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Summary of the Planet Budapest 2021 Sustainability Summit: 30 November - 2 December 2021

Climate change, water security, sustainable transport, and the circular economy are some of the key sustainable development issues facing Central Europe. The Planet Budapest 2021 Sustainability Expo and Summit sought to address these and other issues, including what role the four Visegrád countries (V4) – the Czech Republic, Hungary, Poland, and Slovakia – can play. Through the Expo, the event sought to showcase solutions V4-based companies and technology providers offer. The event also aimed to raise public awareness of adverse environmental, social, and economic practices and their impacts and argued that these negative changes are still reversible.

The centerpiece of the V4 joint event was the Summit, which brought together decision makers, experts from international organizations, and representatives of the scientific and business world to discuss actionable responses to sustainable development challenges. Rather than produce a formal declaration, statement, or communiqué, the Summit focused on providing information to the wider public through a robust exchange of ideas over a variety of topics important to achieving sustainability and protecting the planet.

The Summit debated issues and solutions in nine thematic areas:

- sustainability in a post-COVID world;
- climate change;
- circular economy;
- energy efficiency and security;
- smart cities;
- water and food security;
- transport;
- financing sustainable development; and
- waste management.

The Summit also included a debate about whether Central Europe generally and the V4 specifically are leaders or laggards in the pursuit of climate neutrality and the Sustainable Development Goals (SDGs). Participants generally concluded that while the V4 are ahead of many countries, they still have much work to do.

The Planet Budapest 2021 Sustainability Expo and Summit convened from 30 November to 5 December 2021 in Budapest, Hungary. The Summit, which this report covers, convened from 30 November to 2 December.



A view of the Sustainability Expo venue

A Brief History of Planet Budapest 2021

Building on the Legacy of the Budapest Water Summit

In the follow-up to a commitment made by Hungarian President János Áder to United Nations Secretary-General Ban Ki-moon, Hungary convened the Budapest Water Summit in October 2012 with the aim of pushing the thematic global

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agenda on water via high-level plenary discussions and outcome recommendations. The meeting convened within the context of international negotiations around the 2030 Agenda for Sustainable Development. The Summit produced the Budapest Statement, which called for water to be a standalone goal in what became an SDG as part of the 2030 Agenda for Sustainable Development in 2015. It also presented proposals covering the full spectrum of water management.

A second Budapest Water Summit convened in November 2016 and produced a “Messages and Policy Recommendations” document containing recommendations for governments in their efforts to implement water-related aspects of the 2030 Agenda. The meeting also featured an expo showcasing Hungarian companies active in water and sanitation issues.

A third Budapest Water Summit held in October 2019 produced a document titled the “Budapest Appeal.” The Appeal identifies priority areas on water security and outlines concrete recommendations and solutions for governments to consider at relevant international fora, including the UN Framework Convention on Climate Change (UNFCCC), the World Water Forum, and the UN High-Level Political Forum on Sustainable Development (HLPF).

Expanding the Focus

The Visegrád Group was formed in the wake of a 1991 summit meeting of then Czechoslovakia, Hungary, and Poland. The summit was held in the Hungarian castle town of Visegrád against the background of the dissolution of the communist bloc in Central Europe. The countries agreed to form an alliance to promote cultural, political, and security ties. When

Czechoslovakia split in 1993, the Czech Republic and Slovakia became independent members of the V4. Since 1991, the Group has promoted cooperation and common positions on issues, such as European integration, transport, environment, tourism, smart cities, nuclear power, defense cooperation, digitalization, health, pharmaceuticals, migration, and the future of food and farming.

Since it assumed the presidency of the V4 for 2021-2022, Hungary decided that the next summit and expo should broaden the range of sustainable development issues to be discussed and should highlight the efforts and leadership of the V4.

Report of the Summit

Opening Panel – Leaders for a New World

The Planet Budapest 2021 Sustainability Summit opened on Tuesday, 30 November. Master of Ceremonies Edit Szalay proclaimed that attendees from over 100 countries were present, either in-person or online, not only to re-identify the challenges facing sustainable development, but also to consider ideas about next steps and solutions.

János Áder, President, HUNGARY, recalled the saying that “it is not the time we have left that matters, but rather what we do with it.” He noted Hungary has reduced its greenhouse gas (GHG) emissions and increased its forest cover while increasing GDP, asking how much impact this would have if the other G20 countries followed suit. He detailed his country’s environmental education efforts and plans to close its last coal-fired power plant, further increase forest cover, electrify its bus fleet, and treat 100% of its wastewater.



János Áder, President, Hungary



Andrzej Duda, President, Poland

Andrzej Duda, President, POLAND, highlighted work on sustainability during his country's presidency of the V4 and Poland's role in the "Cross-border Business Cooperation for Central Europe" project, which promotes integration across Central Europe and other regional partnerships. He described Polish efforts to achieve climate neutrality by 2050 while growing GDP, improving Polish global competitiveness, and streamlining regional supply chains.

In a video message, Zuzana Čaputová, President, SLOVAKIA, lauded the Summit for maintaining pressure for climate action since the 26th session of the Conference of the Parties to the UNFCCC (COP 26) in Glasgow, UK, in November. She noted Slovakia has reduced its emissions by 90% since 1990 and underscored that democracy must be protected in order to preserve the planet.

In a video message, United Nations Secretary-General António Guterres said poverty and hunger are increasing, and human rights and health are suffering, as the world careens toward climate catastrophe. He called for including refugees, marginalized people, and sustainable production and consumption in climate investments, applauding the lessons of Central European countries.

Mathias Cormann, Secretary-General, ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), said individual jurisdictions must cut emissions, not shift them elsewhere. He said the OECD's [Climate Action Monitor](#) identifies: uneven and inefficient carbon pricing; the need to eliminate fossil fuel subsidies; ineffective green budgeting; and fragmented and misaligned climate policies. He called for incorporating circular economy principles and nature-based solutions in climate investments rather than "greenwashing."

Csaba Kandrás, Deputy Governor, Financial Supervision and Consumer Protection, Magyar Nemzeti Bank (central bank of Hungary), noted the Hungarian Parliament has provided a new mandate to the central bank to align its work to the government's green mandate and sustainability policies. He called for a turnaround from the current global pattern of unsustainable resource consumption and consideration of social, as well as financial and economic, sustainability practices.



Zsuzsanna Jakab, Deputy Director-General, WHO

Sustainability in the Post-COVID World – What Are the Lessons Learned and What Should Be Changed?

On Tuesday, Zsuzsanna Jakab, Deputy Director-General, WORLD HEALTH ORGANIZATION (WHO), moderated this session. She said COVID has clearly shown the linkage between health and the environment and that the health and wellbeing of people is an investment, not a cost. She said it was time to reflect on lessons learned from the pandemic regarding what can we do differently, how can we work better together, and what can be done to address drivers of our common challenges.

Keynotes: István Nagy, Minister of Agriculture, HUNGARY, noted national dialogues initiated as part of Hungary's preparations for the UN Food Systems Summit, held in September 2021, underlined the need to maintain this dialogue. He stated that V4 agriculture ministers agreed in October 2021 to cut food waste, enhance shorter regional supply chains, and emphasize best practices regionally. He observed the pandemic has underscored the need to revamp regulatory systems to ensure a fast, safe, and stable food supply, highlighting the interconnection between natural and social systems.

Via video message, Muhammad Ali Pate, Professor, Harvard T.H. Chan School of Public Health, suggested several lessons learned from COVID, including:

- the need to plan better for pandemics;
- the need to improve health monitoring;
- we are interconnected—no country or group is an island;
- existing global partnerships must be revisited to ensure all voices are reflected;
- the need to invest more in human resources in the health sector;
- global manufacturing chains must be reassessed;
- people should be engaged before, during, and after a crisis, to earn their trust; and
- the world requires a new level of global cooperation and new ways to finance development.

Irena Pichola, Partner, Global Government and Public Services Climate Action and Sustainability Lead, Deloitte, shared data from a Deloitte study, which found that societies are ready for action. She noted that while the world has been focused on the

pandemic, it is still suffering the economic and social costs from huge destructive events caused by climate change. Citing examples showing that even now people recognize climate change as the greatest public health threat, she said costs make a clear business case for acting.

Vladimir Olegovich Rakhmanin, Assistant Director-General, FOOD AND AGRICULTURE ORGANIZATION OF THE UN (FAO), also highlighted lessons from COVID-19, including:

- be humble and flexible, learning from practical experience;
- promote science and education for all;
- engage, rather than alienate, people who do not agree with us;
- support strong, efficient, and competent national authorities; and
- improve our interaction with nature as part, rather than master, of nature.

He called for countries to: adopt the One Health approach; address human and animal health together; promote healthy diets and nutrition; and use digital technologies enriched with traditional knowledge.

Panel Discussion: Amani Abou-Zeid, Infrastructure and Energy Commissioner, AFRICAN UNION COMMISSION, noted African governments took swift and science-based action to mitigate the impacts of the pandemic. She stressed that global vaccine equity is still needed, particularly for the immunization of African citizens.

Hans-Paul Bürkner, Global Chair Emeritus, Boston Consulting Group, explained that, prior to the pandemic, technology was seen as a threat that would make people obsolete, but in fact it has proven to be a catalyst to growth in all parts of life. He applauded developing countries in adopting emerging technologies more rapidly than developed countries, which are often weighed down by legacy systems.

Dániel Palotai, Member of the Executive Board, INTERNATIONAL MONETARY FUND (IMF), stated that it is time to rethink the global growth model and adopt a more sustainable one. He pointed to the IMF's investment of USD 130 billion to assist developing countries during the pandemic.

Alberto Di-Leo, General Manager Hungary/Adria, Unilever N.V. and Unilever PLC, detailed the complexities and interconnectedness of the food sector in relation to all other

sectors. He stressed the need to diversify diets and food sources, decrease food intake and food waste, and have a healthier, more sustainable diet while protecting local farmers.

Marco Antonio Zago, President, São Paulo State Research Foundation (FAPESP), Brazil, provided examples of several long-term strategic programmes in Brazil, which include activities, such as: making 42% of energy from renewable bioenergy; collaborative research on climate change's effects on native populations; sharing clinical data to support local government in planning and managing the response to the pandemic; and considering how funding agencies can help prepare for the next emergency.

Csaba Kandrács, Magyar Nemzeti Bank, noted the pre-pandemic megatrend in sustainability actually accelerated during COVID-19. He said "sustainability everywhere" is the first step to changing the mindset of everyone in society. He maintained that central banks can be important players in sustainability by facilitating the search for solutions.

Climate Change – From Threats to Opportunities, From Burden to Creation of Added Value

On Tuesday, Charles Vörösmarty, Director, Environmental Sciences Initiative, City University of New York, US, moderated this session.

Keynotes: Tebaldo Vinciguerra, Official, Dicastery for Promoting Integral Human Development, HOLY SEE, labeled climate a common good and called for "profound solidarity" between the world's peoples to address the climate crisis. He advocated that in the post-pandemic world, we should start building the world we want, based on ethics, awareness of our shared future, and a spiritual commitment to change, moving away from throwaway culture to that of care and commonhold.

Mary Burce Warlick, Deputy Executive Director, INTERNATIONAL ENERGY AGENCY (IEA), said while COP 26 finally gave hope with respect to avoiding a 2°C temperature rise, nationally determined contributions (NDCs) remain insufficient to keep the 1.5°C goal within reach. She urged turning all NDCs into concrete action as soon as possible, noting the [IEA Net Zero Roadmap](#) lays out how to do so, starting with energy efficiency measures and moving power generation away from coal toward low-carbon sources. She also urged rapid



Panel discussion of the session on Sustainability in the Post-COVID World



Mary Burce Warlick, Deputy Executive Director, IEA



Discussion panel of the session on Climate Change

scaling up of technologies not yet commercially viable, noting early movers could become the energy giants of tomorrow.

Panel Discussion: Nikolay Kosov, Chairperson of the Management Board, International Investment Bank, juxtaposed banning plastic items with marketing new smartphones and eliminating plastic straws with increasing private jet use. He said current fossil fuel prices insufficiently incentivize companies to produce less and recommended changing consumption by:

- teaching young children about responsible consumption;
- incentivizing business shifts, such as through taxation;
- giving developing countries access to environmentally friendly technology; and
- establishing a global organization to regulate and monitor planetary resources.

Warlick responded that events such as COP 26 can provide important momentum, citing, *inter alia*, the [Global Methane Pledge](#) made in Glasgow and new commitments on financing. She said governments must establish policies and regulatory frameworks to mobilize needed business solutions. She called for reducing investments in high-emitting sectors and filling the huge investment gap in clean energy.

Panelists debated whether geoengineering and land management are the global silver bullets in climate mitigation. János Pásztor, Executive Director, Carnegie Climate Governance Initiative, responded that the climate crisis cannot be solved by one or two solutions; rather, many solutions are required. He added that the underlying issue is too much carbon in the air, and that an efficient and cost-effective method is needed for its removal.

Panelists also debated whether climate change is crowding out other sustainability challenges. Some posited that the climate crisis attracts more attention because behind it is the issue of energy consumption, as energy is a market-driven commodity that comes with a high price. There was consensus that more cross-cutting work is needed to sufficiently address all sustainability topics. Panelists acknowledged that COP 26 brought attention to the connections between climate change, water, food security, and cities, with momentum building for more intersectionality work in the future.



Charles Brand, Cluster Vice-President, Europe and Central Asia, Tetra Pak Group

Circular Economy in 2021– Are We Closing the Loop Fast Enough?

On Tuesday, Oriana Romano, Head of Unit, Water Governance and Circular Economy, OECD, moderated this session. Citing a 2019 OECD report projecting a doubling of global primary materials use by 2060, she stressed the need to increase material efficiency and recycling levels. She noted the OECD had three basic messages about the circular economy: circular economy is about the economy; while many governments have launched good pilot projects in circular economy, it is time to scale up; and creating the right governance conditions is key.

Keynotes: Attila Steiner, State Secretary for the Development of Circular Economy, Energy and Climate Policy, Ministry of Innovation and Technology, HUNGARY, said circular economy is a crucial component to reaching his country's goal of carbon neutrality by 2050. He said increasing recycling rates is a good economic opportunity that can aid in shortening supply chains and supply security while decreasing carbon emissions, energy and raw materials use, and pollution, and helping to cut transportation costs. Characterizing circular economy as a “no regret option,” he reported that Hungary plans to substantially revamp its waste management system by 2023.

Charles Brand, Cluster Vice-President, Europe and Central Asia, Tetra Pak Group, noted his company promotes recycling of its packaging, and aims to recycle 90% by 2030. He reported Tetra Pak is also trying to decarbonize not only its material use but also its production processes, saying Tetra Pak has an “unwavering commitment” to the EU's Green Deal. He advocated that all packaging materials, without discrimination, be collected and recycled, and that regional borders be kept open for cross-border recycling. He also called for greater efforts to reduce food waste, which will have an automatic positive effect on reducing carbon emissions.

Panel Discussion: During the panel discussion on circular economy, speakers addressed how stronger data, measurability, global standards, and reporting is needed to increase circularity. They also encouraged the idea of better engaging youth, local authorities, and policymakers to complement work being done by industry to re-use resources. Panelists additionally discussed how the lessons of nature's circularity in water and forests might be further applied to other sectors and what conditions would



Panel discussion of the session on Circular Economy in 2021

support the development of new business models and innovation toward a circular economy.

Péter Csóka, Secretary, Committee on Forestry, FAO, explained forests' circularity in providing: raw materials without destroying the resource; carbon sequestration; watersheds; biodiversity; clean air; pharmaceuticals; and, for agriculture, soil protection, gene preservation, and pollination. He bemoaned converting forest to agriculture while wasting 30% of food, which could feed everyone suffering from food insecurity. He said ecosystem deterioration equals 10% of global GDP but is not reflected in prices, while noting "forest dependent people" includes the entire global human population.

Hossam Farid Hassanein, Vice Chairman and CEO, SFH Holding, noted the Quran stresses water as the origin of life, lamenting Egypt has only 40% of its water requirements and under 30% of its sewage requirements. He noted a recent decree calling for reusing irrigation water, efforts to utilize groundwater while preserving its source, and plans for greatly increasing desalination plants for drinking water.

Anita Orbán, External Affairs Director, Vodafone Hungary, said Vodafone's aim to reach net-zero emissions by 2040 requires circularity alongside decarbonization, including: recycling network waste; decarbonizing its business partners by 2040; recycling IT equipment through an internal market; and recovering and donating used devices. She noted business cannot exist at the expense of its environmental responsibility.

Algayerova reflected on the challenge of increasing circular practices unless measurable targets, standards, and methodologies that can be harmonized across countries are established.

Steiner noted that the key to achieving more circularity is data, as it will increase transparency and accountability. He used the Paris Rulebook as an example of how global accountability and targets shared in an open and transparent way has moved the needle on emission reductions. Steiner also encouraged citizen engagement by explaining how his government is providing subsidies to people who buy electric vehicles and apps to report on illegal waste disposal, the latter being a pronounced challenge for Central and Eastern Europe.

Brand said local authorities are also important actors to engage in the drive towards circularity. He echoed the comments of other panelists stating that transformational change is needed in every aspect of life, to encourage resource reuse.



Olga Algayerova, UNECE Executive Secretary

Panelists concluded with final advice on circular economy, again stressing the importance of tangible, measurable goals, best practices, and standards. They also encouraged involving youth who will one day translate these policies into reality.

Central Europe and the Visegrád Countries for Sustainability—Champions or Laggards?

John O'Sullivan, President, Danube Institute, moderated this session on Wednesday.

Keynotes: Olga Algayerova, Executive Secretary, UN Economic Commission for Europe (UNECE): noted a recent UNECE report showing that at the current pace the UNECE region will achieve only 23 of 169 SDG targets by 2030; 57 targets require accelerated efforts, nine have moved backwards, and 80 have insufficient national data to track progress. She suggested that improving regional progress toward achieving the SDGs requires:

- collaborative approaches;
- creating synergies through action across sectors, which requires a whole-of-government approach;
- planning from a transboundary perspective;
- sustainable financing;
- robust regulatory/legal structures; and
- international cooperation.

László Palkovics, Minister for Innovation and Technology, HUNGARY, noted the V4 ranked among the best performing countries in achieving the SDGs. He outlined Hungary's efforts to achieve carbon neutrality by 2050, including:

- enshrining the goal into law;
- making power production 90% climate neutral by 2030;
- using nuclear power responsibly;
- developing a national hydrogen strategy;
- developing a national battery strategy; and
- including green and climate elements in Hungary's artificial intelligence (AI) strategy.

Panel Discussion: Vladislav Smrž, Deputy Minister, Environment Ministry, CZECH REPUBLIC, remarked that despite being among the most industrialized countries in Europe, the Czech Republic and the other V4 countries have reduced emissions more than any other countries since 1990. Highlighting 30 years of transition and environmental protection, he said



Panel discussion of the session on Central Europe and the Visegrád Countries for Sustainability

V4 countries: take their commitments seriously; want to share their experiences with others; will fight for a 55% reduction in emissions by 2030; and are discussing phasing out coal before 2038. Smrž beseeched people to respect nature and leave no one behind; otherwise, he said, all efforts to ensure a sustainable and green future will be in vain.

András Huszár, Co-Founder and Director, Green Policy Center, called for, *inter alia*:

- emphasizing implementation processes, which require political will;
- analyzing results of past strategies while looking ahead;
- defining “green” in the Green Deal taxonomy to eliminate greenwashing; and
- including nuclear power as green, but not including natural gas because the rationale for doing so, to build infrastructure utilizable for hydrogen later, may not ultimately hold true.

He noted:

- climate change cannot be overcome without addressing the other sustainability issues, such as biodiversity loss and food and water insecurity;
- countries should emulate Germany’s “climate-proofing” of its legislation;
- energy efficiency measures are critical;
- pursuing sustainability must advance cohesion, not division; and
- we need less consumption of raw materials, not GDP growth.

Máté Litkei, Director, Climate Policy Institute, Hungary, emphasized how economic growth and a green transition do not have to be decoupled and in fact can work together to provide citizens with better lives and a better global future in a world with a growing population. He encouraged subsidies and innovative solutions to help small and medium-sized enterprises (SMEs) grow. Palkovics echoed Litkei, noting Hungary needs to provide better support to its SMEs as they play an important role in international value chains.

Algayerova reiterated her points from the first day of the Summit, noting that without a circular economy, the Paris Agreement’s goals cannot be achieved. She applauded the EU’s leadership on this, which, she said, exceeded global rates of circularity.



János Süli, Minister without Portfolio, Hungary

In further discussion, panelists debated how to incentivize people to make greener choices, and the need to find a unique, UN-driven measurement beyond GDP to measure climate progress.

Energy Efficiency and Security – Does the “Invisible Fuel” Change Geopolitics?

Claudia Patricolo, Editor in Chief, CEENERGYNEWS, moderated this session on Wednesday.

Keynotes: János Süli, Minister without Portfolio, HUNGARY, defended Hungary’s decision to use nuclear power. He said expanding the Paks Nuclear Power Plant will ensure energy demand is met regardless of weather, with affordable tariffs. He said without the new nuclear capacity Hungary would be vulnerable to costly energy imports. He warned against interfering with the right of governments right to choose their own energy mix and pursue energy security.

Juan Carlos Bermeo Calderón, Minister of Energy and Non-Renewable Natural Resources, ECUADOR, spoke on the need for foreign investment to help substantially increase the non-hydropower renewable energy share of Ecuador’s energy mix. He also noted efforts to remove all fossil fuels from the Galapagos Islands, including in transport.

William Magwood, Director-General, Nuclear Energy Agency, OECD, pointed out that achieving carbon neutrality by 2050 requires energy efficiency, renewable energy, and nuclear energy. Noting the climate challenge is *sui generis*, he warned that current trends will increase emissions by 13% by 2050. He listed nuclear power options, including long-term operation of current plants, Generation-III reactors, and small modular reactors. He said the public will not accept “reverting to horses and carriages.”

Panel Discussion: Francesco La Camera, Director-General, International Renewable Energy Agency, highlighted that a 1.5°C-compatible scenario requires electrification, energy efficiency, green hydrogen, and biomass. He noted many countries are pursuing 100% renewable energy by 2050.

Numar Alfonso Blanco Bonilla, Executive Secretary, Latin American Energy Organization, noted 61% of Latin American energy is renewable, including hydropower. He said producing hydrogen, storing renewables, and solar have the potential increase the regional share of renewables to 100%.



Panel discussion of the session on Energy Efficiency and Security

Patrícia Faga Iglecias Lemos, Director-President, São Paulo State Environmental Company, said despite being the most industrialized and populous state in Brazil, São Paulo has low carbon emissions and uses 60% renewable energy. She described work to lower sugar cane production's carbon footprint, conserve land, and use less water.

Alexander Merten, Vice President, ASE JSC, Rosatom, and Construction Project Director, Paks Nuclear Power Plant, talked about his company's global leadership with power plants in 12 countries that meet the strictest of international standards and regulations. He also noted that Rosatom is committed to adhering to the SDGs.

Dóra Zombori, Ambassador-at-Large for Energy and Climate, Ministry of Foreign Affairs and Trade, HUNGARY, warned that as technologies are deployed to reduce GHG emissions, the world will face significant changes and geopolitical consequences. She urged everyone to consider national and regional circumstances and reiterated that climate solutions should not be "one size fits all."

In concluding remarks, panelists stated that making "the invisible fuel" of energy efficiency visible will require the following: regulatory efforts, efficient policies, carbon pricing, financial resources, and trust.

Smart Cities – Will Digitalization and Artificial Intelligence Make Our Cities More Sustainable?

Kala Vairavamoorthy, Executive Director, International Water Association, moderated this session on Wednesday. He noted that smart cities use data and digital technology to improve the quality of urban life and find new ways to optimize resources, making cities not only more livable but also more productive. He suggested that for cities to be sustainable all aspects of urban life must be dealt with in an integrated manner, which requires systems thinking.

Keynotes: Noting that transport accounts for 25% of carbon emissions, Jérôme Wallut, Chief Commercial Officer, Alstom, said making transport greener and smarter is key to achieving climate neutrality. He explained how digitalization will help urban rail cope with increasing demand while making it greener, smarter, and more efficient and will allow it to interface and exchange data with other transport modes and industries.

Mariya Sinichich, Ministry of Construction, Housing and Utilities, RUSSIAN FEDERATION, noted that the Federation had made digital transformation of housing, public utilities,



Mariya Sinichich, Ministry of Construction, Housing and Utilities, Russian Federation

and management of the urban environment a top priority. She outlined platforms used and provided examples of how they are deployed. She also discussed the Federation's Smart City Standards.

Stephen Richardson, Director, Europe Regional Network, World Green Building Council, opined that "smart cities" does not always mean "high tech" but may be judged using indicators of life: movement, respiration, sensing, growth, reproduction, excretion, and nutrition. He gave examples fitting these indicators, such as buildings whose façades are designed to absorb air pollutants and turn them into inert salts, or "self-healing" concrete or asphalt, in which cracks refill themselves. He called for people-centric city environments.

Panel Discussion: Marco Antonio Zago, FAPESP, said his organization develops programmes, including: an open data-sharing platform on COVID cases to help local government respond; a long-term project for data collection on micro-climate projects for judging buildings' thermal performance; and a center on "science applied to safety." He said components for success include: convergence of all stakeholders; infrastructure and high-quality human resources; and digital knowledge, education, and literacy that can help the poorest populations.

József Kolossa, General Director, Lechner Knowledge Center, Hungary, said sustainability is about: being able to regenerate resources; not accumulating waste that cities cannot regenerate; and maintaining a planet rich in culture to protect our human identity. He called for focusing on people but asked what saving energy means if you then use it to heat a jacuzzi.

Dávid Vitézy, CEO, Budapest Development Agency, noted that although global urban trends are moving away from sustainability, Budapest is still investing in public transport and 67 out of 100 trips made in the city are through public transport.

Mariann Geese, Director, Public Affairs and Communication, Huawei Technologies Hungary and the West Balkans, explained how her company employs the reuse of materials and tackles cybersecurity challenges resulting from interoperability of data by having a technology-based approach and open-sourced solutions that do not come from Huawei exclusively.

Panelists agreed that digitalization and AI cannot be sole solutions to make cities more sustainable; investment in in-person meetings, reaching out to a diverse group of people, inclusivity, and the breaking down of disciplinary silos are all factors that can help achieve smart, sustainable cities.



Lindsey Blodgett, Former President, World Youth Parliament for Water

Water and Food Security – A Gate to Support Transformation and Address Climate Crisis?

András Szöllősi-Nagy, Professor, National University of Public Service, Hungary, moderated this session on Wednesday.

Keynotes: Petteri Taalas, Secretary-General, World Meteorological Organization (WMO), provided WMO data on how climate change is affecting rainfall, and causing rainfall anomalies, hydro-meteorological disasters, glacial melt, sea level rise, soil moisture, and water stress. Suggesting the 1.5°C global warming goal will be a major challenge and 2°C appears more likely, he recounted recent Intergovernmental Panel on Climate Change projections for probable impacts on rainfall and soil moisture. He warned that if a 3°C rise is reached, major disruptions to food security will result. He said we are seriously off track to meet the current goals of the water-related SDGs, especially SDG 6 (clean water and sanitation). Taalas further noted the recently created [Water and Climate Coalition](#) and the fact that Hungarian President Áder is a Coalition leader.

Lindsey Blodgett, Former President, World Youth Parliament for Water, said the world must unite and work together across generations and sectors to ensure a food and water secure world because “when we collaborate, we all benefit.” Modifying the famous phrase used by US President John F. Kennedy, she urged all to “ask not what your planet can do for you, ask what you can do for your planet.” Stressing the importance of including youth in addressing water issues, she outlined how the Water and Climate Coalition plans to engage youth.

Panel Discussion: During this discussion, speakers focused principally on water scarcity issues. They noted that not only can the implications of water scarcity be linked directly to food security, climate change, and other areas, but these intersections have been discussed for decades without acknowledgment that the lack of water alone can fundamentally threaten global peace and security.

Taalas observed that the 2004 Stern Review on the Economics of Climate Change found that mitigating climate change is much cheaper than living with its consequences, but noted the wealth gap between rich and poor is widening as the global population grows.



Panel discussion of the session on Water and Food Security

Nabil Gangi, Deputy Regional Representative for Europe and Central Asia, FAO, said food insecurity actually started worsening in 2015 due to climate change, with millions of people dying of hunger due to that, rather than to COVID-19, since it emerged in 2020.

Sulton Rahimzoda, Chairman, Executive Committee, International Fund for Saving the Aral Sea, and Special Envoy of the President of Tajikistan on water-related issues, said water availability in Central Asia is four times less today *per capita* than in the 1960s, due to population growth and to a climate change-caused 2% reduction in river flow. He noted impacts on food security, as 70% of agricultural production depends on irrigation.

Dario Soto-Abril, Executive Secretary and CEO, Global Water Partnership, recommended connecting the SDGs more closely to people’s reality.

Taalas said a temperature rise of 3°C would cause glacier and ice cap melting and sea level rise lasting hundreds of years. He predicted continuing negative trends until 2060 and then stabilization. He opined that while some humans will survive, it will become impossible to feed everyone.

UNECE Executive Secretary Algayerova noted the UNECE hosts the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which was originally a regional convention that opened for accession by all UN member states in 2016. She said that, to achieve the 2030 target on multilateral cooperation on water, arrangements for water cooperation must accelerate fourfold.

Matthias Berninger, Senior Vice President for Public Affairs and Sustainability, Bayer AG, said hunger has not been mitigated over the years; more people are dying of hunger today than in 2015. This, he said, has been exasperated by not only climate change but by the COVID-19 pandemic, during which 16 million people went hungry. Food security can be possible, however, if the Paris Agreement target of 1.5°C is achieved.

Panelists agreed that AI, machine learning, and innovative apps that directly engage citizens might provide solutions to the water crisis. In one example, a panelist described how harnessing data through AI technologies helped small farmers increase their yield by six times.



Ibrokhim Abdurakhmonov, Minister of Innovative Development, Uzbekistan

Transport – Leapfrogging in Technology or Changing Our Behavior?

On Thursday, Róbert Homolya, President and CEO, Hungarian State Railways, moderated this session. He pointed out that rail is the greenest mode of motorized transport.

Keynotes: Ibrokhim Abdurakhmonov, Minister of Innovative Development, UZBEKISTAN, said governments need to contemplate ways to leapfrog innovation in low-carbon technologies for all forms of transport. Observing that the electrification of rail, cars, and buses implies substantial demand for copper, he noted Uzbekistan has one of the world's largest copper reserves. He said at the current pace and exploitation of technology those reserves would last 100 years. Abdurakhmonov said Uzbekistan is also investigating low-carbon fuels, especially hydrogen, and seeking international collaboration in the implementation of its hydrogen strategy. He stressed the importance of modifying behavior regarding modes of transport, suggesting some of this can be accomplished through improved urban planning.

Ansgar Brockmeyer, Executive Vice President, Stadler Rail AG, suggested that as rail is the greenest motorized transport mode, more passengers and cargo need to shift from road and air to rail if transport is to significantly reduce its share of carbon emissions. He reviewed the pros and cons of four technology options for further greening rail: electrification, batteries, fuel cells, and hydrogen combustion. He concluded that once all factors are considered, electrification is the best option to pursue wherever possible.

Panel Discussion: Moderator Homolya said transport entails 30% of CO₂ emissions within the EU, but rail produces <1% and road transport 70%. Brockmeyer warned that Europe will exhaust its rail capacity because it has reduced rail lines significantly in recent years, meaning that disused lines must be reactivated and new ones built, to drastically cut carbon emissions in transportation.

Panelists from the transport industry urged governments to step up in providing financial support and incentives for people to opt for pricier but greener transport alternatives, such as electric cars. Some panelists also noted that in addition to pricing, other important aspects such as safety, availability of charging stations,



Discussion panel of the session on Transport

and cross-sector collaboration are crucial to realize the vision of cleaner transportation.

József Váradi, Co-Founder and CEO, Wizz Air Hungary Ltd., stated that air travel is central and must be made sustainable, saying investors will drive this.

Isbrand Ho, Managing Director, BYD Europe B.V., reported his company launched 60,000 battery-powered buses. He called for accelerating uptake of electric vehicles, noting their similarity in cost to internal combustion engines.

Florian Weig, Senior Vice President for Corporate Strategy, BMW, called for developing infrastructure for e-vehicles, adding that BMW will cut emissions by 40% by 2030.

Young Tae Kim, Secretary-General, International Transport Forum, said technology is easier than changing behavior, as governments must convince domestic players to pursue negotiated goals.

Marc Zinkel, Co-Founder and Managing Director, Beceptum International GmbH, called for investment to explore adapting various engines and fuels to different types of mobility.

Váradi and Homolya disagreed on the market's role. Homolya said diesel is the cheapest fuel option but cannot foster sustainability, noting BYD's shift to electric buses was a strategic rather than market-based decision.

Zinkel said collaboration is needed for adequate financing, but as competition drives innovation, both are needed.

Ho talked about how resources and research on electric vehicles are being utilized inefficiently as hundreds of companies in China and Europe are working competitively and in parallel rather than working together and sharing knowledge.

Váradi added that the pandemic has demonstrated the resilience of businesses, relative to expectations, but that governments have not stepped up in a similar fashion to redefine their regulatory systems in readiness for greener modes of transport.

Financing Sustainable Development – Will Green Financing Save the World?

On Thursday, Linda Zeilina, Founder and CEO, International Sustainable Finance Centre, moderated this session. Stating that financing sustainable development and climate action will require efforts from all types of actors from all regions, she suggested



Linda Zeilina, Founder and CEO, International Sustainable Finance Centre

priorities should be blended finance and ensuring financing reaches those most at risk.

Keynotes: Ary Naim, Regional Manager, Central and Southeast Europe, INTERNATIONAL FINANCE CORPORATION (IFC), said others look to the V4 for guidance and inspiration as we all move toward climate neutrality. Calling investment in the climate economy “one of the greatest commercial opportunities of our time,” he pointed to an [IFC publication](#) identifying climate investment opportunities in emerging markets. Citing the [latest report of the Sustainable Banking and Finance Network](#), he concluded no shortage of capital exists for sustainable financing, and that it just needs to be channeled properly. He called for mobilizing more finance to emerging markets, increasing the generation of bankable green projects, and better financing of innovation.

Sharaf Sheralizoda, Deputy Minister of Foreign Affairs, TAJIKISTAN, outlined his country’s National Development Strategy through 2030, with its investment priorities of: achieving the SDGs; promoting the transition to greater energy efficiency and cleaner energy; and supporting climate change adaptation. He noted that despite the fact that his country contributes very little to global emissions, Tajikistan has pledged to cut its emissions to 65-75% of 1990 levels by 2030. Sheralizoda suggested this will be accomplished through, *inter alia*, employing carbon markets, public-private partnerships, green bonds, and targeted initiatives in the energy sector such as solar home systems and small hydropower.



Sharaf Sheralizoda, Deputy Minister of Foreign Affairs, Tajikistan

Panel Discussion: Panelists considered the risks and opportunities of the rise of blockchain and crypto currencies and the connections between the climate challenge and digitalization.

Sunil Sabharwal, Director, Thunes, emphasized climate and digitalization as two important topics of today. Noting crypto currencies use more energy than the vast majority of entire countries, he lauded ethereum for its much lower environmental impact.

Hugo Rojas, Director General, National Association of Water and Hygiene Companies, Mexico, said his sector is systemizing the entire urban water process and linking it through digital systems to other sectors, including energy, mobility, economics, and climate. He noted the transfer and adaptation of technologies can alleviate Mexico’s pollution challenges.

Mike Enskat, German Corporation for International Development (GIZ), explained GIZ provides support in technical assistance, capacity building, infrastructure project bankability, and accessing finance through global markets and other financing opportunities. He emphasized the important role civil society and consumer involvement plays in the early planning stages of any development or infrastructure endeavor. He added this inclusivity ensures investments do not target just a particular segment of society.

Tristan Azbej, Director-General, Hungary Helps Program, said digitalization of education, including supplying schools with computer labs in Africa, is a first step in digitalizing for sustainability, noting healthcare digitalization saves lives. He pointed to examples in Iraq and Ghana to demonstrate how traditional knowledge and expertise should not always be replaced by advanced techniques. He stressed the importance of studying local contexts before formulating new solutions or copying and pasting development solutions across regions.

Boros Áron, Managing Director, MKB Consulting, Hungary, said verifiable data is crucial for financing green projects. Asked by the moderator for final thoughts, he said the key to a sustainable future is the support of businesses.

Other panelists maintained that the commitment youth has shown, global collaboration, and consumer buy-in can all contribute to the sustainable development agenda.



Panel discussion during the session on Financing Sustainable Development



Barna Tanczos, Minister of Environment, Water and Forests, Romania

Waste Management – Recycling, Burning or Exporting Rubbish?

On Thursday, Mohamad Bijaksana Junerosano, Founder and Chairman of the Board, Greeneration Foundation, and Managing Director, Waste4Change, Indonesia, moderated this session.

Keynotes: Barna Tanczos, Minister of Environment, Water and Forests, ROMANIA, detailed his country's efforts to form a waste strategy, in line with EU rules and with three priorities: prevention of waste generation; increased recycling; and improvements in disposal. He said Romania is looking at the recovery of materials from waste for industrial use as part of its efforts to promote a more circular economy. Tanczos reported that Romania has rejected the waste-to-energy option because its wastes are too humid to make that practical. Noting the national waste management strategy seeks to ensure a transition from a development model based on production to one based on preventing waste generation, he said Romania is currently in the process of identifying its investment needs in this regard.

Joseph Siaw Agyepong, Executive Chairman, Jospong Group of Companies, Ghana, said achieving sustainable and integrated waste management is accomplished by viewing it as a process, not an action, and viewing waste as a resource which can be deployed for a variety of activities. He outlined the waste management challenges faced by developing countries, particularly those in Africa. He noted the African Union has



Joseph Siaw Agyepong, Executive Chairman, Jospong Group of Companies, Ghana

called for its member states to seek a 50% recycling rate at a time when they are experiencing rapid urban growth. Agyepong rejected waste burning or export as solutions. He outlined how his companies have helped address waste management challenges in ways suited to Ghana's particular conditions, such as deploying 10,000 tricycles for waste collection, recycling plastics into waste bins distributed nationally at no cost, and a major project providing compost for farmers.

Panel Discussion: Gergely Hankó, Managing Director, Hungarian Association of Environmental Enterprises, said industrial symbiosis makes waste available to another industries, and is, therefore, profitable. He called for developing such resource streams from waste.

Radek Hořeňovský, Cluster Director, WASTen, said most waste can be reused or recycled but the private sector must ensure the materials can be reused economically.

László Aleksza, CEO, ProfiKomp, Inc., cited a waste hierarchy: prevention, reduction, reuse, recycling, composting, and, finally, landfill. He said the EU intends to put only 10% of its waste into landfills.

Noting policymakers are responsible for their citizens' health, Agyepong said because waste is dangerous to human health, policymakers must create and implement comprehensive waste policy. Aleksza said governments must define and clarify fair roles to create a framework for proper waste management. Hankó added that everyone in society must do their part, with consumers paying for waste collection. He recommended awareness raising for companies.

Citing the example of composting operations in Ghana, Agyepong said consumers are willing to pay for waste collection because it eliminates the smell.

Agyepong stressed how the endorsement and involvement of businesses and citizen engagement is crucial to tackling waste as that is where waste habits start. Aleksza noted the importance of putting a price on waste and making people pay for disposal of their waste as an incentive to live a more circular lifestyle. Hořeňovský noted the key to waste management will be new and uniform regulations and the introduction of new technologies.



Panel discussion of the session on Waste Management



István Joó, Government Commissioner Responsible for the Planet Budapest 2021 Sustainability Expo and Summit

Closing

During the closing session on Thursday, István Joó, Government Commissioner Responsible for the Planet Budapest 2021 Sustainability Expo and Summit, detailed how his country’s road to hosting this event began nine years ago at the UN General Assembly, when his government declared its commitment to and leadership on sustainable development and, more specifically, on water issues. He noted that since that time, Hungary has held three water summits, gaining recognition as a world leader on water and sanitation issues in the process.

He said that despite the complexities of hosting a large-scale event in the middle of a global pandemic, many parameters indicated the event was a success, citing for example:

- 450 meetings between expo presenters and interested parties;
- 220 bilateral meetings between participating Heads of States and six partnership agreements subsequently signed; and
- strong media interest, with over 50 media interviews and press releases issued in three days.

Joó concluded that Hungary and the V4 have shown their leadership within the EU and the world in advancing their economies while reducing emissions. He asserted that Hungary will play a global role in making sure the 2030 Agenda for Sustainable Development’s ambitions are realized and a more sustainable and livable world for future generations is made possible.

Summit Master of Ceremonies Szalay thanked everyone for their participation and closed the meeting at 16:26 CET.



Edit Szalay, Master of Ceremonies

Upcoming Meetings

UNEA-5.2 (In-person session): Due to the global pandemic, a virtual session of the fifth session of the UN Environment Assembly (UNEA-5) took place during its originally scheduled meeting time (February 2021). A resumed in-person session of UNEA-5 is expected to take place from 28 February to 2 March 2022. The overall theme of UNEA-5 is: “Strengthening Actions for Nature to Achieve the Sustainable Development Goals.” UNEA-5.2 will discuss, among others, whether to initiate negotiations on a global agreement on plastic pollution. UNEA is the highest decision-making body on environmental matters in the UN system. **dates:** 28 February – 2 March 2022 **location:** Nairobi, Kenya **www:** www.unep.org/environmentassembly/unea5

9th World Water Forum: The 2022 Forum will focus on four priorities: water security and sanitation; water for rural development; cooperation; and means and tools, including financing, governance, knowledge management, and innovation. **dates:** 21-26 March 2022 **location:** Dakar, Senegal **www:** www.worldwaterforum.org/en

XV World Forestry Congress: This Congress will aim to provide an opportunity for the global forestry community to consider the state and future of world forestry, particularly in the context of the recovery from the COVID-19 pandemic, while striving to achieve the SDGs. **dates:** 2-6 May 2022 **location:** Seoul, Republic of Korea **www:** wfc2021korea.org/index.html

Stockholm+50: The UN General Assembly decided to commemorate the 50th anniversary of the UN Conference on the Human Environment held in 1972 in Stockholm, Sweden. **dates:** 2-3 June 2022 **location:** Stockholm, Sweden **www:** www.government.se/government-policy/stockholm50/

High-level Political Forum on Sustainable Development (HLPF): The 2022 HLPF will hold in-depth reviews of five SDGs: 4 (quality education), 5 (gender equality), 14 (life below water), 15 (life on land), and 17 (partnerships for the Goals). The HLPF is the main UN platform on sustainable development. **dates:** 5-15 July 2022 **location:** UN Headquarters, New York City, US **www:** sustainabledevelopment.un.org/hlpf

Glossary

AI	Artificial intelligence
CEO	Chief executive officer
FAO	Food and Agriculture Organization of the United Nations
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
UNECE	UN Economic Commission for Europe
V4	Visegrád Group