



### **EWG-ORSDCE**

### NEWSLETTER OF EWG ORSDCE DECEMBER 2019

ORSDCE - The OR in Sustainable Development and Civil Engineering Working Group of EURO <a href="https://www.euro-online.org/websites/orsdce/">https://www.euro-online.org/websites/orsdce/</a>

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## Words of chairman

Dear Members of EWG-ORSDCE, dear Friends,

This issue of newsletter presents this year news, achievements and forthcoming events.

This issue of newsletter presents the overview of 17th Colloquium and 7th meeting of EURO working group Operational Research in Sustainable Development and Civil Engineering took place in Vilnius (Lithuania) on 15<sup>th</sup> of May 2019. We would like to express the acknowledgements to the colleagues and collaborators for participation and exchange of ideas.

The active members of EWG-ORSDCE published several successful Special Issues in different Clarivate Analytics Web of Science journals and currently, some more issues open for submissions in journals related to the research field of our Working Group presented in this newsletter.

EWG-ORSDCE have launched the new website. Please visit <a href="https://www.euro-online.org/websites/orsdce/">https://www.euro-online.org/websites/orsdce/</a> register or update your personal information on members' portal.

As usual, we invite you to submit the papers to the journals published by the active members of EWG-ORSDCE: Technological and Economic Development of Economy, Journal of Civil Engineering and Management, Journal of Business Economics and Management, International Journal of Strategic Property Management, and new journal Engineering Structures and Technologies.

Congratulations on all your achievements and best wishes for future activities.

With my best wishes, yours sincerely, Edmundas Kazimieras Zavadskas, Chair of EWG-ORSDCE

## Forthcoming Events











## IFORS 2020 – The 22<sup>nd</sup> Conference of the International Federation of Operational Research Societies 21-26 June, 2020 Seoul, Korea

IFORS is an international conference held every three years to bring together academia, practitioners and experts in the field of Management Science from more than 60 countries and to contribute to its development through mutual academic and information exchange. Since its inaugural meeting in the United Kingdom in 1957, this conference has become a large international academic conference involving more than 2,000 professionals from the United States, Europe, Asia, Oceania and South America.

Since the 15th Conference held in China in 1999, IFORS 2020 will be the first international conference in Asia in 20 years. This is a momentous occasion for the Korean Operations Research and Management Science Society (KORMS) in hosting IFORS 2020 at the dawn of the Fourth Industrial Revolution era, where artificial intelligence, business analytics and big data analysis are becoming new trends in Management Science.

As the IFORS Conference is a platform for over 2,000 experts from around the world to showcase the diverse potential of their state-of-the art knowledge and experience, IFORS 2020 will be a great opportunity to interact and engage in a variety of marketing activities.

Title	The 22 <sup>nd</sup> Conference of the International Federation of Operational Research Societies (IFORS 2020)		
Date	June 21 (Sun) – 26 (Fri), 2020		
Venue	Coex, Seoul, Republic of Korea		
Participants	Approx. 2,000 (Researchers, Scholars, Practitioners, Entrepreneurs, etc.)		
Program	Opening · Closing Ceremony, Plenary Sessions, Parallel Sessions, Welcome Reception, Banquet, Exhibition, etc.		
Official Language	English		
	International Federation of Operational Research Societies (IFORS)		
Host Organizations	Korean Operations Research and Management Science Society (KORMS)		

Oral presentations will be organized in parallel sessions. Authors can present only one paper at the Conference. Submission invited on, but not limited to, the following areas:

- Analytics, Data Science and Data Mining
- Artificial Intelligence, Fuzzy Systems and Computing
- OR Education
- Continuous Optimization
- Control Theory and System Dynamics
- Decision Analysis, Decision Support Systems, DEA and Performance Measurement
- Discrete Optimization, MIP and MINLP
- Emerging applications of OR
- Energy, Environment, Natural Resources and Climate
- Financial Modeling, Risk Management and Managerial Accounting
- Game Theory and Mathematical Economics
- Routing, Logistics, Location and Transportation
- Metaheuristics

- Multiple Criteria Decision Making and Optimization
- OR History and OR Ethics
- OR for Developing Countries and Humanitarian Applications
- OR in Health, Life Sciences and Sports
- OR in Industry and Software for OR
- Practice of OR (Making an Impact)
- Production, Service and Supply Chain Management
- Revenue Management
- Scheduling, Timetabling and Project Management
- Simulation, Stochastic and Robust Optimization
- Soft OR, Problem Structuring Methods and Behavioural OR
- Graphs and Networks

Abstracts: max. 1500 characters; submission deadline: January 17, 2020. Submit an abstract: <a href="https://www.euro-online.org/conf/ifors2020/">https://www.euro-online.org/conf/ifors2020/</a>

### Deadlines:

Abstract Submission System Open	October 1, 2019
Abstract Submission Deadline	January 17, 2020
Abstracts Accepted/Rejected Deadline	January 31, 2020
Early-bird Registration Deadline	February 14, 2020
Speakers Registration Deadline	March 1, 2020

### **Registration Packages**

Registration Category	Online Registration			Oneita Denistration
	Early Bird Registration (October 1, 2019 ~ February 28, 2020)	Regular Registration (March 1, 2020 ~ April 30, 2020)	Late Registration (May 1, 2020 ~ June 12, 2020)	Onsite Registration (June 21, 2020 ~ June 26, 2020)
Regular	\$560	\$670	\$835	\$835
Student		\$340		
Accompanying Person	\$95			\$95

Please visit the IFORS 2020 webpage (<a href="www.ifors2020.kr">www.ifors2020.kr</a>) to learn more about important dates, abstract submission, registration, special issues of journals, the social program and accommodation.



The Republic of Korea is a country visited by approximately ten million international travelers every year. With its long history in culture and tradition, the country has a lot to offer to travelers. Continue reading to learn general information about Korea before visiting.

The Korean peninsula, roughly 1,030 km long and 175 km wide at its narrowest point, is located in Northeast Asia. With Seoul as its capital city, Korea's total land area is 100,033km. Korea's neighbors include Japan to the east, China to the west, and Democratic People's Republic of Korea (North Korea) across the northern border.

The total population of Korea is approximately 51,635,256 (as of September 2018), with most of the population residing in the Seoul metropolitan area. Outside of Seoul, other large and economically advanced cities such as Busan, Incheon, Daegu, Daejeon, Gwangju and Ulsan also have higher population densities than other cities in Korea.

Korea's climate is typically temperate with four distinct seasons. Conference Period is end of June which is one of the beautiful seasons in Korea. The weather is warm and humid, but is best to do outdoor activities. The average temperature is expected to be around 16-27°C (60-80°F).



## The website for EWG ORSDCE

The new website of EURO Working Group on Sustainable Development and Civil Engineering can be accessed using this link:

https://www.euro-online.org/websites/orsdce/

If you are a member of the working group, but your name is not yet on the list of members, please register here: <a href="https://www.euro-online.org/websites/orsdce/register/">https://www.euro-online.org/websites/orsdce/register/</a>

## Register

Must be at least 4 characters, letters and numbers only.)  Small Address:	
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To become a member of EURO Working group on Sustainable Development and Civil Engineering, please register and send the filled form to Coordinator. The form you can upload from the website.

## Scientific events 2019



The 17th Colloquium "Sustainable Decisions in Built Environment" and Meeting of EURO Working Group OR in Sustainable Development and Civil Engineering
75th Anniversary of Professor Edmundas Kazimieras Zavadskas

May 15, 2019

17th Colloquium "Sustainable decisions in Built Environment" and 7th meeting of EURO working group OR in Sustainable Development and Civil Engineering were held on 15<sup>th</sup> of May, 2019, in Vilnius, Lithuania. The 17th Colloquium "Sustainable decisions in Built Environment" included the official celebration of 75th birthday of Professor Edmundas Kazimieras Zavadskas at Vilnius Gediminas Technical University.

### General aims of Colloquium:

- the inspiration of young researchers to work,
- discussion and development of new ideas and solutions with partners from industry,
- presentation of innovative projects,
- knowledge bridge creation between academia-industry PhD students,
- verification of the concepts in practice case studies in progress.

Topics included sustainable development in the built environment; operational research; decision-making; civil engineering; construction technology and management; flexible management; lean management; building information modelling (BIM); agile management; buildings life cycle; qualification of human resources; real estate management; project management; quality management.

### **Honorary Committee of Colloquium**

O. Kapliński (Poland)

F. Peldschus (Germany)

E.K. Zavadskas (Lithuania)

### **International Programme Committee of Colloquium**

A. Kaklauskas (Lithuania)

J. Paslawski (Poland)

V. Maliene (United Kingdom)

A. Sobotka (Poland)

J. Šelih (Slovenia)

M. Yazdani (Spain)

S. Hashemkhani Zolfani (Chile)

R.M. Hosseini (Australia)

Z. Turskis (Lithuania)

L. Ustinovičius (Lithuania)

J. Antuchevičienė (Lithuania)

T. Vilutiene (Lithuania)

J. Tamošaitienė (Lithuania)

### **Organising committee**

T. Vilutiene (Lithuania) A.Binkytė (Lithuania)

The meeting of EWG-ORSDCE was sponsored by the <u>EURO</u> "Association of European Operational Research Societies" within <u>IFORS</u>, the "International Federation of Operational Research Societies".

Website: <a href="http://orsdce.vgtu.lt/index.php/orsdce/2019">http://orsdce.vgtu.lt/index.php/orsdce/2019</a>

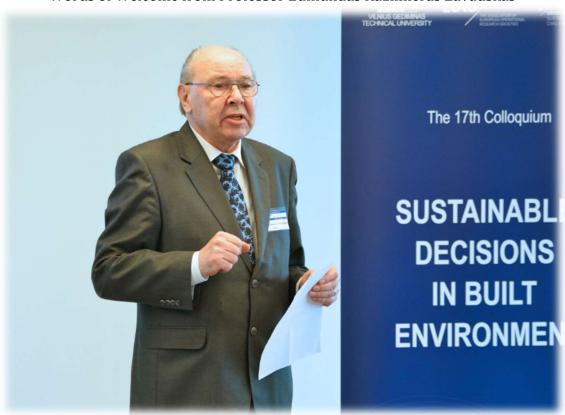
### Sponsored by



### Conference opening words by VGTU Rector prof. Alfonsas Daniūnas



Words of Welcome from Professor Edmundas Kazimieras Zavadskas



Welcome from Honorary Committee and Organizing Committee of Colloquium and presentation of Agenda  $\,$ 



Presentation made by Coordinator of EWG ORSDCE Tatjana Vilutiene (Lithuania) in plenary session



Presentation made by Board member of EWG ORSDCE Vida Maliene (United Kingdom) in plenary session



Presentation made by Morteza Yazdani (Spain) in plenary session



### Presentation made by Romualdas Baušys (Lithuania) in plenary session



Three honorable members of EWG ORSDCE in meeting with VGTU Rector prof. Alfonsas Daniūnas



Prof. Dr.-Ing. habil. Dr. H. c. Friedel Peldschus and Prof. Dr.-habil. Inž. Dr. H. c. Oleg Kapliński become Honorary Members of the EURO Working Group "Operation Research in Sustainable Development and Civil Engineering"



The EWG ORSDCE honours the work of Prof. Dr.-Ing. habil. Dr. H. c. Friedel Peldschus in the Managing Board as well as his special commitment in organizing the first and the second International Colloquiums on decision methods in civil engineering in 1986 and 1989 in Leipzig. From this Colloquium, which was organized every two years with changing venues, the EWG ORSDCE with more than 100 members from 20 countries was founded in 2009.

The EWG ORSDCE honours the work of Prof. Dr.-habil. Inž. Dr. H. c. Oleg Kapliński in the Managing Board as well as his special commitment in organizing the International Colloquiums on decision methods in civil engineering in 1993, 2003 and 2007 in Poznan and Kolobrzeg, Poland. From these Colloquiums, which were organized every two years with changing venues, the EWG ORSDCE with more than 100 members from 20 countries was founded in 2009.





### The history of Colloquiums discussed



Colleagues from Poznan University of Technology acknowledge the achievements and valuable contributions of the one of the founders of Colloquiums and initiators of EURO Working Group EWG-ORSDCE Professor Edmundas Kazimieras Zavadskas







Professor Edmundas Kazimieras Zavadskas with delegation from Poznan University of Technology



Colleagues from Cracow University of Technology acknowledge the achievements and valuable contributions of the one of the founders of Colloquiums and initiators of EURO Working Group EWG-ORSDCE Professor Edmundas Kazimieras Zavadskas







## Conference participants





## Coffee break discussions





Professor Edmundas Kazimieras Zavadskas with future organizers of the next Colloquium – colleagues from Cracow University of Technology



## **Next colloquium**

### Title:

The 18th Colloquium "New Trends in Construction Management"

### Date:

2021-05-20

### Venue:

**Cracow University of Technology** 

Warszawska 24, 31-155 Kraków, Poland

### **Organizers:**

Cracow University of Technology Vilnius Gediminas Technical University

### **Contact persons:**

Responsible person:

prof. Edyta Plebankiewicz; tel. +48 12 628 23 30; e-mail. <a href="mailto:eplebank@L3.pk.edu.pl">eplebank@L3.pk.edu.pl</a> Chairman of scientific committee:

prof. Edyta Plebankiewicz; tel. +48 12 628 23 30; e-mail. <a href="mailto:eplebank@L3.pk.edu.pl">eplebank@L3.pk.edu.pl</a>
Chairman of organizing committee:

prof. Agnieszka Leśniak; tel. +48 12 628 23 93; e-mail. alesniak@L3.pk.edu.pl

Conference e-mail: 18IC@pk.edu.pl

## Cooperation and partnerships activities between VGTU and three universities in Taipei, Taiwan

Jolanta Tamošaitienė

On 20<sup>th</sup> / 25<sup>th</sup> of October, 2019 Senior Research Fellow of Institute of Sustainable Construction, Dept. Construction Management and Real Estate, Assoc. prof. dr. Jolanta Tamošaitienė visited the National Taiwan University (NTU), National Taiwan University of Science and Technology, (TaiwanTECH, Taiwan), National Taipei University of Technology (TaipeiTECH, Taiwan).



The interest in developing collaboration with Vilnius Gediminas technical university in the areas of mutual interest was discussed with National Taiwan University in the research and study fields.



During the visit, representatives of the administration and study and research departments of the National Taiwan University of Science and Technology, the Department of Civil and Civil Engineering (TaiwanTECH, Taiwan), and the activities of Vilnius Gediminas Technical University were presented.





The participation in meetings with TaiwanTECH community was organized as well: Dean of the Faculty of Engineering, prof. dr. J.C.Liu, Head of the Department of Civil and Civil Engineering, prof. dr. I.-T. Yang and the Department of Civil and Civil Engineering: a distinguished prof. dr. M.-Y. Cheng, prof. dr. H.-Y. Lee, prof. assistant. P.-C. Hsiao and TaiwanTECH International Relations Representative for Europe and America D. Wang. The cooperation activities in science, studies and other cooperation issues between partners' universities and Dept. Civil and Civil Engineering (TaiwanTECH) and Faculty of Civil Engineering (VGTU) was discussed. The study and research laboratories was visited. In the presentation with a title "Risk assessment methods in construction" was presented main achievements in research.





National Taipei University of Technology (TaipeiTECH, Taiwan), College of Management, Department of Industrial Engineering and Management and campus and museum of National Taipei University of Technology (TaipeiTECH, Taiwan).



The meetings with president of National Taipei University of Technology distinguished prof. dr. S.-F. Wang; Dean of Extension Education Office prof. dr. J.J.H. Liou was organized. The cooperation activities in science, studies and other cooperation issues between partners' universities was discussed.





Dean of College of Management, prof. Chiu-Yu Chiu; Chairperson Department of Industrial Engineering and Management, College of Management, prof of EMBA programme prof. M.Fan. During the meetings the cooperation activities in science, studies joint Special Issue, publications, exchange visits and other cooperation issues between partners' universities was discussed. Was initiated the MS study DDP in business administration fields between VGTU and TaipeiTech.

The Special Issue "Application of risk assessment in engineering and management" in the journal Applied Sciences <a href="https://www.mdpi.com/journal/applsci">https://www.mdpi.com/journal/applsci</a> with a position a Special Issue Editors: VGTU and TaipeiTech scientist's (Special Issue Editors: assoc. prof. dr. Jolanta Tamošaitienė (VGTU, LT), prof. dr. James J.H. Liou, (TaipeiTech, TW)) is accepted start at the end of 2019.



The presentation about Vilnius Gediminas technical university for the students in NTU, TaiwanTECH, TaipeiTECH, NUT (Bs, Ms and PhD) and external possibilities for studies at Vilnius Gediminas Technical University, Lithuania.

# Journal Special Issues aimed at optimization of processes in engineering and management

Edmundas Kazimieras Zavadskas, Jurgita Antuchevičienė, Tatjana Vilutienė

We are proud to announce that active members of EWG-ORSDCE published many successful Special Issues in different Clarivate Analytics Web of Science journals and currently some more issues are open for submissions in journals related to the research field of our Working Group.

### **Special Issues published in 2019:**



• Special Issue "Advanced BIM Applications in the Construction Industry" in Journal "Advances in Civil Engineering"(closed on 30 August 2019)

Guest Editors: Tatjana Vilutiene, Mohammad R. Hosseini, Eugenio Pellicer, Edmundas K. Zavadskas <a href="https://www.hindawi.com/journals/ace/si/327683/cfp/">https://www.hindawi.com/journals/ace/si/327683/cfp/</a>



 Special Issue "Multi-Objective and Multi-Attribute Optimisation for Sustainable Development Decision Aiding" in "Sustainability" journal (closed on 28 February 2019)

Guest Editors: Edmundas Kazimieras Zavadskas; Jurgita Antuchevičienė; Samarjit Kar https://www.mdpi.com/journal/sustainability/special issues/Multi-Objective Multi-Attribute Optimisation Sustainable Development Decision Aiding Printed Edition:

https://www.mdpi.com/books/pdfview/book/1557

### **Special Issues published in 2018:**

• Special Issue "Sustainability in Construction Engineering" in "Sustainability" journal (closed on 30 April 2018)

Guest Editors: Edmundas Kazimieras Zavadskas; Jonas Šaparauskas; Jurgita Antuchevičienė

http://www.mdpi.com/journal/sustainability/special issues/Sustainability Construction Engin eering

A printed edition of this Special Issue is available here: <a href="https://www.mdpi.com/books/pdfview/book/754">https://www.mdpi.com/books/pdfview/book/754</a>

• Special Issue "Multiple-Criteria Decision-Making (MCDM) Techniques for Business Processes Information Management" in "Information" journal (closed on 31 October 2018).

Guest Editors: Edmundas Kazimieras Zavadskas; Jurgita Antuchevičienė; Prasenjit Chatterjee <a href="https://www.mdpi.com/journal/information/special">https://www.mdpi.com/journal/information/special</a> issues/MCDM Business Processes

• Special Issue "Civil Engineering and Symmetry" in "Symmetry" journal (closed on 31 January 2018)

Guest Editors: Edmundas Kazimieras Zavadskas; Romualdas Baušys; Jurgita Antuchevičienė <a href="http://www.mdpi.com/journal/symmetry/special">http://www.mdpi.com/journal/symmetry/special</a> issues/Civil Engineering Symmetry

 Special Issue "Economic Growth as a Consequence of the Industry 4.0 Concept" in "Economies" journal (MDPI Publisher, Emerging Sources Citation Index) (closed on 30 June 2018)

Guest Editors: Petra Maresova, Jonas Šaparauskas, et al. <a href="http://www.mdpi.com/journal/economies/special\_issues/industry4.0">http://www.mdpi.com/journal/economies/special\_issues/industry4.0</a>

• Special Issue "Rational Decision Making in Risk Management" in "Administrative Sciences" journal (MDPI Publisher) (closed on 30 December 2018)

Guest Editor: Jolanta Tamošaitienė

https://www.mdpi.com/journal/admsci/special issues/Rational Decision Making

## information

 Special Issue "Multiple-Criteria Decision-Making (MCDM) Techniques for Business Processes Information Management" in Journal "Information" (closed on 31 October 2018)

Guest Editors: Edmundas Kazimieras Zavadskas, Jurgita Antuchevičienė, Prasenjit Chatterjee <a href="https://www.mdpi.com/journal/information/special">https://www.mdpi.com/journal/information/special</a> issues/MCDM Business Processes Printed Edition:

https://www.mdpi.com/books/pdfview/book/1164



• Special Issue "Civil Engineering and Symmetry" in Journal "Symmetry" (closed on 31 January 2018)

Guest Editors: Edmundas Kazimieras Zavadskas, Jurgita Antuchevičienė, Prasenjit Chatterjee <a href="https://www.mdpi.com/journal/symmetry/special">https://www.mdpi.com/journal/symmetry/special</a> issues/Civil Engineering Symmetry

### Printed Edition:

https://www.mdpi.com/books/pdfview/book/1349



• Special Issue "Solution Models based on Symmetric and Asymmetric Information" in Journal "Symmetry" (closed on 15 September 2018)

Guest Editors: Edmundas Kazimieras Zavadskas, Zenonas Turskis, Jurgita Antuchevičienė
<a href="https://www.mdpi.com/journal/symmetry/special">https://www.mdpi.com/journal/symmetry/special</a> issues/Solution models based symmetric a symmetric information

**Printed Edition:** 

https://www.mdpi.com/books/pdfview/book/1328

## Open Special Issues



• Special Issue "*Architecture and Engineering: the Challenges - Trends - Achievements*" in Journal "*Buildings*" (Deadline for manuscript submissions: **31 December 2019**)

Guest Editors: Oleg Kapliński, Wojciech Bonenberg https://www.mdpi.com/journal/buildings/special\_issues/Architecture\_Engineering



## buildings

• Special Issue "Sustainable Development of Buildings: Design, Construction, Quality Inspection, Operation Management" in Journal "Buildings" (Deadline for manuscript submissions: 31 December 2019)

Guest Editors: Tatjana Vilutiene, Heng Li, Chunlu Liu, Nuria Forcada, Audrius Banaitis <a href="https://www.mdpi.com/journal/buildings/special">https://www.mdpi.com/journal/buildings/special</a> issues/Sustainable Buildings



• Special Issue " Multi-Criteria Decision-Making Techniques for Improvement Sustainability Engineering Processes" in "Symmetry" journal (Deadline for manuscript submissions: 1 January 2020)

Guest Editors: Edmundas Kazimieras Zavadskas, Dragan Pamučar, Željko Stević, Abbas Mardani <a href="https://www.mdpi.com/journal/symmetry/special\_issues/Sustainability\_Engineering\_Processes">https://www.mdpi.com/journal/symmetry/special\_issues/Sustainability\_Engineering\_Processes</a>

## TRANSPORT

 Special Issue "Multiple Criteria Decision Making (MCDM) and Sustainability in Transportation Systems" in Journal "Transport" (Deadline for manuscript submissions: 31 January 2020)

Guest Editors: Sarfaraz Hashemkhani Zolfani, Dragan Pamucar, Jurgita Antuchevičienė <a href="https://journals.vgtu.lt/index.php/Transport/announcement/view/33">https://journals.vgtu.lt/index.php/Transport/announcement/view/33</a>



• Special Issue "Sustainable Construction Engineering and Management" in Journal "Sustainability" (Deadline for manuscript submissions: 31 January 2021)

Guest Editors: Edmundas Kazimieras Zavadskas, Jurgita Antuchevičienė, Reza Hosseini, Igor Martek <a href="https://www.mdpi.com/journal/sustainability/special\_issues/construction\_engineering">https://www.mdpi.com/journal/sustainability/special\_issues/construction\_engineering</a>



### sustainability

• Special Issue "A Healthy Built Environment for an Ageing Population" in "Sustainability" journal (Deadline for manuscript submissions: 31 January 2020)

Guest Editors: Vida Maliene, Emma Mulliner, Mike Riley, Mantas Kazimieras Malys <a href="https://www.mdpi.com/journal/sustainability/special">https://www.mdpi.com/journal/sustainability/special</a> issues/Ageing Population Sustainability



### sustainability

• Special Issue "Sustainability and Risks in Construction Management" in Journal "Sustainability" (Deadline for manuscript submissions: 31 January 2020)

Guest Editors: Jolanta Tamošaitienė
<a href="https://www.mdpi.com/journal/sustainability/special">https://www.mdpi.com/journal/sustainability/special</a> issues/Sustainable Risk Assessment Construction

• Special Issue " *Decision Support System and Sustainable Construction Management*" in Journal "Sustainability" (Deadline for manuscript submissions: **31 May 2020**)

Guest Editors: Leonas Ustinovichius, Czeslaw Miedzialowski, Romuald Szelag <a href="https://www.mdpi.com/journal/sustainability/special\_issues/Decison\_Support\_System\_Sus\_Construction">https://www.mdpi.com/journal/sustainability/special\_issues/Decison\_Support\_System\_Sus\_Construction</a>



### energies

• Special Issue "Uncertain Decision Making Methods in Energy Policies for Sustainable Development" in Journal "Energies" (Deadline for manuscript submissions: 30 June 2020)

Guest Editors: Abbas Mardani, Edmundas Kazimieras Zavadskas, Madjid Tavana, George Philippidis <a href="https://www.mdpi.com/journal/energies/special">https://www.mdpi.com/journal/energies/special</a> issues/Decision Making Energy Policies



 Special Issue "Decision Support Systems and Multiple Criteria Decision Making for Sustainable Development" in Journal "Sustainability" (Deadline for manuscript submissions: 1 July 2020)

Guest Editors: Artūras Kaklauskas, Ajith Abraham

https://www.mdpi.com/journal/sustainability/special issues/dssmcdm ma



• Special Issue "*Occupational Safety and Risks in Construction*" in Journal "*International Journal of Environmental Research and Public Health*" (Deadline for manuscript submissions: **31 December 2020**)

Guest Editors: Jolanta Tamošaitienė, Jerzy Pasławski https://www.mdpi.com/journal/ijerph/special issues/occupational safety risks

• Special Issue "Uncertain multiple criteria decision making methodologies and their applications in healthcare management" in Journal "Computers & Industrial Engineering" (Deadline for manuscript submissions: 25 December 2020)

Guest Editors: Huchang Liao, Abbas Mardani, Edmundas Kazimieras Zavadskas, Francisco Herrera <a href="https://www.researchgate.net/publication/332409283">https://www.researchgate.net/publication/332409283</a> Computers Industrial Engineering Special Issue

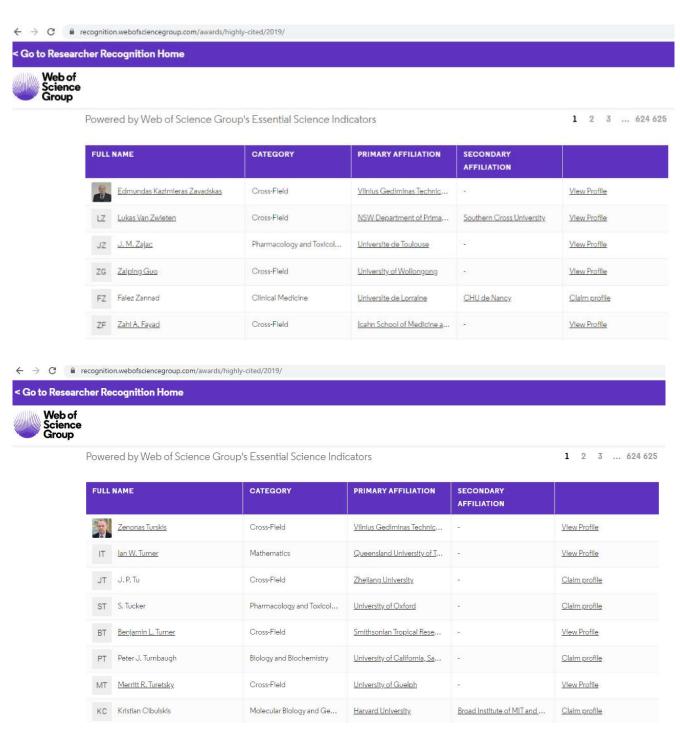
 Special Issue "Application of risk assessment in engineering and management" in Journal "Applied Sciences" (Deadline for manuscript submissions: will be announced soon)

Guest Editors: Jolanta Tamošaitienė, James J.H. Liou

Web page will be launched soon

## **International Recognition**

Congratulations to the members of EWG-ORSDCE prof. Edmundas Kazimieras Zavadskas and prof. Zenonas Turskis recognized being among the world's most influential researchers of the past decade, demonstrated by the production of multiple highly-cited papers that rank in the top 1% by citations for field and year in Web of Science. Experts from the Institute for Scientific Information provide exclusive insight into the list of Highly Cited Researchers 2019, including the methodology, country, and institutional breakdowns, and much more.



Find more here: <a href="https://recognition.webofsciencegroup.com/awards/highly-cited/2019/">https://recognition.webofsciencegroup.com/awards/highly-cited/2019/</a>

## Finished and ongoing projects

### Students Achieving Valuable Energy Savings (SAVES)

### Audrius Banaitis

Students Achieving Valuable Energy Savings (SAVES) is a project that brought the Student Switch Off (SSO) campaign together in five different European countries – the United Kingdom, Greece, Lithuania, Sweden and Cyprus.

The project was co-funded by the European Commission between the years 2014-2016, involving over 50,000 students living in student dormitories, spread across 17 different universities/housing providers. The SSO campaign now runs on a self-funded basis in the UK, Greece, Lithuanian and Cyprus.

As part of the Student Switch Off campaign, students living in dormitories competed with other dormitories on their campus, to save the most energy throughout the academic year. Each university campus had one winner, each academic year. There were two overall European winners over the two years of the project (one per each academic year). The winners were based on the energy readings from the smart meters located in each of the dormitory buildings that were displayed on an energy dashboard developed as part of the SAVES project.

An average of 7% savings was reported across the two years of the campaigns, which amounts to over 4 million kWh of energy and 1,700 tons of CO<sub>2</sub>.

A key part of the Student Switch Off campaign was raising awareness through online and offline (face-to-face) communications delivered on the ground by dormitory coordinators, specifically employed to run the campaign in all of the participating countries. With the help of student ambassadors (students trained at the beginning of each academic year) they ran various engagement events, activities and individual competitions to raise awareness about energy savings, to help students get into good energy saving habits. Winning dormitories at the end of each academic year were rewarded with a celebratory event.

An interesting part of the SAVES project was the adaptation of the SSO campaign to the cultural context of each country/participating university to ensure success of the campaign. In some cases, such as Sweden, it was tweaking the branding, in others such as Greece, it was about communicating the competitive aspect of the campaign, where students preferred to work together as opposed to compete with one another.

The project had a number of successes – from winning an award in Sweden (category for innovative methods for energy saving in housing), to obtaining national media coverage, and creating long lasting synergies between partner universities/students' unions, and the networks they have been involved with.

The project did have a number of challenges; from retaining student enthusiasm throughout each academic year, to technical issues related to electricity meters and the dashboard.

#### The Lithuanian context

The Student Switch Off campaign was launched in Lithuanian universities and colleges in September 2014. Vilnius Gediminas Technical University, one of the biggest partners of the SAVES project, were responsible for running this project in Lithuania. In the beginning of the project, the national consortium consisted of four universities and three colleges. However, three universities dropped out due to lack of interest, reduced number of students and closed dormitories. Introducing the project to the other possible partners, a new dormitory provider joined the project (Vilnius University) and, therefore, the planned number of students in dormitories in Lithuania were maintained from the original proposal. Thus, SAVES Student Switch Off campaign was launched at Vilnius Gediminas Technical University, Vilnius University, Vilnius University, Vilnius University,

Applied Engineering Sciences, Klaipeda State College and Vilnius Co-operative College with 18 dormitories and more than 7,000 students.

### **Engaging students**

The first year of Student Switch off campaign started with a very successful event at Vilnius Gediminas Technical University through the University Gediminas days. The Student Switch Off stand attracted a lot of attention, with lots of flyers, T-shirts and jumpers handed out, and 120 energy saving pledges collected. Similar, but smaller-scale events took place in other participating universities and colleges.

Interest in Student Switch Off campaign was large from the beginning, as evidenced by Facebook, and every day more and more students joined the campaign. Numerous students participated in the regular competitions.

The prizes for the winners were Student Switch Off branded T-shirts, jumpers, cups, umbrellas. Moreover, the biggest energy provider in Lithuania "ESO" AB joined campaign and gave away some branded prizes. This not only raised the profile of the campaign for the participating universities and colleges, but also the wider public.

The objectives of the SAVES project were supported in participating universities and colleges and were parts of common strategies to become green universities and colleges. At Vilnius Gediminas Technical University, in 2014 the Senate endorsed the Concept of Green University, which aimed to contribute to the sustainable development of society, modernization and development of existing and planned infrastructure management with particular attention to the responsible and rational use of natural resources. SAVES project Lithuanian members proposed some ideas for the Concept. The measures adopted have a wide spectrum - from energy-saving lamps with motion sensors or rainwater collection and use, to the electronic documents system, promotion of cycling and electric vehicle charging station installation in campus.



Students taking part in activities as part of University Gediminas Days

The second year of the campaign also started with the Gediminas days student fair event at Vilnius Gediminas Technical University. Like in the previous year the Student Switch Off stall attracted a lot of attention with campaign flyers, T-shirts and jumpers handed out, and a number of energy saving pledges collected.

Student living in dormitories were involved in a number of interesting activities and competitions organized by Student Switch Off ambassador team. The photo competition event was one of the most attractive and involving competition, challenging students to use their creativity and show how they like to save energy. A number of photos uploaded to VGTU Student Switch Off Facebook page reached 26,000 people and collected more than 1,500 likes! After intense competition, winner student group with a 554 likes of their photo were awarded with branded

Student Switch Off jumpers, while second and third place winners with 534 and 140 likes, respectively, were given Student Switch Off T-shirts.

Special thank you to all SSO Lithuania students for your help and creative, enthusiastic participation in the SSO energy saving campaigns! More ever there are 43 higher education institutions in Lithuania (14 public and 6 private universities, 13 public and 10 private colleges), therefore we feel that there is a scope for SSO expansion.

### References

Students Achieving Valuable Energy Savings. Project Report 2014-17 Produced for the European Commission by NUS-UK (Project number: IEE/13/719/SI2.675836)





### Students Achieving Valuable Energy Savings 2 (SAVES2)

### Audrius Banaitis, Adas Meškėnas

Vilnius Gediminas Technical University since 2017 takes part in HORIZON2020 project SAVES 2 (<a href="www.saves-project.eu">www.saves-project.eu</a>). The SAVES 2 project brings together the Student Switch Off (SSO) and Student Switch Off + (SSO+) campaigns in fourteen different universities across seven European countries – Bulgaria, Cyprus, Greece, Ireland, Lithuania, Romania and the United Kingdom.

During the SAVES 2 lifecycle, it hopes to reach more than 200,000 students, inspiring them to adopt energy-saving habits at an early stage of their independent lives and to seek out energy efficient properties when moving into the private-rented sector. In doing so it will reduce the exposure of these students to fuel poverty. The project builds on a successful Intelligent Energy Europe-funded project (SAVES – IEE-13-719) and incorporates four objectives that follow students in the university sector through their time living in dormitories and into the private-rented sector. SAVES2 will scale-up the successful SAVES project to more countries with the important addition of engagement work with students living in the private-rented sector.

The SSO campaign is an inter-dormitory energy-saving competition that focuses on a predefined set of activities, encouraging students to save energy in their dormitories. The dormitory that saves the most energy on campus is announced winner and rewarded for their efforts. Energy savings are determined by comparing pre-intervention electricity consumption, with post intervention electricity consumption, in each dormitory.

The SSO+ campaign aims to raise awareness amongst students in the private rented sector helping them reduce their energy costs. It focuses on making students aware of energy performance certificates (EPC), smart meters and energy efficiency, thus helping reduce their exposure to energy poverty.

### The Student Switch Off campaign in Lithuania

Vilnius Gediminas Technical University (VGTU) is responsible for coordinating the Student Switch Off campaign in Lithuania; it is the only Lithuanian university currently taking part.

Throughout the 2018-19 academic year, a number of activities took place in the dormitories in VGTU to raise awareness about energy saving. These included social media/photo competitions, climate quizzes, dormitory visits, ambassador training sessions, beginning of year events, and end of year events. The SSO campaign was launched in VGTU in September 2018 for the 2018-19 academic year.

Student Switch Off ambassadors play a key role in making the SSO campaign a success. Their role is to engage their peers in the dormitories, by raising awareness on SSO and encouraging them to save energy.

The ambassador training sessions (each approximately 1.5 hours long) in VGTU covered what the SSO campaign is about and trained students on the best way of effective communication. The sessions were delivered by the dormitory coordinators, country manager and previously trained student ambassadors at the beginning of both semesters.

Eight students were trained as part of the first session (October 2018), while a further six were trained as part of the second one (February 2019). All participating students were given an SSO t-shirt to increase the visibility of the campaign. The SSO ambassadors were a great help during SSO events organized by the dormitory coordinator (especially dormitory visits) throughout the year. Face-to-face visits (on average 1.5-2 hours each) were conducted by the dormitory coordinator and student ambassadors at the five dormitories to raise awareness and engagement on the SSO campaign. At each dormitory a stall was organized with student ambassadors inviting residents of the dormitories to take part in different SSO activities, such as photo competitions and quizzes. SSO promotional leaflets were given to students and information on how to participate more

actively in the campaign and save energy was provided. Most active students who pledged to save energy and followed the VGTU Student Switch Off Facebook (<a href="https://www.facebook.com/studentswitchoffLietuva/">https://www.facebook.com/studentswitchoffLietuva/</a>) page were awarded with SSO T-shirts to help further promote the campaign.

Throughout the year, eight photo competitions were organized at VGTU to raise awareness about energy saving actions. The competitions were launched both by email and the VGTU Student Switch Off Facebook page. Competition posts appeared in participating students' and their friends' social feed, reaching a number of people (from 150 up to 400 people). On average there were three entries per competition and in total 21 photos were submitted.

Two climate quizzes (<a href="https://www.facebook.com/studentswitchoffLietuva/app/350148035060030/">https://www.facebook.com/studentswitchoffLietuva/app/350148035060030/</a>) were launched during the academic year (one per semester) to raise awareness about climate change and energy saving. The first climate quiz was introduced in November 2018 and stayed open for entries for three weeks while the second quiz was introduced in April 2019 and stayed open for four weeks. The quizzes were disseminated by an email to all students living in dormitories. Six students who entered the quiz were randomly selected and awarded with SSO branded jumpers and T-shirts. SAVES 2 was among 12 finalists (<a href="https://eusew.eu/awards-public-vote">https://eusew.eu/awards-public-vote</a>) of the EU Sustainable Energy Week Awards (youth category) chosen from a shortlist of the year's most successful projects for clean, secure and efficient energy. The awards competition highlight new ways to shape Europe's energy future and were culminated with the Awards Ceremony in Brussels on 18 June 2019.

On 16th April 2019 the SAVES 2 video for the EU Sustainable Energy Awards 2019 was filmed at VGTU (<a href="https://www.youtube.com/watch?v=v3fFhcDWIVw">https://www.youtube.com/watch?v=v3fFhcDWIVw</a>). The EU Sustainable Energy Awards recognised outstanding innovation in energy efficiency and renewables, and the SAVES 2 project team is proud of the achievement.

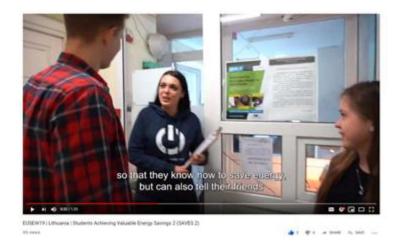


Fig. 1. Screenshot from EU Sustainable Energy Awards 2019 video

The energy dashboard (<a href="https://switchoff.nus.org.uk">https://switchoff.nus.org.uk</a>), created and maintained by SAVES 2 project partner Ecovisum, is the main tool to engage students, letting them know how much energy they are saving throughout the year in their dormitories. The energy meters in the dormitories of VGTU automatically transmit the metered data to the energy dashboard, showing the total energy consumption in each dormitory.

Students of VGTU were able to view the energy savings of their dormitory over the year through the online dashboard (<a href="https://switchoff.nus.org.uk/vgtu">https://switchoff.nus.org.uk/vgtu</a>). The information about wining dormitory was included in SSO newsletters. Additionally, the student ambassadors have promoted the dashboard during the face-to-face dormitory visits, regular newsletters and on VGTU Student Switch Off Facebook page.



Fig. 2. Screenshot of the dashboard

The biggest success of the SSO campaign was the student ambassador engagement in the campaign. Fourteen student ambassadors were trained and all of them were enthusiastic and did great job engaging other students to participate in the SSO related activities.

Another success of VGTU SSO campaign is the energy saved in the dormitories during the 2018-19 academic year. In total 116,512 kWh were saved resulting in 10.84% change and saving of 31,458 kg of CO2. The calculations were done by comparing the energy usage during the year 2018-19 with the baseline data. This saving can be linked to the regular campaign updates and tips on how to save energy sent via email to all students living in dormitories.

The main challenge of the SSO campaign is to have good engagement of students in the various SSO activities: photo competitions and climate change quizzes. Despite the possibility to win attractive prizes, students in general were not interested in entering the competitions.

Some students also seemed to be demotivated to participate in the overall aims of the SSO campaign (helping their dormitory achieve the biggest energy savings), as their accommodation fee is constant and not related to the energy consumption. Regardless, students did save energy in their dormitories, as can be seen from the nearly 11% saving of electricity, when compared to a pre-intervention baseline. New opportunities will be explored, to further encourage students to save energy during the 2019-20 academic year.

### The Student Switch Off+ campaign in Lithuania

The aim of the SSO+ campaign is to reach and promote energy efficiency, smart meters, and information about energy performance certificates to students living in the private rented sector, thus helping them address potential energy poverty challenges.

The SSO+ campaign at VGTU launched in September 2018. To reach the students living in privately rented accommodation, the university's central database of student e-mail addresses was used and 7,200 students were reached. The database is renewed every academic year. In order to send the emails regularly, a newsletter was created.

The students from Vilnius University were reached through their Student Union. SSO+ related emails were shared with student representatives to circulate the information through their mailing lists or other communication channels. Around 500 students were reached from Vilnius University.

Unlike SSO, the vast majority of SSO+ engagement is done online via email and social media; this is predominantly because unlike university dormitories, that are normally localized and easily accessible, privately rented accommodation is spread across the city and is not easily accessible. The main activities that took place as part of SSO+ was the sending of regular emails to students living in the private rented sector, posts on social media (Facebook www.facebook.com/studentswitchoffLietuva/) and a face-to-face training.

A training session ran by country manager and dormitory coordinators took place on in November 2018 that focused on energy saving practices in the private sector for students at VGTU. The topic of energy poverty in Lithuania was introduced, in addition to tips on what to look out for when choosing accommodation and selecting main electric appliances.

A photo competition themed around energy saving was organized and launched via SSO+ mailing list. The competition received six entries showing students turning off lights, putting on an extra layer and putting a lid on pans.

The biggest success of the SSO+ campaign was the number of reached students in private rented sector (7,700 students were reached via emails). Given that SSO+ is mostly an online campaign, it has been challenging to know what exact impact the campaign has had in terms of true engagement, however the surveys that are being conducted as part of our monitoring and evaluation efforts will help with this.

#### **Conclusions**

The implementation of SAVES2 in VGTU for the 2018-19 year has been successful. Both SSO and SSO+ campaigns run relatively successfully without significant issues.

The biggest success for SSO was the number of reached students living in dormitories. In total 3,740 students were reached. Another success was the engagement of student ambassadors; 14 students were trained and all of them were enthusiastic and did great job engaging other students to participate in the SSO related activities. The energy saving was 10.84% which results in 31,458 tons of  $CO_2$ .

On 16<sup>th</sup> April 2019 the SAVES 2 video for the EU Sustainable Energy Awards 2019 was filmed at VGTU (<a href="https://www.youtube.com/watch?v=v3fFhcDWIVw">https://www.youtube.com/watch?v=v3fFhcDWIVw</a>). The EU Sustainable Energy Awards recognized outstanding innovation in energy efficiency and renewable, and the SAVES 2 project team is proud of the achievement. The main challenge faced in SSO this academic year was the participation of students in the photo competitions and climate change quizzes. It is important to innovate the campaign and think of new methods how to engage students.

For SSO+ campaign, the biggest success is the reach (7,700 students in total). The information that students received included: the Lithuanian SSO+ video, tips on how to save energy and reduce energy costs at home, a dummy energy bill that helps students understand how to read a bill, advice on how to choose accommodation and appliances based on their EPC and energy performance. It has not been possible to measure accurately the energy saving impact of the SSO+ campaign; however, it is strongly believed that the project had a positive impact on energy and, thus, carbon savings.





### Network for Using BIM to Increase the Energy Buildings Performance (Net-UBIEP)



Vilnius Gediminas Technical University takes part in HORIZON2020 project Net- UBIEP - Network for Using BIM to Increase the Energy Buildings Performance. Net-UBIEP is a project Co-funded by the Horizon 2020 programme of the European Commission.

The project has a duration of 30 months and will end in February 2020. The Partners are 13 organizations from seven different European countries: Italy, Slovakia, Spain, Lithuania, Croatia, Netherlands and Estonia.

Net-UBIEP aims at increasing energy performance of buildings by wide spreading and strengthening the use of BIM, during the life cycle of the building and among all the main stakeholders.

The use of BIM will allow simulating the energy performance of the building using different materials and components, both to be used in the design of nearly zero energy buildings and/or in building refurbishment.

Building Information Modeling is a process that lasts for all the building life cycle from the design phase through the construction, management, maintenance, demolish. In each of this phase is very important to take into account all the energy aspects in order to decrease the environmental impact of the building during its life cycle.

The project is addressed to four target groups according to their role in current building processes:

- Public Administrations
- Professionals
- Technicians
- Tenants/Owners, Building Administrators

Vilnius Gediminas Technical University together with Public Institution Digital Construction developed new innovative methodology for the BIM trainings. The overview of the partners and methodological basis of the classroom courses is shown in the figure below (Fig. 1).



Fig. 1. Methodological basis for the BIM trainings. Prepared by: assoc. prof dr. Vaidotas Šarka (VšĮ "Skaitmeninė statyba"), assoc. prof dr. Tatjana Vilutienė (Vilnius Gediminas Technical University)

Several images from the third classroom course for professionals conducted by VGTU and Digital Construction depicted in figure 2.



Fig. 2. The moments from the trainings.

BIMSync platform for Common Data Environment (CDE) provided by Catena (Norway) was used during classroom courses in Lithuania (Fig. 3). Project Dashboard (summary) within the BIMSync platform is shown in the figure below.

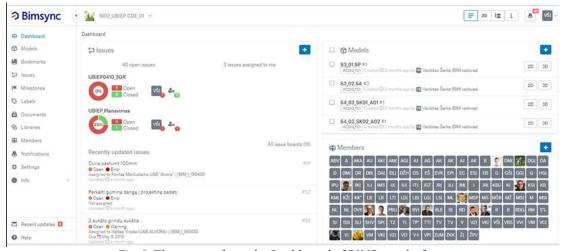


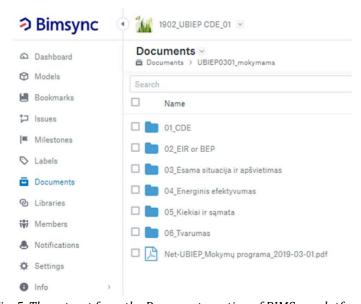
Fig. 3. The extract from the Dashboard of BIMSync platform.

BIM Model of real building (Presented by Vilnius Municipality Company "Vilniaus vystymo kompanija" – figure below) was shared with the classroom course participants as an application example and BIMSync platform was used to conduct specific tasks given to participants during the course (Fig. 4).



Fig. 4. BIM Model of real building in BIMSync platform.

Training material developed for the purpose of classroom courses within the Net-UBIEP project was shared among participants using BIMSync platform (Fig. 5).



 ${\it Fig. 5. The extract from the Documents section of BIMSync platform.}$ 

During Net-UBIEP project the e-learning Moodle platform <a href="skst.vgtu.lt">skst.vgtu.lt</a> was developed for distance learning (Fig. 6). The Net-UBIEP distance learning courses are the first distance learning courses designed to broaden the knowledge of the application of BIM to improve the energy performance of buildings. Although the course is designed specifically for technical staff (installers/supervisors), it can be useful for anyone interested in learning more about the use of building information modeling.





Fig. 6. The extract from the Net-UBIEP skst.vgtu.lt Moodle platform.

Video about project: <a href="https://business.facebook.com/netubiep/videos/1069516743187652/">https://business.facebook.com/netubiep/videos/1069516743187652/</a>
More information about project: <a href="http://www.net-ubiep.eu/">http://www.net-ubiep.eu/</a>





Editor's comments

Dear EWG-ORSDCE members, dear friends,

In year 2021 all members of EWG-ORSDCE are welcome to participate in the forthcoming 18th Colloquium, New Trends in Construction Management ", and 8th meeting of EURO working group OR in Sustainable Development and Civil Engineering that will be held on 20<sup>th</sup> of May, 2021 in Cracow University of Technology, Poland. In addition, you are invited to the 22nd Conference of the International Federation of Operational Research Societies (IFORS 2020) to be held on 21-26 June, 2020 Seoul, Korea. EURO Working Group "OR in Sustainable Development and Civil Engineering (ORSDCE)" will organize the invited session in the field "OR for Sustainable Development". The papers presented in this session are welcome for publishing in scientific journals: Technological and Economic Development of Economy, Journal of Civil Engineering and Management, Journal of Business Economics and Management, International Journal of Strategic Property Management, and Engineering Structures and Technologies.

On behalf of the Editorial Board of EWG-ORSDCE Newsletter Tatjana Vilutienė

EWG-ORSDCE Newsletter Editorial Board: Edmundas Kazimieras Zavadskas, Tatjana Vilutienė