background and Applications

**Design of Steel Buildings**  
with worked examples

16-17 October 2014  
Brussels, Belgium

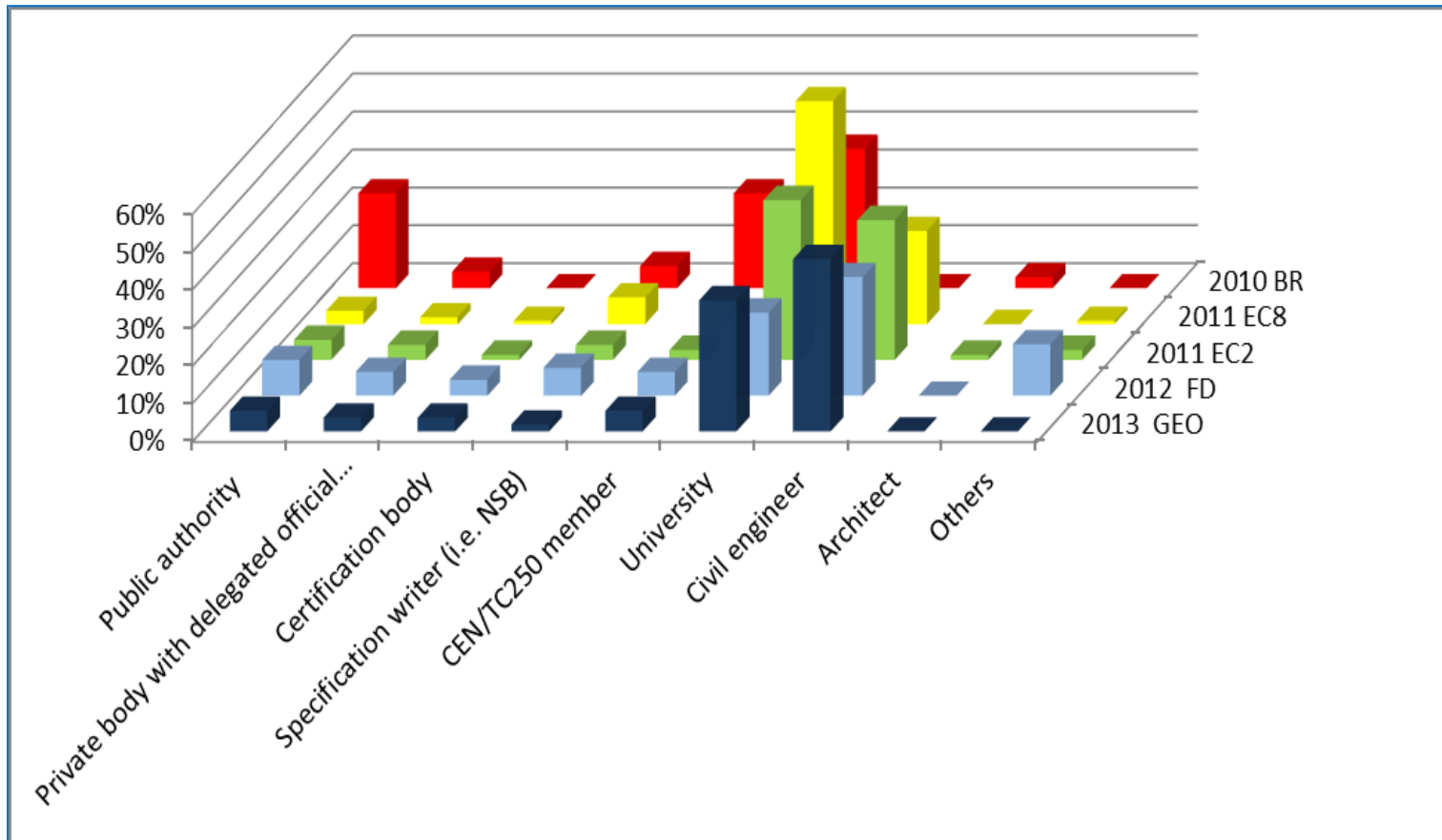
2014

**BUILDING CAPACITIES FOR ELABORATION OF NDPs AND NAS OF THE EUROCODES IN THE BALKAN REGION**

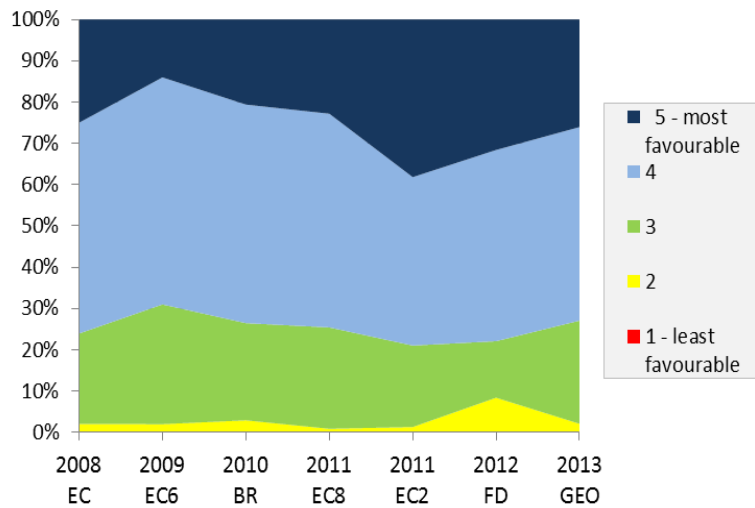
4-5 November 2014, Skopje



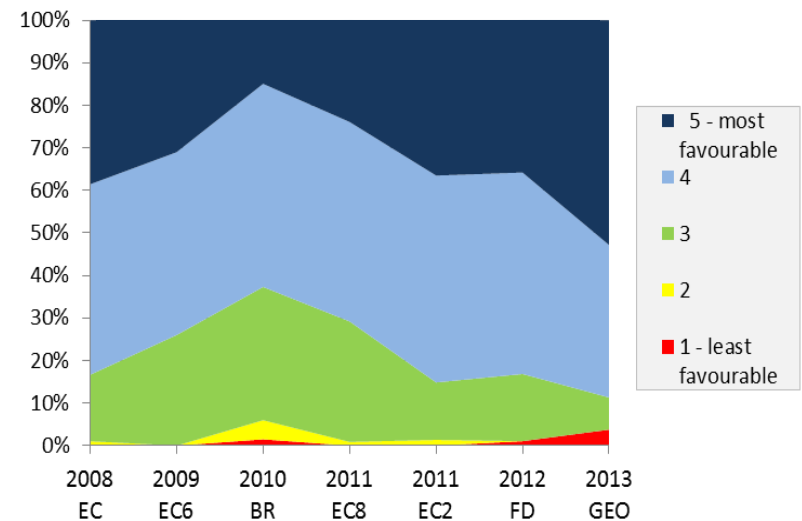
# Professional position of the participants



# Evaluation by the participants



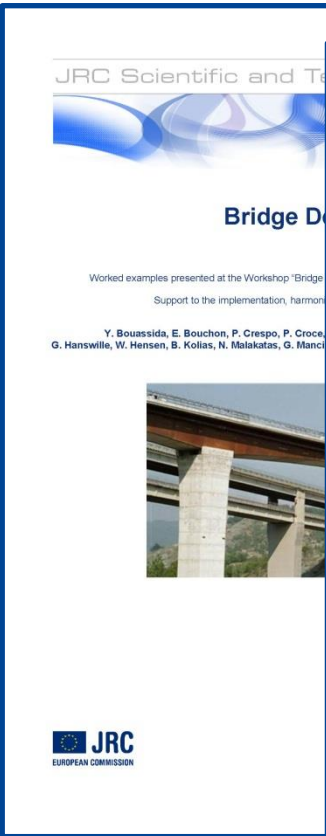
**How effective was the workshop in achieving the stated objectives?**



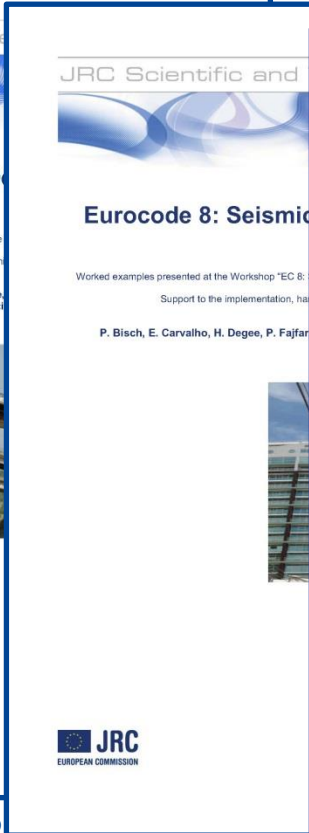
**Was the presented material appropriate?**



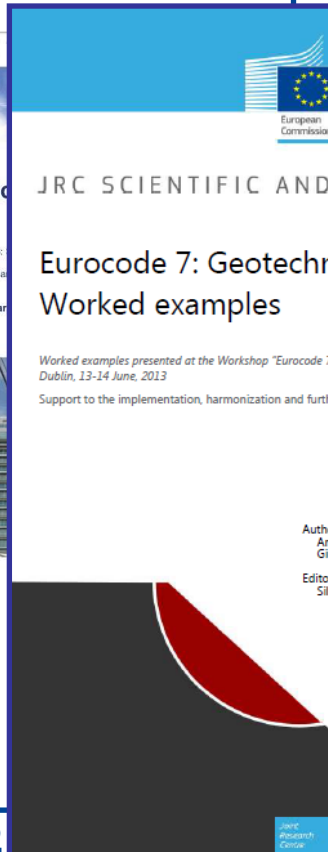
# Publishing JRC reports with worked examples



Published **2012**



Published **2012**



Published **2013**



Published **2014**



Published **2014**

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# International Promotion and Training on the Eurocodes with the involvement of the JRC and support of DG ENTR

2005 –  
Start of the  
JRC –  
Eurocodes  
promotion  
with pilot  
events

2009 –2011  
'BSI project'  
Promotion in 3<sup>rd</sup>  
countries

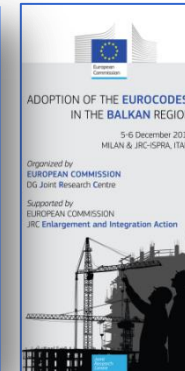
2014  
Coordinated  
promotion  
of European  
standards  
and policies



2008 - Strategy for  
Promotion  
(JRC Report )



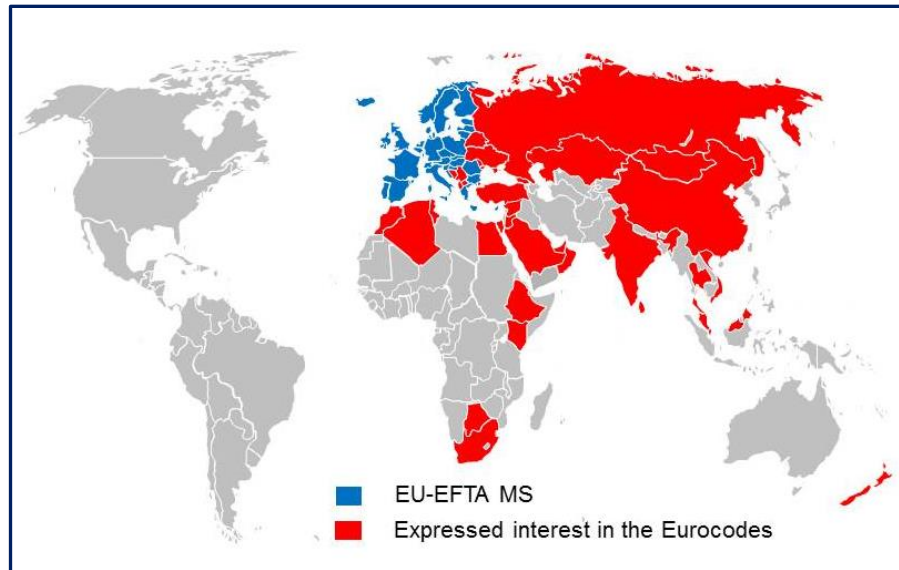
2012 -2014 Eurocodes Promotion  
on the Basis of Political Drivers (e.g.  
EU-Russia dialogues, and E&I -  
Balkan Region)



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# Eurocodes all-over the world



## Highlights:

- **South Africa** requested CEN to adopt EN 1993-1-1 and EN 1992-1-1.
- **The United Arab Emirates** requested CEN to adopt EN 1993-1-1 and EN 1992-1-1.
- **New Zealand** requested CEN for EN 1992-1-1 and EN 1998-1 for their review (not for adoption).
- **Russia** requested CEN for the Eurocodes for their review.
- **Mongolian Standards** requested to participate in the activities of CEN/TC 250.





**Eurocodes website**

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



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 Eurocodes Web Page  The Web

- About the EN Eurocodes
- CEN/TC250
- Parts
- EU Legislation & Standardisation
- Implementation
- Designing with the Eurocodes
- Maintenance
- Further Harmonization
- Research & Development
- Use outside EU-EFTA
- Glossary
- Publications
- Events
- JRC support to implementation and development

## The EN Eurocodes

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 basic requirements of the Construction Products Regulation  for construction works and products that bear the CE Marking, as well as the preferred reference for technical specifications in public contracts. [more ...]

### Singapore implements the Eurocodes on 1 April 2013

As part of the Building and Construction Authority's (BCA) efforts to be aligned with international standards and upgrade the industry's expertise, BCA introduced the Eurocodes as Singapore's building codes on 1 April 2013.

### JRC Scientific and Policy Report: Eurocodes: Structural Fire Design - Worked Examples



This document is a report with worked examples presenting the fire resistance assessment of structures according to the Eurocodes. The authors were involved in the preparation and/or assessment of the Eurocodes structural fire design parts. Each chapter of the report focuses on a specific structural material (i.e. steel, concrete, masonry, etc.) and addresses the principles and design methods followed by worked example(s). The provided information illustrates the basic design methods through examples of application. It will allow any designer to get a good understanding about the fundamentals of the fire parts of the Eurocodes and to carry out fire resistance assessments of various structures.

The materials were prepared and presented at the workshop "Eurocodes: Structural Fire Design" held on 27-28 November 2012 in Brussels, Belgium. The workshop was organized by JRC with the support of DG ENTR and CEN, and in collaboration with CEN/TC250 Horizontal Group - Fire. The document is part of the Report Series 'Support to the implementation, harmonization and further development of the Eurocodes' prepared by JRC in collaboration with DG ENTR and CEN/TC250 "Structural Eurocodes".

Download the whole report  (5.26M)

### Booklet by European Commission: The European construction sector - A global partner



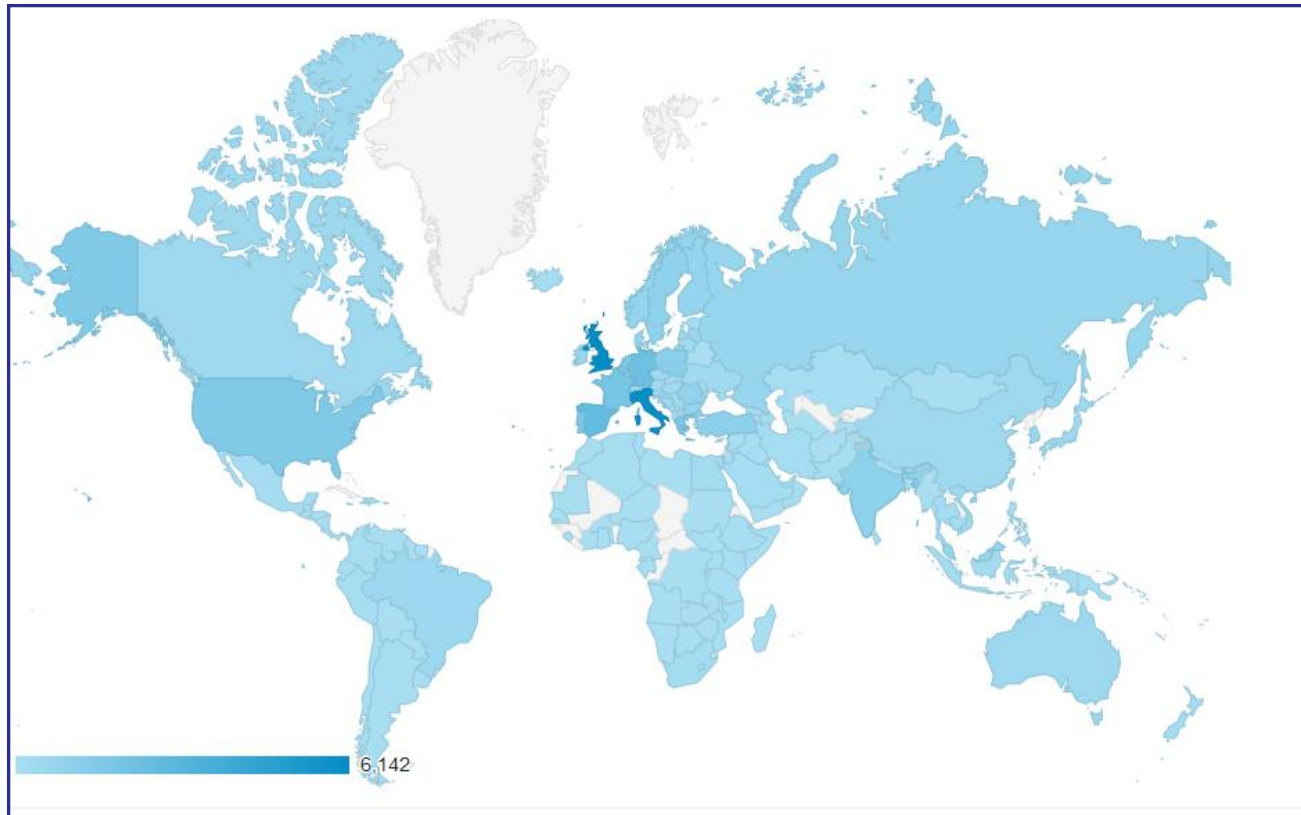
The Joint Research Centre, the Enterprise and Industry Directorate General and the Energy Directorate General produced a brochure on the integrated approach of European policies for the construction sector. It covers sustainability, in terms of energy and resource efficiency, health and safety issues for buildings, construction works and products. The brochure gives information on the available support schemes and financial instruments and highlights the benefits of international cooperation.

Download  (1.9M)

**BUILDING CAPACITIES FOR ELABORATION OF NDPs AND NAs OF THE EUROCODES IN THE BALKAN REGION**  
**4-5 November 2014, Skopje**



# Eurocodes Website hits by **country** in 2014



Total **53 139** hits

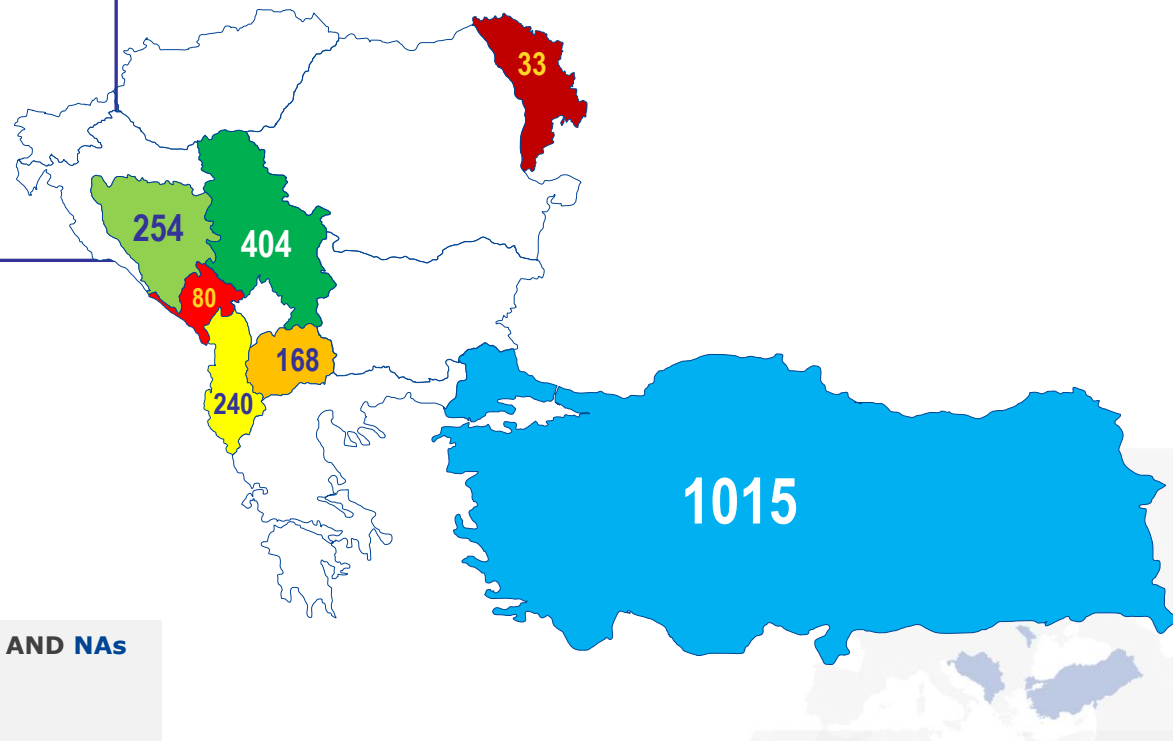
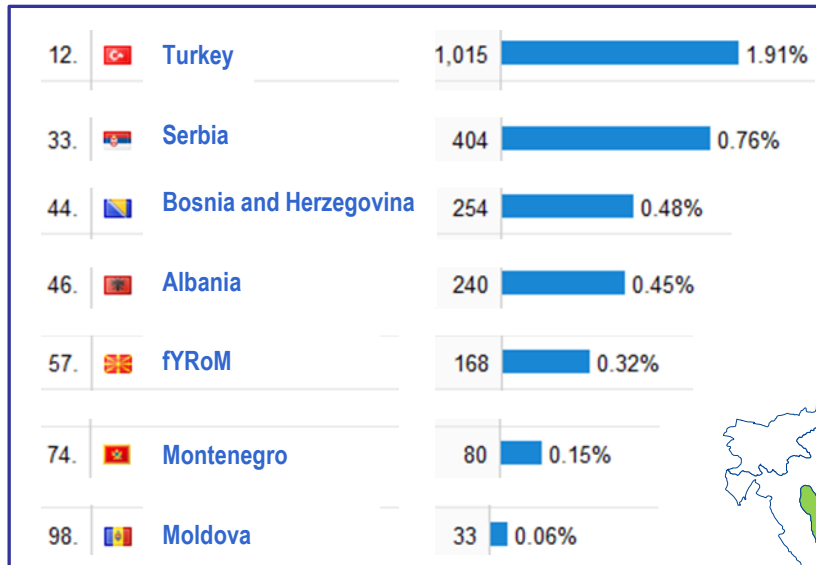
<http://eurocodes.jrc.ec.europa.eu/>

BUILDING CAPACITIES FOR ELABORATION OF NDPs AND NAs  
OF THE EUROCODES IN THE **BALKAN** REGION


4-5 November 2014, Skopje



# Eurocodes Website hits by country in 2014



# Download presentations to all JRC Eurocodes workshops




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- About the EN Eurocodes
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- Use outside EU-EFTA
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- Events
- JRC support to implementation and development


## DESIGN OF STEEL BUILDINGS

### Workshop with worked examples

16-17 October, 2014, Brussels, Belgium

VENUE: The Hotel, Boulevard de Waterloo 38, 1000 Brussels  
T +32 (0)2 504 11 11 | F +32 (0)2 504 21 11  
[www.thehotel.be](http://www.thehotel.be)



- Objectives
- Programme
- Participants
- Workshop Presentations 
- Registration
- Contacts

**Objectives**







The Workshop 'Design of steel buildings with the Eurocodes', with emphasis on worked examples, intends Convention for Constructional Steelwork (ECCS) to potential trainers and Eurocodes users.

The principal objectives of the Workshop are:




## Workshop Presentations

**Note:** if you have problem when displaying a presentation in your browser please refer to [this link](#).

### Thursday, 16 October, 2014 - morning

- **Welcome addresses and introduction by JRC**  (4.7 MB)  
A. Pinto, S. Dimova - DG JRC, European Commission
- **Welcome addresses and introduction by DG ENTR**  (330.7 KB)  
G. Katsarakis - DG ENTR, European Commission
- **The present and future of the Eurocodes**  (3.4 MB)  
S. Denton - Chairman CEN/TC250
- **Overview of EN 1993**  (3.3 MB)  
U. Kuhlmann - Chairman CEN/TC250/SC3
- **Basics of design, a case study building (part 1)**  (5.1 MB)  
L. Simões da Silva (Presented by M. Veljkovic)
- **Basics of design, a case study building (part 2)**  (2.1 MB)  
L. Simões da Silva (Presented by R. Simões)


### Thursday, 16 October, 2014 - afternoon

- **Member design**  (5.9 MB)  
R. Simões
- **Bolts, welds, column base**  (4.7 MB)  
F. Wald
- **Design of structural steel joints**  (6.6 MB)  
K. Weynand, J.-P. Jaspart

### Friday, 17 October, 2014 - morning

- **Cold-formed steel design**  (56.6 MB)  
D. Dubina
- **European Master for Steel Structures**  (1.6 MB)  
F. Wald
- **Seismic design of steel structures**  (6.1 MB)  
R. Landolfo

### Friday, 17 October, 2014 - afternoon

- **EN 1993-1-2 - Resistance of members and connections to fire**  (2.9 MB)  
P. Vila Real



**BUILDING CAPACITIES FOR ELABORATION OF NDPs AND NAs OF THE EUROCODES IN THE BALKAN REGION**

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# Download JRC Reports with worked examples



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The EN Eurocodes are a series of 10 European Standards, EN 1990 - EN 1997-1, which are the recommended means of giving a presumption of conformity with the Eurocodes. They are the preferred reference for technical specifications in public contracts. [more]

**Singapore implements the Eurocodes on 1 April 2013**

As part of the Building and Construction Authority's (BCA) efforts to be a leader in the region, Singapore implemented the Eurocodes on 1 April 2013.

**JRC Scientific and Policy Report: Eurocodes: Structural Fire Design**



This document is a report with worked examples of application. It will allow any designer to get a good understanding about the fundamentals of the fire parts of the Eurocodes and to carry out fire resistance assessments of various structures.

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The document is part of the Report Series 'Support to the implementation, harmonization and further development of the Eurocodes' prepared by JRC in collaboration with DG ENTR and CEN/TC250 "Structural Eurocodes".

[Download the whole report](#)



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Eurocodes Web Page  The Web

**Eurocodes: Background & Applications. STRUCTURAL FIRE DESIGN. Worked examples**

JRC Report: Eurocodes Scientific and Technical Report by O.Vassart, B.Zhao, L.G.Cajot, F.Robert, U.Meyer, A.Frangi

Published in Publications Office of the European Union, JRC, 2014

[http://eurocodes.jrc.ec.europa.eu/doc/2012\\_11\\_WS\\_fire/report/2012\\_11\\_WS\\_fire.pdf](http://eurocodes.jrc.ec.europa.eu/doc/2012_11_WS_fire/report/2012_11_WS_fire.pdf)

This document is a report with worked examples presenting the fire resistance assessment of structures according to the Eurocodes. The authors were involved in the preparation and/or assessment of the Eurocodes structural fire design parts. Each chapter of the report focuses on a specific structural material (i.e. steel, concrete, masonry, etc.) and addresses the principles and design methods followed by worked example(s). The provided information illustrates the basic design methods through examples of application. It will allow any designer to get a good understanding about the fundamentals of the fire parts of the Eurocodes and to carry out fire resistance assessments of various structures.

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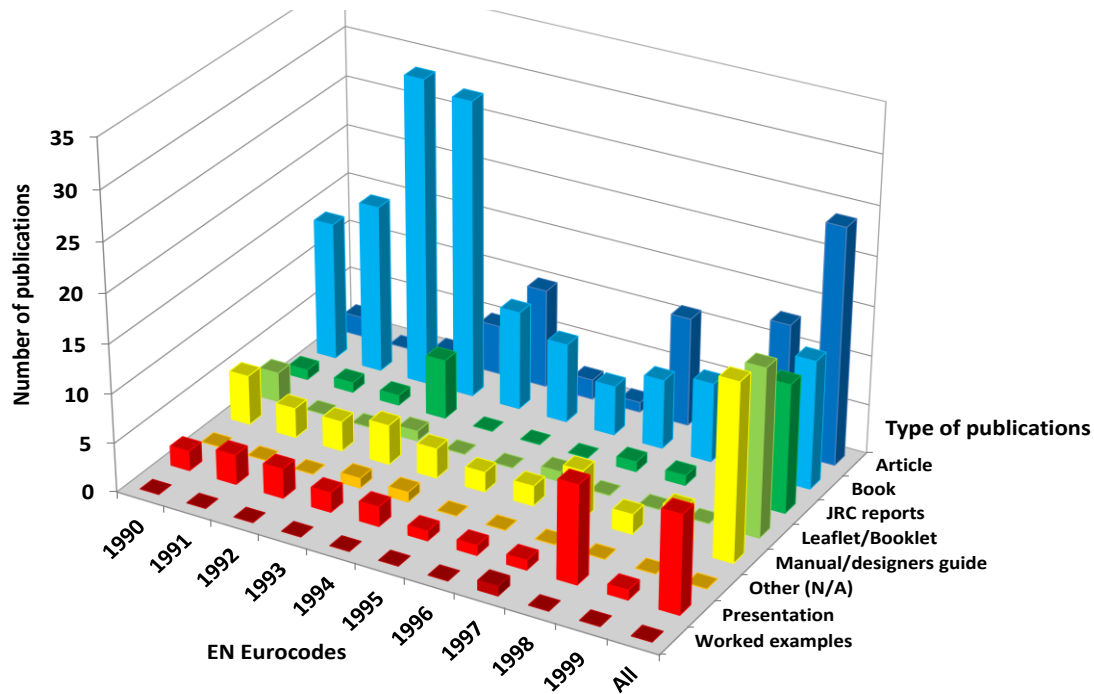
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# Eurocodes Website Publications Database

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

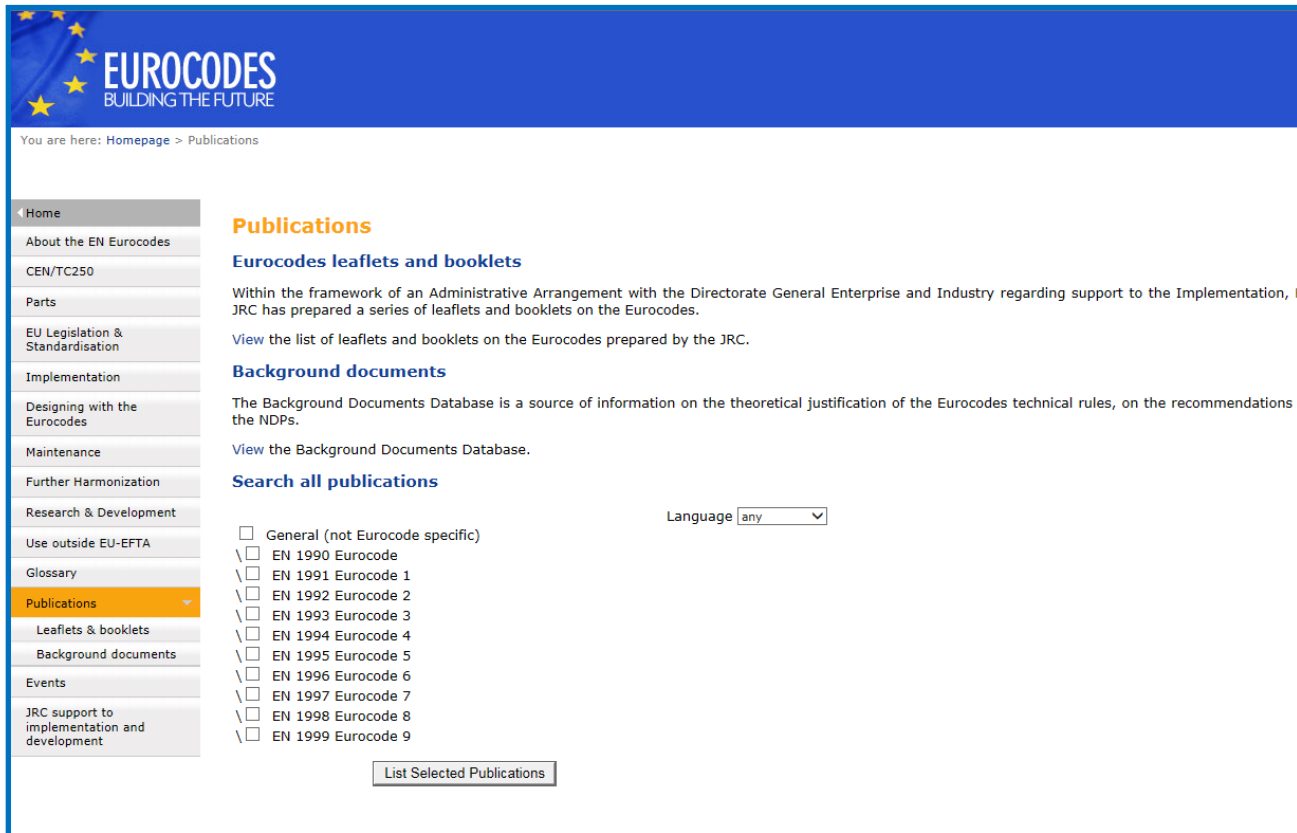


**Total = 305 publications**



# Eurocodes Website Publications Database

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



The screenshot shows the Eurocodes website's Publications Database interface. At the top left is the Eurocodes logo with the tagline "BUILDING THE FUTURE". Below it, a breadcrumb trail reads "You are here: Homepage > Publications". A left-hand navigation menu lists various categories, with "Publications" currently selected. The main content area is titled "Publications" and is divided into three sections: "Eurocodes leaflets and booklets", "Background documents", and "Search all publications". The "Search all publications" section includes a language dropdown menu set to "any" and a list of checkboxes for Eurocodes EN 1990 through EN 1999. A "List Selected Publications" button is located at the bottom of the search section.

**EUROCODES**  
BUILDING THE FUTURE

You are here: [Homepage](#) > [Publications](#)

**Publications**

**Eurocodes leaflets and booklets**

Within the framework of an Administrative Arrangement with the Directorate General Enterprise and Industry regarding support to the Implementation, JRC has prepared a series of leaflets and booklets on the Eurocodes.

[View the list of leaflets and booklets on the Eurocodes prepared by the JRC.](#)

**Background documents**

The Background Documents Database is a source of information on the theoretical justification of the Eurocodes technical rules, on the recommendations from the NDPs.

[View the Background Documents Database.](#)

**Search all publications**

Language:

General (not Eurocode specific)

EN 1990 Eurocode

EN 1991 Eurocode 1

EN 1992 Eurocode 2

EN 1993 Eurocode 3

EN 1994 Eurocode 4

EN 1995 Eurocode 5

EN 1996 Eurocode 6

EN 1997 Eurocode 7

EN 1998 Eurocode 8

EN 1999 Eurocode 9



# Collection of feedback on practical implementation of the Eurocodes

Collected by October 2014 :

- **guidance material** – 305 publications,
- **information on structures designed with the Eurocodes** – 47 structures, from which 32% built in third countries.

The collected feedback is/will be used for:

- publication on the Eurocodes website,
- preparation of the Workshop on practical experience using the Eurocodes – in 2015.

Your can submit feedback material. Please contact

*[eurocodes@jrc.ec.europa.eu](mailto:eurocodes@jrc.ec.europa.eu)*



# List of Eurocodes software (free and commercial)



**EUROCODES**  
BUILDING THE FUTURE

**Home page**

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**Singapore implements the Eurocodes on 1 April 2013**

As part of the Building and Construction Authority's (BCA) efforts to b April 2013.

**JRC Scientific and Policy Report: Eurocodes: Structural Fire D**

This document is a report with

**Eurocode Software**

Prof. Francesco Biasioli from the Politecnico di Torino compiled a list of commercial

### FREE EUROCODE DESIGN SOFTWARE

Name	SW House	Count.	Lan[*]	Eurocode									Tot Ecs	Web site
				2	3	4	5	6	7	8	9			
Freelem	Freelem	FR	N		x		x				x		3	www.freelem.com
Masterbeam	Masterseries	UK	Y	x	x								2	www.masterseries.co.uk
Jasp	IngegneriaNet	IT	N	x							x		2	www.ingegnerianet.it
VCASLU	Prof. P Gelfi	IT	N	x									1	dicats.ing.unibs.it/gelfi
Tracon	CDM Dolmen	IT	x	x									1	www.cdmolmen.it
RC Section calculator	APIS	UK	Y	x									1	www.apiscalcs.com
A3C - PSL - ABC	ArceIorMittal	L	Y			x							1	www.arcelormittal.com/sections
EC6design (trial 3 months)	DTI - Danish Techn.	DK	Y						x				1	www.ec6design.com
RCC2000	Reinf. Con. Counc.	UK	y	x									1	www.civil.port.ac.uk/rcc2000
Stainless steel	The steel const. Inst.	GB	y		x								1	www.steel-stainless.org/software
Timbersizer EC5	Trada	GB	y				x						1	www.trada.co.uk

### COMMERCIAL EUROCODE DESIGN SOFTWARE

Name	SW House	Count.	Lan[*]	Eurocode									Tot Ecs	Link
				2	3	4	5	6	7	8	9			
SCIA Engineer	Nemetschek	D	Y	x	x	x	x	x	x	x	x	x	8	www.scia-online.com
CYPECAD	CYPE	SP	Y	x	x	x	x	x	x	x	x	x	8	www.cype.com
RSTAB	Dlubal	D	Y	x	x	x	x	x	x	x	x	x	8	www.dlubal.com

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*Thank you  
for your attention*

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