Thessaloniki Sustainability Summit
“Sustainable Cities and Ports”
September 7th, 2020, Thessaloniki, Greece

organized by

Sustainable Development Solutions Network SDSN Black Sea
HELEXPO Thessaloniki International Fair
Black Sea Universities Network BSUN
Region of Central Macedonia
Consulate General of the Federal Republic of Germany Thessaloniki

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Department of Economics, Aristotle University of Thessaloniki

under the auspices of the
Ministry of Environment and Energy of the Hellenic Republic

Topics of discussion:
Sustainable cities: Current status, challenges and opportunities
Following the pollution stream: From the rivers to the seas
Blue growth
Sustainable operation of ports
Sustainable shipping

Media sponsors
Summary and Conclusions

Introduction

The 2020 “Thessaloniki Sustainability Summit” aims to bring together scientists, local authorities, politicians, entrepreneurs, and other stakeholders to discuss on the sustainable development of cities and ports as nodes connecting land and sea. The international character of the annual Thessaloniki Fair provides an excellent opportunity for bringing together experts from all over the world.

The topic of the summit “Sustainable Cities and Ports” is in accordance with the Agenda 2030 and the United Nations’ Sustainable Development Goals (UN SDGs) as well as the European Green Deal. The 2020 “Thessaloniki Sustainability Summit” comprises a series of round-table discussions focusing on subjects of interest. The participation of scientists, government officials and other stakeholders from various countries, ensured high-level panels leading to interesting conclusions and outcomes.

The 2020 Thessaloniki Sustainability Summit was hosted by the Faculty of Engineering of the Aristotle University of Thessaloniki since, due to the COVID-19 epidemic, the Thessaloniki International Fair was cancelled.

Our ambition is to establish the Thessaloniki Sustainability Summit as an annual event, parallel to the Thessaloniki International Fair, focusing on matters of interest regarding sustainable development.

Opening Session, Welcome addresses

Moderators: Prof. N. THEODOSSIOU, Prof. K. KATSIFARAKIS

• Nicolaos THEODOSSIOU, Chair of SDSN Black Sea
• Konstantinos KATSIFARAKIS, Dean of the Faculty of Engineering, AUTH
• Nikos PAPAIOANNOU, Rector Auth
• Sibylla BENDIG, Consul General of the Federal Republic of Germany
• Pericles MITKAS, President Black Sea Universities Network
• Konstantinos GIOUTIKAS, Prefecture of Central Macedonia
• Agis PAPADOPOULOS, President Thessaloniki Water Supply and Sewerage, EYATh

Prof. N. Theodossiou, on behalf of the organizing committee, welcomed the participants to the event, either physically present in the room or attending through Zoom, YouTube and Facebook, on the internet. He analyzed the significance and importance of the Thessaloniki Sustainability Summit, the topics of discussion and the agenda of the meeting.

He then presented briefly SDSN Black Sea, one the organizers of the summit. United Nations’ Sustainable Development Solutions Networks operate under the auspices of the Secretary General of the United Nations and the Global direction of Professor Jeffrey Sachs, one of the keynote speakers of the summit. The aim of these networks is to mobilize global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement. Two years ago, a new regional network for the wider area of the Black Sea was launched. SDSN Black Sea, comprises twelve countries, is hosted by the Aristotle University of Thessaloniki and prof. N. Theodossiou is chairing this network along with colleagues from the Aristotle University of Thessaloniki and representatives from the other eleven countries.
Prof. Katsifarakis, Dean of the Faculty of Engineering who is hosting the event, also welcomed the participants and expressed his believe that the summit will be successful due to its interesting and timely topic. The current pandemic imposes the challenge to achieve another form of sustainability that will protect public health without disrupting social and economic activities.

Prof. N. Papaioannou, Rector of the Aristotle university of Thessaloniki, emphasized the importance of the meeting aiming at bringing together scientists, local authorities, politicians, entrepreneurs, and other stakeholders not only to discuss on the sustainable development of cities and ports but also to create a network among them in order to find common ground for collaboration, participation and implementation of the sustainable development goals. Sustainable cities can be considered those who have strong social, economic, and environmental performances. Thessaloniki is an ascending power concerning the three pillars of sustainability which are economy, society, and environment. The Aristotle University of Thessaloniki plays a vital role in the evolution of the city, as its moto is extroversion, entrepreneurship, sustainable way of thinking and visualization of a new, sustainable educational community.

Mrs Bendig, Consul General of the Federal Republic of Germany, expressed her regret that the meeting was not held at the German Pavilion of the Thessaloniki International Fair, since due to the COVID-19 epidemic, the International Fair was cancelled for this year. She emphasized that the most significant challenge of our times, is not the corona virus, it is climate change. The situation is very clear, and no one can deny that without the significant efforts of every country, of every government, of every institution, and every individual climate change will not be stopped. She wished that the success of this conference could bring us closer to sustainable cities, to sustainable ports and a more sustainable world.

Prof. P. Mitkas, former Rector of A.U.Th., president of B.S.U.N. and president at Hellenic Authority for Higher Education, presented briefly the Black Sea universities Network, comprising about 120 universities from the wider Black Sea area and it is all about collaboration, cooperation, and peace. Prof. Mitkas emphasized the strong relations between BSUN and SDSN Black Sea since both networks have co-organized a series of events on sustainable development. One of the outcomes of the activities of the networks is a recent project that started in collaboration between the Aristotle University of Thessaloniki and the Financial University under the Russian Government to establish an observatory for the implementation of the SDGs in the wider area of the Black Sea. This project was achieved following the strong support of Ambassador M. Christides, the Secretary General of the Black Sea Economic Cooperation organization.

Mr Gioutikas, Vice-governor for Development and the Environment of the Region of Central Macedonia, emphasized that the transformation of Thessaloniki, the largest urban center in the region, into a modern, sustainable, and smart city is the essence of the strategic planning of the Region of Central Macedonia. One of the main priorities is to establish the connection between the port of Thessaloniki and the main highways of Greece. The new fly-over highway of the ring road bypassing the city of Thssaloniki is expected to improve transport and reduce traffic. The Region of Central Macedonia in collaboration with the Aristotle university of Thessaloniki established a network monitoring environmental factors from various points in the city. Many projects, mainly financed by European resources, are currently under way aiming at improving the environment of the Region of Central Macedonia. All these interventions are believed to play a key role in the viability of the city and the potential to look to the future with optimism.

Prof. Papadopoulos, President Thessaloniki Water Supply and Sewerage (EYATH), started his speech by pointing out that on a global level we face a number of challenges we never expected to experience, pandemics, deep globalized recession, on going environmental crisis. In this environment resilient urban infrastructure will have to perform and ensure a feasible and viable transition to a sustainable growth model that will guarantee fair prospects for the coming generations. In this direction, EYATH is working on a new investment plan that in the coming years will double the refining capacity of water, refurbish the sewerage treatment plan in order to increase it’s effectiveness and utilize waste water for agricultural use, and finally in the direction of decarbonizing the company, aiming at the reduction of its carbon footprint by 40 %. EYATH works closely with the Aristotle University in the field of research. A shining example of this collaboration is a recent research project, elaborating physico-chemical model for the identification of COVID concentration in the sewage of the city.
Opening Session: Welcome addresses.

Nicolaos THEODOSSIOU, Konstantinos KATSIFARAKIS, Nikos PAPAIOANNOU, Sibylla BENDIG, Pericles MITKAS, Konstantinos GIOUTIKAS, Agis PAPADOPOULOS

Session 1: Sustainable cities: Current status, challenges and opportunities
Moderator: Prof. N. MOUSSIPOULOS, Aristotle University of Thessaloniki, Member of the German National Academy of Sciences Leopoldina
Panel:
- Dimitris PAPASTERGIOU,
  President, Central Union of Municipalities of Greece Mayor of Trikala
- Gerhard BAUER,
  District Chief Executive Schwäbisch Hall county, Germany
- Prof. Johannes ORPHAL,
  Director, Head of Div. Natural and Built Envir. Karlruher Institute of Technology
- Dr Dimitrios TZOVARAS,
  Dir. of Information Technologies Institute, Centre for Research and Technology Hellas

Two prominent politicians and two distinguished researchers, in each group one from Greece and one from Germany, delivered in the first panel their opinions on sustainable cities. The overall discussion revealed that carbon neutrality and circularity are indispensable for urban sustainability. Regarding the procedures that have to be followed for meeting this target, there was agreement that first of all we need appropriate practices of confirmed effectiveness. Through international cooperation it is important to identify successful experiences in individual cities that can be transferred elsewhere.

Moreover, it was stressed that up-to-date technology is a prerequisite for sustainability. As we are living at times of digital transformation, we will increasingly have to rely on data and tools for their proper management for optimizing pathways towards sustainability. In the discussion it was emphasized that for adequate strategies we need stakeholder common understanding. Local governments should assume the role of the moderator, while encouraging the involvement of academia and enterprises. The panel agreed that private public partnerships are suitable for arriving at good concepts in most cases.

Perhaps the most important condition for achieving sustainability is citizen participation. The urban population has to be motivated to contribute actively in efforts towards sustainability, and this can only be achieved if citizens are convinced that what they are asked to do is for their own benefit. It is important that schools, universities but also the local governments collaborate for offering appropriate education to the urban population at all age levels.

Last not least, innovative practices and pioneering new technologies are expected to emerge from high standard research conducted in numerous collaborative projects. This is another important domain for international cooperation, and it was noted that both the Aristotle University Thessaloniki and the Centre for Research and Technology Hellas maintain very close and strong collaborations with partners from academia and industry.
Session 1: Sustainable cities: Current status, challenges and opportunities.
Dimitrios TZOVARAS, Dimitris PAPASTERGIOU, Nicolaos MOUSSIPOULOS, Gerhard BAUER, Johannes ORPHAL

Session 2: Following the pollution stream: From the rivers to the seas
Moderator: Prof. N. THEODOSSIOU, Aristotle University of Thessaloniki, Chair of the U.N. Sustainable Development Solutions Network SDSN Black Sea
Panel:
- Marc Daniel HEINTZ, International Commission for the Protection of the Rhine
- Matthias ZESSNER-SPITZENBERG, TU Wien, project leader of the DANUBE-HAZARD DSPF project
- Yannis N. KRESTENITIS, prof. of Coastal engineering and oceanography, Aristotle University of Thessaloniki

In the second panel discussion under the topic “following the pollution stream: from the rivers to the sea”, we had the opportunity to discuss with distinguished scientists on the subject. Emphasis was given to two of the most important European rivers, the Rhine and the Danube and two seas the Mediterranean and the Black Sea. It is well acknowledged that water scarcity is one of the most important problems of our times and we expect this problem to intensify in the coming future due to increasing population, environmental water demand and of course climate change. Water pollution makes things even worst, since it reduces the availability of clean water.
The panelists presented their research results in monitoring water pollution in all water bodies examined, the river Rhine, the Danube river, the Mediterranean Sea, and the Black Sea. One can identify that a lot has been done during the past decades, in an attempt to reduce the sources of pollution, but it must be well understood that this is still not enough. International cooperation in these transboundary water bodies, is of major importance and this is why all stakeholders, including scientists, politicians, consumers etc. need to collaborate to achieve these goals.

The European directives, the process for the implementation of the SDGs and the European Green Deal, lead the way for a more sustainable future.

Session 3: Blue growth
Moderator: Prof. G. ZAROTIADIS, Aristotle University of Thessaloniki, Dean of the Faculty of Economic and Political Sciences
Panel:
- Alexandra HARRINGTON
  Director of Studies, International Law Association of Colombia, Visiting Assistant Professor of Law, Albany Law School.
- Ruslana Rachel PALATNIK
  Senior Researcher in the Natural Resource and Environmental Research Center – University of Haifa and Chair of the Department of Economics and Management in The Max Stern Yezreel Valley College
- Dimitris DIMITRIADIS
  European Economic and Social Committee
- Eden MAMUT
  Black Sea Universities Network

All four contributors of the third panel discussion on Blue Growth, participated virtually contributing with the following points. (1) Socially and environmentally sustainable development of the Mediterranean and the Black Sea can be a reality, although today situation is full of political and institutional difficulties, as well as socioeconomic and environmental critical situations. (2) Cooperation and respect are the two keywords upon which we should build, especially in Eastern Med and the BS. (3) Extraction of natural resources, although it can be an opportunity, it should not be understood as an opportunity for fast profit. Moreover, following a path towards zero carbon economy would not have too much costs in terms of GDP losses. On the contrary, "Dutch disease" arguments and the thinkable "cleaning" and "dealing" costs are good reasons for a moderate usage of those resources. (4) EU has to put more efforts in serving the future of Blue Economy in Eastern Med and the Black Sea, besides the much easier case of Western Med, whereby institutional and social particularities of the southern shore need to be carefully considered.

Session 3: Blue growth.
Ruslana Rachel PALATNIK, Eden MAMUT, Gregory ZAROTIADIS, Dimitris DIMITRIADIS, Alexandra HARRINGTON
Session 4: Sustainable operation of ports
Moderator: Prof. Ph. Koundouri, Athens University of Economics and Business, president EAERE, co-chair UN SDSN Greece, Director EIT Climate-KIC Hub Greece
Panel:
- Riccardo Lambiris, CEO TAYPED (Hellenic Republic Asset Development Fund)
- Dimitris Spyrou, Consultant Piraeus Port Authority S.A.
- Angelica Kemene, CEO, Co-founder Optima-X | Head of Market Analysis & Intelligence, Optima Shipping Services
- Lydia Papadaki, SDSN Greece and EIT Climate KIC hub Greece manager

Ports are places where multiple systems collide (shipping, energy, waste, tourism and other transport). Ports can either be emissions hotspots or hubs able to drive enormous change. The port and the shipping industries constitute a key node in the international supply chain taking into consideration that over 80% of volume (70% of value) of world’s merchandise trade is carried by sea (port to port). Environmental challenges relating to ports are twofold, namely the effects of maritime transport on the environment (e.g. pollution, CO2 emissions) and conversely the environmental impact on maritime transport (e.g. Climatic Variability and Change). In this regard, it is important to address the global challenges effectively, in the light of the Paris Agreement and the 2030 UN Sustainable Development Agenda. In a phased way, EIT Climate-KIC works with a small cohort of high-ambition port authorities in Valencia (Spain) and Piraeus (Greece) and Cyprus Ministry of Shipping to demonstrate how ambitious maritime hubs can be catalysts for reversing the fast-growing emissions from international shipping and trade using Systems Innovation approach. Another Initiative led by SDSN Greece and launched at the COP25 in December 2019 in Madrid, Spain, Global Roundtable for Sustainable Shipping and Ports aims at bringing together researchers and technology developers, shipbuilders, shipowners, ports, policymakers and politicians, from around the globe, to work on technological and policy innovations seeking net-zero emissions in the maritime sector by 2050. The European Green Deal, the most ambitious action plan of European Union, aims at increasing the EU’s greenhouse gas emission reductions target for 2030 to at least 50% compared with 1990 levels, creating the most ambitious package of measures, accompanied with an initial roadmap of key policies in cutting-edge research and innovation, in green technologies and sustainable solutions. In principle, EU ports continue to improve their environmental performance and to maintain or even further enhance the declared policies of compliance, environmental protection, and sustainable development. While it is difficult to identify and implement at once ‘best practices’ for all the environmental impacts that port activities generate, positive steps towards sustainable development and management are increasingly taking place.
Session 5: Sustainable shipping

Moderator: Prof. L. NTZIACHRISTOS, Aristotle University of Thessaloniki

Panel:

- Maria DELIGIANNI, Regional Representative in Eastern Mediterranean Cruise Lines Intern. Association
- Kostas G. GKonIs, PhD, Director / Secretary General, International Association of Dry Cargo Shipowners
- Prof. Takis VARELAS, Director, Danaos Research Centre
- Panagiotis MITROU, Global Gas Segment Manager, Lloyd’s Register Marine & Offshore, Athens Greece

The final panel discussion was on Sustainable Shipping. Shipping needs to contribute to the overall environmental goals of a more sustainable future. The IMO target of 70% reduction in GHG per transport unit by 2050 compared to 2008 and 50% in total GHG brings forward unprecedented technological and operational challenges for the shipping industry. These challenges are currently further augmented by the lasting COVID-19 impacts, including halt of business for cruising or stranded seafarers in world ports, due to travel restrictions. Despite the unfortunate circumstances, the shipping industry appears committed in providing the agreed reductions. The IMO fourth Greenhouse Gas Study reported a 40% increase in seaborne trade between 2008 and 2018 while also recognising that CO2 emissions from shipping fell by 10% over the same period. This suggests an improvement in carbon intensity of the industry which is now between 21 and 29% better than in 2008. Still, the progress is not enough, and more brave and comprehensive steps need to be taken in the future to achieve upcoming targets. As no silver bullet exists, ship operators will need to consider in an unbiased manner all operational, technological and financial implications of their choices of new ships or ship retrofits. These may include new fuels (LNG and synthetic ones), on-board efficiency technologies (hull design, materials, wind propulsion assistance) but also new operational and freight transport optimisation models. The industry will require the help of Class Societies but also the academia in making the right decisions and have put forward at the IMO level the idea of establishing a significant fund (in the order of USD 5 billion) to support low and zero carbon vessel research. Such funding and collaboration of all stakeholders indeed appears as prerequisites to address the challenges lying ahead.
Session 6: Keynote speeches:

Moderators: Prof. N. MOUSSIOPOULOS and Prof. N. THEODOSSIOU

- Prof. Jeffrey SACHS,
  Columbia University, Sustainable Development Solutions Network
- Prof. Franz Josef RADERMACHER,
  Professor of Informatics at Ulm University, President of the German Senat der Wirtschaft e.V.

Professor Jeffrey Sachs started his speech emphasizing the fact that we now face a threat to global sustainability, never known to the world before, and that is due to our actions that led to climate change, pollution, distraction of biodiversity and ever more frequent zoonotic diseases like COVID-19.

He pointed out the importance of the European Green Deal, the most significant policy response in the entire world. The EU Green Deal is based on a plan to decarbonize the energy system by 2050 but it also builds on strong sector analysis and strong measures, not only the energy transition but circular economy with very strong focus on key sectors of pollution and waste management and now, in recent weeks, the adoption of a “farm to fork” policy for sustainable land use as another fundamental component. He considers a mission statement for universities the fact that, the EU Green Deal is a detailed framework, but it lacks a plan. In this sense it is an absolute time for everyone to intensify the coordinated work to support the European Commission, the European Parliament, and the member states to implement this plan so that it turns into reality. The lead distraction right now, other than COVID-19 for a plan like this, is the Mediterranean natural gas, since, more time, more efforts, more politics, is going into fighting over new natural gas and fossil fuel deposits, rather than on how to decarbonize the economy. Investing in natural gas is a waste of time and money since all our focus should move on green technologies and zero-carbon technologies, supported by research budgets in HORIZON Europe and in the 750-billion-euro Recovery Fund. As SDSN we have constituted a working group on the European Green Deal with very active participation of SDSN Greece and SDSN Black Sea.

In his opinion, a green led industry, electric vehicles, batteries, photovoltaics, smart grid will ensure Europe's own prosperity. We need to take advantage of the fact that we have the industrial powerhouses of Europe behind us, we have the sunshine, the solar power, the other renewables and we have the vital need for sustainable land use integrated in this.

Professor Franz Josef Radermacher started his lecture with rather pessimistic predictions regarding global development in the next decades. He warned that without significant efforts the 2030 Agenda adopted in New York and the World Climate Programme adopted in Paris will remain simply words, without leading to real opportunities for implementation. Radermacher is convinced that sustainable development requires a global solution to our energy and climate issues and that the greatest problem pressures lie in the densely populated developing and emerging countries, which is why it is absolutely essential to think beyond national borders.

From the global economy point of view, Radermacher’s opinion is that one major target should be an adequately regulated market, i.e. a green and inclusive market. Within such a framework, jobs for more and more people can be created, and an adequate income for all people can be guaranteed. At the same time, the environment and the climate must be protected. It is possible to do all of this at the same time. Significant economic growth, especially in poorer countries, is possible, and compatible with sustainability.

In this connection solar desert areas, and in particular the Sahara Desert, are the joker in the pack. They open up new opportunities for the production of cheap renewable energy at a price not exceeding 2 €-ccts/kWh, and for making it broadly available, particularly in Africa - a prerequisite for the creation of new prosperity. Maybe half of the energy should be available as green electricity. The other half should be green gases and green liquids, starting with green hydrogen. Combining green hydrogen with CO2 from Carbon Capture and Usage from coal based power plants and industrial processes needs to green methanol an important carrier and storage device for huge amount of green energy. Along this route CO2 emissions worldwide can be significantly reduced. Maybe to 10 billion tons annually. These 10 billion tons
can be recycled via nature based solutions e.g. reforestation on degraded soils in the tropics and massive humus formation in agriculture.

Finally he outlined the main steps of the ongoing “Initiative for Green Hydrogen, Methanol and CO2-Recycling”: (1) Production of large amounts of green electricity in the solar deserts of the world, but possibly also in Greece and other Southern European areas, (2) Local electrolysis to produce green hydrogen, (3) Local synthesis of green methanol by means of CO2 recycling, e.g. by CO2 injection from carbon capture and utilization processes and (4) International transport of green methanol and other E-fuels potentially derived (diesel, gasoline, kerosene) for use in a wide range of energy processes, primarily in the transport sector.

Session 6: Keynote speeches.
Nicolaos MOUSSIPOULOS, Nicolaos THEODOSSIOUT, Franz Josef RADERMACHER, Jeffrey SACHS
Thessaloniki Sustainability Summit
“Sustainable Cities and Ports”
September 7\textsuperscript{th}, 2020, Thessaloniki, Greece

Useful Links

Summit webpage: http://sdsn-blacksea.auth.gr/tss-2020

Video streaming: Part 1
https://youtu.be/5f023zWO7rA
- Opening Session
- Panel 1: Sustainable Cities: Current status, challenges and opportunities
- Panel 2: Following the pollution stream: From the rivers to the seas
- Panel 3: Blue growth

Video streaming: Part 2
https://youtu.be/A2d65xgyamg
- Panel 4: Sustainable operation of ports
- Panel 5: Sustainable shipping
- Keynote speeches by Prof. Jeffrey Sachs and Prof. Franz Josef Radermacher