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European Council of Civil Engineers

E - JOURNAL 13

DECEMBER 2016

Massimo Mariani, New President of the European Council of Civil Engineers



**Prof. Massimo Mariani,
ECCE President 2016 - 2018**

Prof. Massimo Mariani is the new President of the European Council of Civil Engineers. He took the Presidency over on 22 October 2016, during the 64th ECCE General Meeting. He will serve a two year term from 2016 to 2018.

Massimo Mariani was the ECCE Vice President and President Elect from 18 October 2014 at the 60th ECCE General Meeting in Warsaw, Poland. He has been the ECCE National Delegate of the Consiglio Nazionale degli Ingegneri (CNI), Italy, since 2012.

PERSONAL PROFILE

Prof. Massimo Mariani is an Engineer and an Architect, Laurea Magistrale (5 Year Programmes). He holds professional qualifications for both professions and he is Member of the Perugia territorial Chamber of Engineers.

He is recognized among the leading experts in Italy and abroad on the consolidation and restoration of monumental buildings. He is professor of Structural Problems of the historical and monumental buildings at the second level Master: "Seismic improvements, Restoration and Consolidation of Monumental and Historical Constructions" at the Faculty of Engineering in Perugia.

He lectures at seminars and professional updating programmes at ASS.I.R.C.CO – Italian Association of Restoration and Consolidation of Construction, founded by the deceased Prof Carlo Cestelli Guidi – and at the Centro Studi "Sisto Mastrodicasa". He is also Member of the Board of these two cultural associations. He is senior lecturer on "Geo-technics and Applied Geology to Engineering Works" at the Laurea Magistrale programme of the University of Perugia.

He is the author of important treatises of doctoral content, alone or with other authors, and of scholar articles on National and International specialised magazines.

Former President of the Perugia territorial Chamber of Engineers, he is now a Councillor of the CNI (Consiglio Nazionale degli Ingegneri d'Italia in charge of the sector "Culture"; he is also a Member of the Board of the Scuola Superiore and Centro Europeo di Formazione per l'Ingegneria (Engineers' Higher School).

Since 2003 he is Academic of Merit of the Academy of Fine Arts "Pietro Vannucci" in Perugia.

For further information you can refer to his website [here](#).

New Executive Board of the European Council of Civil Engineers Elected at the 64th ECCE General Meeting



The General Assembly of the European Council of Civil Engineers (ECCE) has elected new Executive Board at the ECCE Executive Board Elections that took place on 22nd October 2016 at the 64th ECCE General Meeting in Athens, Greece.

From left to right: Maria Karanasiou General Secretary, Massimo Mariani President, Jose Francisco Saez Rubio Member, Włodzimierz Szymczak Immediate Past President, Andres Piirsalu Member, Aris Chatzidakis Vice President / President Elect, Dimitar Natchev Vice President / Treasurer, Iuri Svanidze Member

The New Executive Board for the period 2016 - 2018 will be composed by the following persons:

Name	Position	Country
Massimo Mariani	President	Italy
Włodzimierz Szymczak	Immediate Past President	Poland
Aris Chatzidakis	Vice President / President Elect	Greece
Dimitar Natchev	Vice President / Treasurer	Bulgaria
Andres Piirsalu	Executive Board Member	Estonia
Jose Francisco Saez Rubio	Executive Board Member	Spain
Iuri Svanidze	Executive Board Member	Georgia

Opening by ECCE President Prof. Massimo Mariani

Representing the civil engineers of Europe implies continuing the reformation of the European Council of Civil Engineers (ECCE) to meet the needs of a continuously evolving society, technology and geopolitics. Since its foundation - more than 20 years ago, ECCE provides support to civil engineers in Europe through their national associations and professional organizations. It has undertaken several international activities inter alia on professional, research and technology, environmental protection, sustainable development and education matters. It has always been at the forefront of engineering applications and solutions.

“By intervening increasingly in borderline areas between technology and the management of human and material resources on a planetary scale, engineering is today a tentacular profession whose geographical limits and field of application are widespread and of diffused contours.... As a specific field of expertise engineering and [particularly, civil] engineers face the major challenge of keeping their disciplinary territory and perpetuating the iconic role which they have traditionally played in society.” This is the definition of the current engineering profession by Maria Paula Diogo, President of the Department of Applied Social Sciences and Head of the Interuniversity Centre of History of Science and Technology - Universidade Nova de Lisboa.

Since the Middle Ages and the Renaissance the circulation of knowledge - in particular the ahead of one's time building engineering' knowledge – has been one of the main motivations for evolving the society from sparse clusters of inhabitants to structured communities. Craftsmen and able artisans became strongly solicited by more and more difficult challenges. They were therefore naturally induced to extending their practical knowledge from pure empiricism to application of scientific instruments and tools to their craft like physics and mathematics. This started the query on the transformation of natural resources into structures, products, and systems for the benefits of mankind.

Craftsmen and able artisans became engineers in the traditional sense of the word – seeking innovation and finding solutions based on their learnt knowledge and experimental methods. A new rhetoric was then required, i.e. a mode of arguments to justify the solutions and propagate the “best engineering thinking”.

Nowadays the engineering rhetoric has to be multifaceted, multilingual and open to all human and technical disciplines. Problems have become compounded and problem solving is not merely based on deductions. Engineers, and civil engineers in particular, need to learn – be taught – that problem solving relies certainly on norms, but more and more on analogy of what has been done in a variety of past situations.

Gathering information, modelling, sharing experiences, modelling, verifying applications, measuring results, preserving culture, understanding nature and environment are all worthwhile components of modern civil engineering practices. Our transnational society needs more instruments that enable the mastering of engineering problems and their transformation into solutions and technological developments in a variety of geographical constraints and contests that value ethical, economic, affordable, and historical criteria.

The European Council of Civil Engineers (ECCE) has been and will always be for the advancement of engineering thinking and its application to local realities which transcends administrative or political country borders. ECCE not only represents the instances of modern civil and construction engineers on the European scene; it contributes forging their thinking as engineers. By equating engineering solutions to a valorization of scientific and humanistic principles adjoined to empiric based modelling it opens links with other human and technological disciplines and professional practices. Hence the need to begin reforming ECCE and furthermore reposition the Council vis-à-vis other engineering and non- engineering associations, that share our transnational and cultural patrimony.

Spreading the knowledge of environment protection and remediation, popularizing our new rhetoric, leveraging our heritage of artisanship and craftsmanship, contributing to the knowledge of seismic engineering and civil protection, supporting and understanding changes are objectives that ECCE and the civil engineers can commit to for the benefit of our world where engineering is “a prop to our infirmity”, paraphrasing William Wordsworth who attributed

this thought to science.

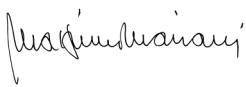
I want to take this opportunity to thank the outgoing Board and President Szymczak in particular. We will need him on my side when moving along in the directions which since 2012 I suggested as priorities for ECCE:”

In spite that the economic crisis had strongly penalized our civil engineering profession all over Europe, we should move with the times and transform our profession from national to international. This shall take place and temporarily we should pursue the highest scientific preparation, comprehensive humanistic education, and be able to characterize our profession historically. We should adapt our work and knowledge to the need of our time and master the most developed operational techniques and methods.

ECCE position papers, always of the highest quality because of the professionalism of the authors, must continue to be produced and portray the excellence of civil engineering in assessing and solving relevant and current technical challenges for our professional category.

ECCE should continue to identify high levels of professional competences of civil engineers; the ECCE Professional Card is a vehicle to endorse quality delivery of professional activities. We should promote it with strong determination.

I am much honored to be President of ECCE and lead it for the next two years. I am committed to the widest recognition and the most effective strengthening of ECCE. Representing civil engineers for the benefit of professionals, their customers and the society at large is our task.



Massimo Mariani

ECCE President

64th ECCE General Meeting and Round Table “Building the future: The road to prosperity is always under construction”



64th ECCE GM Group photo

The 64th ECCE General Meeting was held on 20th – 22nd October 2016, in Athens, Greece, hosted by the Civil Engineers Association of Greece (ACEG) and the Technical Chamber of Greece (TCG). The Round Table “Building the future: The road to prosperity is always under construction” was held on 20th October 2016, organized by ACEG, TCG and ECCE, in the context of the 64th ECCE GM.

The Round Table “Building the future: The road to prosperity is always under construction” gathered speakers from the Greek government, academia, and the construction sector at national and international level.

The Greek government was represented by **Mr. I. Xanthakos**, General Secretary of Economy, Development and Tourism who delivered a speech about the current circumstances in the construction sector in Greece and the measures and steps that the Greek government has taken in order to boost the construction sector as it is one of the government’s priorities. **Mr. A. Flabouraris**, Minister of State of Greece sent a letter in which he stressed that



Round Table

as a government they are determined to give the necessary boost to the economy as the need for jobs creation and reducing unemployment is imperative. He mentioned that this is high time the development process started and therefore immediate action must be taken and coordination and commitment of all forces is required.

Prof. Fernando Branco, ECCE Past President and IABSE President Elect, delivered a presentation on the “Engineering Challenges for a future Europe”. He indicated as opportunities for improvement the maintenance works of existing infrastructure, rebuilding and enhancing the energy efficiency of buildings, improving their seismic resistance, particularly in the southern countries which are in earthquake zones. But also there is a need to develop new road and rail infrastructure. Also, special reference

was made to the design and implementation of shoreline protection works, because of the effects on climate change and rising sea levels, the use of new recyclable materials, and the creation of infrastructure and buildings with a zero carbon footprint. Finally, he noted the significant growth presented by the industry in the markets of Asia, Africa and Latin America.

Prof. (Em.) Sergios Lambropoulos, Professor at the National Technical University of Athens and former Secretary General of co-financed projects of the Ministry of Infrastructure, delivered a presentation on “Planning, Designing and Scheduling Infrastructure Projects in Recession Times”. He spoke about the need to reverse the underfunding of the construction industry works and to promote measures to facilitate the construction of many small viable projects, also adding to the need to promote holistic methods of education of engineers in the country.

Dr. Vassilis Bardakis, President of the Civil Engineers Association of Greece delivered a presentation stressing that the “Investment in Infrastructure is also an investment in the EU economy”. He pointed out the disproportionate cost in jobs and economic growth by not promoting investments in the infrastructure sector, in relation to the resulting benefits that occur by stimulating it, and emphasized the urgent need for economic stimulus.

Mr. Włodzimierz Szymczak, President of the European Council of Civil Engineers, in his speech “Crisis? This is the best starting point to success!” stressed the need to boost small and medium-sized enterprises which, he said are the core of the EU’s development and important part of the European economy. “It is necessary to unlock the potential of SMEs are the engine of development across Europe, with the formation of an appropriate political and economic climate. Only then will tackle unemployment.” he said. He noted that measures to combat bureaucracy are needed as well as the creation of clear and stable rules, but also the creation of a climate of economic incentives by reducing taxation and facilitating funding is important.

Dr. Antonis Panas, General Secretary, Companies’ Sector of the Pan-Hellenic Association of Engineers Contractors of Public Works, delivered a speech on “The way to a sustainable construction sector: The contractors’ perspective”. He stressed that the gloomy picture of the construction sector in Europe lies in the great differences in the performance between the Member States. He said that the general conclusion of FIEC’s annual report is that the European construction industry is recovering but we cannot claim the same for Greece which has gone deep into recession. According to his opinion, the solutions lie in two fundamental pillars: first, financing and second, reforming the existing framework which governs construction projects’ realization in Greece.

Finally, **Mr. Aris Chatzidakis**, TCG representative and ECCE National Delegate for Greece wrapped up the discussion on the matters that were set by the speakers concluding that there has been a deep crisis in the construction sector over the last eight years and highlighting the need and importance of enhancing the liquidity of the real economy.

On Friday 21st and Saturday 22nd October, the 64th ECCE General Meeting took place. At the beginning of the meeting a special **tribute to our deceased friend and ECCE Past President Vassilis Economopoulos** was made presented by the TCG representative Aris Chatzidakis, as in October it was the one year anniversary of his passing. Anna Papadopoulou, Vassilis’ widow, honored us with her presence and she was awarded with an honorary plaque.

One important highlight of the 64th ECCE General Meeting was the presentation of the “**30 Years of ECCE History**” book. The preparation of a book about the History of the European Council of Civil Engineers had been discussed and decided a few years ago. The 30th Anniversary of ECCE that was celebrated last year and was marked by the sad and unfortunate event of the passing of Vassilis Economopoulos was the motivation for putting together the materials and photographs that had been accumulated over the years into a solid document that would summarize the history of this organization. The main author of this book is ECCE Honorary President Yrjo Matikainen, and contributing authors ECCE Past President Fernando Branco and ECCE Past President late Vassilis Economopoulos. Also, Gorazd Humar and Włodzimierz Szymczak contributed to the content of this book. The “30 Years of ECCE History” can be found in electronic format [here](#).



During the 64th ECCE General Meeting ECCE family was increased by one Member. The **Austrian Federal Chamber of Architects and Chartered Engineering Consultants (bAIK) was unanimously accepted as Full ECCE Member**. Mr. Klaus Thurried, who is the Chairman of the Engineers Department of bAIK, participated in our meeting and announced the intention of bAIK joining ECCE that was result of the fruitful contacts and meetings between the ECCE President and Mr. Thurriedl over the past year.

The 64th ECCE General Meeting was successful and effective for the internal works of the ECCE as well. Significant discussions were held and decisions were reached regarding critical issues such as the ECCE finances, the ECCE Position Papers, the ECCE approach to the Common Training Principles for Engineers project and the continuation of the new strategy for ECCE that was introduced a year ago by the ECCE President at the time Włodzimierz Szymczak.



New ECCE President Massimo Mariani inaugural speech

The **New ECCE President, Prof. Massimo Mariani**, in his inaugural speech stated *"The European Council of Civil Engineers (ECCE) has been and will always be for the advancement of engineering thinking and its application to local realities which transcends administrative or political country borders. ECCE not only represents the instances of modern civil and construction engineers on the European scene; it contributes forging their thinking as engineers. By equating engineering solutions to a valorisation of scientific and humanistic principles adjoined to empiric based modelling it opens links with other human and technological disciplines and professional practices. Hence the need to begin reforming ECCE and furthermore reposition the Council vis-à-vis other engineering and non-engineering associations, that share our transnational and cultural patrimony."*

Prof. Massimo Mariani described his priorities during his term of office as ECCE President as follows:

- *In spite that the economic crisis had strongly penalized our civil engineering profession all over Europe, we should move with the times and transform our profession from national to international. This shall take place and contemporarily we should pursue the highest scientific preparation, comprehensive humanistic education, and be able to characterize our profession historically. We should adapt our work and knowledge to the need of our time and master the most developed operational techniques and methods.*
- *ECCE position papers, always of the highest quality because of the professionalism of the authors, must continue to be produced and portray the excellence of civil engineering in assessing and solving relevant and current technical challenges for our professional category.*
- *ECCE should continue to identify high levels of professional competences of civil engineers; the ECCE Professional Card is a vehicle to endorse quality delivery of professional activities. We should promote it with strong determination.*

The materials from the Round Table and the 64th ECCE General Meeting can be found on ECCE website [here](#).

Be an ECCE Member (EUCivEng) ECCE Individual Membership



The European Civil Engineer

The profession of the Civil Engineering is mostly performed where the construction is being made, in Europe or in any part of the world.

Today, within the European Union, construction companies have activities in many countries, so civil engineers have to move to foreign countries and to work all over Europe.

To allow this professional movement EU published a Directive on Professional Mobility, to facilitate the recognition of Civil Engineers across Europe.

Nevertheless the Directive considers under this title, professionals with quite different academic or pro-

professional backgrounds, what can lead to unclear situations for society.

The EU Directive on Mobility proposes the creation of a European Database of Civil Engineers, interconnected through national organizations.

ECCE appeared in 1985 to promote the quality of Civil Engineering with a professional recognition where academic/professional quality is guaranteed by the national organizations.

ECCE as representative of those organizations, and to promote quality in professional recognition, is opening its membership to individual members, allowing for their image recognition as European Civil Engineers.

Join ECCE, be a EUCivEng!

ECCE goals:

- To present in Brussels the views of the European civil engineers.
(ECCE participates in the High Level Tripartite Forum for Construction in EU)
- To establish international contacts with other associations.
(ASCE, JSCE, KSCE, ECCREDI, Mediterranean countries, etc.)
- To promote the relevant professional information across Europe
(Publication of e-journal, books, reports, etc.)
- To organize Conferences across Europe about Civil Engineering
(See the conferences presentations in ECCE website)

May I become an Individual ECCE Member?

Yes, although ECCE is an association of national organizations, individual civil engineers may also be Individual Associate Members, with access to all the information and discussion forums, but they may not vote in ECCE General Assemblies.

Being an ECCE individual member you will have the reference EuCivEng.

What do I get as an ECCE Individual Member?

- **If you just want to be an ECCE member**, you will receive:
The e-journal and all relevant information from EU Commission
- **If you want to come to our meetings**, you will get:
Participation in 2 International conferences per year;
Participation in 2 General assemblies per year;
Participation in Brussels Engineers Day each 3 years;
To be in contact with civil engineers across Europe (EU and nonEU).
- **But if you want to be really active**,
You are welcome to participate in the discussion forums or to propose position papers to be submitted to Brussels.

And you get also the ECCE membership card !



- The ECCE card identifies you, through your national organization, as a Professional of Civil Engineering in your country and a **EUCivEng** in ECCE.
- It is expected that in the future the card will allow an automatic civil engineering identification across Europe, according to the EU Mobility Directive, when national organizations implement their database of Civil Engineers.

How can I become an ECCE Individual Member?

Please send to ECCE headquarters (ecce_sps@otenet.gr):

1. [Registration Form](#)
2. Document from your ECCE National Organization as a proof that you are member of it
3. [Excel sheet with your information](#)
4. Photograph
5. [Excel sheet with your name and address](#)

After receiving the notification of acceptance of your application from the ECCE General Secretary, you will be asked to proceed to the **Payment of the Subscription Fee** according to the **Payment Details** that follow.

What are the Payment Details?

- To be an ECCE individual member there is an **annual fee of 20 euros**.
- If you are **older than 65 you pay only once 30 euros** and you become member with unlimited validity.
- You can pay in packages of 3 years (60 euros) or 5 years (100 euros), **plus 8 euros, with each package, for mail and printing of a new card.**

The payment should be sent by bank transfer to:

National Westminster Bank plc, Charing Cross Branch

BIC NWBK GB 2L
IBAN GB28 NWBK 6072 1408 5260 60
Bank Address: National Westminster Bank plc, PO Box 113, Cavell House, 2A Charing Cross Road, LONDONWC2H 0PD
Account Name: European Council of Civil Engineers
Account Number: 550/00/08526060
Sort Code: 60-40-05

Please ensure that your payment includes your name as a reference.

After payment send a copy of the bank transfer to ecce_sps@otenet.gr and you will become ECCE member and you will receive the membership card.

[Join us now!](#)
[Become an ECCE Member \(EUCivEng\)](#)

Can building safety in old and urban aggregations be improved?

By Massimo Mariani (ECCE PRESIDENT and CNI Councilor in charge of Engineering Culture)

Nowadays the question is very current in Italy and not only after the dramatic earth tremors of the last months. The answer is a resounding yes provided that it is recognized that it is impossible to make the buildings invulnerable to all variety of seismic events and strength.

We should therefore speak of improvements aiming at safeguarding human life and buildings.

First of all we should identify structural instabilities of the building that can potentially cause big damage to people and things. For example, a damaged or badly built roof is a structure which can cause damage not only to the top floor. By collapsing it can fall on walls, which in old buildings are often not trussed, forcing them to open out and therefore causing the whole building to collapse. The roof is therefore a point that must be inspected and a stabilizing intervention must be planned.

I could make an analogous example by thinking about lofts. During a seismic event walls vibrate asynchronously. If the loft is not standing on them properly, it is natural and logical thinking that it will fall down with all the conse-



Auditorium San Francesco, Norcia, Italy

quences of the situation.

Deformable binding is one of the most proper stabilizing interventions. It should cover all floors and should prevent the walls from opening out asynchronously. Binding systems can be done with steel, but nowadays there are interesting solutions that use composite materials. I want to stress that the system should be able to warp, which it is natural, without reaching the point of collapse.

It should be noted that improving buildings' safety and making targeted interventions in unstable points does not require a massive action and costs are often affordable.

It should also be noted that it is possible to make preventive anti-seismic interventions on historic centres like the ones of Amatrice and Pescara del Tronto without distorting their architectural nature.

It is surely important to strike a balance between the costs of anti-seismic prevention and the costs sustained after the seismic events for reconstruction. Particularly in Italy, where almost all urban centres have a historic value and houses and public buildings are aggregated in a variety of ways, mostly illogical or not always scientifically planned during their historic growth. I remember that in 1980, Prof Grandori, chair of construction science at the Polytechnic of Milan, made an estimate of the costs needed for conforming Italy to anti-seismic model. It was an amount well below the 140 billion euro we have spent in these 30 years for emergencies after the earthquakes.

Anti-seismic regulations should be followed by all professionals but with "granu salis", particularly in dealing with historical urban aggregations. In Italy, the 1980 regulations have been drastically modified based on experiences that unfortunately we have been forced to live. The current regulations – that are being adjusted – represent a serious improvement on the old ones that contained many technical errors. I believe that they are a bit too analytical perhaps because modelling is their base. As I mentioned before our historical buildings are mainly aggregated to private houses and public structures. During the centuries they have been subjects of partial restructuring, extension, and even partial replacements. De facto they cannot fit anymore in a codification.

It is therefore unthinkable making interventions that are based on structural modelling of the building or the aggregation. In this case, the intervention can only be defined by the experience and "technical sensibility" of the professional. "Architectural incoherency" is truly the main characteristic of these historical centers. It is therefore unthinkable suggesting interventions aiming at a full rebuild.



Auditorium San Francesco after the earthquake, Norcia, Italy

I do not want to appear negative and fail to acknowledge the merits of the new regulations and technological advancements. Advancements even smaller are progressing forward and must be taken into consideration by professionals. However we should beware of "healers" that come with a magic remedy.

We should not forget that when intervening in historical buildings each innovation can ameliorate the situation but can also worsen it. Hence there is the need to investigate innovations thoroughly and only apply them after attentive considerations. We learnt our lesson in the 80s and 90s, when we were trying to rigidify the structure and by doing so we were degrading it by replacing lofts and roofs with heavy and rigid elements and breaching curbs which altered the vertical continuity of walls considered as a-tropic sediments. Later we discovered that such interventions had created heavy problems on the individual masses of the buildings. I keep telling my students that "we have to follow through the earthquakes" if we want to make improvements.

Geology and Geo-technique

By Massimo Mariani (ECCE PRESIDENT and CNI Councilor in charge of Engineering Culture)



ECCE President Massimo Mariani

The theme of the month for us Italian civil engineers is “Geology and Geo-technique”. It is dramatically real for us Italian professionals who are facing landslides and earth tremors almost daily. We should remember that out of the 700.000 landslides recorded in Europe more than 500.000 happened in Italy!

Does this reality makes us super experts or more knowledgeable and capable than our colleagues in Europe? Not necessarily. The modern era we are living is such that expertise and experiences are fast channelled to all professionals and shared when “acts of God” and natural crises shake our professional confidence, leave our cities in ruins and more importantly claim innocent lives.

At ECCE we proclaim that: *The European Council of Civil Engineers (ECCE) was created in 1985 out of the common concern of the professional bodies for Civil Engineers in Europe that the Civil Engineers working together across Europe could offer much more to assist Europe advance its built Environment and protect the natural environment.*

ECCE is indeed one of the best channels. It has been and it still is an active voice of civil engineers all over Europe, and ECCE has advocated on the ambivalent attitude of civil engineers towards environment. The question is: has this advocacy been oriented towards soliciting the full understanding of the environment and its crisis as a

necessary complement of the construction and infrastructure design? Has the professional accepted such an increased responsibility?

Probably the answer is hidden deep in the conscience of the professionals whilst their mind is stressed by rules, standards, laws, economics and social dependencies. Fortunately the world is changing and the “green conscience” is easier to be found; it needs to be cultivated by enlarging the formation of us professionals by including more humanistic topics and induce the civil engineers to quest for cultural and historical research of the construction site and its environment.

Our profession is not only “investigations, formulae and numbers”; it is also made of anthropologic studies and probing into historical archives. We, modern professionals, can use technologies in a manner that was not thinkable 30 years ago; for example, we can use satellites to observe and monitor contraction and expansion phenomena of our geological sites.

We can do more and better. We can certainly “cure” some of the repercussions on the society from environmental crises, but can we ensure that the crisis will not reproduce itself in different modes and strengths? Did we include all risks into our design or proposed reconstruction plans? Did we consider the weakening of the structures when solicited over and over? Did we consider that the structures we are designing are anchored to a ground whose geological characteristics can change as history is warning us? Are we able to show our muscles when design correctness is confronted by economic and political priorities?

Is it a call for rethinking the basics of our civil engineering practices? Not at all! I simply want to remind my colleagues that the design process of construction, its immediate results and its long term pressure on people, society, economy and nature is trusted to our skills, experiences, and the completeness of our understanding of the situation and state of affairs as well as its predictable evolution and risks.

It is a call on us professionals to solicit at all levels, technical and public, ample consideration on preventive measures.

Prevention pays back, it is a certainty! Prevention must follow a holistic process where all characteristics, dynamics and interests are taken into consideration and evaluated responsibly. For example, just to make a simple example that can be extrapolated and associated to a variety of construction projects, we should not only look at the structural aspects of what is built above ground. We should consider the structural characteristics of the site’s geology and the history of earth tremors. As any civil engineer that works on seismic projects knows, ground that is considered stable in static conditions might not remain stable after sudden violent movements. There might be alterations of the interstitial tensions in cohesive lands or volumetric changes in loose soils. Studying the history of the site will give the professional designer many clues on the risks to consider.

Prevention requires know-how and multi-discipline knowledge that with sacrifice and continuous study professionals should grow in order to refine the arts and crafts of the engineering. Empiricism and science – one is not subordinate to the other, have together the power to speak to the professionals, inform their decisions and suggest intelligent approaches to construction and infrastructure design and restoration.

Award ceremony for The German Elite-SME Award 2016 to Mr. Manfred Weber MEP



From left to right: Walter Döring President of the European Economic Association Forum (Europäischen Wirtschaftforums e.V. - EWiF Europe); President of the Federal Association of German SMEs (Bundesverband Deutscher Mittelstand e.V. - BM), Manfred Weber MEP, Fernando Branco ECCE Past President, Wlodzimierz Szymczak ECCE Immediate Past President

On 10th of November 2016, in Berlin the award ceremony for The German Elite - SME Award 2016 to Mr. Manfred Weber MEP, President of the European People's Party in the European Parliament took place. Manfred Weber received this award for his outstanding contribution to the SME community, making him the 23rd recipient of the prestigious award. Predecessors include Former Chancellor Gerhard Schröder, German political heavyweight Edmund Stoiber, Foreign Affairs minister Frank-Walter Steinmeier and current Commissioner Günther Oettinger. The prize is given once a year to a politician who has put significant effort towards creating a better environment for SMEs and the self-employed.

The event was organized by the Union Mittelständischer Unternehmen e.V. - UMU (German Association of Midsize Companies - UMU) and Wir Eigentümerunternehmer (We Entrepreneurs) - Group of Associations of Small and Medium-Sized Companies. The meeting was attended by almost 150 prominent guests representing world of politics, business, academia and associations of Small and Medium-Sized Companies.

ies.

Laudatory speeches were been given by Jean-Claude Juncker, President of the European Commission and by longstanding UMU member and prominent German consultant Prof. Dr. h.c. Roland Berger.

What is even more important for ECCE, during the same ceremony, ECCE Past President Prof. Fernando Branco was awarded with a prestigious title of Honorary Senator, Member of the European Senate of the "We Entrepreneurs" Group, which was one of the organizers of this ceremony. ECCE was represented in this event also by Immediate Past President Wlodzimierz Szymczak, who possesses the Honorary Senator title since 2015.

Representatives of ECCE held a number of interesting meetings and talks in Berlin. First of all, with Mr. Manfred Weber, to whom they conveyed basic information about ECCE and its objectives, especially in Brussels and gave The ECCE History Book to him.

On the previous day, November 9th, Wlodzimierz Szymczak had a meeting with Mr. Hermann Sturm. During the talks a topic of the future of German Civil Engineers in ECCE was discussed.



From left to right: Walter Döring, Manfred Weber MEP, Jean-Claude Juncker President of the European Commission, Wlodzimierz Szymczak ECCE Immediate Past President



From left to right: Walter Döring, Manfred Weber MEP, Jean-Claude Juncker, President of the European Commission, Fernando Branco ECCE Past President



Walter Döring and Fernando Branco receiving the honorary title of Honorary Senator of the European Senate of our We Entrepreneurs - Group

III Ecological Forum in Kolobrzeg, Poland, 14-16 September



From left to right: Witold Sujkowski Director on Investment Projects at Viessmann Sp.z o.o., Włodzimierz Szymczak ECCE President, Zygmunt Meyer ECEC Vice – President and Polish National Delegate to ECCE, Crtomir Remec ECEC President, Nikolay Kiryukhin President of Union of scientific and engineering associations of Ukraine

views and build constructive proposals aimed at establishing a common position and favorable solutions for sustainable development.” - the organizers claimed.

Włodzimierz Szymczak delivered a lecture entitled "Madrid Declaration, civil engineers, solar thermal energy - logical sequence of concepts of major importance for our environment" which was much appreciated by the audience and organizers.

He had also meeting with Crtomir Remec - President of ECEC on cooperation in the Common Training Principles Project and representation in Brussels and with Nikolay Kiryukhin, President of the Union of Scientific and Engineering Associations of Ukraine on present situation of Ukrainian civil engineering organizations.



ECCE President Włodzimierz Szymczak delivering his presentation at the III Ecological Forum

Włodzimierz Szymczak (ECCE President at the time and current ECCE Immediate Past President) was invited to participate in the III Ecological Forum that took place on 14-16 September 2016, in Kolobrzeg, Poland. The event was organized by The Polish Ecological Foundation in cooperation with the Polish Government and local authorities.

“Polish Ecological Foundation for the third time organized Poland’s largest event in the ecological sector - III Ecological Forum.

19 thematic panels were prepared, in which more than 70 speakers from Poland and abroad spoke.

Forum is an event bringing together over 800 participants from communities related to ecology. A group of experts, including representatives of central and local government, business, academia and the media is a guarantee of substantive discussion and also a platform to exchange

Load-carrying capacity of bridges in the trans-European road network — a proposal to change the design load in the European Standard

By Prof. Janusz Rymcza (Road and Bridge Research Institute, Warsaw, Poland)

Introduction by ECCE Immediate Past President Włodzimierz Szymczak

Dear Readers,

In this issue of the ECCE E-journal we present to you the article by Prof. Janusz Rymcza concerning guidelines for designing bridges in context of changes in the European road transportation system. This publication is addressed especially to the professionals dealing with bridges on each stage of their life - starting from designing, through construction, ending on operation and maintenance. Our aim is to start, provoke the serious discussion on this topic, so we count on your contribution and involvement.

My best regards for all of you,

Włodzimierz Szymczak

Immediate Past President of ECCE

Abstract

A concept is currently being discussed in Europe which provides for putting vehicles with a mass of up to 60 tonnes into circulation on the trans-European road network. The design load on bridge structures under the European Standard is too low - it does not provide for the possibility of 60 tonne vehicles moving simultaneously on several traffic lanes over the structure. The situation arises from the fact that the Standard refers to a design load based on a road traffic research conducted in Europe in the 1970s. In order to make the movement of vehicles with a mass of up to 60 tonnes over such structures possible, the design load should be increased in the basic load model to the tandem of concentrated forces 2×300 kN on each traffic lane while leaving unchanged uniformly distributed loads. Structures designed for such design loads will be able to carry the traffic of 60 tonne vehicles on any traffic lane.

Key words: bridges, design load, European Standard

1. Introduction

The efficient operation and development of the European market as well as Europe's economic, social and territorial cohesion are hinged on the development of the trans-European road network. The network is being developed as part of the TEN - Trans-European Network. The new or reconstructed road network will involve the construction of thousands of bridges. Whether or not bridges will be a weak link of the road network depends on the load-carrying capacity of the structures, which is determined by their design load.

Bridges are designed on the basis of the design load specified in the load standard. Since April 1st 2010, the basic standard in Europe for the determination of the design load for road bridges is the European Standard - Eurocode 1 [5]. The Standard has been already applied in more than 30 member states of the European Committee for Standardization. The Standard specifies the values and method of application of several standard load models on a structure. The paper [4] specifies in detail standard loads. The history of work on the Standard is also described. Work on the Standard started in 1987, but road traffic research in several European countries had already been conducted since 1977. That research provided a basis for the adoption of the load models. It should be noted that almost 40 years have passed since the research was completed. Over the period road traffic had changed substantially: the mass of vehicles is growing and their share in road traffic is increasing [14]. The design loads adopted in the Standard are too small to safely carry road traffic throughout the planned 100-year bridge working life.

This paper proposes the replacement of the design load in the basic model - Load Model 1 under the European Standard [5] on the basis of a comparison of that model with load from 600 kN special vehicles. The load from such vehicles is included in Load Model 3 according to the Standard. In the article, the term "*European Standard*" or "*Standard*", where no bibliographic reference is made, means the European Standard - Eurocode 1 [5].

2. Design load on bridges according to the European Standard

2.1. Standard models of variable loads

2.1.1 General

This section discusses the variable load models, their characteristics and rationale for the adoption of loads contained in the European Standard. The variable load models represent a simulation of road traffic. It should be noted that in characterising the load models in Section 2.1 of this article only the provisions of the Standard were applied, with no comment from the author.

Load models are adopted in the Standard so that they represent the effects of the "*actual traffic in the year 2000 in European countries*" (4.2.1(1)). The load value includes the dynamic amplification established "*for a medium pavement quality and pneumatic vehicle suspension*". For a lower pavement quality "*it may reach 1.7*" locally (4.2.1(1)).

The load values are stated as characteristic values. According to the European Standard concerning the basis of structural design ([6], 4.1.2(7)), "*for variable actions, the characteristic value shall correspond to either:*

- *an upper value with an intended probability of not being exceeded or a lower value with an intended probability of being achieved, during some specific return period, or*
- *a nominal value, which may be specified in cases where a statistical distribution is not known*".

According to the provisions of the Standard [6] of the Table 2.1, the indicative design working life of bridges included in Category 5 is 100 years.

In the European Standard, four models are provided for vertical loads on bridges:

- Model 1 is the basic model concerning vehicle loads on a bridge;
- Model 2 concerns a single axle load on a bridge deck;
- Model 3 concerns loads on a bridge from special vehicles;
- Model 4 concerns pedestrian crowd loading on a pavement.

Owing to the fact that, of the four load models, only models 1 and 3 apply to vehicle loads, those models were taken for further analysis.

2.1.2 Load Model 1 according to the European Standard

The load models can be used to design bridges with span lengths of less than 200 m. The loaded length is defined taking into account the calibration of Load Model 1, which can also be used for greater span lengths (4.1(1)). The values of characteristic load in Model 1 are taken so that with adjustment factors α equal to 1.0 the probability of exceedance on the main roads in Europe in 50 years is 5%, which corresponds to a 1000 year return period (Table 2.1).

Load Model 1 consists of the characteristic load (indicated by the index “k” in the description of loading values) with concentrated forces Q_{ik} and uniformly distributed over the carriageway q_{ik} , where “r” is the traffic lane number. In this model, concentrated loads represent two axles (a tandem system) situated on each traffic lane. The load values are stated in Table 1.

According to the Standard, the notional lane width is 3.00 m, the axle spacing in the tandem system is 1.20 m, and the wheel track is 2.00 m. The loads must take into account only full tandem sets, and uniformly distributed loads should be placed in the most unfavourable parts of the influence surface. The sequence of notional lanes on the carriageway should be so chosen that load effects are the most adverse (4.2.4(2)).

Table 1. Characteristic load value in Load Model 1.

Traffic lane No.	Load Model 1	
	Concentrated forces TS (kN)	Uniformly distributed load UDL (kN/m ²)
1	2 × 300	9.0
2	2 × 200	2.5
3	2 × 100	2.5
>3	-	2.5

The load in Load Model 1 is the product of the characteristic load multiplied by the adjustment factor. For span lengths greater than 10 m, the tandem system is replaced by a one-axle concentrated load of weight equal to the total weight of the two axles (4.3.2(6b)). Load Model 1 takes into account “*flowing, congested or traffic jam situations with a high percentage of heavy lorries. In general, when used with the basic values, it covers the effects of a special vehicle of 600 kN*” (4.3.2(1b)).

2.1.3 Load Model 3 according to the European Standard

Load Model 3 represents loads from special vehicles. The vehicles “*can be authorized to travel on particular routes of the European highway network*” (A.2(1)). The lightest special vehicle is the 600/150 standard vehicle. It is a vehicle with a weight of 600 kN which has 4 axle-lines of 150 kN each spaced at 1.50 m (Table A1) with a width of 3.00 m (A.2(1)). For vehicle models that move at normal speed (70 km/h), the Standard recommends (A.3(5)) the use of a dynamic amplification “r”.

According to the Standard, the distance between the outer axle of a special vehicle and another load is 25 m (A.3(6)). In addition, “*where special vehicles are assumed to move at normal speed, a pair of special vehicles should be used in the lane(s) occupied by those vehicles*” (A.3(7)).

2.2. National adjustment factors

2.2.1 Adjustment factors according to the European Standard

The European Standard allows for the use of parameters set at national level, known as Nationally Determined Parameters (NDPs). The parameters should be specified in a National Annex (NA) attached to the Standard. The parameters that should be specified in the National Annex are the values of the adjustment factors α_{Qi} and α_{qi} , increasing or decreasing the characteristic load on bridges in Load Model 1:

α_{Qi} - for concentrated forces - tandem system TS,

α_{qi} - for uniformly distributed load UDL.

The Standard recommends the following minimum values of adjustment factors: $\alpha_{Qi} \geq 0.8$ and $\alpha_{qi} \geq 1$, at $i \geq 1$ (4.3.2(3)). With regard to road bridges situated in the main road network of European countries “*Load Models 1 and 2 (...) taken into account with adjustment factors α and β equal to 1.0 are deemed to represent the most severe traffic met or expected in practice*” (Foreword).

For this factor value “*heavy industrial international traffic is expected, representing a large part of the total traffic of heavy vehicles. For more common traffic compositions (highways or motorways), a moderate reduction of α factors applied to tandem systems and the uniformly distributed loads on Lane 1 may be applied (10% to 20%)*” (4.3.2(3)).

2.2.2 Adjustment factors adopted in European countries

In European countries, including the EU member states, adjustment factors α_{Qi} and α_{qi} of different values have been adopted in the National Annexes to the Standard. Most countries have adopted the factor value equal to 1.0. A few countries, such as Denmark, France, Germany and the United Kingdom, have adopted values other than 1.0.

In 2003, Germany adopted the adjustment factors recommended in the European Standard - $\alpha_{Qi} = 0.8$ and $\alpha_{qi} = 1.0$

[9], but in 2009 the factor values were increased [10]. The need to increase the factors is stated in the work [2]. Article [12] compares the effect of increasing the adjustment factors in Germany. Internal forces were analysed for 9 reinforced-concrete bridges with different span designs: slab, girder, slab-girder and box girder structures. The assumption of the increased standard load increases internal forces by approx. 40%. The paper [11] reports differences in road traffic with a share of heavy goods vehicles in Bavaria in 1984 and 2005. The German research shows that, first of all, the share of five-axle vehicles with semitrailers increased 2.5 times.

Table 2 shows the adjustment factors adopted in selected European countries, which can be applied in designing bridge structures situated on main European roads (which can be identified with the trans-European road network TEN-T).

Table 2. Summary of adjustment factors in designing bridge structures in the trans-European road network.

Name of European country	Adjustment factors				
	α_{Qi}		α_{qi}		
	$i = 1$	$i > 1$	$i = 1$	$i = 2$	$i > 2$
Majority of EU member states	1.00	1.00	1.00	1.00	1.00
Denmark [15]	1.00	1.00	0.67	1.00	1.00
France [1]	1.00	1.00	1.00	1.20	1.20
Germany [8]	1.00	1.00	1.33	2.40	1.20
United Kingdom [3]	1.00	1.00	0.61	2.20	2.20

Symbols used in the table:

α_{Qi} - adjustment factor for concentrated forces - tandem system TS

α_{qi} - adjustment factor for uniformly distributed load UDL.

Analyzing the factor values stated in Table 2, it can be concluded that:

- in Denmark, the value of the factor relating to uniformly distributed load on the first lane was reduced by 33%;
- in France, the value of the factor relating to uniformly distributed load on lanes other than the first lane was increased by 20%;
- in Germany, the values of the factors relating to uniformly distributed load on all lanes were increased: by 33% on the first lane; by 140% on the second lane; and by 20% on other lanes;
- in the United Kingdom, the value of the factor relating to uniformly distributed load on the first lane was reduced by 39% and the factor for such load on other lanes was increased by 120%.

To sum up, it can be concluded that the adoption of different adjustment factor values by each EU member state practically makes it impossible to design bridges in Europe that would carry trans-European road traffic at the same safety level. For example, given that the above-mentioned adjustment factor values based on the same European Standard are adopted, the load-carrying capacity of bridges designed in Denmark will be smaller than of those designed in France, and in France it will be smaller than of those designed in Germany.

3. Comparison of standard Load Model 1 and Load Model 3

3.1. Assumptions

1) Loads from standard special vehicles with a weight of 600 kN are treated as equivalent to standard Load Model 1.

In the Standard, the description of Load Model 3 characterizes vehicles with a weight of 600 kN (mass of 61.2 t), designated with the symbol 600/150 (the vehicles are called in the Standard "special vehicles"). General conditions are given for the movement of such vehicles on bridges and their technical parameters (the vehicle width of 3.00 m stated in the Standard is too large, as according to the Council Directive [7], Annex 1, paragraph 1.2a, vehicles of this mass participating in road traffic have a width not exceeding 2.55 m).

The Standard does not specify the distance between special vehicles on a given lane or how each lane is loaded with such vehicles. The distance between the outer axle of a special vehicle and another load is given. It is 25 m (A.3(6)). The value is taken to be the recommended distance between the outer axles of special vehicles participating in road traffic. In the different EU member state, different distances are assumed between the outer axle of a special vehicle and another load, e.g. in the UK it is taken to be 5 m [3] and in France 10 m [1].

It should be noted that vehicles with a mass of 60 t are already put into circulation on public roads in Finland and Sweden. An amendment to the Council Directive [7] is currently being discussed in Europe, which provides for putting vehicles up to 60 t into circulation on selected European transport corridors. It is already possible, under Article 4 of this Directive, to allow the circulation of such a vehicle on public roads in each EU member state (!), with special regard to cross-border transport. Hence there is a high probability that vehicles with such a mass will soon be put into circulation also in European countries other than Finland and Sweden.

2) Load Model 1 assumes adjustment factor values equal to 1.00.

Such an approach results from the standard provision that "the effects of the 600/150 standardized model are covered by the effects of Load Model 1 where applied with α_{Qi} and α_{qi} factors all equal to 1" (A.2(2)). The load on each lane was designated as "EN-X", where "X" means the lane number.

3) Lane 1 was loaded with vehicles with a weight of 600 kN in two ways:

- vehicles move in a column and the distance between outer axles of neighboring vehicles is 6.00 m. Such a load is in conformity with the standard provision that Load Model 1 is intended for “*flowing, congested or traffic jam situations with a high percentage of heavy lorries*” (4.3.2(1b)). Owing to a small distance between vehicles, the load is not increased by the dynamic factor. The load is designated as “600/6m”;
- vehicles move in a column and the distance between outer axles of adjacent vehicles is 25.00 m. The distance between the outer axle and another load is recommended by the Standard (A.3(6)). Such a load will be treated as a load occurring in typical road traffic “*with a high percentage of heavy lorries*”. In this case, the load is decreased by the dynamic factor. The load is designated as “600xf/25m”.

4) Traffic lanes other than Lane 1 were loaded with vehicles with a weight of 600 kN moving in a column, and the distance between the outer axles of adjacent vehicles is 60.00 m. Such a load will be treated as a load occurring in typical road traffic on lanes loaded with heavy lorries, but to a lesser extent than Lane 1. In this case, the load is decreased by the dynamic factor. The load is designated as “600xf/60m”.

In order to compare Load Model 1 with a load representing 600 kN special vehicles according to Load Model 3, internal forces - transverse forces and bending moments - generated in a simply supported beam loaded was compared as a given traffic lane. Uniformly distributed load was taken as for a standard notional lane of 3.00 m in width. The application in the analysis of the static scheme of a simply supported beam and the determination of internal forces - transverse forces and bending moments generated when loading it - is in conformity with the rules set forth in the NATO Standardization Agreement STANAG 2021 which concerns military load classification of bridges [13]. Internal forces were compared, produced in each separately analysed traffic lane. Such an arrangement is the most general one possible, as it is independent of the span design (e.g. the number and rigidity of main girders or cross girders). The non-exceedance of internal forces on each separately analysed carriageway lane guarantees the non-exceedance of internal forces in the case where several lanes are loaded and total load is considered (which usually represents a superposition of individual loads).

Owing to the fact that in Load Models 1 and 3 there is a simple dependence between the transverse force and the bending moment in a simply supported beam, and because of publishing limitations, the further analysis discusses only internal forces in the form of transverse forces.

3.2. Loading of Lane 1 with standard vehicles

Fig. 1 presents the values of internal forces for loading Lane 1 according to standard Load Model 1 in which the values of adjustment factors α_{Qi} and α_{qi} are taken equal to 1.00. The load represents a tandem of concentrated forces 2×300 kN and uniformly distributed load of 9.0 kN/m². They are designated with the symbol “EN-1”. Fig. 1 also shows the values of internal forces for a lane loaded with a column of standard special vehicles with a weight of 600 kN, for the distance between the outer axles of adjacent vehicles (hereinafter referred to as “*distance*”) equal to 6 m or 25 m. The first distance was taken as one occurring in a traffic jam, and the second one - as recommended in the Standard, occurring in typical road traffic.

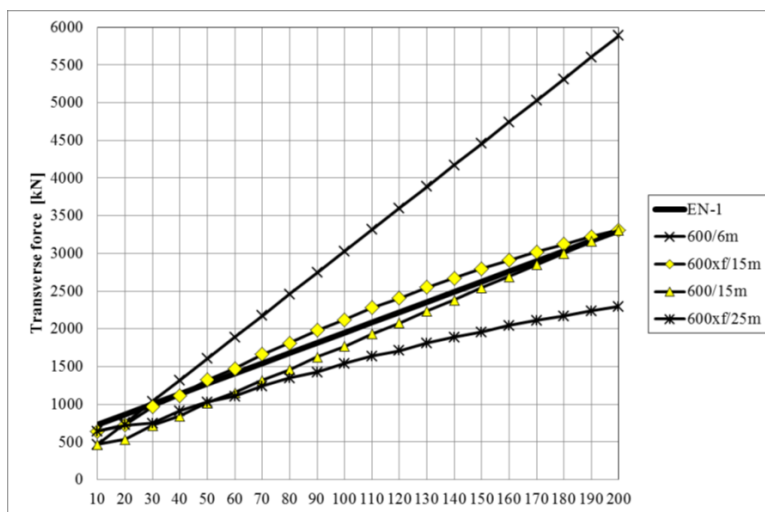


Fig. 1. Lane 1 loading with standard vehicles with a weight of 600 kN.

Used symbols:

EN-1 - standard Load Model 1 for loading Lane 1

600/6 m - 600 kN vehicles moving at distances of 6 m, without the dynamic factor

600xf/15 m - 600 kN vehicles moving at distances of 15 m, with the dynamic factor

600/15 m - 600 kN vehicles moving at distances of 15 m, without the dynamic factor

600xf/25 m - 600 kN vehicles moving at distances of 25 m, with the dynamic factor.

Comparing the load from a column of vehicles with a weight of 600 kN, moving at distances of 6 m, with Load Model 1, it is concluded that:

- for a span length of less than 30 m, the vehicle column induces smaller internal forces than Load Model 1,
- for a span length equal to or greater than 30 m, the vehicle column induces greater internal forces than Load Model 1; for a span length of 50 m - by about 25%, for a span length of 100 m - by about 50%, and for a span length of 200 m - by about 80%. The difference in internal forces is proportional to the span length.

Comparing the load from a column of vehicles with a weight of 600 kN, moving at distances of 25 m, with Load Model 1, it is concluded that for any span length, the vehicle column induces smaller internal forces than Load Model 1; for a span length of 50 m and 100 m - by about 20%, and for a span length of 200 m - by about 30%. Thus a column of vehicles with a weight of 600 kN, moving at distances of 25 m (taking into account the standard dynamic factor) induces smaller internal forces than Load Model 1, and a vehicle column moving at distances of 6 m (without taking into account the dynamic factor) induces greater internal forces than the analysed load model.

Using the method of successive approximations, a distance was sought between vehicles with a weight of 600 kN moving in a column, at which the load would induce internal forces that are the closest to those induced by Load Model 1.

Owing to the fact that the standard gives the recommended value of the dynamic factor at the speed of 70 km/h, and such speed will not be reached by vehicles in road traffic moving at distances of a dozen or so metres, the internal force values are stated with and without the dynamic factor. It can be stated that a column of vehicles with a weight of 600 kN, moving at distances of 15 m, induces the same internal forces as standard Load Model 1. Fig. 1 presents the values of forces for loading with such a vehicle column, with and without the standard dynamic factor (e.g. for span length of 100 m, internal forces with the dynamic factor are approx. 9% greater than forces induced by Load Model 1, and without that factor - approx. 9% smaller than the forces induced by the model).

To sum up, it can be concluded that for Lane 1, the load from standard vehicles with a weight of 600 kN moving at distances of 15 m invokes internal forces comparable with Load Model 1. According to the Standard, which provides that Load Model 1 is intended for "flowing, congested or traffic jam situations with a high percentage of heavy lorries" (4.3.2(1b)), it can be stated that the standard load taken for Lane 1 is correct.

3.3. Standard vehicle loads on lanes other than Lane 1

Fig. 2 presents the values of internal forces for loads on lanes other than Lane 1 - Lanes 2, 3 and more than 3, according to standard Load Model 1 in which the values of adjustment factors α_{Qi} and α_{Qj} are taken equal to 1.00. Load on Lanes 2 and 3 represents a tandem of concentrated forces of 2 x 200 kN and 2 x 100 kN respectively and uniformly distributed load of 2.5 kN/m². The load is designated with the symbols "EN-2" and "EN-3", respectively. Load on a lane additional to the third one (fourth, etc.) represents only a uniformly distributed load with the same value as for Lanes 2 and 3. The load is designated with the symbol "EN>3".

Fig. 2 shows the values of internal forces for loading each traffic lane with a column of vehicles with the same axle spacing as the standard special vehicle with a weight of 600 kN, with such a weight and such a distance between vehicles that the values of internal forces for loading the lane concerned (2, 3 or other) with a column of such vehicles correspond to the greatest extent to internal forces induced by standard Load Model 1.

Comparing the load from a column of vehicles with Load Model 1 for the particular lanes, it is concluded that:

- loading from 400 kN vehicles moving at distances of 40 m (taking into account the standard dynamic factor) induces internal forces with a value close to that of forces induced by standard load on Lane 2; for span length of 60 m to 190 m, the difference does not exceed 5%;
- loading from 200 kN vehicles moving at distances of 20 m (taking into account the standard dynamic factor) induces internal forces with a value close to that of forces induced by standard load on Lane 3; for span length of 40 m to 190 m, the difference does not exceed 5%;
- loading from 75 kN vehicles moving at distances of 6 m (without taking into account the standard dynamic factor) induces internal forces with a value close to that of forces induced by standard load on a Lane with a number greater than 3; for span length of 60 m to 200 m, the difference does not exceed 5%.

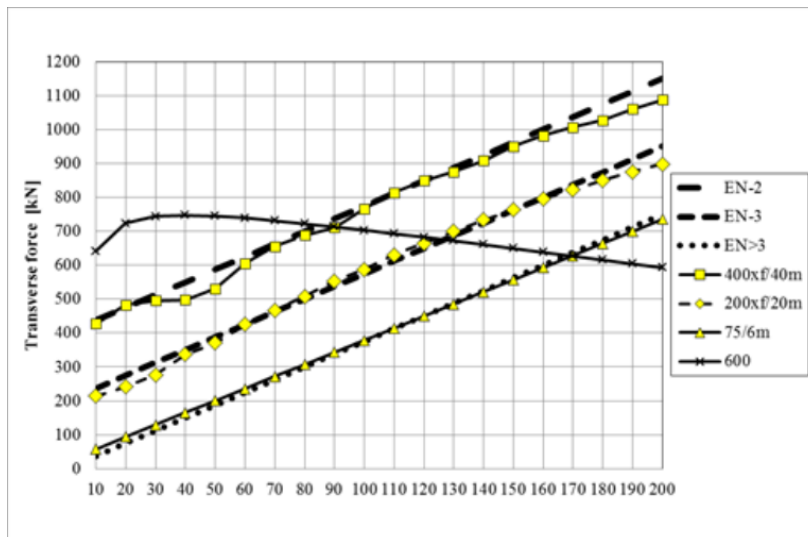


Fig. 2. Standard vehicle loads on lanes other than Lane 1.

Used symbols:

EN-2 - standard Load Model 1 for loading Lane 2

EN-3 - standard Load Model 1 for loading Lane 3

EN > 3 - standard Load Model 1 for loading more than 3 Lane

400x/40 m - 400 kN vehicles moving at distances of 40 m, with the dynamic factor

200x/20 m - 200 kN vehicles moving at distances of 20 m, with the dynamic factor

75/6 m - 75 kN vehicles moving at distances of 6 m, without the dynamic factor

600 - standard vehicle with a weight of 600 kN.

In the Standard, the load is assumed so that where a traffic jam occurs on one lane (Lane 1), the other lanes with the following span lengths:

- Lane 2 with a span length up to 80 m;
- Lane 3 with a span length up to 120 m;
- Lane 4 and other lanes with a span length up to 160 m,

cannot carry even one vehicle with a weight of 600 kN without exceeding internal forces induced by the standard load (Fig. 2, designated as "600"). It can be concluded that for lanes other than Lane 1, the standard load assumed is incorrect.

3.4. A proposal standard vehicle loads on each lane

Fig. 3 presents the values of internal forces for loading each lane according to standard Load Model 1 in which the values of adjustment factors α_{Q1} and α_{Q2} are taken equal to 1.00. They are designated with the symbol "EN-X" or "EN>X", where "X" means lane number from 1 to 3. For bridges built in the trans-European road network, the standard load should be taken so that irrespective of the traffic situation on the bridge, it should be possible for a vehicle of 600 kN to move safely on each lane. In order to ensure that standard load enables 600 kN vehicles to move safely on lanes other than Lane 1, the standard load for those lanes should be changed.

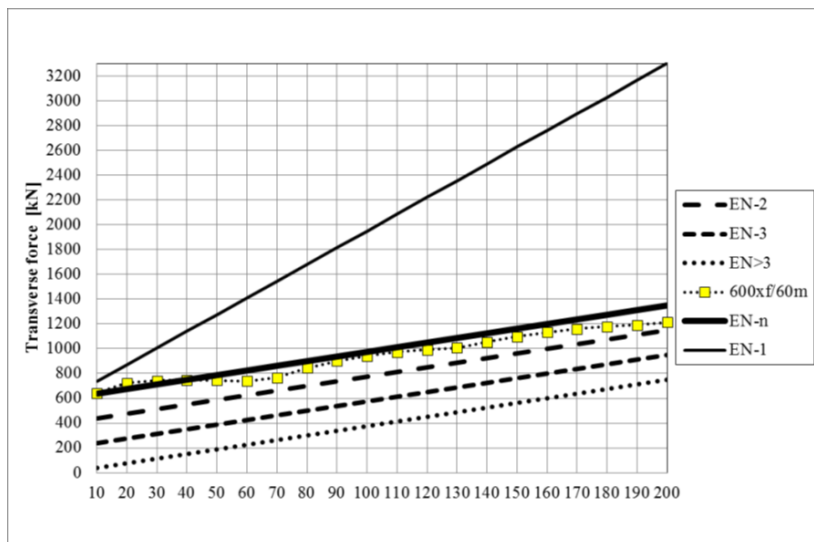


Fig. 3. Proposal standard vehicle loads on each lane.

Used symbols:

EN-2 - standard Load Model 1 for loading Lane 2

EN-3 - standard Load Model 1 for loading Lane 3

EN > 3 - standard Load Model 1 for loading more than 3 Lane

600xf/60 m - 600 kN vehicles moving at distances of 60 m, with the dynamic factor

EN-n – author's proposal for loading more than 1 Lane

EN-1 - standard Load Model 1 for loading Lane 1.

Given the assumption that irrespective of the traffic situation on other lanes the movement of at least one 600 kN vehicle should be possible on a given lane, the standard load proposal for lanes other than Lane 1 is as follows:

Standard load on each lane should represent a tandem of concentrated forces of 2 x 300 kN and uniformly distributed load of 2.5 kN/m². In Fig. 3, the load is designated with the symbol "EN-n", where "n" means lane number n>1. Such a load induces internal forces with a value close to forces induced by the load from a column of standard special vehicles with a weight of 600 kN, moving at distances of 60 m (taking into account the standard dynamic factor). In Fig. 3, the load is designated with the symbol "600xf/60 m". For any span length, the maximum difference between loads is approx. 10%.

Fig. 3 also shows the values of internal forces induced by a standard load on Lane 1 (in the figure, the load is designated with the symbol "EN-1"). For any span length, standard load on Lane 1 induces greater internal forces than the proposed load on lanes other than Lane 1; for a span length of 50 m - by about 60%, for a span length of 100 m - by about 100%, and for a span length of 200 m - by about 140%. The difference in internal forces is proportional to the span length.

To sum up, it can be concluded that for a lane other than Lane 1, the proposed Load Model invokes internal forces comparable with load from standard vehicles with a weight of 600 kN moving in a column at distances of 60 m.

According to the Standard, which provides that Load Model 1 is intended for "flowing, congested or traffic jam situations with a high percentage of heavy lorries" (4.3.2(1b)), it can be stated that for lanes other than Lane 1, the standard load proposed by the Author is correct.

4. A proposal to change the design load in the European Standard

Table 3 shows a proposal to change the design load in the European Standard, and Table 4 summarizes adjustment factors relevant to the proposal presented.

Table 3. Characteristic load value in Load Model 1.

Traffic lane No.	Existing load		Proposed load	
	Concentrated forces TS (kN)	Uniformly distributed loads UDL (kN/m ²)	Concentrated forces TS (kN)	Uniformly distributed loads UDL (kN/m ²)
(1)	2 × 300	9.0	2 × 300	9.0
2	2 × 200	2.5	2 × 300	2.5
3	2 × 100	2.5	2 × 300	2.5
>3	-	2.5	2 × 300	2.5

Table 4. Summary of proposed adjustment factors in designing bridge structures in the trans-European road network.

EU member states	Adjustment factors				
	α_{Qi}			α_{qi}	
	$i = 1$	$i = 2$	$i = 3$	$i = 1$	$i > 1$
	1.00	1.50	3.00	1.00	1.00

Symbols used in the table:

α_{Qi} - adjustment factor for concentrated forces - tandem system TS

α_{qi} - adjustment factor for uniformly distributed load UDL.

5. Conclusions

1) A concept is currently being discussed in Europe which provides for putting vehicles up to 60 tonnes into circulation on selected European transport corridors - the trans-European transport network.

2) Standard load according to the basic load model - Load Model 1 - contained in the European Standard Eurocode 1 induces internal forces equal to loading from columns of the following standard vehicles:

- on Lane 1 - a column of 600 kN vehicles, moving at distances of 15 m,
- on Lane 2 - a column of 400 kN vehicles, moving at distances of 40 m,
- on Lane 3 - a column of 200 kN vehicles, moving at distances of 20 m,
- on a lane with a number greater than 3 - a column of 75 kN vehicles, moving at distances of 6 m.

It should be concluded that the design load contained in the European Standard does not provide for the possibility of 60 tonne vehicles moving simultaneously on carriageway lanes over bridges. The design load should be dependent on the expected service load.

3) In order to make the movement of 600 kN vehicles possible on any lane, the design load should be increased in the basic load model to the tandem of concentrated forces of 2 × 300 kN on each traffic lane while leaving unchanged uniformly distributed loads. The proposed load model invokes internal forces comparable with load from standard 600 kN vehicles moving at distances of 60 m. This proposal meets the Standard which provides that the standard load covers "flowing, congested or traffic jam situations with a high percentage of heavy lorries. In general, when used with the basic values, it covers the effects of a special vehicle of 600 kN" ([5], 4.3.2(1b)).

4) From the technical point of view, the construction of the trans-European transport network should start with the unification of the standard load on bridges in the EU member states. Therefore, a uniform European position should be taken on the design load for bridges. In the trans-European transport network, adjustment factors with the same value should be adopted. It should be kept in mind that equally safe and durable bridges in the trans-European transport network are bridges that are designed for the same loads and then loaded with the same road traffic.

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Madrid Declaration endorsement procedure



European Council
of
Civil Engineers



CICCP, CICPC-CEPC, ECCE, WCCE

MADRID DECLARATION

**“CIVIL ENGINEERS COMMITTED TO UN'S OBJECTIVES
OF SUSTAINABLE DEVELOPMENT AND CLIMATE ACTION”**

In March 2016, on the occasion of the celebration in Madrid of the 5th Iberoamerican Congress of Civil Engineering, the 7th General Assembly of the Council of Civil Engineering Professional Associations of Portuguese and Spanish speaking countries CICPC-CEPC, the 63rd General Meeting of the European Council of Civil Engineers - ECCE and other events organized by the World Council of Civil Engineers - WCCE the Madrid Declaration was signed. Madrid Declaration is about Civil Engineers' commitment to UN's objectives of sustainable development and climate action.

The Madrid Declaration can be found [here](#).

Any professional organization who would be interested in endorsing the Madrid Declaration should address to Colegio de Ingenieros de Caminos, Canales y Puertos (CICCP) presidency presidente@ciccp.es the text of the agreement of such organization endorsing the Madrid declaration together with a copy of the declaration in the country's mother tongue.

Such agreement will be annexed to all language versions. The version in the mother tongue language will also be provided including all other signatories.

Further information on the topic may be provided by CICCP's representative, José Francisco Sáez in 17jfs@ciccp.es.

News from ECCE Members

Latvia

Thanks to the construction industry for their annual and lifelong contributions!

On 5 September at the Latvian National Library, the President of Latvia Raimonds Vējonis presented the highest prize in the industry, the Grand Prize of the Construction Industry.

The Grand Prize of the Construction Industry is organised by the Latvian Association of Civil Engineers (LACE) and the most read industry LACE magazine *Būvzinieris* (Civil Engineer) in cooperation with other professional non-governmental organizations in the construction industry. The patron of the Grand Prize of the Construction Industry is Raimonds Vējonis, President of Latvia, and cooperation partners are: the Ministry of Economy and the Ministry of Environment Protection and Regional Development.

Candidates were nominated by Latvian companies, public organisations, local governments, employers, project customers and constructors. Candidates were evaluated by 44 construction industry professionals well-recognised in society and among colleagues in the industry. This year, 36 specialists were nominated for the prize, and the jury met with 20 of them in person.

The prizes: The Foundation Stone prizes were presented to the winners by Raimonds Vējonis, President of Latvia, Kaspars Gerhards, Minister of Environment Protection and Regional Development, Vilnis Ķīrsis, Parliamentary Secretary of the Ministry of Economy, Vincentas Stragys, Vice President of the Lithuanian Association of Construc-



From left to right: **Andris Vilks**, Director of the National Library of Latvia, **Raimonds Vējonis**, President of Latvia, **Mārtiņš Straume**, Chairman of the Board the Latvian Association of Civil Engineers

tion Engineers, **Indriķis Muižnieks**, Rector of the University of Latvia, **Professor Juris Smirnovs**, Dean of the Construction Engineering Sciences Faculty of the Rīga Technical University and other representatives of the industry.

The Construction Industry 2016 Grand Prize took place thanks to the main sponsor **AEROC** and the sponsors: **Sakret**, **PAROC**, **Merks**, **Knauf**, **RERE Grupa**, **Būvuzņēmums Restaurators** and the supporters: **RBSSKALS**, **Skonto Būve**, **Ramirent Baltic Rīgas filiāle**, **CMB**, **YIT celtniecība**, **Būvinženieris**, **building.lv**, **buvlaukums.lv**, **abc.lv**, **nozare.lv**, **buvbaze.lv**, **TVNET**, **Radio Skonto** and **TV24**.

Raimonds Vējonis, President of Latvia:

"It is a real pleasure to see at the ceremony of the Grand Prize of the Construction Industry both young people who often have wild ideas and wise experienced people who are ready to shape these ideas correctly so that we can create something new. Nothing has changed and construction still is and will be one of the most important industries in the Latvian economy. The situation in the industry is like a litmus paper or barometer of the development of the entire economy of the country. The Latvian construction industry, like the development of the country, has had its ups and downs. We have had years of successful and rapid growth, as well as painful recessions and very critical moments. I want to wish the construction industry to remain one of the main development industries of the Latvian economy, to have in the industry this mix of youth and experienced wisdom, that is, to have young people who are willing to choose the construction sector and to have the smart experienced specialists who are ready to share their experience in order to continue the good construction traditions that we have in Latvia. I am really honoured and proud to present today the prizes for lifelong contributions. May the construction industry thrive and prosper, may the government arrange what has to be arranged so that we build securely and so that we, the users of the buildings, will always feel safe and secure. And the main thing is - let's not be stereotypical, let's be creative, energy efficient and, of course, responsible both as customers and contractors. The most important is quality, after all. The quality of buildings, and the quality of our lives. May we have a quality life!"



Raimonds Vējonis, President of Latvia, together with the prize winners and organizers. (Māriete Šperberga, editor-in-chief LACE magazine Būvinženieris (Civil Engineer) in center).

The Grand Prize of the Construction Industry was awarded in two categories: Lifelong Contribution in the Construction Industry and Engineer/Architect of the Year, which includes the nominations Engineer of the Year, Architect of the Year, Young Architect of the Year and Young Engineer of the Year. Twelve winners (six in each category) received the main Foundation Stone prize, a diploma and a winner's badge, a trip to Germany together with Knauf and other significant prizes. It is appreciation from the industry and Latvian society to the best construction specialists in Latvia, specially highlighting the winners in the Lifelong Contribution in the Construction Industry category, from whom many young people have learned.

The Lifelong Contribution in the Construction Industry prize was awarded to: **Oļģerts Krauklis**, retired architect, who worked in the industry for 63 years; he has designed the

Science House in Jūrmala, the Rīga Sports Palace (in collaboration with other authors), the Rīga Vidzeme District Administration building, and many residential houses throughout Latvia and the former USSR; **Sergejs Meierovics**, a construction specialist with 56 years experience, who is still working at SIA LBS - Konsultants as a construction expert; **Viktors Puriņš**, retired construction engineer with 60 years experience, was the head of the Latvian Association of Constructors for 15 years, the creator of The Best Building of the Year in Latvia competition and the Constructor's Festival; **Juris Skujāns**, Professor in the Environment and Construction Sciences Faculty, University of Agriculture of Latvia, who has been educating construction students since 1976, when the construction education program was started at the University, and has held the positions of Dean, Prorector and Rector of the University; **Tālis Straume**, board member at AS Ceļuprojekts and SIA LBS - Konsultants, one of the creators of the Via Baltica idea, and creator of the Motorways Fund; **Valdis Uzariņš**, board member at AS Būvuzņēmums Restaurators, manager of construction and restoration works, who has managed and participated in many large construction projects, e.g. the reno-



Vincetas Stragys, Vice President of the Lithuanian Association of Civil Engineers (in centre), presented the prize to the winner of the title Engineer of the Year 2016, Andrejs Bočkarjovs (on the left), Board Member, Senior Engineer - Project Manager at AS Latvijas tilti, inter alia for the contribution in the construction of bridges in Lithuania. On stage, also Kaspars Gerhards, Minister of Environment Protection and Regional Development (on the right).

vation of the terrace of the Freedom Monument, the restoration of the Latvian National Opera and Ballet Theatre, the construction of the Visitors Centre of the Bank of Latvia, etc.

The Engineer of the Year 2016 prize was awarded to **Andrejs Bočkarjovs**, board member, senior engineer - project manager at AS Latvijas tilti, **Juris Grodņa**, project manager at SIA RERE BŪVE, and **Zigis Ostelis**, Deputy Head of the Metal Structures Construction Engineers Unit, building structures construction engineer at AS UPB.

The Architect of the Year 2016 prize was awarded to **Arnīs Kleinbergs**, architect at SIA Arhis Arhitekti, and **Juris Mitenbergs**, architect at SIA AB3D.

The Young Engineer of the Year 2016 prize was awarded to Edgars Zelčs, Deputy Head of the Rīga Construction Engineers Unit at AS UPB, who earned his professional master's degree in construction from Rīga Technical University only in 2016 but has already made designs for significant sites in Sweden and Norway, and is an accurate and positive team member.

Helena Endriksone
Vice- President,
Latvian Association of Civil Engineers

Poland

In the interest of civil engineers, the Polish Chamber of Civil Engineers submits its observations to the Urbanism and Building Code

The Polish Chamber of Civil Engineers (PIIB) is actively involved in the consultation of the draft Urbanism and Building Code, which is to become a fundamental piece of legislation underpinning the preparation and execution of investment processes, including the practice of civil engineers in Poland.

On 30 September 2016, Andrzej Adamczyk, the Minister for Infrastructure and Construction announced a proposal for the Urbanism and Building Code during the official celebration of the Civil Engineering Day. According to its authors, the purpose of the Code is to structure and facilitate the entire investment and construction process, to eliminate unnecessary procedures and to improve the efficiency and transparency of the selection of investment sites and execution processes in public investment projects.

Having analysed the proposed provisions of the Code, the PIIB prepared its observations and suggestions which may have an appreciable effect on investment processes and the professional practice of civil engineering for members of self-regulatory bodies. Therefore, the PIIB made a proposal to other construction sector organisations and self-regulatory bodies to establish the B-21 Programme Committee, carry out a debate and work out a common position on the draft Urbanism and Building Code.

The opening meeting of the B-21 Programme Committee was held on 3 November 2016 and was attended by representatives of civil engineering organisations, scientific and technical associations and self-regulatory organisations from the industry. Following a discussion on the draft Urbanism and Building Code, feedback was received, compiled and submitted to the Minister for Infrastructure and Construction.

Key objections with respect to the Code involved, among other things, the absence of proper structure in the spatial planning, project design and execution process, and lack of regulation as regards the roles of the particular professions represented by the participants of the spatial planning, project design and execution process. Furthermore, the Code contains a large number of delegations to adopt implementing acts whose nature would often determine the applicability of the code or the capability to practice as a civil engineer. This refers, for example, to the Act on the profession of architects, civil engineers as well as self-regulatory bodies and the proposal for the regulation on independent technical functions in the construction industry.

Considering the significance of those implementing acts for the civil engineering self-regulatory body and for the professional practice of members of self-regulatory bodies, the PIIB prepared its proposal for the Act on the profession of architects, civil engineers as well as self-regulatory bodies and for the regulation on independent technical functions in the construction industry. The proposals were presented during a meeting of the B-21 Programme Committee on 9 November 2016.

Both proposals for implementing acts drawn up by the PIIB for the purposes of the Code were approved and supported by the members of the B-21 Programme Committee, which brings together organisations from the construction sector. A decision was also made to submit the proposal for the act and regulation to the Minister for Infrastructure and Construction.

It is appropriate to add that members of the civil engineering self-regulatory body are also actively involved in the public consultation process of the proposal for the Urbanism and Architecture Code, with meetings held in each province with the participation of the Under Secretary for the Ministry of Infrastructure and Construction. They communicate their observations and insights.

In the interest of Polish civil engineers, the Polish Chamber of Civil Engineers actively participates in the work and consultation process for the Urbanism and Architecture Code, which is to become a fundamental piece of legislation laying down the rules of professional practice for members of the civil engineering self-regulatory body.

Slovenia

UNESCO Chair on Water-related Disaster Risk Reduction (www.unesco-floods.eu)



On December 1, 2016 a new UNESCO Chair on Water-related Disaster Risk Reduction was inaugurated at the University of Ljubljana, the third UNESCO chair in Slovenia so far, and one of 42 UNESCO chairs in water science around the world. The UNESCO appointed for 4 years as the Chair Holder Professor Matjaž Mikoš from the Faculty of Civil and Geodetic Engineering of the University of Ljubljana, a renowned expert in hydrology and hydraulic engineering.

Damages caused by water-related disasters, such as floods or rainfall-induced landslides, continue to increase all over the world, while available water resources are becoming increasingly scarce, causing damages, such as those due to droughts. The research activities undertaken by the newly established UNESCO Chair on Water-related Disaster Risk Reduction (WRDRR) will be an intricate part of joint worldwide efforts to reduce disaster risks and to mitigate their unavoidable consequences.

The planned activities relate to risk reduction of water-related disasters due to floods and accompanying erosion phenomena. The problem has contemporary relevance in Slovenia and elsewhere in the world. Today, we mostly encounter the impacts of: climate change and anthropogenic actions as a response to hazards and the changed way of our life, subject to cultural and developmental diversity related to the society's sensitivity, and development of new technologies and risk reduction actions.

Through an integrated approach to research and doctoral study programs the WRDRR Chair will develop new solutions suitable for local natural and cultural conditions.

The UNESCO WRDRR Chair activities in 2017 encompasses collaboration and organization of:

- 4th World Landslide Forum
- 3rd Regional Symposium on Landslides in the Adriatic-Balkan Region
- Summer School on Natural Disasters at University of Ljubljana
- World Centre of Excellence in Landslide Risk Reduction at the Faculty of Civil and Geodetic Engineering, University of Ljubljana
- Erasmus Mundus Master Program in Flood Risk Management
- Initiative More Room for Waters

Matjaž Mikoš
Slovenian Chamber of Engineers

4th World Landslide Forum (www.wlf4.org)



The 4th World Landslide Forum (WLF4), under the honorary patronage of His Excellency Mr. Borut Pahor, President of the Republic of Slovenia, will be held from May 29 to June 2, 2017 will host in the Cankarjev dom – Cultural and Congress Centre in Ljubljana, Slovenia,

The event is jointly organized by the International Consortium on Landslides (Kyoto, Japan), the International Programme on Landslides (IPL), the University of Ljubljana and the Geological Survey of Slovenia. The Forum is a

contribution to the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 which was adopted by UN Member States in March 2015 at the Third UN World Conference on Disaster Risk Reduction (3rd WCDRR) in Sendai City, Japan.

Scientists, engineers, researchers, and policy makers working in the area of landslide technology, landslide disaster investigation and landslide remediation are encouraged to share their work with the global community by submitting papers and presenting their work at the WLF4. The reviewed contributions to the forum will be published as the WLF4 proceedings by Springer Nature in a set of five full-colour books, covering the forum 5 themes, each organized in several parallel technical sessions. The Forum will offer several important events, such as a High Level Panel Discussion of governmental representatives, a Round Table, Photo Contest and Exhibition, Student Award, Technical Exhibition, and three interesting Post-Forum Technical Study Tours.

The WLF4 early-bird registration is open until January 15, 2017. All details are available on the WLF4 web page www.wlf4.org.

Matjaž Mikoš, University of Ljubljana
Slovenian Chamber of Engineers

Spain

A CICC member takes office as Spain's Minister of Public Works



Our Spanish colleague, Iñigo de la Serna has taken office as Minister of Public Works. Ingeniero de Caminos, Canales y Puertos, graduate from the University of Cantabria with specialty on Hydraulics, Oceanography and Environment.

Born on 1971, he initiated his professional career as Department Head of Hydraulics in Apia XXI Consulting Engineers between 1995 and 1999.

Later on he entered into public service as chief of staff of the Ministry of Environment in the regional Government of Cantabria. Such activity evolved into a political career holding different offices at the regional and local level, holding Santander Mayor's office since 2007.

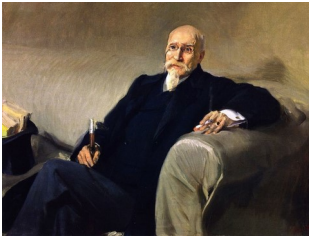
He has held the presidency of the Spanish Federation of

Municipalities, the European Council of Municipalities and Regions, and founding member of the Global Compact for Local Authorities.

During such periods, he has been appointed external advisor to the InterAmerican Development Bank.

Colegio would like to congratulate the appointment of a fellow colleague in such a critical office for the future of our profession.

Centennial anniversary of the death of José Echegaray, Civil Engineer and Nobel Prize for Literature



Ingeniero de Caminos, Canales y Puertos, mathematician, physicist, scientific disseminator, playwright, economist and politician. who shared the Nobel Prize for Literature with the Provençal poet Frédéric Mistral, becoming so in the first Spanish to receive a Nobel laureate in 1904. He held the offices of Minister of Public Works and Finance during the 1868-1874 period. Head Professor of Physics from Madrid Central University.

United Kingdom

Institution of Civil Engineers (UK) Update November 2016

Professor Tim Broyd, ICE President 2016 – 2017



Prof. Tim Broyd, ICE President 2016 - 2017

Guests from across the industry gathered at ICE Headquarters One Great George Street to hear the inaugural speech from new President Professor Tim Broyd in early November.

He set out his reason for choosing the theme for his inaugural address 'Engineering a Digital Future', explaining that [innovation and technological advances](#) have been at the heart of ICE for years, and are the themes on which his long career has been based. He also spoke of his passion for finding solutions to the challenges that society faces and how, supported by ICE, industry must change in order to tackle them.

He explained how digital engineering can transform people's lives, to deliver services, on time, at a reduced cost, and with greater quality and precision. This, he said, would change the way we operate and manage truly smart infrastructure.

He went on to give his insight into the role that ICE and its members must play in delivering his vision of projects which are delivered better using digital tools, techniques and technologies as well as a change in mind-set.

As is tradition, he also unveiled his portrait by artist Jane Allison which will take pride of place at the [Institution's recently refurbished Headquarters](#) in Westminster. Tim will make visits across the UK and internationally during his tenure as President.

Ahead of the event, Tim met with his [President's Apprentices](#), who will work alongside him and participate in one of several projects to help make a real contribution to the profession.

ICE's Infrastructure Learning Hub opens with world record breaking LEGO® bridge



The new Hub, in Westminster, London, is home to a brand new Bridge Engineering exhibition, celebrating the civil engineers who have created some of the world's greatest bridges. Sitting at the heart of the newly refurbished Grade II listed library, the Hub is an interactive public space where the built environment industry can tell engaging stories about how their work makes a positive difference to society.

The centerpiece of the [Bridge Engineering exhibition](#), is a LEGO bridge standing at over three metres tall and spanning more than 30 metres – almost the equivalent of three London Routemaster buses parked end on end. The bridge is made up of over 200,000 individual plastic bricks, and weighs three-quarters of a ton.

Hong-Kong based world-renowned bridge engineer and ICE Gold Medallist Dr Robin Sham, of infrastructure services firm AECOM, designed the LEGO bridge installation and oversaw the complex challenge of creating such a vast suspension bridge using only the materials that you would find in a child's LEGO toy box.

The exhibition, which has been sponsored by CEMAR, Tony Gee and Partners LLP and Flint & Neill explains how bridges have transformed lives and gives an insight into the creative minds of the civil engineers who designed and delivered them. Made possible with the support of leading UK engineering and construction companies, *Bridge Engineering* tells the human, social and engineering story of bridge building and demonstrates the value that infrastructure delivers to communities around the world.

The exhibition guides visitors on a tour of past great structures such as Thomas Telford's classic Menai Strait suspension bridge, modern masterpieces including the 50 year old Severn Bridge, and transformational structures of the future such as Scotland's famous Queensferry Crossing. *Bridge Engineering's* dedicated interactive zone allows visitors and children to become civil engineers for the day by constructing their own bridges.

Bridge Engineering marks the start of a five-year programme of infrastructure-focused exhibitions at ICE's One Great George Street HQ.

AECOM, Atkins, Carillion, Costain, John Laing Kier, Mace Foundation, Mott MacDonald, Ramboll, VINCI Construction UK Limited and WSP | Parsons Brinckerhoff have become the first ['Founding Partners' of the exhibition and learning centre](#). Together they have pledged over £300,000, and ICE has promised to match industry donations to the £850,000 project. ICE is now renewing its call to the rest of industry to follow suit and to join as Partners to help raise the remaining funds needed to bring the vision to life.

ICE makes the case for infrastructure ahead of Brexit Negotiations

In its two page summary report 'Brexit – The Case for Infrastructure', released in summer 2016, ICE has set out the valuable contribution which infrastructure makes to the economy.

The [report summarises that high quality, high performing infrastructure is vital for economic growth](#) and improved quality of life. It points to transport, communications, energy and housing as being central to spreading opportunity across the whole country.

It also makes the case that infrastructure acts as a catalyst for social and economic inclusion, encouraging greater participation in society from people of all walks of life. In particular, during uncertain or volatile economic times, continued investment in UK infrastructure can help provide economic stability, facilitate inward investment and drive economic growth.

The report highlights the fact that for every pound of infrastructure spending, economic activity is raised by £2.84, with the construction industry contributing a huge £103bn in economic output, 6.5% of the UK total. Infrastructure also creates a large number of jobs for the UK the report says, 2.1 million in 2015 representing 6.2% of the UK total. The report also revealed that every 1,000 direct jobs created by the delivery of new infrastructure boosts wider employment by over 3,000 jobs.

It hailed the revival that infrastructure has enjoyed since the financial crisis, with the long term strategic case for infrastructure investment and delivery being better understood across the political divide and within Government departments. But, it said, the UK still sits just 24th in the World Economic Forum Global Competitiveness infrastructure rankings, behind a number of our economic competitors including Japan (7th), France (10th) and Germany (12th).

It called on Government to commit to infrastructure during its negotiations with the EU and continue to place infrastructure investment at the heart of economic policy. It says the Government must continue to invest in long term infrastructure programmes and support the National Infrastructure Commission. The Commission is due to deliver a National Infrastructure Assessment, and ICE is supporting this with its [National Needs Assessment](#).

It also calls on Government to continue to place infrastructure at the heart of its plans for devolution, as called for in its [recent State of the Nation: Devolution report](#).

Download the report [here](#).

News from ECCE partners and other organizations

13th ECEC General Assembly Meeting and ECEC Medal Award 2016 in Budapest



On Saturday, 15th of October, the 13th General Assembly Meeting of the European Council of Engineers' Chambers took place at the Hilton Hotel in Budapest, Hungary, hosted by the President of the Hungarian Chamber of Engineers, DI Etelka Barsi-Pataky.

A main topic at this event was the project of Common Training Principles for Engineers, which is, on behalf of the European Commission, currently conducted by the ECEC. Project director and ECEC Secretary General, Klaus Thürrield presented the developments of the project to the General Assembly and invited all delegations again to bring in the countries' individual opinions

and experiences.

The ECEC medal, a symbol for extraordinary achievements in regard to the values of ECEC, was awarded for the third time: On 15 October 2016 in Budapest it was presented to ECEC Past President Dr Mirko Orešković. The decision of the ECEC Board members was based on the fact that Mirko Orešković is and has always been very active in various Engineers' organisations in Croatia and in Europe where he invested great efforts for better social recognition of the professional position and the value of engineering activities. He was one of the strong supporters of the idea of establishing the European Engineers Chamber, finally realised through the establishment of the ECEC. He was a head organiser of the Dubrovnik meeting in autumn 2002, where an agreement of Engineer's Chambers representatives on the establishment of ECEC a year later was reached. Additionally Mr. Orešković was one of the initiators for establishing Engineer's Initiative for Regional Cooperation (IIRS) in the region of west Balkans, founded in 2011 and still is its coordinator.

The medal was presented to Mr Orešković by the former award winner and President of the Hungarian Chamber of Engineers, Mrs Barsi-Pataky.



Stakeholder Conference on CTP for Engineers, 27 October, Vienna

On 27th of October, the final Stakeholder Conference on CTP for Engineers took place at the "Haus der Ingenieure" in Vienna. More than 60 European experts from ministries and Engineering Organisations discussed the main controversies in regard to the revised draft proposal. ECCE attended this second workshop by invitation of the European Council of Engineers Chambers (ECEC) to present the modifications assumed by the expert team once reviewed all allegations presented by stakeholders and to focus the discussion in the issues which have been more controversial or with more distant positions between different stakeholders. Discussion topics were e.g. the possibility of compensation of academic education, the potential difficulties in non-regulated countries in regard to the requirement of a home-country certification and the possibility to base a two-level recognition system on a common scope of authorization. In mid-September, the CTP Project Team sent out the Draft Proposal and Survey Report for consultation to the Competent Authorities of the Engineering profession and over hundred National and European Engineering organisations, and received a high amount of feedback. The results of the workshop are currently analysed and the ECEC Project team will submit a final report with its' recommendations for further steps in regard to CTP for Engineers in December 2016.



11th General Assembly of the World Council of Civil Engineers



WCCE's 11th General Assembly of the World Council of Civil Engineers was held in San Jose, Costa Rica from 7 to 10 September 2016, organized by the Association of Civil Engineers of Costa Rica in parallel with its the International Congress of Civil Engineering. These activities were welcomed by the Hon. Minister of Public Works of Costa Rica, Carlos Villalta Villegas. Attendance at WCCE activities by our colleagues in Costa Rica and WCCE delegates was very high and enriched our activities with their experience.

Regarding our General Assembly, various issues were addressed being the major achievements of the meeting as follows:

- Several initiatives are to be developed jointly with UNESCO in the coming months through the signing of a UNESCO – WCCE partnership agreement being among them:
- Publication of monographs on the topic addressed by the International Year of Water initiative for the period 2016-2019.
- Publication of a guide of principles for the seismic protection of heritage buildings
- Also in the field of partnerships with other organizations they presented the following activities.
- A partnership agreement with INBO - International Network of Basin Organizations to work jointly for the identification of river basins as most suitable scope for integrated water resources management.
- Endorsement of Water Governance principles published by the OECD - Organization for Economic Co-operation and Development.

Last but not least, the creation of a Standing Committee on Women in Civil Engineering to be hosted by Portugal aims to become a forum and an example of the different situations of the female civil engineers in the different member countries. In addition to this, WCCE has also appointed a task group of young engineers which will evolve in future assemblies into a Standing Committee.

This Assembly has focused on vindicating WCCE as a global partner with the UN system on the principles presented in the Madrid Declaration signed last March which stated the commitment of civil engineering towards the achievement of UN's Sustainable Development Goals and our profession's role in such achievement.

The Turkish Chamber of Civil Engineers will host our General Assembly in September 2017. The creation of the Standing Committee of Women in Civil Engineering, hosted by Mexico and chaired by Mrs Cristina Machado has been confirmed together with the creation of a Young Engineer's task force which will comprise young professional representatives from all WCCE member organizations and is expected to crystallize into a Standing Committee in the following General Assembly.

WCCE's Women in Civil Engineering San José Declaration



The numbers of women in civil engineering has grown exponentially over the last years. Currently, some countries enrol over 30% / 20% women within its civil engineering student's/ professional's population, whereas 30 years ago such numbers barely reached 3% / 1% in countries such as Costa Rica, Colombia, Spain and Portugal. Such situation is not extensive to all countries, as some regions have lower figures.

In recent years, the role of women in engineering has been vindicated by UN agencies like UNESCO as well as by organizations profession international or regional. Since the establishment by the World Federation of Engineering Organizations Committee on Women in Engineering in the first decade of 2000, other organizations have replicated this structure as is the case of the creation of the Committee of Women in Civil Engineering the World Council of Civil Engineers, sponsored by Portugal, last September.

The current status of women civil engineers in each country differ, but some core dysfunctions can be identified for the full development of the potential of women in civil engineering, as women are yet considered under a "glass ceiling" and are more prone to redundancy whenever economic crisis arises. Women's full development requires the knowledge transfer of lessons learnt and best practices to countries in an earlier stage of women's imbrication in the civil engineering profession.

Major breakthroughs have been achieved already, but there is yet a long way to accomplish our final goal, eliminate gender bias in the civil engineering sector. On such grounds, the Standing Committee of Women in Civil Engineering considers undertaking the following initiatives:

- Compile national/global gender and age statistics regarding the civil engineering profession in order to address the following questions:
 - How has the situation evolved over the past years?
 - Do periods of crisis affect men and women alike?
- To increase the presence of women within WCCE Standing Committees
- Provide WCCE National members the tools to showcase the role of women in Civil Engineering
- Encourage the presence of women in WCCE endorsed events as keynote speakers.
- Vindicate the role of proficiency over gender for the promotion to management positions

On a much larger scope, this Standing Committee advocates for:

- Follow a policy of "equal pay for equal work", regardless of whether it is male or female
- Encourage the implementation and enforcement of equal upbringing rights for both parents.

European Council for Construction Research, Development and Innovation (ECCREDI) - 20 years to bring the sector together and put construction research on the European Agenda



The European Council for Construction Research, Development and Innovation (ECCREDI) was created in Brussels on 19 December 1995 with the signing of a Memorandum of Understanding by representatives of European federations concerned with construction, in its widest sense.

construction, in its widest sense.

The European federations participating in ECCREDI represent the principal interests within construction: contractors, engineering, consultants, architects and designers, product and material producers, building control organisations and research bodies covering buildings, infrastructure and geotechnics.

The aim of ECCREDI is to contribute to the competitiveness, quality, safety and environmental performance of the construction sector and to the overall sustainability of the built environment – all urban and transport infrastructures - by advocating for effective construction research, technological and process development and innovation.

ECCREDI adds value as a European council that connects its members and establishes areas of common interest, for which joint action is more successful than isolated approaches from individual members. Where such common interest is identified, ECCREDI co-ordinates opinion and issues joint positions, aimed at influencing policy makers in the EU, including the European Commission, particularly but not limited to DG RTD, the European Parliament and the Joint Research Centre. The objective of this lobbying activity is to get – in collaboration with the European Construction Technology Platform (ECTP) and other European Technology Platforms - a better deal for the construction sector, in terms of the funds allocated to construction research and innovation and the quality of research programs that are designed by the European Commission under Horizon 2020 and future framework programs.

In addition, lobbying by ECCREDI on wider key policy areas helps to ensure that relevant EU ambitions such as circular economy, energy efficiency, competitiveness etc. take into account the ideas and needs of the construction industry, which has a major role in the successful implementation of EU policies.

Our key strategic themes for the coming five years related to the built environment and urban and transport network development concern:

1. Zero footprint construction: topics concerned relate to CO₂ – emissions, global warming, resource consumption, circular economy
2. Low maintenance and adaptable constructions: a special focus here is on demographic changes, ageing population, robustness and resiliency of our urban environment, respecting Europe's cultural heritage
3. Safe and healthy construction: aspects to be considered relate to safety risks in buildings, impact on wellbeing of occupants, maintenance and repair of our infrastructure
4. Digital construction: possibly this is the biggest revolution presently going on, it concerns the use of BIM not only in design but also in construction and management of assets
5. Education and wellbeing of our construction workforce: of utmost importance in this respect are matters related to training and quality
6. competitiveness of the sector in & outside Europe: aspects concerning procurement procedures, harmonization, insurance and common standards are essential here.

We look forward to an effective collaboration with all our members and invite European networks that share our common goals to contact us.

You can find the recently published ECCREDI Brochure [here](#).

FIEC position on "EFSI 2.0"

FIEC revealed a few days ago its position on the proposal to extend the duration and capacity of the Investment Plan for Europe, also called the "Juncker Plan" (see also FIEC article in the magazine [Construction Europe](#) on this issue).

FIEC welcomes this reinforcement as a very good signal for EU and international private investors, and hence, very good news for the financing of the most needed EU infrastructure and energy efficiency projects.

However, it also gives some warnings on a few points: the European Fund for Strategic Investment (EFSI) should not be reinforced at the expense of the existing EU budget line in favour of transport, energy and broadband infrastructure, the "Connecting Europe Facility" (CEF); such investment for growth should not be considered as pure expenditure as regards the calculation of public deficit; the list of priority sectors for investment should remain stable, with realistic targets, in particular with regard to the "climate action" target.

Read the FIEC Position Paper [here](#).

EU Funds and programmes

New assistance package of almost €210 million for the EU neighborhood



The assistance package includes over €88 million to support bilateral cooperation projects that will benefit citizens in Egypt (€50 million) and Palestine (€38.6 million). In addition, over €41 million will fund regional cooperation programmes which will benefit the [Southern Neighbourhood](#) region as a whole.

A package of €79.8 million will boost socio-economic development and SMEs, youth employability and connectivity in the [Eastern Partnership](#) countries.

For further information please visit the website http://www.euneighbours.eu/main.php?id=402&id_type=2

Infrastructure - TEN-T - Connecting Europe €1.9 billion to support key European transport projects

The European Commission launched in October [the third round of calls for proposals under the Connecting Europe Facility \(CEF\)](#) for transport, making €1.9 billion available to finance key transport projects. €1.1 billion are earmarked for projects in Member States eligible for financing from the EU Cohesion Fund, in order to better integrate these countries into the internal market. Along with the [Investment Plan](#) presented by the Commission in November 2014 – and in particular the new European Fund for Strategic Investments (EFSI), the CEF aims at bridging the investment gap in Europe to boost growth and job creation, a priority of President Jean-Claude Juncker.



EU Commissioner for Transport Violeta Bulc remarked: "The EU supports over 460 projects across the territory of the Member States contributing to better mobility and connectivity for European citizens and businesses. With this new call, we are giving more focus to intelligent transport systems across Europe and to infrastructure development in the cohesion states. The Commission is committed to building the transport network of the future while providing to keep countries and regions united."

This year's calls continue to focus on innovative transport to improve safety and environmental performance, increase efficiency and build cross-border connections. For the first time, a specific priority (provided for with €110 million) addresses smaller cross-border projects, located on the comprehensive network, which shall help bringing regions closer together and enhancing their accessibility.

"Although we have been investing a lot in improving transport infrastructure, there is underinvestment in many smaller cross-border sections, and bottlenecks and missing links remain. I therefore welcome the new Commission initiative to scale up support for smaller cross-border projects and in particular railway connections, to help develop local and regional transport infrastructure stimulating development of border regions" said Michael Cramer, Chair of the Transport and Tourism Committee of the European Parliament.

"Funding small-scale cross-border infrastructure shows that Europe cares about the everyday life of hundreds of thousands of citizens and workers. It requires limited resources but can have a big impact on territorial cohesion and help our common market to work properly. This call is an encouraging step also with a view to the discussion on investment for missing links within the next EU budget", said Mr Raffaele Cattaneo, President of the Lombardia Region Council and chair of the Commission for Territorial Cohesion Policy of the European Committee of the Regions.

Overall, the calls make €840 million available to all 28 Member States ('General envelope') for cross-border infrastructure projects and for projects covering innovation and new technologies and traffic management systems such as the European Railway Traffic Management System (ERTMS), Intelligent Transport Systems for roads (ITS) or the Single European Sky Air Traffic Management Research (SESAR) Programme. Of this amount, €40 million will be dedicated to infrastructure projects to connect with neighbouring countries.

The "cohesion" envelope (€1.1 billion, available to 15 Member States) will add key infrastructure projects on the TEN-T core network in sustainable transport modes such as rail and inland waterways to these priorities.

Support will be granted on a competitive basis in the form of EU co-financing, following a thorough evaluation and selection process. Applicants will have until 7 February 2017 to submit their proposals. The outcome of the calls will be published by summer 2017.

[2016 CEF Transport Calls for Proposals](#)

Miscellaneous

Clean Energy EU: European Commission sets energy targets for the next decade



The European Commission has released the long-awaited Energy package, gathering legal proposals on energy policies.

Towards an Energy Union based on former 2030 targets and Paris Agreement

The package intends to create an Energy Union based on the principles enounced in February 2015. It is grounded on the targets and commitment announced during the Energy Council in October 2014 ahead of the COP21 Paris Agreement.

The European Union had agreed on EU-wide 2030 targets and policy objectives, based on a 40% emissions reduction, 27% use of renewables and enhanced reliance on energy efficiency with at least 27% energy savings compared with the business-as-usual scenario.

Holistic approach of the Winter Package

The [Clean Energy Package](#) sets several legislative framework and proposed targets and measures on

- Energy policy
- Use of renewable resources
- Energy efficiency measures and targets
- Market design initiative

Energy performance of buildings in the spotlight

As part of the energy efficiency package, and based on a consultation opened early 2016, the European Commission has proposed a review of the Energy Performance of Buildings Directive (EPBD) of relevant articles of the Energy Efficiency Directive (EED).

The proposal sets renovation targets, minimum performance requirements for existing and new buildings. It further adds provisions on energy performance certificates on inspections.

The proposal is joined by a Staff Working Document showing best practices of improved energy performance in buildings.

For further information on the topic please visit the website [here](#).

The EU Building Stock Observatory, a comprehensive database of the building stock characteristics in EU28

Together with the EU Clean Energy for All package of initiatives and legislation, a major online data portal has been launched on the 30th of November, 2016. [The EU Building Stock Observatory](#), managed by BPIE, provides a comprehensive snapshot of the building stock characteristics in EU28, and monitors the implementation of relevant EU Directives in Member States by presenting 250 indicators.

It includes data from EU projects, national statistics, EPC databases, cities sustainable energy action plans, industry and others, with factsheets on specific topics per country.

[The Observatory](#) aims at supporting the successful implementation of policies and programmes and better compliance and enforcement.

It maps energy poverty areas, provides useful data for decision makers in policy and in the private sector.

It was developed for the European Commission by BPIE in collaboration with ECN, Ecofys, Enerdata and SEVEN, as well as national project partners.

The Observatory contains a [database](#), a [datamapper](#) and [factsheets](#).

JRC Report | Effective information measures for energy use reduction in EU Member States



In order to achieve the EU 20% reduction on primary energy consumption target by 2020, a change in consumer behaviour and energy consumption practices is needed. Following this principle, article 12 of the Energy Efficiency Directive (EED) requires that Member States (MSs) shall take appropriate measures to promote and facilitate an efficient use of energy by small energy customers including domestic customers and small and medium-sized enterprises (SMEs). MS have adopted policies, programmes and measures which aim to promote behavioural change. The measures undertaken are described yearly in the National energy efficiency Action Plan (NEEAP).

The aim of this report is to analyse the measures implemented within the EU territory in order to highlight the best practises on information campaigns targeting behaviour change on energy use.

Concrete objectives:

1. Analyse the measures implemented so far in the EU Member States (NEEAPS)
2. Select the best practises by sector in terms of Effectiveness, Replicability and Measurability
3. Evaluate the main factors influencing the effectiveness of the measures; strength and weaknesses

4. Make general recommendations to member states for further develop of awareness and information campaigns.

Download the report [here](#).

Commission invests in 58 SMEs

58 small and medium-sized enterprises (SMEs) from 16 countries have been selected for funding in the latest round of the Horizon 2020 SME Instrument Phase 2.

During this phase of the instrument, each project is to receive up to €2.5m (€5m for health projects) to finance innovation activities. The total amount to be distributed between the SMEs working on 51 projects is €80m.

Spanish SMEs were the most successful with 13 companies selected for funding, followed by seven Italian SMEs and five companies from both Germany and Finland. Seven of these projects are in the field of transport and six in the field of ICT.

The European Commission received 1,378 project proposals by 13 October. Since the launch of the programme on 1 January 2014, 587 SMEs have been selected for funding under Phase 2.

Funding under Phase 2 of the instrument allows companies to invest in innovation activities such as demonstration, testing, piloting, scaling up and miniaturisation, in addition to developing a mature business plan for their product. The companies will also benefit from 12 days of business coaching.

The next cut-off for SME Instrument Phase 2 is 18 January 2017.

Source: [Pan European Networks](#)

Infrastructure - TEN-T - Connecting Europe

Evaluating the Connecting Europe Facility – Commission launches open consultation

The European Commission has launched a public consultation as part of its mid-term evaluation of the Connecting Europe Facility (CEF).

The CEF is a unique European funding programme set up to support the development of high-performing, sustainable and efficient interconnected trans-European networks in energy, telecommunications and transport.

The CEF – which makes €30.4 billion available in grants and financial instruments – aims to contribute to the achievement of the Europe 2020 strategy, by boosting investments to stimulate smart, sustainable and inclusive growth. It also aims to enable the European Union to reach its sustainable development targets by 2020.

Nearly three years after its launch in January 2014, the CEF will be evaluated for its relevance, effectiveness, efficiency, coherence and EU added value in achieving its objectives.

A key element of this evaluation is a consultation open to the public which will not only help to assess the various aspects of the programme, but also shape its future. The survey addresses both the general objectives of the CEF as well as the specific objectives set for each of its three sectors.

In the field of transport, the CEF makes available €24.04 billion to co-fund TEN-T projects. The trans-European transport network (TEN-T) is aimed at contributing to the creation of a single European transport area that is efficient and sustainable, increases the benefits for its users and supports inclusive growth. It comprises a comprehensive and a core network. The TEN-T Guidelines (Regulation 1315/2013) define projects of common interest eligible for CEF funding.

CEF transport objectives include the removal of bottlenecks and enhanced rail interoperability, the promotion of sustainable and efficient transport systems, as well as the integration and interconnection of transport modes.

The public consultation will close on **27 February 2017**.

[CEF public consultation](#)

Upcoming events

International Conference and Exhibition Construction Safety and Health Vision Zero: Problems to Practical Solutions 26 and 27 of May, 2017 Filoxenia Conference Centre, Nicosia, Cyprus



The Cyprus Association of Civil Engineers (CYACE), after the successful organization of four International Conferences on Construction Safety and Health since 2009, organizes the Fifth International Construction Safety and Health Conference and Exhibition of Equipment and Services on “Vision Zero: Problems to Practical Solutions” which will take place on the 26th (afternoon) and 27th of May, 2017 at Filoxenia Conference Centre, Nicosia, Cyprus.

The Conference will be held in co-organisation with the German Institute for Social Security and Accident Prevention in Construction Sector (BG BAU) and the support of the International Social Security Association, Construction Sector (ISSA C) and the Cyprus Scientific and Technical Chamber. The Minister of Labour, Welfare and Social Insurance (MLSI) of Cyprus has set the Conference under her auspices and she will address it. Moreover, the Department of Labour Inspection of the MLSI supports it.

The aim of the Conference is the presentation of the seven Golden Rules as well as the practical solutions to the problems to achieve Zero Vision. Zero Vision is the global campaign in the construction sector of ISSA C as well as of others International Organisations

The Conference is addressed to Civil Engineers, Architects, Construction Safety and Health Coordinators, Mechanical Engineers, Electrical Engineers and other engineering disciplines, Safety and Health Officers, Prevention Consultants, involved in the design and execution stage of construction projects, contractors and other professionals who are interested to learn about health and safety issues in construction projects and the latest developments on these issues. The participants will be come from Cyprus as well as from other countries all over the world.

They have been invited and will participate distinguished professors and other scientists as well as distinguished professionals in safety and health issues from North America and various countries of Europe, including the President and the three Vice Presidents of ISSA C.

For further information please visit the website [here](#).

Conference 'Energy Efficiency Finance Market Place' - 18-19 January 2017, Brussels



The European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME) is organising an 'Energy Efficiency Finance Market Place' in Brussels on 18-19 January 2017.

The event will bring together key stakeholders from cities, regions and industry as well as the financial sector to discuss successful schemes implemented at local and regional level, financing mechanisms and products available, and practical challenges to

implement them on a large scale. A special focus will be on structuring the market and, in particular, standardisation, aggregation and de-risking of energy efficiency assets.

The conference is the third in a series of successful events during the last years and will feature:

- **Plenary sessions by high-level political representatives on finance for sustainable energy;**
- **Panel sessions by financial institutions on practical experiences and project bankability;** and
- **Parallel sessions on practical solutions and projects** implemented across Europe in four thematic tracks:
 - Standardisation and benchmarking;
 - Innovative financing solutions;
 - Aggregating projects on public assets;
 - Aggregating projects on private assets;
- **Poster sessions of sustainable energy projects** with diverse technical and financial structures; as well as
- **Stands of financial institutions.**

The event will offer the opportunity for a limited number of financial institutions to participate with a dedicated stand. With a view to ensuring coverage of diverse types of financial institutions, organisations with experience in sustainable energy financing, including energy efficiency, in a number of European countries/regions are encouraged to express their interest [here](#) until 07/12/2016.

In case of any questions, please contact EASME-Energy@ec.europa.eu.

Smart Buildings for a greener Europe: Emerging Policy and Practice – 14 February 2017, Malta



Workshop with panel discussion

SAVE THE DATE: 14 February 2017, 14:00 – 17:30 (Central Europe Time)

Corinthia Hotel, St. Julian's, Malta, with live web-streaming

CORINTHIA HOTEL St. George's Bay | St. Julian's | STJ 3301 | Malta | www.corinthia.com

What are smart buildings? How can they help improve the energy efficiency of Europe's building stock?

Join experts from industry, academia and the European Commission to discuss these questions in a public workshop in Valletta, Malta. Some of the latest research and innovation in smart buildings will be presented in the context of European policies, notably the Energy Performance of Buildings Directive (EPBD) which is undergoing a review. Around 100 participants will be joined by several hundred more online, as the event will also be streamed live via www.buildup.eu, Europe's reference portal for energy efficiency in buildings. Put your questions directly to the panellists, in person or via email and Twitter.

The workshop will take place the day before the meeting of the EPBD Concerted Action, the closed forum gathering the EU Member States and Norway to discuss implementation of Europe's legislation on energy performance of buildings.

Download the event flyer under Additional Documents. Registrations are now open. Please register at the link below.

<https://www.surveymonkey.co.uk/r/CAIVEPBDsideevent14feb2017>

World Sustainable Energy Days



World Sustainable Energy Days
1 - 3 March 2017, Wels/Austria

The World Sustainable Energy Days (WSED), one of Europe's largest annual conferences in this field, offers a unique combination of events on sustainable energy. **The 2017 conference will take place from 1 - 3 March 2017**

in Wels/Austria.

For more than 20 years, experts from all over the world have gathered in Upper Austria to attend the conference - in 2016, the event attracted over 700 participants from 57 countries. The conference makes an important contribution to awareness raising about renewable energy and energy efficiency.

The event's topics are the following:

- renewable energy sources
- energy efficiency
- energy-efficient and sustainable buildings, energy services
- Pellets
- sustainable energy research, technologies, markets and policies

WSED17 offer 8 conferences and 3 hands-on events:

- [European Pellet Conference](#)
- [European Energy Efficiency Conference](#)
- [Young Researchers: Energy Efficiency + Biomass](#)
- [Energy Efficiency Services and Business](#)
- [E-Mobility & Smart Buildings](#)
- [European Research Conference: Buildings](#)
- [European Nearly Zero Energy Buildings](#)
- [Energy Efficiency Watch](#)
- [Tradeshaw, Cooperation Platform, Site Visits](#)

For further information on the programme, registration, fees etc., please visit the WSED17 website at the link below. <http://www.wsed.at/en/world-sustainable-energy-days.html>



As the holiday season is almost here, we'd like to take this opportunity to thank you for your continued support to the European Council of Civil Engineers over the past year.

We hope your Christmas Holidays and New Year is filled with happiness, health and prosperity and we look forward to cooperating and working with you in 2017 and beyond.

All the best from the President, the Executive Board and Secretary of the European Council of Civil Engineers

Prof. Massimo Mariani
ECCE President

Maria Karanasiou
ECCE General Secretary



European Council of Civil Engineers

Secretariat:
Ippokratous 9
106 79, Athens
Greece

Tel.: +30 210 9238170
Fax: +30 210 9235959
E-mail: ecce_sps@otenet.gr
Web: www.ecceengineers.eu

**“Civil Engineers at the Heart of Society
Building Life Quality and a Sustainable
Environment”**

The European Council of Civil Engineers (ECCE) was created in 1985 out of the common concern of the professional bodies for Civil Engineers in Europe that the Civil Engineers working together across Europe could offer much more to assist Europe advance its built Environment and protect the natural environment.

At the European Union level, ECCE aims to promote the highest technical and ethical standards, to provide a source of impartial advice, and promote co-operation with other pan-European organizations in the construction industry. ECCE also advises and influences individual governments and professional institutions, formulates standards and achieves a mutual compatibility of different regulations controlling the profession, and formulates standards for a European Code of Conduct of the Civil Engineering Profession and disciplinary procedures applicable throughout the Union.