JRC support to the implementation of the Eurocodes

A. Pinto, F. Taucer, S. Dimova, R. Apostolska, L. Sousa, B. Nikolova
Outline

- Promotion and training in EU
- Implementation of the Eurocodes
- Harmonization – NDP database
- Further development (M466 EN and M515 EN)
- Promotion of the Eurocodes outside EU
Training workshops

- **Level 1** – policy for the implementation of the Eurocodes, National Annexes, co-existence with National Codes, etc.;
- **Level 2** – introductory courses for each individual Eurocode;
- **Level 3** – comprehensive courses with design examples of a number of typical structures using a particular package of the Eurocodes.
Training and promotion
(Level 2/3 training workshops – with worked examples)

The following workshops on Eurocodes were held:

- **Design of Bridges** with the Eurocodes
  Programme coordination: Steve Denton (CEN/TC250/HG Bridges)
  3 days, 4-6 Oct 2010, Vienna

- **Eurocode 8: Seismic Design of Buildings** (RC and Steel)
  Programme coordination: Eduardo Carvalho (CEN/TC250/SC8)
  2 days, 10-11 Feb 2011, Lisbon

- **Eurocode 2: Design of Reinforced Concrete Buildings**
  Programme coordination: Giuseppe Mancini (CEN/TC250/SC2)
  and Francesco Biasoli, 2 days, Oct 20-21 2011, Brussels

- **Structural Fire Design** with the Eurocodes
  Programme coordination: Bin Zhao (CEN/TC250/HG Fire)
  2 days, 27-28 Nov 2012, Brussels

- **Geotechnical Design** with the Eurocodes
  Programme coordination: Andrew Bond (CEN/TC250/SC8)
  2 days, 13-14 June 2013, Dublin

The training material is available on the EUROCODES website.
Publishing JRC reports with worked examples

**Published** JRC reports:


**JRC reports in advanced preparation:**

1. “Eurocodes: Structural Fire Design – Worked examples”

2. “Eurocode 2: Design of Concrete Buildings” (forthcoming publication)
ADOPTION OF THE EUROCODES IN THE BALKAN REGION
5-6 December, 2013

Information on the Eurocodes website

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

- Training events
- Material from the Workshops
- Publications
- Feedback from use
Designer’s guides, handbooks

- A variety of materials is published in many languages and on all Eurocodes

- Searchable **database** of publications at Eurocodes website

- Free-of-charge publications are also available
  - JRC/ECCS reports
  - Leonardo Project Handbooks
  - …
New JRC Scientific and Policy Reports

Choice of Steel Material to Avoid Brittle Fracture for Hollow Section Structures

The evolution of Eurocodes for bridge design

Choice of steel material for bridge bearings to avoid brittle fracture

Published on the Eurocodes website

ADOPTION OF THE EUROCODES IN THE BALKAN REGION

5-6 December, 2013
National implementation in EU/EFTA - Publication of National Standards

(Information from ENC meeting: 13/09/2010)
(updated by individual contributions of some Member States)
Implementation of the Eurocodes


On the next Standing Committee for Construction DG ENTR will invite the Member States to fill in a questionnaire on the state of implementation.
Collection of feedback on practical implementation of the Eurocodes

Collected by 2 September:
• guidance material – 59 publications
• information on structures designed with the Eurocodes – 39 structures, from which 31% built in third countries

The collected feedback will be used for:
• publication on the Eurocodes website
• preparation of the Workshop on practical experience using the Eurocodes – in 2014.
Harmonization – NDP database and JRC activities
Harmonization

1. Harmonization of implementation by EU and EFTA MS

Commission Recommendation of 11 December 2003: *MS should diverge from the recommended values only where geographical, geological or climatic conditions or specific levels of protection make that necessary.*

- Comparison of chosen NDPs
- Cross-border convergence of NDPs

2. Harmonization of second generation of Eurocodes:

- Assessment of the potential for reduction of the NDPs
- Harmonization between the Eurocodes
NDPs database – progress of uploading by 7 November 2013

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

- **25 Registered and uploading** (all MS registered)
- **5 Registered, not uploading yet** (5 MS - Croatia, Greece, Italy, Luxembourg and Malta)
- **1 Not registered** (Iceland)

**15,935 NDPs uploaded (34.8 %)**

299 parts completed (16%)

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NDPs database progress of uploading

Recently progressing with the upload:

- Bulgaria
- Hungary
- Latvia
- Lithuania
- Portugal
- UK
NDPs database – progress of uploading
(by 7 November 2013)

- Czech Republic: 100%
- Ireland: 99.5%
- Norway: 94.9%
- Romania: 92.3%
- Slovenia: 88.8%
Progress of uploading by Eurocode
Acceptance of recommended values

(analysis based on 35% of data available by 7 November 2013)

We can expect good harmonization in the National adoption of the most wide-used “material Eurocodes” EN 1992 and EN 1993.

The “head” Eurocode EN 1990 - 51% of acceptance. Special attention should be paid to the divergences from the recommended values and their impact as regards the technical differences for works.
5 countries with > 75% NDPs uploaded:
- Czech Republic
- Ireland
- Norway
- Romania
- Slovenia

Analysis of the divergences:
- significance of the climatic and geographical conditions
- significance of the technical traditions.
Among the 5 countries with > 75% NDPs uploaded:

- the **highest** rate of acceptance of the RV - **Slovenia 91.0%** and **Czech Republic 90.2%**

- the **lowest rate** of acceptance by **Norway 62.7%** and **Ireland – 62.9%**

- **Romania – 79.2% accepted**
Further development of Eurocodes
(M466 EN and M515 EN)
CEN was requested to provide a programme covering:

• the development of new standards or new parts of existing standards, e.g. a new construction material and corresponding design methods or a new calculation procedure;

• the incorporation of new performance requirements and design methods in the existing standards.

CEN replied in June 2011.
M515 EN/12th December 2012 : European Commission Mandate to CEN for Amending Existing Eurocodes and Extending the scope of the Eurocodes

Basing on CEN reply to M446 EN, CEN is invited to develop a detailed work programme:


**General requirements:**
- Extension of existing rules to the assessment and strengthening of *existing buildings and structures*;
- Extension of existing rules for *robustness*. 
Other requirements:

• Access the potential to reduce the NDPs;
• Improve the ‘ease of use’;
• Contribute to sustainability;
• Adoption of ISO standards (e.g. atmospheric icing, ...);
• Auxiliary guidance documents;
• Provide background documents;
• Technical report on impacts of climate change.

JRC contribution

Support to CEN/TC250 on the definition of the potential for reduction of the number of the NDPs in the second generation of the Eurocodes.

The standardisation programme of TC250 envisages that the new pre-normative documents will first be published as JRC Scientific and Policy Reports, before their publication as CEN Technical Specifications. After a period for trial use and commenting, TC 250 will decide whether the Technical Specifications should be converted into ENs.

Technical and organizational support to DG ENTR and CEN/TC250 for standardisation works.
Three events on earthquake engineering/EN1998
JRC/Ispra, 27-29 November 2013

1) First meeting of the Working Group 1 (WG1) on Eurocode 8 of the European Association for Earthquake Engineering (EAEE).

2) Workshop on Seismic Hazard Harmonization in Europe with the team of FP7 SHARE project, CEN/TC250/SC8 and WG1 of the EAEE to discuss the SHARE model, hazard results and the possibility for implementation of SHARE engineering output.

3) 27th meeting of CEN/TC250/SC8 to prepare a detailed work schedule for tasks included in the Phase 1 of the evolution of Eurocode 8, to specify the SC8 criteria for selection of Project Team (PT) members, and to address the reestablishment of National Technical Contacts.
Meeting on implications of climate change on structural design
JRC/Ispra, 2 December 2013

Participants:
**TC250**: SC1, WG2 and WG7
**JRC**: Structural Assessment Unit, Climate Risk Management Unit

Indications for change (compared to the data of late '90ies) of the extreme (or/and mean) values for:
- temperature/thermal effects,
- wind,
- snow,
- precipitations.
Global Promotion of Eurocodes

The EU/JRC, BSI, CEN, experts: Eurocodes globally seminars and lectures

Expressed Interest on the Eurocodes
Promotion outside EU

Awareness material

International workshops
EU-Russia “Eurocodes Cooperation”: A brief summary (events)

2008
Moscow:
- Show-road
- Secure Partners

2010
Moscow:
- Training the trainers
- Cooperation: Education and training

2012
Italy, EU:
- Bridge Design
- Reinforce cooperation
- Foster Agreement
CEN / ROSSTAND

2013
St. Petersburg:
- Bridge Design: Worked examples (hands-on)
- Facilitate Exchange of views
- Setup of Working groups: Russian and EU experts

March 2010: EU-Russia Regulatory Dialogue on construction
Promotion of Eurocodes in 3rd countries:

Other highlights:

- **Singapore**: adopted Eurocodes as of April 2013
- **Ethiopia**: to be adopted as of December 2013
- **Malaysia**: process for adoption on-going
- **Vietnam**: expressed interest
- **China**: MoU to be signed btw. JRC - University of Tongji
• **Supported by** the JRC Enlargement and Integration action, DG ENTR, DG ELARG, CEN MC, CEN/TC250, MS (Belgium, Bulgaria, Croatia)

• **Participants from non-EU countries** (Albania, Bosnia and Herzegovina, former Yugoslav republic of Macedonia, Moldova, Montenegro, Serbia and Turkey) and Croatia

• Focus on the **progress and specific needs** for adoption and implementation of the Eurocodes and related EN standards in the Balkan region
Thank you for your attention

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