EUROPEAN COMMISSION

"Achieving the highest safety and technical quality of construction"

TWINNING PROJECT
MN 10 IB FI 01

FINAL REPORT

PROJECT TITLE:	**Achieving the highest safety and technical quality of construction**
IMPLEMENTING PARTNERS:	**Austrian Standards Institute** **Association Française de Normalisation (Junior Partner)**
BENEFICIARY AUTHORITY:	**Ministry of Sustainable Development and Tourism**
DATE:	**October 2013**

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MS Project Leader
Ms. Joanna Gajdek

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BC Project Leader
Mr. Danilo Gvozdenovic

SECTION 1: Project Data

Twinning Contract No.	MN 10 IB FI 01
Project Title	Achieving the highest safety and technical quality of construction
Twinning Partners (MS and BC)	Austrian Standards Institute Association Française de Normalisation (Junior Partner) Ministry of Sustainable Development and Tourism
Report Number	Final Report
Period covered by the report	27 April 2012 – 26 October 2013
Duration of the project	18 Months
MS Project Leader BC Project Leader	Ms Joanna Gajdek Director, Consulting Austrian Standards Institute Ms Karine Ratinaud (Junior Partner) Association Française de Normalisation Mr Danilo Gvozdenović, Director General for Construction Ministry of Sustainable Development and Tourism

SECTION 2: Content

List of abbreviations used in the report:

AFNOR	Association Française de Normalisation, Twinning Implementing Junior Partner
ASI	Austrian Standards Institute, Twinning implementing Lead Partner
BC	Twinning Project Beneficiary Country
BRCW	Basic Requirement for Construction Works
CAB	Conformity Assessment Body
CCMN	Chamber of Economy (Commerce) of Montenegro
CEMN	Chamber of Engineers of Montenegro
CEN	European Organisation for Standardization
CPD	Construction Products Directive
CPR	Construction Products Regulations
EC	European Commission
EUD	European Union Delegation
FYR	Former Yugoslav Republics
GIS	Geographic Information System
IPA	Instrument for Pre-Accession Assistance
IQR	Interim Quarterly Report
ISME	Institute of Standardisation of Montenegro
JRC	European Commission's Joint Research Centre at Ispra, Italy
MOU	Memorandum of Understanding
MS	Twinning Project Member State
MSDT	Ministry of Sustainable Development and Tourism
NA	National Annex(es)
NAD	New Approach Directive(s)
NB	Notified Body
NDP	Nationally Determined Parameter(s)
NSB	National Standards Body/ies
PL	Project Leader
PPD	Public Procurement Directives
RTA	Resident Twinning Adviser
RTAA	Resident Twinning Adviser Assistant
SIST	Slovenian Institute for Standardization
STE	Short Term Expert

2A – Executive Summary

This Twinning project was cooperation between the Ministry of Sustainable Development and Tourism (MSDT) as the Beneficiary Country and the Austrian Standards Institute (ASI) and Association Française de Normalisation (AFNOR) on behalf of the Member States.

The overall aim of the Twinning Project was to to create prerequisites for the harmonization of national regulations and standards for structural analysis and design with the regulations and standards of EU and for building capacities for their successful adoption, implementation and use. This would lead to the overall objective of achieving the highest safety and technical quality of Montenegrin construction

The project required assisting Montenegro in developing the necessary laws, structures and standards needed to ensure compliance with European Union legislation (*acquis communautaire*) in the area of internal market, specifically focusing on the adoption of structural Eurocodes with the development of the national annexes. This was to be achieved by strengthening the capacity of the standardisation technical committee through the provision of technical assistance and advice.

The project comprised three components and the high level objectives of each were to:

- Develop an action plan for adoption of the Eurocodes which would be adopted by the Government after the first 12 months of the project. This also included a legal road map for adoption of EU legislation in the construction sector;

- Develop an action plan for implementation of the Eurocodes which would be adopted the Governmnet at the end of the 18 month implementation period; and

- Produce the national annex to Eurocode 8 part 1, dealing with seismic resistance, by the end of the 18 month implementation period and be used as an exemplar for the other national annexes to be developed in future

The project implementation period was 18 months, as agreed at the outset, from 27 April to 2012 to 26 October 2013.

The outcomes of the project's implementation are:

- The Ministry has an action plan for adoption for Eurocodes,
- The Ministry has an action plan for implementation for Eurocodes, industry and other stakeholders have been informed through awareness raising seminars and a brochure on the application and implementation of Eurocodes.

- A draft national annex for Eurocode 8 part 1 has been made available to the standards committee, ISME TK/002, the beneficiary and stakeholders have to discuss and adopt the document. .

In conclusion, the action plans have been completed. The final adoption of the national annex to the EC 8 requires approval of the Technical Committee Eurocodes of ISME.

2B – Background

Original situation in the beneficiary country

Under the 2007 Stabilisation and Association Agreement signed between the EU and Montenegro, the latter has undertaken to implement the *acquis communautaire*. Montenegro has accepted responsibility, inter alia, concerning harmonization of existing legislation in Montenegro with the European Community legislation and its effective implementation. Montenegro will gradually harmonize its existing laws and future legislation with the *acquis communautaire* with adequate implementation and enforcement.

This project, to be implemented with the Ministry of Sustainable Development and Tourism (MSDT), falls under the Single/Internal Market initiative supporting free movement of goods and services.

The Law on spatial development and construction of structures (Official Gazette of Montenegro no. 51/08 22.08.2008, 40/10, 34/11, 35/13, 39/13) regulates the system for spatial development of Montenegro, the manner and requirements for construction of structures, as well as other matters of importance for spatial development and construction of structures.

The Law on spatial development and construction of structures was amended in July 2013 in terms of transposing the Annex 1 - Basic Work Requirements of the Regulation No. 305/2011 of the European Parliament and the Council, dated March 9, 2011, regarding determining harmonized conditions for marketing the construction products and the repeal of the Directive of the Council No. 89/106/EEC.

Regular screening of construction legislation by the European Commission is an on-going activity as part of the accession negotiations.

Project Objectives (Outputs)

Overall Objective

The overall objective of the project was to contribute to the implementation of the EU *acquis communautaire* in the area of internal market, specifically focusing on the creation of free movement of goods and services.

Purpose

The component aims at strengthening the capacity of the Ministry, other public authorities and the standardisation technical committee thus achieving the highest safety and technical quality of construction.

The results from this project were:

- Action plan for the Adoption of Eurocodes;
- Action plan for the Implementation of Eurocodes;

- Trainings and awareness raising campaigns on the set of 10 Eurocodes and the related national legislation according to the CPR and directive 2004/18/EC are performed;
- Guidelines and information materials on 10 Eurocodes and the related national legislation according to the CPR and directive 2004/18/EC are available; and
- National annex to the Eurocode 8 is drafted for adoption.

2C – Implementation Process

DEVELOPMENTS OUTSIDE THE PROJECT

The Law on spatial development and construction of structures (Official Gazette of Montenegro no. 51/08 22.08.2008, 40/10, 34/11, 35/13, 39/13) regulates the system of spatial development of Montenegro, the manner and requirements for construction of structures, as well as other matters of importance for spatial development and construction of structures.

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Draft Law on construction products was determined by Government and sent to the Parliament of Montenegro in further procedures.

Regular screening of construction legislation by the European Commission is an on-going activity as part of the accession negotiations.

Observer status to CEN TC 250, the European Structural Eurocodes technical committee, and its sub-committees was obtained for the ISME technical committee, TK/002, responsible for Eurocodes. They were also informed of forthcoming events that they might be interested in. Lack of financial support has hampered their attendance so far and it is an internal issue that needs resolving within ISME and their sponsoring ministry.

PROJECT DEVELOPMENTS

Potential challenges to project delivery were highlighted at the Kick Off Meeting with various stakeholders making it clear that they would require compensation for their input to the project. This dissatisfaction by the stakeholders continued in the background throughout the project.

Activity 1.3 for the software and hardware to support the national annexes was changed when it was realised that no specialist equipment was required for this work. It was proposed that the provided funds exploit for procuring specialist equipment to improve the quality of data for seismic hazard maps and soil types – essential for the national annex to the Eurocode 8. In July, it was agreed that, in order to transparency, until the middle of September, stakeholedrers could submit proposals, so the process for procurement began on October 2013 for:

- A refraction instrumentation, value €44 995,00
- A dynamic light dropping instrument to measure soil shear, value €14 300,00
- Five computers and a plotter, value €5 992,00
- Specialist software to determine seismic hazard, value €4 998,65

On the first tender in December, were achieved only the first two offers, because there was no interest in a third, and for a fourth item, the offer was rejected as untimely.

Equipment for the first two offers was procured and have assisted served in development of EN 1998-1 National Annex.

The second tender for procurement began in June 2013 for:

- A refraction instrumentation, value €44 995,00
- A dynamic light dropping instrument to measure soil shear, value €14 300,00

Valid bids were received in July and orders were placed on 14 October, the items had not been delivered at the project completion date.

Total value of the above items is €69 785,65 which nearly matches the €70k Beneficiary contribution stated in the contract.

The purpose of the activity 1.7 was changed by a side letter. The financial resources were used for a study visit for 2 days to ASI. The visit was organised for a delegation of local experts to hear from their counterparts how Eurocodes were implemented in Austria.

See for the time framework of the project implementation the tables below:

Project month	Apr 12	**1** May 12	**2** Jun 12	**3** Jul 12	**4** Aug 12	**5** Sep 12	**6** Oct 12	**7** Nov 12	**8** Dec 12	**9** Jan 12	**10** Feb 12	**11** Mar 13	**12** Apr 13	**13** May 13	**14** Jun 13	**15** Jul 13	**16** Aug 13	**17** Sep 13	**18** Oct 13
Activities implementation phase (18 months)																			
Arrival of RTA - 27th of April 2012																			
Implementation period - 27th of April 2012 to 26th October 2013																			
RTA & assistants on-site																			
Kick-off meeting																			
Steering committee meetings																			
Reporting				IQR			IQR			IQR			IQR			IQR			IQR
Final meeting																			
Monitoring																			

Project month	1 May 12	2 Jun 12	3 Jul 12	4 Aug 12	5 Sep 12	6 Oct 12	7 Nov 12	8 Dec 12	9 Jan 12	10 Feb 12	11 Mar 13	12 Apr 13	13 May 13	14 Jun 13	15 Jul 13	16 Aug 13	17 Sep 13	18 Oct 13
Component 1																		
1.1. Timeline for preparation of national annexes to the different Eurocode parts providing to introduce in the first place the Eurocodes packages relevant to the most wide-spread structures in Montenegro;																		
1.2. Determination of the methods to estimate or suggestion for the most appropriate values, of the nationally determined parameters to all Eurocodes;																		
1.3. Definition of list of IT equipment (specialist software and computers) to be purchased by the Ministry of Sustainable Development and Tourism for elaboration of the nationally determined parameters to all Eurocodes;																		
1.4. Concept for establishing regional networking in translation of the Eurocodes parts;																		
1.5. Concept for establishing regional cooperation in preparation of wind, snow, and isotherms maps																		
1.6. Roadmap for adaptation of the Montenegrin legislative framework for construction to allow the use of the Eurocodes																		
1.7. Provision of the IT equipment (specialised software and computers) determined by Activity 1.1 for elaboration of the nationally determined parameters to all Eurocodes																		

Component 2	1 May 12	2 Jun 12	3 Jul 12	4 Aug 12	5 Sep 12	6 Oct 12	7 Nov 12	8 Dec 12	9 Jan 12	10 Feb 12	11 Mar 13	12 Apr 13	13 May 13	14 Jun 13	15 Jul 13	16 Aug 13	17 Sep 13	18 Oct 13
2.1. Definition of the list for training material for continuous professional development to be prepared/adopted and provision of good practice examples, including: information leaflets on the implementation of the EN Eurocodes, designer handbooks and manuals, guidelines with worked examples (e.g. of common types of buildings and bridges), training and design software																		
2.2 Definition of concept for university programme of studies on the Eurocodes and provision of good practice examples for: lecturers' notes, information leaflets on the implementation of the EN Eurocodes,																		
2.3. Planning of seminar on training the Montenegrin Eurocodes trainers																		
2.4. Elaboration of plan for intensive training of the Montenegrin construction professionals																		

Component 3	1 May 12	2 Jun 12	3 Jul 12	4 Aug 12	5 Sep 12	6 Oct 12	7 Nov 12	8 Dec 12	9 Jan 12	10 Feb 12	11 Mar 13	12 Apr 13	13 May 13	14 Jun 13	15 Jul 13	16 Aug 13	17 Sep 13	18 Oct 13
3.1. Determination of those nationally determined parameters of Eurocode 8 where specific for Montenegro values obligatory have to be introduced, and estimation of these parameters																		
3.2. Incorporation of results from the NATO Science for Peace and Security project "Harmonization of Seismic Hazard Maps for the Western Balkans Countries" for determination of the seismic actions (e.g. seismic map, response spectra, etc.)																		
3.3. Elaboration of the text of the national annex in Montenegrin language																		

PROJECT VISIBILITY

The project kick-off meeting was held on 7 May 2012 aimed at providing visibility to the project, publicising its goals and objectives to the relevant public institutions, industry stakeholders and media. The kick-off events was well attended by the national press, radio and TV, Ministries, key stakeholders as well as representatives from the building and construction products industry. The event was also an opportunity to show support for the EU Membership process of the Montenegro.

There was good coverage in the press and TV following the Kick Off Meeting. Press and TV interviews were given by the BC RTA Counterpart soon after the project started.

Opportunities were taken to showcase the project by giving presentations about Eurocodes and the project was given to about 25 delegates at the Chamber of Economy/Commerce on 26 June 2012 and at the Budva Construction Fair in September 2012. However, the latter event was poorly attended.

Industry awareness events were held for officials from ministries, monopolies e.g. railways, roads etc, construction companies and construction products and materials suppliers who would be involved in the procurement of public sector infrastructure development.

A brochure about the application and implementation of Eurocodes was developed and produced as part of the implementation action plan covering:

- **Foreword**

- **Background Information** dealing with the development of the Eurocodes project from its origins in in the 1970s to the European Commission providing support in 1990 and the delivery of the final standards from CEN in from 2000 onwards. The role of Eurocodes in terms of meeting the essential requirements of the Construction Products Directive, subsequently basic work requirements for construction works for the Construction Products Regulations, basis for specifying works for public sector projects under the Public Procurement Directives.

- **Eurocodes in Montenegro** deals with the work of the ISME standardisation committee TK/002 for Eurocodes and the planned completion of national annexes, periods of co-existence and subsequent withdrawal of national standards.

- **Useful information for facilitating the work while applying Eurocodes** contains the list of design software, mostly from the European Commission's JRC website, material from various conference and seminars run by the European Commission, presentation given during the project, leaflets and manuals made available by STEs, useful websites for additional information and a list of books from Thomas Telford (publishing wing of UK's Institution of Civil Engineers) which were purchased by the Chamber of Engineers.

- **Overview on MEST EN 199x** lists all the 58 Eurocode parts and how they will be numbered in due course.

- **Glossary** explains how the Montenegrin standards will be numbered e.g. MEST EN 199x/year or the national annex as MEST EN 199x/NA year.

This brochure has been printed in Montenegrin for dissemination by the Beneficiary and stakeholders as well as being available from the website.

Presentations were also given on construction products on 19 December 2012, 6 and 12 September 2013.

The Chamber of Engineers organised awareness training for 70 of their professional engineers in October 2013 outside the project. They intend to roll out further similar training for other Eurocodes once the national annexes become available.

All materials used for training workshops and seminars relating to the project displayed the European Union flag and logos.

2D – Achievement of Mandatory Results

The target dates for the project were defined in the project fiche and confirmed in the workplan were adhered to.

There were three mandatory results, one per component, relating to the legal approximation and institutional capacity building conforming with EU's internal market objectives.

COMPONENT 1

Mandatory Result – Action plan for adoption of the Eurocodes

Benchmark:
The action plan to be adopted within 12 months of the project start.

Activities	Component 1
1.1	Timeline for preparation of national annexes to the different Eurocode parts providing to introduce in the first place the Eurocodes packages relevant to the most wide-spread structures in Montenegro;
1.2	Determination of the methods to estimate or suggestion for the most appropriate values, of the nationally determined parameters to all Eurocodes;
1.3	Definition of list of IT equipment (specialised software and computers) to be purchased by the Ministry of Sustainable Development and Tourism for elaboration of the nationally determined parameters to all Eurocodes;
1.4	Concept for establishing regional networking in translation of the Eurocodes parts;
1.5	Concept for establishing regional cooperation in preparation of wind, snow, and isotherms maps
1.6	Roadmap for adaptation of the Montenegrin legislative framework for construction to allow the use of the Eurocodes
1.7	Provision of the IT equipment (specialised software and computers) determined by Activity 1.1 for elaboration of the nationally determined parameters to all Eurocodes – by SL change to Study tour to Austria

The action plan has been drafted and made available for discussion and comments within the activities of the component 1. MS and BC experts, including several stakeholders, could intensively discuss and adjust the action plan. The action plan has been finalised and is ready for adoption – **the mandatory result has been achieved**

COMPONENT 2

Mandatory Result – Action plan for implementation of the Eurocodes.

Benchmark: The action plan to be adopted within 18 months of the project start.

2.1	Definition of the list for training material for continuous professional development to be prepared/adopted and provision of good practice examples, including: information leaflets on the implementation of the EN Eurocodes, designer handbooks and manuals, guidelines with

	worked examples (e.g. of common types of buildings and bridges), training and design software
2.2	Definition of concept for university programme of studies on the Eurocodes and provision of good practice examples for: lecturers' notes, information leaflets on the implementation of the EN Eurocodes, guidelines with worked examples, training software
2.3	Planning of seminar on training the Montenegrin Eurocodes trainers
2.4	Elaboration of plan for intensive training of the Montenegrin construction professionals

The action plan has been drafted and made available before the deadline for discussion and comments within the activities of the component 2. MS and BC experts, including several stakeholders, could intensively discuss and adjust the action plan. The action plan has been finalised and is ready for adoption – **the mandatory result has been achieved**

COMPONENT 3

Mandatory Result – National annex to Eurocode 8 part 1

Benchmark: National annex to Eurocode 8 part 1 prepared and agreed with all relevant stakeholders in 18 months from the beginning of the implementation of the project start.

3.1	Determination of those nationally determined parameters of Eurocode 8 where specific for Montenegro values obligatory have to be introduced, and estimation of these parameters
3.2	Incorporation of results from the NATO Science for Peace and Security project "Harmonization of Seismic Hazard Maps for the Western Balkans Countries" for determination of the seismic actions (e.g. seismic map, response spectra, etc.)
3.3	Elaboration of the text of the national annex in Montenegrin language

The national annex to Eurocode 8 part 1 has been drafted and made available before the deadline for discussion and comments within the activities of the component 3. MS and BC experts, including several stakeholders, were involved in elaboration and in intensive discussions.

The draft national annex has been proposed, translated and made available to the beneficiary to progress at a future time. The mandatory result is considered partly achieved.

2E – Impact

The stakeholders understood very well the purpose and planned long term impact of the project. Several activities, building the core of both action plans, were very well received and brought immediate results like e.g. fine-structuring of the ISME/TK 002:Eurocodes and setting priorities and deadline for its working issues.

On the other hand there were some few project activities strongly depending on the good will of the external partners – the issue of the regional co-operation - where the impact achieved couldn't be especially strong. The countries in region of the Western Balkan have currently very different levels of the approximation with the EU requirements (Croatia – new MS, Macedonia – Candidate Status, other countries in different stages of preparation to the negotiations) therefore a final formal agreement on co-operation couldn't have been achieved.

This Twinning co-operation had probably the strongest impact on the standardization structures in Montenegro. The Chairmen and the Secretary of the ISME/TK 002:Eurocodes were the main counterparts for establishing the action plan on adoption of the Eurocodes and the action plan defines very exactly the working steps of the ISME/TK 002:Eurocodes for the next years.

The training and teaching activities within component 2 were well received but the number of participants remained slightly under the expected level

Activities	Component 1	Impact level
1.1	Timeline for preparation of national annexes to the different Eurocode parts providing to introduce in the first place the Eurocodes packages relevant to the most wide-spread structures in Montenegro;	high
1.2	Determination of the methods to estimate or suggestion for the most appropriate values, of the nationally determined parameters to all Eurocodes;	high
1.3	Definition of list of IT equipment (specialised software and computers) to be purchased by the Ministry of Sustainable Development and Tourism for elaboration of the nationally determined parameters to all Eurocodes;	medium
1.4	Concept for establishing regional networking in translation of the Eurocodes parts;	low
1.5	Concept for establishing regional cooperation in preparation of wind, snow, and isotherms maps	low
1.6	Roadmap for adaptation of the Montenegrin legislative framework for construction to allow the use of the Eurocodes	high
1.7	Provision of the IT equipment (specialised software and computers) determined by Activity 1.1 for elaboration of the nationally determined parameters to all Eurocodes – by SL change to Study tour to Austria	high

2.1	Definition of the list for training material for continuous professional development to be prepared/adopted and provision of good practice examples, including: information leaflets on the implementation of the EN Eurocodes, designer handbooks and manuals, guidelines with worked examples (e.g. of common types of buildings and bridges), training and	high

	design software	
2.2	Definition of concept for university programme of studies on the Eurocodes and provision of good practice examples for: lecturers' notes, information leaflets on the implementation of the EN Eurocodes, guidelines with worked examples, training software	low
2.3	Planning of seminar on training the Montenegrin Eurocodes trainers	low
2.4	Elaboration of plan for intensive training of the Montenegrin construction professionals	low

3.1	Determination of those nationally determined parameters of Eurocode 8 where specific for Montenegro values obligatory have to be introduced, and estimation of these parameters	high
3.2	Incorporation of results from the NATO Science for Peace and Security project "Harmonization of Seismic Hazard Maps for the Western Balkans Countries" for determination of the seismic actions (e.g. seismic map, response spectra, etc.)	medium
3.3	Elaboration of the text of the national annex in Montenegrin language	high

2F – Follow-up and Sustainability

Already in the original design of this Twinning project's structure there were several elements guaranteeing high sustainability of the actions. The 18 months co-operation assured this on following levels:

At institutional level - organizational capacity building:

The beneficiary developed a mechanism and structures for adoption and implementation of Eurocodes according to EU best practice at both a standards body level and regulatory level. On the one hand the structure of the Technical Committee at ISME has been refined and the working process, deadlines, responsibilities have been defined in the action plan for adoption of the Eurocodes. This action plan refers to a period till 2017.
On the other hand the Ministry of Sustainable Development and Tourism has available the road map for adoption of the Montenegrin legislation to allow the use of the Eurocodes.

At policy level by:

Strategic planning of actions for period extending the project framework has been done – Action plan for adoption of the Eurocodes, Action plan for implementation of the Eurocodes. Both documents should be adopted by the Montenegrin government.
Road map for aligning of Montenegrin legislation is available too.
These documents support Montenegro on the way to EU in the area of infrastructure and specifically in the field of construction. This gives a good base for further EU-accession negotiations.

With multiplier effects:

Within the last two project quarters two train-the-trainer sessions were performed. Two groups of multiplies are educated and ready to spread out the know-how related to Eurocodes. The first group consists mainly of professors of the Technical University of Podgorica. The second group comes from the authorities, mainly from the Ministry of Sustainable Development and Tourism.

Basing on the standard programmes of training on Eurocodes, elaborated during the train-the-trainer session, some awareness raising campaigns, outside of the project, were performed in September 2013.
The repository of training materials gives a simple tool to perform flexibly and tailor made the teaching and training courses related to Eurocodes.
All training materials were elaborated with a focus on reuse by the beneficiary, so to enable delegates participating in the training to use the training documents as own reference material, suitable to explain to other members of staff and/or relevant stakeholders not attending the training what they have learnt.

2G – Conclusions

This Twinning co-operation could be successfully concluded. All mandatory results have been achieved within the time framework and budget, as originally planned. Some slight delays (e.g. in delivery of the equipment) don't have any significant impact on the overall achievements.
Action plans and the national annex to the Eurocode 8, part 1 (in the Montenegrin language) are available. The only missing element is the formal adoption or approval of these documents. However respective steps were done to assure the final enforcement of these documents.
These achievements give not only a clear structure and a road map for Montenegro on the way to adoption and implementation of the Eurocodes but support the relevant institutions with practical recommendations like methods for calculation of nationally defined parameters or example of a national annex to an Eurocode (annex to the Eurocode 8).
Besides the achievement of the mandatory results several valuable side (non-mandatory) effects could be generated: the text of the EN 1998-1 (Eurocode 8, part 1) was translated from English into Montenegrin, several publications and software related to the practical use of the Eurocodes were handed over and/or deposited by the Beneficiary. The subject of the construction products regulation was included in consultancies and trainings to place Eurocodes in a broader context. Snow- wind and isotherm maps could be elaborated.

Only 9 Side Letters were issued during the project implementation period, 3 of them of the financial nature.
The use of the financial resources was very efficient. All working days of the MS experts, as originally planned, were used. Additionally a significant amount of savings generated under budget lines: air fare, per-diems and translation/interpretation, were used for additional expert's missions.

One of the major difficulties and challenges faced during the project implementation was a high number of stakeholders involved. The Beneficiary established a so called national Steering Committee and co-ordinated the national statements to the project activities and outputs through this gremium. This gremium can in the future act as a Eurocodes Steering Committee. Also several discussions regarding financing of the national expertise could be solved by the end of the project.
Another demanding task was planning and performing of the procurement of the specialized equipment, which should support the data generation and processing. The procurement and delivery process was slightly delayed but could be completed within project legal duration period.

2H – Final Recommendations: Lessons Learnt

The following recommendations have been made on the background of the project's activities and the experiences gained.

Component 1

The Action Plan for adoption of Eurocodes was established and delivered well before the deadline. There was a possibility to discuss it between MS and BC and on the side of BC to have intensive discussions and comments from the side of the numerous stakeholders. The Action Plan has a good quality, is well understood and accepted and it should serve as an excellent basis for the work of the stakeholders and especially of the Technical Committee Eurocodes of ISME. It is however strongly recommended to present the Action plan to the government and to let it adopt as an official document.

The MS side strongly recommends a pragmatic way of adoption of the Eurocodes basing on the recommended parameters and on the comparison of the parameters applied in the region.

The regional co-operation between professional organisations in Western Balkan exists. There are good contacts on the personal level or in framework of larger organisations. Within this Twinning project it was possible to exchange the information about state-of-the-art in the area of Eurocodes, also a regional meeting in Podgorica took place. Several documents from Serbia and Slovenia were received and could be used by the Technical Committee. Additionally national annexes to the Eurocode 8 from Greece, Italy and Croatia could have been used for comparison of the national parameters. The strengthening of this initiative should be a strong focus in the future.

Component 2

The Action Plan for implementation of the Eurocodes went also through an intensive phase of comments and discussion and it seems to be very well accepted. It is however strongly recommended to present it to the government and to let it adopt as an official document.

Component 3

Also the adoption of the elaborated text of the national annex to the Eurocode 8 part 1 by the Technical Committee is outstanding. The text has been commonly developed and was discussed with main players, therefore there shouldn't be any obstacle to adopt is smoothly.

General recommendations

Following the recent Twinning trends it's strongly recommended to organize after expiry of this project contract a follow-up mission to support further developments and steps and to assure the sustainability.

More generally seen, in the area of safety of construction in Montenegro there is still a strong need to accompany the public authorities and the respective professional bodies on

their way to achieve full alignment of Montenegrin regulations and standards with the EU ones.
Further Technical Assistance and/or Twinning projects in such areas like implementation of the construction products regulation, market surveillance in the area of construction products or further adoption and implementation of the Eurocodes would be of great support for smooth development.

When designing and budgeting future activities the translation and interpretation costs and work load should be taken into account.

2I – Annexes

Overview of the mandatory results achieved.

Overview of the mandatory results achieved

Component	ACTIVITY	expected **MANDATORY RESULTS (Components)**	Deadline	Delay +/- [months]	expected **BENCHMARKS (Activities)**	**ASSESSMENT** to date	Self-assessment Rate HS (Highly satisfactory), S (Satisfactory), U (Unsatisfactory)
1							
1.1.	Timeline for preparation of national annexes to the different Eurocode parts providing to introduce in the first place the Eurocodes packages relevant to the most wide-spread structures in Montenegro;	Action plan for adoption of Eurocodes	May 2013	0	The action plan for adoption of the Eurocodes officially adopted by the Montenegrin Government in 12 months from the beginning of the implementation of the project	The action plan has been made available well before the deadline and has been sufficiently commented and discussed between MS and BC. The action plan is ready for the adoption	HS
1.2.	Determination of the methods to estimate or suggestion for the most appropriate values, of the nationally determined parameters to all Eurocodes;			0	The action plan is used as the basis for the development of further actions and project proposals for the adoption of the Eurocodes	The action plan serves as a basis for the works of the ISME/TK 002:Eurocodes The action plan has been intensively discussed among the stakeholders and can serve as a good basis for the future projects design.	HS
1.3	Definition of list of IT equipment (specialised software and computers) to be purchased by the Ministry of Sustainable Development and Tourism for elaboration of the nationally determined parameters to all Eurocodes;			Slight delay of 2 months	Provision of IT equipment for elaboration of the nationally determined parameters to all Eurocodes in 18 months from the beginning of the implementation of the project	The identification of the equipment list has been done immediately after project start. No specific software was identified as necessary. The equipment related to the data generation and processing related to the Eurocode 8 was procured. Due to internal procedures the procurement process has been completed just by the end of the project.	S
1.4.	Concept for establishing regional networking in translation of the Eurocodes parts;						
1.5.	Concept for establishing regional cooperation in preparation of wind, snow, and isotherms maps						

1.6.	Roadmap for adaptation of the Montenegrin legislative framework for construction to allow the use of the Eurocodes					The delivery of some parts is pending.	
1.7.	Provision of the IT equipment (specialised software and computers) determined by Activity 1.1 for elaboration of the nationally determined parameters to all Eurocodes						
2							
	Definition of the list for training material for continuous professional development to be prepared/adopted and provision of good practice examples, including: information leaflets on the implementation of the EN Eurocodes, designer handbooks and manuals, guidelines with worked examples (e.g. of common types of buildings and bridges), training and design software	Action plan for implementation of Eurocodes	October 2013	0	The action plan for implementation of the Eurocodes officially adopted by the Montenegrin Government in 18 months from the beginning of the implementation of the project	The first draft of the action plan was available well before the deadline. It has been intensively discussed and agreed. It's ready for adoption.	S
	Definition of concept for university programme of studies on the Eurocodes and provision of good practice examples for: lecturers' notes, information leaflets on the implementation of the EN Eurocodes, guidelines with worked examples, training software						
	Planning of seminar on training the Montenegrin Eurocodes trainers			0	The Program is used as the basis for education and training on the Eurocodes	The programme has been already twice used during the project duration – two awareness raising camapaigns have been performed. Additionally another campaign has been organised outside of the project basing on the available programme	HS
	Elaboration of plan for intensive training of the Montenegrin construction professionals						
3							
	Determination of those nationally determined parameters of Eurocode 8 where specific for Montenegro values obligatory have to be introduced, and estimation of these parameters	National annex to Eurocode 8 part 1	October 2013	0	The national annex to Eurocode 8 part 1 prepared and agreed with all relevant stakeholders in 18 months from the	The text of the national annex to the Eurocode 8 part 1 has been elaborated in several meetings and national consultations between MS and BC experts. The official approval of the annex by the responsible Technical	S

					beginning of the implementation of the project	Committee is pending	
	Incorporation of results from the NATO Science for Peace and Security project "Harmonization of Seismic Hazard Maps for the Western Balkans Countries" for determination of the seismic actions (e.g. seismic map, response spectra, etc.)			0	The national annex to Eurocode 8 part 1 is used as an example for preparation of the national annexes to the rest of the parts of the Eurocodes after 18 months from the beginning of the implementation of the project	The methodology and the structure of the annex has been discussed with the national stakeholders and serves as an example for the elaboration of further annexes	HS
	Elaboration of the text of the national annex in Montenegrin language						

For the administration of the Member State Partner

[signature]

[date] 2013-12-19

For the administration of the Beneficiary Country

[signature]

[date] 19.12.2013

SECTION 3: Expenditure

The total expenditure within the project was EUR 630.567,19 i.e. exactly 90% of the originally budgeted costs.

10% of the saved budget has been generated under following positions:

- Contingency (almost unused)
- Air fare (in majority of cases the flight costs were significantly lower than budgeted limit)
- Per-diems (the per-diem rate has been decreased during the project duration from EUR 161/162 to EUR 142, additionally the early arrival on the first day of the mission saved number of per-diems)

Almost all expert's working days as well as the RTA salary/allowances and RTAA salaries were used.

Totally 9 Side Letters have been notified, 3 of them related to the changes in the budget. With the Side Letter no. 8 the savings under components 1, 2 and 3 has been transferred to the additional working days mainly under component 3.

For the detailed situation of the total figures of disbursement in the reporting period for key groups of costs, please see the attached document.