

***"The way forward for the Eurocodes implementation in the Balkans"***

***10-11 October 2018, Tirana***

## **Country report: Bosnia and Herzegovina**

**Prof. Dr. Sanin Džidić, IBU Sarajevo**

**Bojana Zečević, BAS Expert for Standardization**

**Igor Dizdar, Federal Ministry of Physical Planning**

# STATUS OF EUROCODES IN BIH IN 2013

***Summary of the questionnaires filled by  
National Authority relevant representatives  
from non-EU countries in the Balkan region***

*by*

*Artur Pinto, Fabio Taucer, Silvia Dimova, Roberta  
Apostolska*

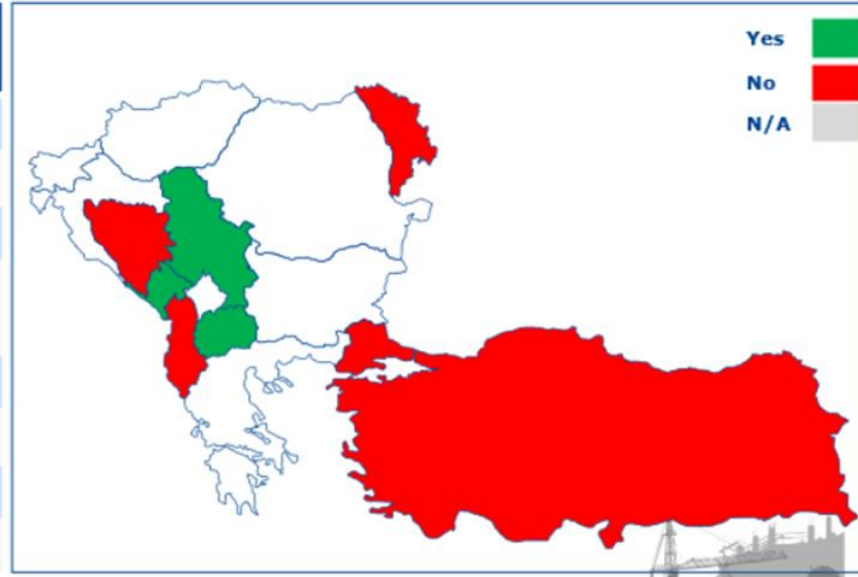
*[http://eurocodes.jrc.ec.europa.eu/showpage.php?id=2013\\_12\\_WS\\_Balkan#Presentations](http://eurocodes.jrc.ec.europa.eu/showpage.php?id=2013_12_WS_Balkan#Presentations)*

International Workshop "Adoption of the EUROCODES in the Balkan Region", organized by European Commission, EC Research Centre, Institute for the Protection and Security of Citizen, European Laboratory for Structural Assessment in Milan - Ispra, Italy on December 5 and 6, 2013

## NATIONAL REGULATORY FRAMEWORK

### 1.1 Is there a National Action plan for adoption and implementation of the Eurocodes

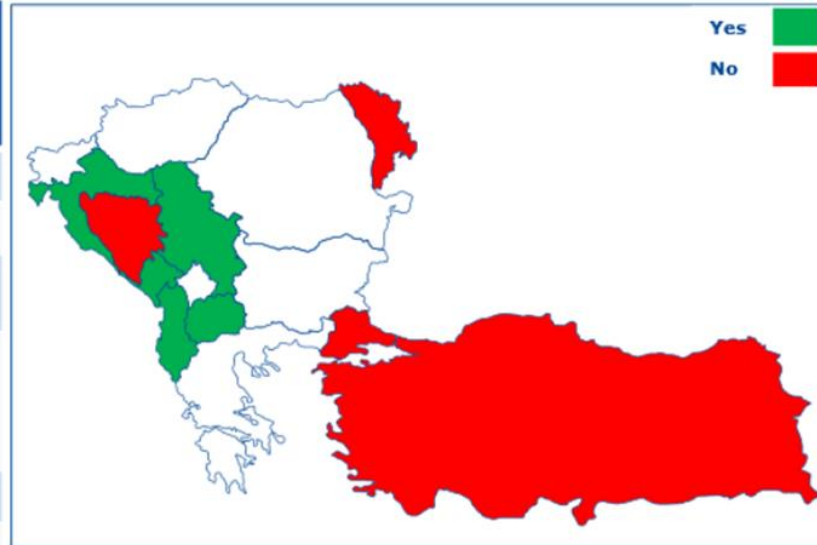
Albania	Strategy report – MPPT
Bosnia and Herzegovina	No
Croatia	Eurocodes is already adopted
the former Yugoslav Republic of Macedonia	Yes
Moldova	No, initiated by MCDT
Montenegro	Yes
Turkey	No, (EC8 included in NSAP)
Serbia	Yes



## NATIONAL REGULATORY FRAMEWORK

### 1.3 Does any relevant national institution support projects for A/I of Eurocodes? If yes, please give information and reference to any project financed by EU

Albania	GDS (NSB)
Bosnia and Herzegovina	No
Croatia	MGIPU, HZN (NSB) & Chamber of Civil Engineers (national)
the former Yugoslav Republic of Macedonia	ISRM (NSB), Chamber of authorized architects and engineers/TAIEX, IPA and GTZ support
Moldova	No
Montenegro	Twinning project/EU-IPA
Turkey	No
Serbia	Academia and ISS (NSB)/GTZ and DIN support

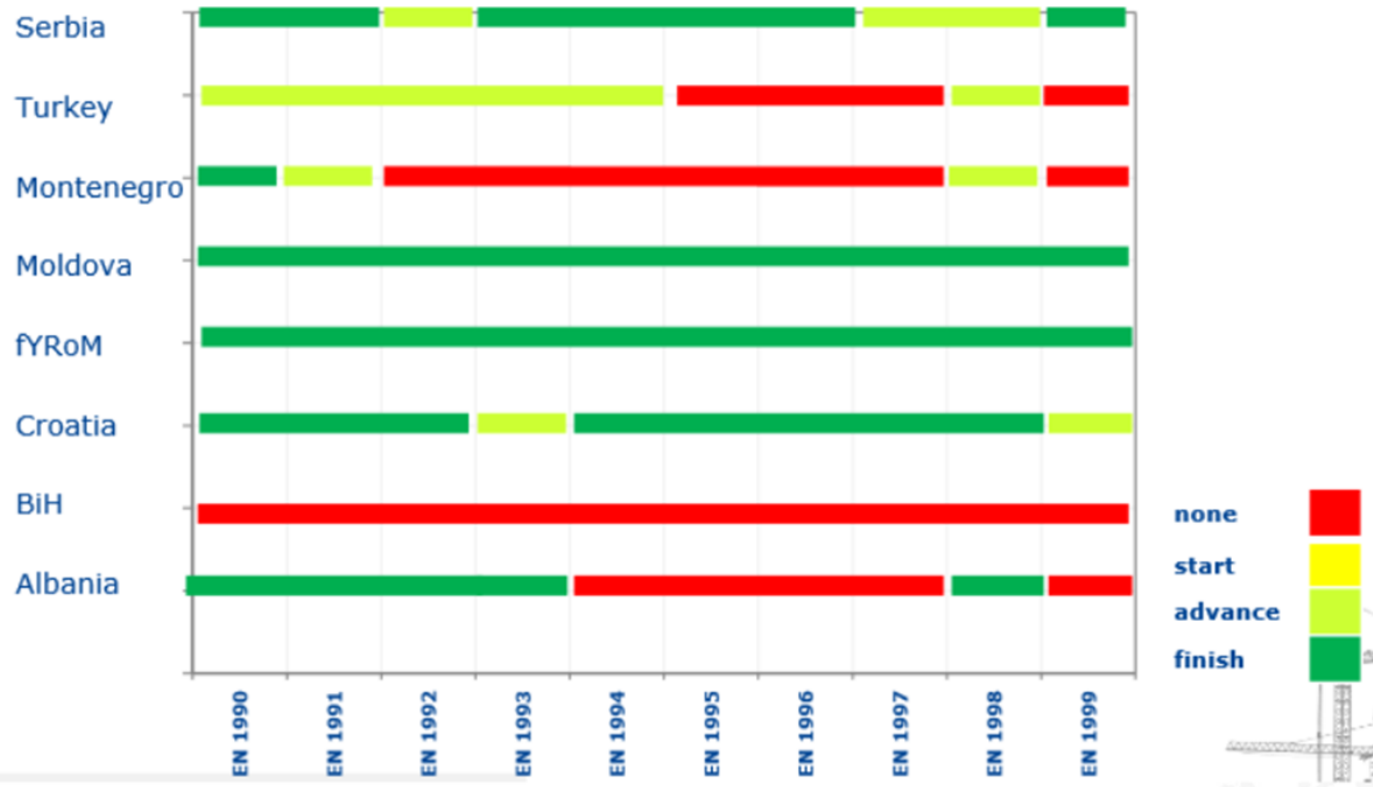


## 2.1 Is there a Technical Committee for adoption of the Eurocodes already established

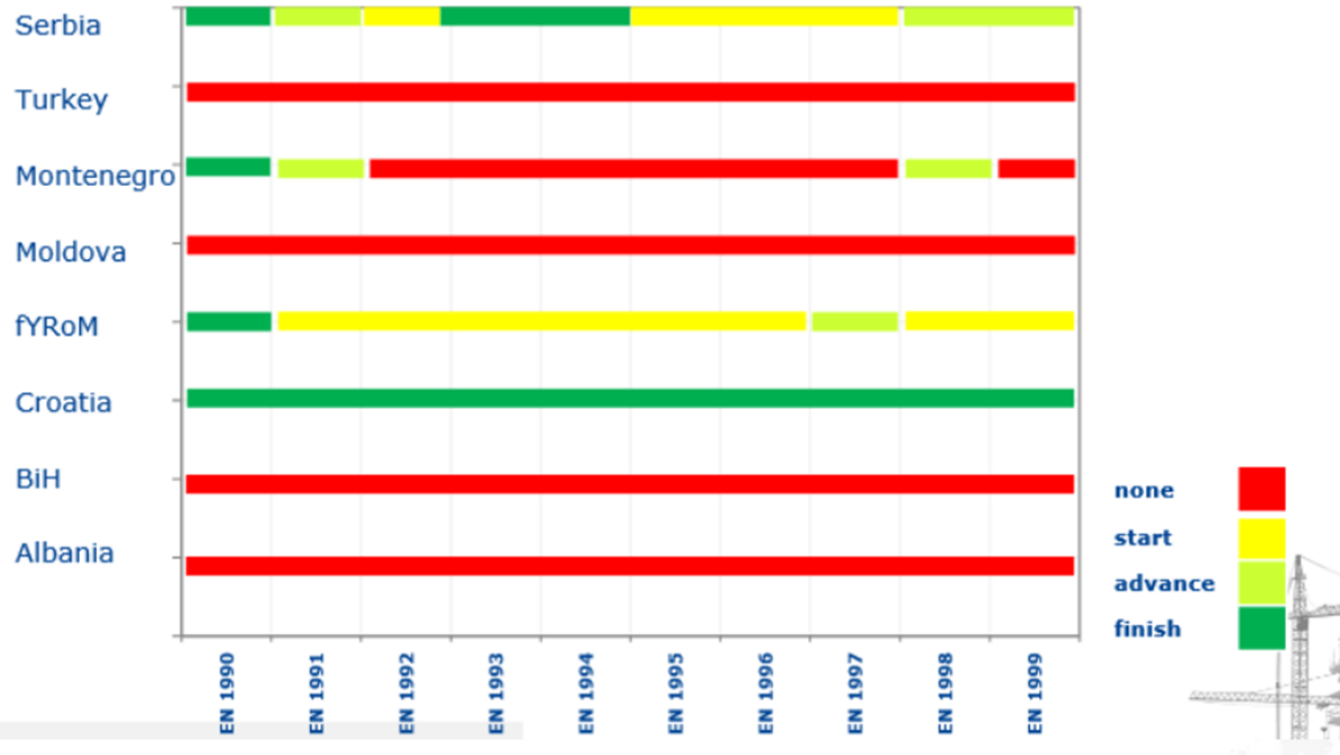
Albania	<b>YES</b>	KT 250 Eurocode (2007)/Chairman - Mr F. Kadiu
Bosnia and Herzegovina	<b>NO</b>	BAS/TC 58 ( <i>to be set up</i> )
Croatia	<b>YES</b>	HZN/TO 548 Structural Eurocodes (2006)/Chairman - Mr I. Dzeba
the former Yugoslav Republic of Macedonia	<b>YES</b>	ISRM TC 40 Eurocodes and National Annexes (2012)/Chairman - Mr T. Delipetrov; ( <i>ISRM TC 30: 2007-2012</i> )
Moldova	<b>NO</b>	
Montenegro	<b>YES</b>	ISME/TK 002 Eurocodes (2011)/Chairman - Mr R. Zejak
Turkey	<b>YES</b>	TSI – Safety of construction
Serbia	<b>YES</b>	KS U250 - 1,8 (2012)/Chairman – Mr Gj. Vuksanovic KS U250 - 3,6,9 (2006)/Chairman – Mr Z. Markovic KS U250 - 2 (to be set up)/Chairman – Mr D. Najdanovic KS U250 - 5,6 (2011)/Chairman – Mr B. Stefanovic KS U182 Geotechnics/Chairman – Mr L. Caki



## 2.2 Please assess the progress of translation of each Eurocode/priorities



## 2.4 Please assess the progress of definition of the NDPs of each Eurocode



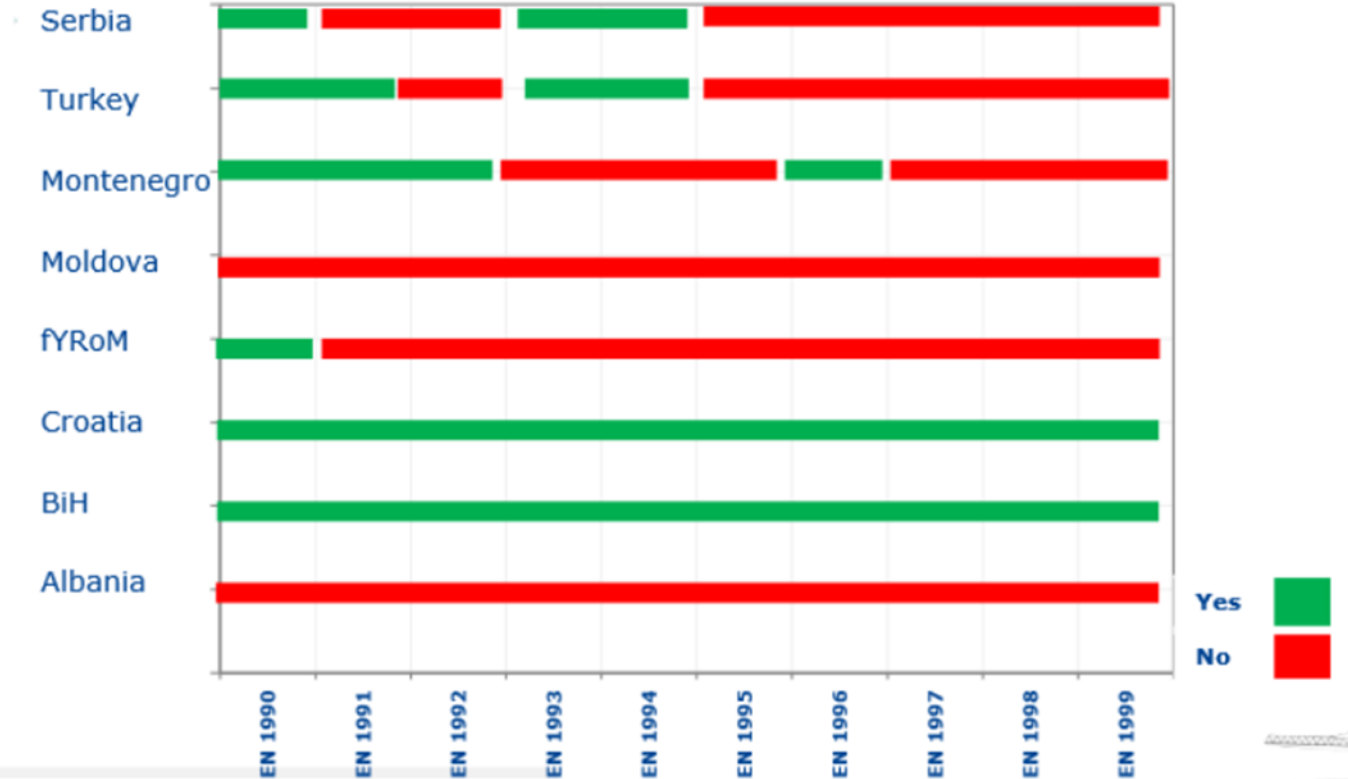


### 3.4 Are there any training material (booklets, leaflets, guidelines etc.) available on each country national language?





### 3.1 Are the Eurocodes included in the first cycle study (Bachelor) curriculum at the Universities?



# SOME FACTS

- 2003 – 2013 – BAS TC 21 – Concrete and Concrete Products adopted all Eurocodes as BAS standards by endorsement method in English;
- BAS TC 58 – Eurocodes established on November 28, 2013 with 17 members at that time, with same scope of work as the mirror committee CEN/TC 250 – Structural Eurocodes;
- First BiH Eurocode BAS EN 1990:2014 adopted on December 31, 2014;

## SOME FACTS

- The Project *"Support of Capacities of the Institute for Standardization of Bosnia and Herzegovina in the Area of Implementation of EUROCODES"* supported under the Czech Republic Development Cooperation and implemented by the Czech Office for Standards, Metrology and Testing (ÚNMZ) launched on January 26, 2015.

# Structure of the NMTCs for the Eurocodes

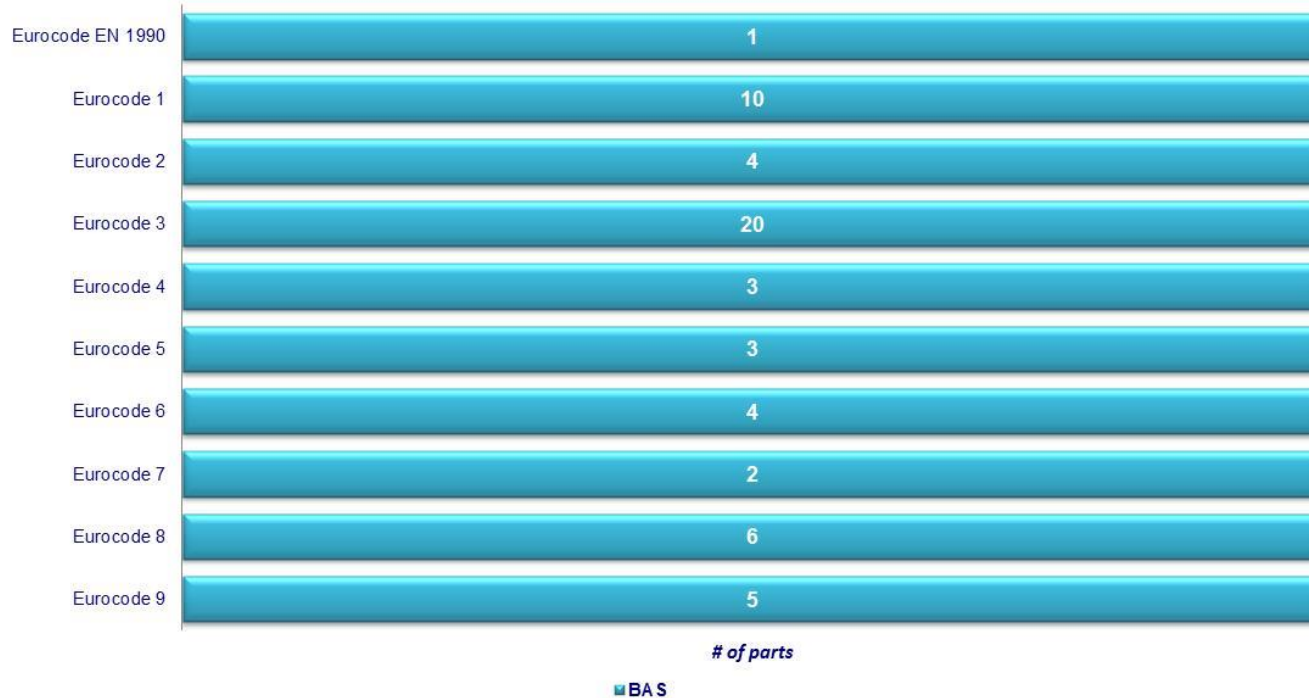
## Establishing the new BAS/TCs for Eurocodes

- BAS/TC 58, Design of construction structures – Eurocode EN 1990, Eurocode 1, Eurocode 7, Eurocode 8 and Eurocode 9
- BAS/TC 61, Design of construction structures – Eurocode 2, Eurocode 4 and Eurocode 6 – established in February 2016
- BAS/TC 62, Design of construction structures – Eurocode 3 and Eurocode 5– established in February 2016

# STATUS OF EUROCODES IN BIH IN 2018

- All parts of Eurocodes translated to languages in BiH (58 Parts of Eurocodes, app 5,500 pages)
- All parts of Eurocodes reviewed and adopted as official BAS standards through BAS TCs 58, 61 and 62

# Overview to the current status of elaboration of the ENs Eurocodes



# Overview to the current status of elaboration of the National Annexes

- **BAS/TC 58:**

EN 1990/NA – developed, adopted and translated

EN 1991/NAs – 5 parts developed, adopted and translated

EN 1998/NAs – 1 part developed, adopted and translated

- **BAS/TC 61:**

EN 1992/NAs – 1 part in development (currently stage code 30.20)

- **BAS/TC 62:**

EN 1993/NAs – 1 part in development (currently stage code 30.20)

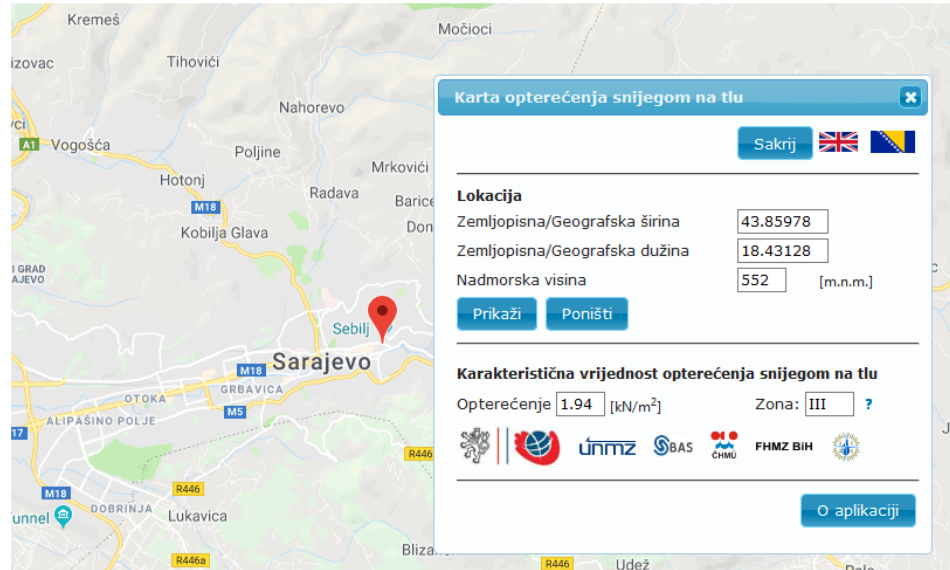
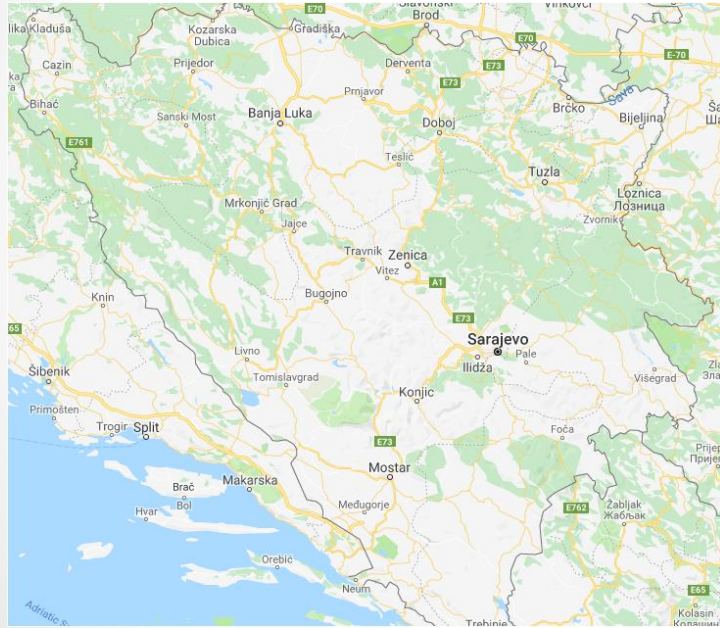


# BAS EN 1991-1-3/NA:2018

## Eurocode 1: Actions on structures

### Part 1-3: General actions

### Snow loads - National annex

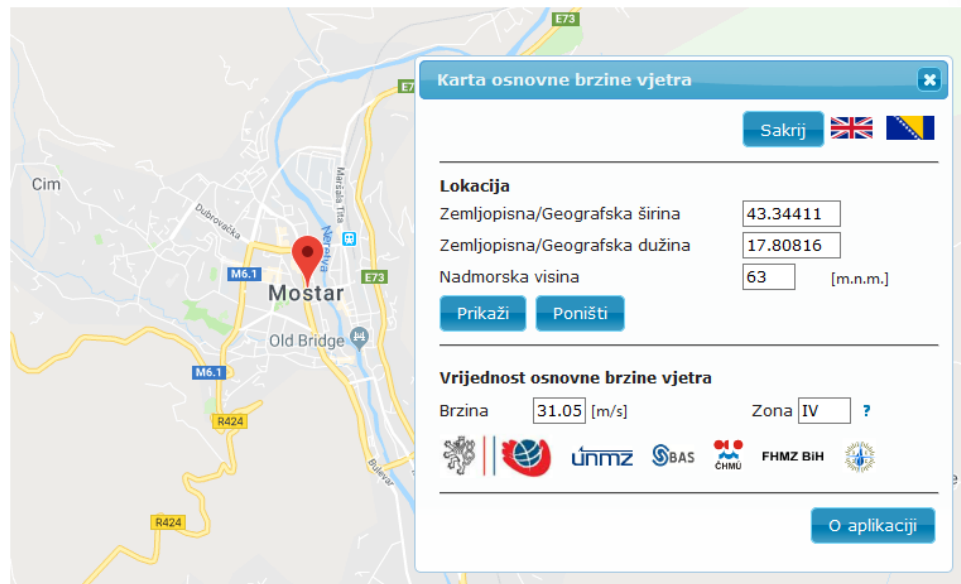
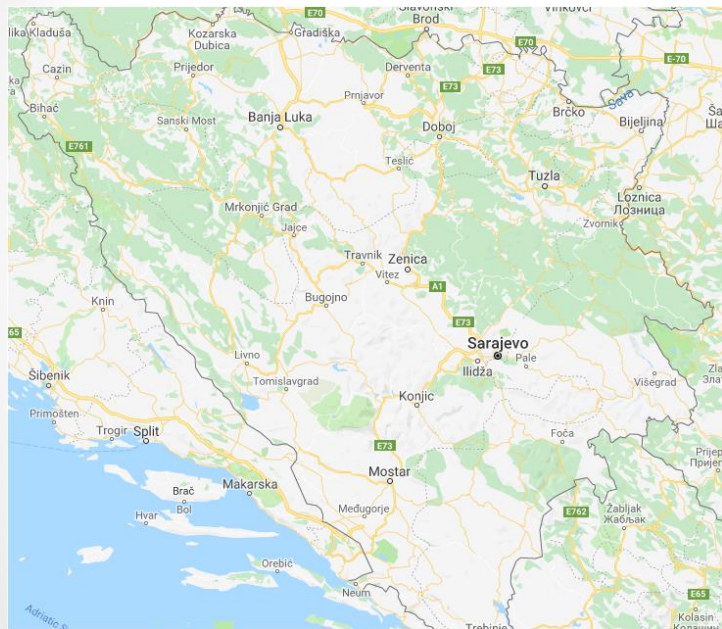


# BAS EN 1991-1-4/NA:2018

## Eurocode 1: Actions on structures

### Part 1-4: General actions

#### Wind actions - National annex

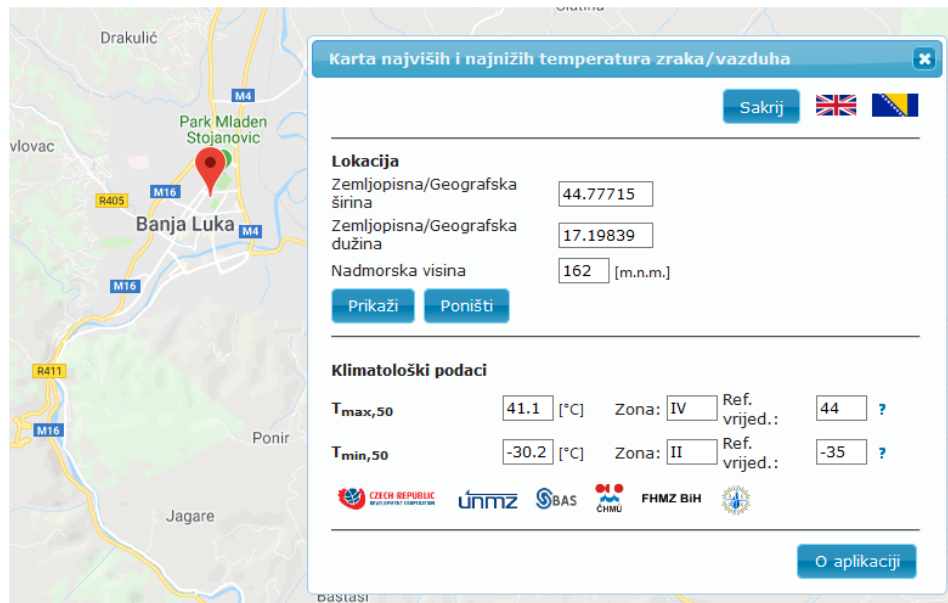
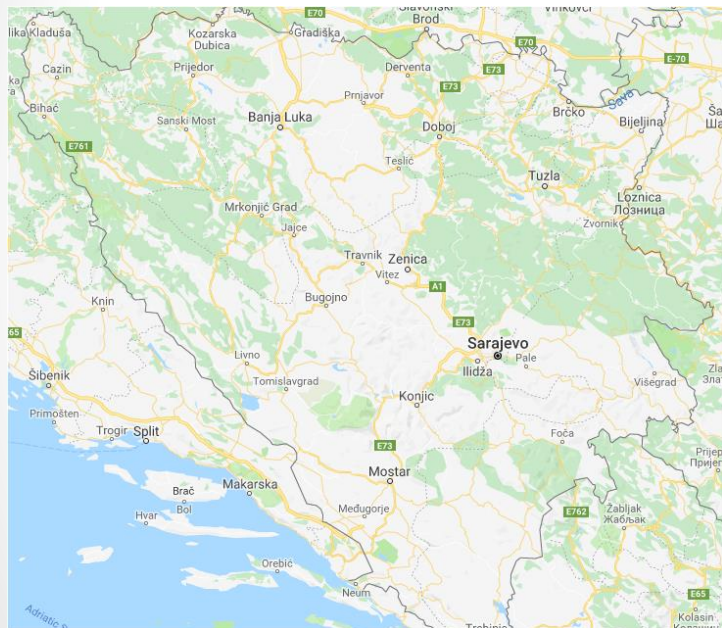


# BAS EN 1991-1-5/NA:2017

## Eurocode 1 - Actions on structures

### Part 1-5: General actions - Thermal actions

#### National annex



BAS EN 1998-1/NA:2018

# Eurocode 8: Design of structures for earthquake resistance - Part 1: General rules, seismic actions and rules for buildings - National annex

Karta seizmičkog hazarda

Sakrij

UK Croatia

**Lokacija**

Zemljopisna/Geografska širina: 44.78759

Zemljopisna/Geografska dužina: 17.19956

Nadmorska visina: 160 [m.n.m.]

Prikaži Poništi

**Vrijednost referentnog maksimalnog ubrzanja tla tipa A**

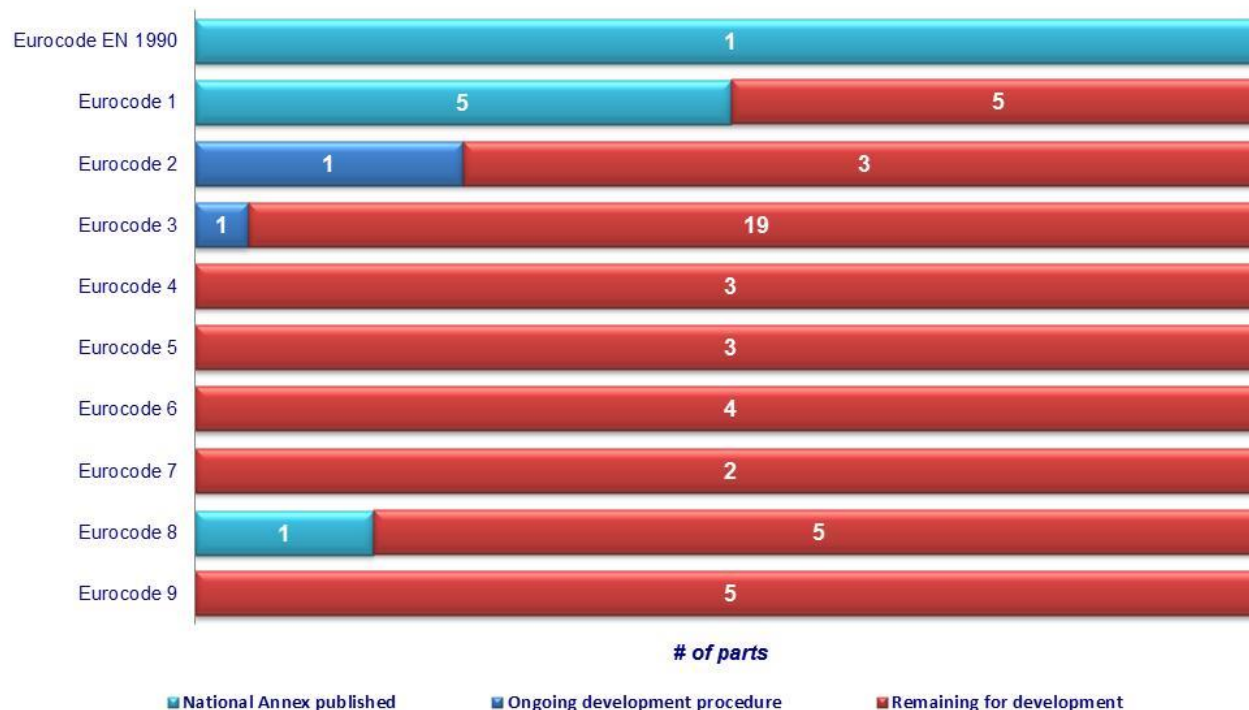
$a_{gR}$  za povratno razdoblje/period od 95 godina: 0.08 [g]

$a_{gR}$  za povratno razdoblje/period od 475 godina: 0.17 [g]

CZECH REPUBLIC UNMZ BAS CHMU FHMZ BIH USM FZZG

O aplikaciji

# Overview to the current status of elaboration of the National Annexes





# WHAT IS THE IMPORTANCE OF NAs TO EUROCODES IN BIH

- Domestic research incorporated in NAs to EC1
- Superseded regulations for snow load  
(Temporary Technical Regulations 1949)
- Superseded JUS Standards for wind actions  
JUS U.C7.110, JUS U.C7.111, JUS U.C7.112 and JUS  
U.C7.113 from 1991
- Full support by hidrometeorological institutes in BiH
- Historical data including recent periods-climate change

# BOOKS, HANDBOOKS, EDUCATION MATERIAL FOR EUROCODES





# BOOKS, HANDBOOKS, EDUCATION MATERIAL FOR EUROCODES



## Autori:

prof. dr. sc. Mustafa Hramica, dipl. ing. grad.  
prof. dr. sc. Jana Marková, dipl. ing. grad.  
prof. dr. sc. Azra Kurtović, dipl. ing. grad.  
prof. dr. sc. Amir Čaušević, dipl. ing. grad.  
Dejan Đević, dipl. ing. grad.  
doc. dr. sc. Salko Kulukčija, dipl. ing. grad.  
prof. dr. sc. Rašid Hadžović, dipl. ing. grad.  
doc. dr. sc. Suad Zalihić, dipl. ing. grad.  
prof. dr. sc. Sanin Džidić, dipl. ing. grad.  
mr. sc. Emir Hodžić, dipl. ing. grad.

## Recenzent:

prof. dr. sc. Miladen Glibić, dipl. ing. grad.

Izdavači: Institut za standardizaciju Bosne i Hercegovine - BAS,  
Vojvode Radomira Putnika 34, 71123 Istočno Sarajevo, BiH

Češka kancelarija za standarde, mjeriteljstvo i ispitivanje - UNMZ,  
Biskupský dvůr 1148/5, 110 00 Praha 1, Republika Čecha

Štampa: Lucc2P studio, Milan Martinek, Republika Čecha

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PRIRUČNIK za eurokдове : BAS EN 1990; BAS EN 1991-1-1; BAS EN 1991-1-2;  
BAS EN 1991-1-3; BAS EN 1991-1-4; BAS EN 1991-1-5; BAS EN 1998-1 : Principi i  
procedure sets evropskih standarda - sistema tehničkih pravila za projektovanje zgrada i  
inženjerskih konstrukcija uključujući građevinske materijale i objedinjavanje metodologija  
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Sarajevo: Institut za standardizaciju Bosne i Hercegovine, BAS ; Praha: Češka kancelarija za  
standarde, mjeriteljstvo i ispitivanje, UNMZ, 2018. - 285 str. : graf. prikazi ; 24 cm

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ISBN 978-9958-530-03-6  
1. Hramica, Mustafa  
COBISS BH-ID 25694982

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# Overview to the current status of elaboration of the National Annexes

- Upload of NDPs in JRC Eurocodes Nationally Determined Parameters Database for:  
BAS EN 1990/NA:2015, BAS EN 1991-1-1/NA:2016 and BAS EN 1991-5/NA:2017

## Next activities

- Development of NAs for all other parts of Eurocodes and their translation into English
- Upload of NDPs in JRC Eurocodes Nationally Determined Parameters Database

# NEXT STEPS AND CHALLENGES IN IMPLEMENTATION AND SUSTAINABILITY OF EUROCODES IN BIH

- Development of other National Annexes for Eurocodes
- Continue with translation and adoption of new amendments and corrigenda
- Relationship to other necessary ENs for implementation of Eurocodes
- Accreditation of laboratories in construction sector with BATA

# NEXT STEPS AND CHALLENGES IN IMPLEMENTATION AND SUSTAINABILITY OF EUROCODES IN BIH

- Accreditation of methods according to ENs
- Continuation, update and improvements of curriculums at universities
- Research related to NDPs in NAs
- Continuing education of engineers in practice in application and implementation of Eurocodes
- Raising awareness of general public on importance of application and implementation of Eurocodes in construction sector

# NEXT STEPS AND CHALLENGES IN IMPLEMENTATION AND SUSTAINABILITY OF EUROCODES IN BIH

- New Generation of Eurocodes

# Obstacles for the implementation of the Eurocodes in the national regulatory framework

- Several levels of political structuring (2 entities: Federation of Bosnia and Herzegovina and Republika Srpska plus District Brčko, 10 cantons in Federation of B&H)
- By constitution, the state level has no jurisdiction to issue construction regulations
- Each entity and canton have their own construction regulations

# Implementation of the Eurocodes in the current design practice (Federation of B&H)

- Eurocode 2: Design of concrete structures is incorporated in the federal Rule book on technical regulations for construction products to be incorporated into concrete structures.
- Eurocode 6 - Design of masonry structures is included in the federal Rule book on technical regulations for construction products that are incorporated in masonry structures.
- The other Eurocodes are not yet implemented in the regulatory framework at the level of Federation of Bosnia and Herzegovina, mostly because there is not action plan for the implementation of the Eurocodes in the Federal regulatory framework.



# Implementation of the Eurocodes in the current design practice (Federation of B&H)

A large number of BAS EN standards (identical to EN standards) are incorporated in the regulations relating to construction works and construction products at the level of Federation of Bosnia and Herzegovina.

All regulatory at the level of Federation of Bosnia and Herzegovina, from 2006 to today, orders use of BAS EN standards (regulations about the technical properties of the cement, for steel and steel products, concrete structures, masonry structures, for windows and doors, ventilation system and air conditioning in buildings, heating and cooling systems for buildings, thermal protection of buildings and rational use of energy etc.).

# ***"The way forward for the Eurocodes implementation in the Balkans"***

***10-11 October 2018, Tirana***

**Thank you for your attention!**

***Stay in touch***



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

# REFERENCES:

- [1] Pinto A, Taucer F, Dimova S, Apostolska R, 2013. "Summary of the Questionnaires filled by National Authority Relevant Representatives from Non-EU Countries in the Balkan Region", EC Research Centre, Institute for the Protection and Security of Citizens, European Laboratory for Structural Assessment in Milan- Ispra, Italy, December 5-6, 2013;
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- [5] <http://eurokodovi.ba/snijeg/>
- [6] <http://eurokodovi.ba/vjetar/>
- [7] <http://eurokodovi.ba/temperature/>