



INTERNATIONAL SCIENTIFIC AND TECHNICAL CONFERENCE  
**CRITICAL INFRASTRUCTURE OF CITIES**  
**INFRASTRUKTURA KRYTYCZNA MIAST**



October 24 - 26, 2018 Nowy Sącz – Rytko - Hotel Perła Południa – Beskid Sądecki, Poland

**SAFETY OF MUNICIPAL INFRASTRUCTURE FUNCTIONING**

◆ WATERWORKS ◆ SEWRAGE ◆ ENERGETICS ◆ ICT ◆

The International Conference 'Critical Infrastructure of Cities', which took place on October 24-26, 2018 in the 'Perła Południa' hotel complex in the charming town of Rytko in the Beskid Sądecki, enjoyed a large number of people interested in the security of municipal infrastructure. The presence of representatives of various environments - scientific, central and local government administration, safety institutions, operators and producers of materials and devices dedicated to municipal infrastructure - enabled comprehensive discussion of issues related to broadly understood security, mutual interactions and infrastructure dependencies, taking also into account factors and threats external.



Conference room Fot. SW

The topics of papers delivered during the conference covered a wide spectrum of issues related to the security of municipal infrastructure functioning, and thanks to the presence of domestic and foreign companies, conference participants learned about the latest technologies, materials and devices increasing the security of critical infrastructure operation.

During three days 44 articles were introduced, including 39 scientific and 5 company presentations. The rich program was divided into seven problem sessions. After the ceremonial opening of the conference by Wojciech Piech - Vice President of the City of Nowy Sącz and Janusz Adamek - President of the Management Board of the company 'Sądeckie Wodociągi' the inaugural introductory lecture was given by Prof., Ph.D., D.Sc., Eng. Wojciech Dąbrowski from the Cracow University of Technology.

During the first session, representatives of Rzeszów University of Technology under the leadership of Prof., Ph.D., D.Sc., Eng. Janusz Rak presented their own method of assessing the diversification of water supplies. Ph.D., Eng. Izabela Godyń from the Cracow University of Technology introduced the economic conditions for financing the operation of cities' rainwater

drainage system. The team of the Lublin University of Technology assessed the impact of spatial shape of network structures on the reliability of delivery of the media they transport. The Lviv Polytechnic team (Ukraine) headed by Prof. Mikhail Lobur discussed the use of liquid microsystems in the modernization of water environment monitoring. Ph.D. Natalia Potoczek (INE PAN Warsaw) and M.Sc. Eng. Witold Wilk (Sądeckie Wodociągi) presented a proposal on ensuring the security of business processes in a water supply company. At the end of the first session Prof. Ivan Shcherba (University of Lviv - Ukraine) proposed a cooperation of the University of Lviv on issues related to critical infrastructure security.

During this session, participants became acquainted with the company's offer from Proffico Company regarding bacteriological safety at emergency water supplies, disinfection modules for cisterns and water supply networks as well as water packaging methods presented by M.A. Cezary Rokicki.

In the second session, sixteen articles on the exploitation and management of critical infrastructure systems were presented by 45 researchers representing 25 universities and institutions from Poland and Ukraine.

The third session was started by Prof. Ph.D., D.Sc., Eng. Marian Kwietniewski with an article prepared by the intercollegiate team of the Warsaw University of Technology and the Silesian University of Technology regarding the reliability model of water distribution of the required quality.

During this session, participants became introduced to the offers of producers of materials and fittings for infrastructure distribution networks representing the following companies: Stainzeug-Keramo, Saint-Gobain PAM and Fabryka Armatury Hawle.

The fourth session was started by Junior Inspector Ph.D., D.Sc. Agata Tyburska from the Police College in Szczytno with an article entitled 'Key infrastructure of large urban agglomerations in the face of contemporary threats to security and order'. Ph.D. Eng. Piotr Małka (AGH Kraków) gave a lecture on cybersecurity of industrial OT systems operating in municipal infrastructure. The Cracow University of Technology team headed by Prof., Ph.D., D.Sc., Eng. Elżbieta Nachlik introduced the conditions for safe functioning of the sewage infrastructure during the floods.



Participants of the debate Fot. SW

The session ended with a debate devoted to issues of security of critical infrastructure of cities as areas of potential external threat in which participated: Junior Inspector Ph.D., D.Sc. Agata Tyburska (College of Police - Szczytno), Assoc. Prof., Ph.D., D.Sc., Eng. Barbara Tchórzewska-Cieślak (Rzeszów University of Technology), Senior Brig. M.Sc. Eng. Paweł Motyka (State Fire Service - KM Nowy Sącz), M.A. Marek Nieć (Department of Crisis Management, City Hall of Nowy Sącz), Ph.D., Eng. Piotr Małka (AGH Kraków), Ph.D. Eng. Andrzej Mączyński (Cracow University of Technology), M.Sc. Eng. Tomasz Żabicki (ASSA ABLOY Poland).

The fifth session devoted to risk issues in the functioning of collective water supply systems was started by Prof., Ph.D. D.Sc. Eng. Janusz Rak with a report from the Rzeszów University of Technology team on the method of assessing the threat to water supply systems serving local government units. Ph.D. Eng. Wolfgang Podewils (RWE Germany) gave a presentation on risk management in water distribution companies in Germany. The session ended with a lecture by Ph.D., D.Sc. Eng. Alicja Kicińska (AGH Kraków) and M.Sc. Eng. Ewa Wysowska (Sądeckie Wodociągi) on 'Health risk resulting from the occurrence of selected metals in captured and treated water on the example of a collective intake of the Sądecki Beskid'.

On the second day of the conference, the sixth session was started by Prof. Ph.D., D.Sc. Eng. Wojciech Dąbrowski (Cracow University of Technology) with a lecture entitled 'Accuracy and reliability of flow measurement through channels by means of a venturi trough'. Ph.D. Eng. Tadeusz Żaba (Cracow University of Technology and PWiK SA Kraków) presented aspects of critical infrastructure management in an urban agglomeration in ensuring water supply. Ph.D. Eng. Katarzyna Stolecka (Silesian University of Technology) has assessed the effects of a process installation failure taking into account the domino effect. Assoc. Prof., Ph.D., D.Sc. Eng. Barbara Tchórzewska-Cieślak (Rzeszów University of Technology) introduced the use of gray systems theory to analyze the security of water supply systems. Ph.D. Krzysztof Filipek (FD Libiąż) presented prepared together with M.Sc. Eng. Marian Kulig (Sądeckie Wodociągi) paper on the preparation of a water supply system for operations in crisis conditions in the light of applicable standards and legal provisions. At the end of the sixth session, M.Sc. Eng. Kazimierz Kudlik (Sądeckie Wodociągi) delivered prepared together with Ph.D., D.Sc. Eng. Tomasz Bergel and Ph.D., D.Sc. Eng. Agnieszka Operacz (Agricultural University of Kraków) speech on the importance of monitoring for reducing water losses and water supply failure.

On the third day of the conference, the seventh plenary session began with Prof., Ph.D., D.Sc. Eng. Stanisław Gumuła (AGH Kraków) introduction of a paper entitled 'Energy from municipal waste as a way to avoid garbage paralysis'. Ph.D. Eng. Sławomir Stelmach (Institute of Chemical Processing of Coal Zabrze) showed issues regarding low-carbon coal fuels for municipal heating. During this session, participants became familiarized with the offer of Vofil Company from Krynica Zdrój regarding the security of water production and distribution using small ozone systems for SUW up to 1000 m<sup>3</sup> / h presented by M.Sc. Eng. Robert Muszański.

The last point of the conference was a technical trip to the Water Treatment Plant in Stary Sącz, where participants got to know with the water intake facilities as well as the technological process of water purification and distribution to the agglomeration system of Nowy Sącz.

The Critical Infrastructure of Cities Poland 2018 Scientific and Technical Conference was held under the patronage of:

1. Honorary Patronage - Government Center for Security, "Polish Waterworks" Chamber of Commerce, Polish Association of Sanitary Engineers and Technicians and the President of Nowy Sącz City;
2. Scientific Patronage - AGH University of Science and Technology in Krakow, Cracow University of Technology, Silesian University of Technology in Gliwice, Cracow University of Economics, University of Agriculture in Kraków and State Higher Vocational School in Nowy Sącz;
3. Media Patronage - *Wodociągi Kanalizacja* Monthly, *Instal* Monthly, *Technologia Wody* Bi-Monthly, *Gaz, woda i technika sanitarna* Monthly, *Rynek Instalacyjny* Monthly and the *Seidel-Przywiecki* Publishing, *komunalny.pl* portal and *kierunekwodkan.pl* portal.

The organizer - the Company 'Sądeckie Wodociągi' would like to thank the Honorary Committee, Scientific and Program Council, Honorary, Scientific and Media Patrons and all conference participants for active participation and already invites to participate in the next edition of the International Scientific and Technical Conference **Critical Infrastructure of Cities Poland 2020**.

**Kazimierz Kudlik**  
Deputy Chairman of the Organizing Committee  
ISTC „Critical Infrastructure of Cities 2018”

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