



OPEN ACCESS GOVERNMENT

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THE EUROPEAN COMMISSION'S ENERGY PRIORITIES

In this interview, Anna-Kaisa Itkonen, the European Commission's Spokesperson for Climate, Energy, Environment, Transport, and Housing, discusses the European Commission's energy priorities for the coming months



Liz Kimmins, Minister for Infrastructure at the Department for Infrastructure, in the North of Ireland, says that we all have a personal responsibility to improve road safety



Dr. Bruce Tromberg, Director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at the NIH, discusses their role in advancing early-stage medical technologies and helping researchers and companies develop their technologies



Here, the **Honourable Heath MacDonald**, Canadian Minister of Agriculture and Agri-Food, outlines collaborative efforts to conserve and enhance agricultural soils and secure Canada's status as a global leader in food production

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HISTORY OF SCIENCE:
Why is it Important?
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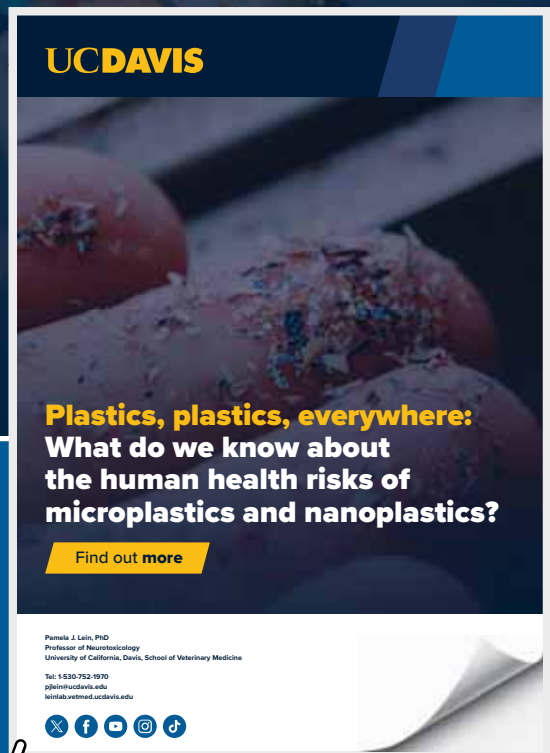
Plastics, plastics, everywhere: What do we know about the human health risks of microplastics and nanoplastics?

Plastics have greatly benefited humanity, enabling many significant advances in medicine, electronics, aerospace, construction, food packaging, and sports. However, there is growing concern that plastics may also be responsible for significant harm to the earth's environment and human health. This alarm has emerged because plastics, especially micro- and nanoplastics (MNPs), have been found almost everywhere scientists have investigated, including the polar ice caps, the depths of the Mariana Trench in the western Pacific, the air we breathe, the food and water we consume, and every tissue in our bodies. This concern has intensified due to emerging data indicating that higher levels of MNPs in human tissues are linked to an increased risk of disease, alongside findings from experimental models indicating that MNPs can trigger significant inflammation and oxidative stress, both of which are associated with the development of many adverse health effects.

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Foreword

Rudolf Kolbe

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'Implementing the New European Bauhaus'

European Economic and Social Committee (EESC)

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The New European Bauhaus: beauty, sustainability and inclusion – but for whom?

Rudolf Kolbe is a EESC Member and Rapporteur for the EESC opinion [‘Implementing the New European Bauhaus’](#). He examines the New European Bauhaus, which focuses on beauty, sustainability, and inclusion. But who is it meant for?

Europe is facing a housing crisis. Energy costs are rising. Neighbourhoods are fracturing along lines of income, age and origin. And yet, at the same time, the European Union has launched one of its most ambitious and genuinely inspiring initiatives in years: the New European Bauhaus.

The EESC has been engaged with the New European Bauhaus since its very beginning. As rapporteur for our opinion on ‘Implementing the New European Bauhaus’, I have had the privilege of translating that collective engagement into specific recommendations – focusing on what this initiative means in practice and on the additional elements needed for it to deliver on its promise.

What is the New European Bauhaus?

The New European Bauhaus (NEB) is not a building programme. It is not a design trend. It is a cross-cutting European initiative that aims to connect the European Green Deal with people’s everyday lives – through three values: sustainability, aesthetics and inclusion.

The Green Deal tells us what we need to achieve. The NEB asks what kind of Europe we want to live in while making that transition. It brings together architects, planners, social workers, artists, researchers, businesses and citizens to reshape the spaces we inhabit – our homes, our streets and our neighbourhoods. More than 2,000 organisations across Europe are already part of the NEB community. That is not a pilot project. That is a movement.

What is the EESC specifically proposing?

The EESC brings the voice of organised civil society – employers, workers, civil society organisations – directly into EU policy-making. In our opinion, we make a clear case: good intentions alone will not transform Europe's neighbourhoods. Without structural anchoring, the NEB risks remaining a well-communicated vision rather than a lasting transformation. Four priorities stand out:

Embed NEB principles into EU law and national frameworks. The upcoming revision of the Public Procurement Directives is a concrete opportunity: public authorities should prioritise lifecycle quality, not just the lowest price, when shaping the built environment.

Link the NEB directly to affordable housing. Sustainable, affordable and high-quality housing should become the next specific focus of NEB implementation. Housing is a social right, not just a market commodity – and the NEB can help reconnect those two dimensions.

Make funding accessible to those who actually need it. Too many NEB resources are absorbed by well-resourced actors. We are calling for simplified funding rules, lower barriers and active local support – from planning professionals, social organisations and NEB national contact points.

Strengthen skills and professional excellence. The green transition needs people who can actually build it. That means investing in upskilling across the construction sector and – crucially – not diminishing professional standards in the name of simplification. Europe's SMEs will be decisive in making this transformation happen on the ground.

Why civil society must be at the table

This is the question I keep returning to: why does it matter whether a tenants association, a local women's group or a neighbourhood cooperative has a seat at the

table when urban transformation decisions are being made? Because without them, we get the wrong answers.

Gentrification happens when sustainability upgrades raise rents and push out the very communities they were meant to serve. Segregation deepens when neighbourhood renewal benefits the middle class while bypassing the marginalised. Participation processes fail when they only reach those with the time, language skills and digital access to engage.

The NEB understands this. Its participatory approach – co-design, local anchoring and inclusive participation tools – is not a decorative extra. It is the mechanism through which good policy becomes lived reality. Civil society organisations are multipliers: they reach groups that institutions often cannot. But we are not there yet. Digital tools still risk excluding older citizens, and the NEB's communication has not yet sufficiently reached those who may need it most.

The moment to act is now

The New European Bauhaus is one of the few EU initiatives that genuinely speaks to how people experience their daily environment. It connects climate action with social justice, design with democracy, and innovation with inclusion.

What it now needs is implementation with teeth: mandatory Key Performance Indicators (KPIs), reformed procurement rules, targeted funding for smaller actors and a genuine commitment to reach the communities that participatory processes have so far left behind.

Europe's housing crisis will not be solved by flagship projects alone. It requires a systemic shift – in values, in regulation and in who gets to shape the spaces we all share. The New European Bauhaus can become part of that shift. But Europe will only succeed if citizens are not treated as spectators of change, but as active partners in shaping it. A sustainable Europe cannot be built over people's heads.



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Editor's Introduction

This 51st edition of Open Access Government builds on our landmark 50th release, featuring key editorials and profiles on important policy and research topics. We delve into critical health and social care issues, along with extensive coverage of research, innovation, transportation, the environment, energy and government, among other areas.

We proudly feature exceptional authors, including Dr. Bruce Tromberg, Director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) at NIH. He discusses NIBIB's role in advancing early-stage medical technologies and aiding researchers and companies from proof of concept to clinical application.

Also in our health and social care focus, Spokesperson for Public Health, Eva Hrnčířová, outlines the growing threat of antimicrobial resistance and the Commission's collective efforts to tackle it and emerging infectious diseases.

Heading up research and innovation, we learn that Science Europe plays a crucial role in developing the European Research Area and shaping the future of research, including the upcoming Horizon Europe programme and the global research agenda. Plus, Ed Fidoe, the Founder and CEO of the London Interdisciplinary School, elaborates on why history is a crucial educational subject.

Further in, Liz Kimmins, Minister for Infrastructure at the Department for Infrastructure in the North of Ireland,

states that everyone has a personal responsibility to improve road safety.

In agriculture, welcome back The Honourable Heath MacDonald, Canada's Minister of Agriculture and Agri-Food, who discusses collaborative efforts to conserve and enhance agricultural soils, aiming to secure Canada's position as a global leader in food production.

We are honoured to feature an in-depth interview with Anna-Kaisa Itkonen, the European Commission's Spokesperson for Climate, Energy, Environment, Transport, and Housing. She discusses the Commission's energy priorities for the coming months, including how Europe can enhance energy efficiency and expand renewable energy generation.

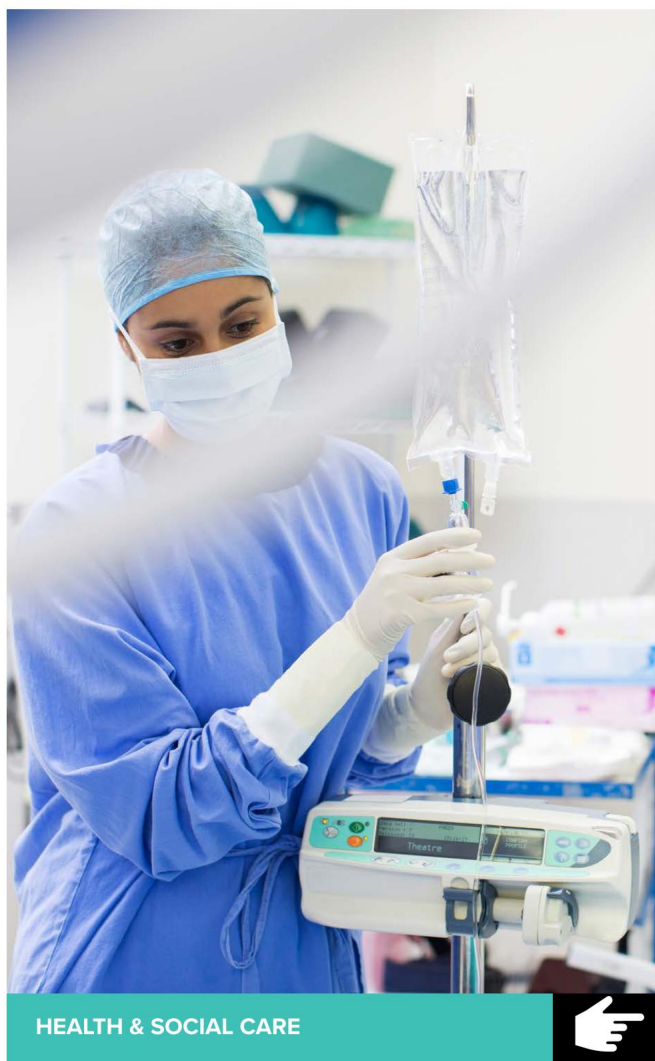
We have filled this publication with a wealth of insightful content, carefully curated to pique your interest and encourage deep reflection. Our aim is for this to be not just an enjoyable read for the summer months but also a source of inspiration and contemplation for the present and the future. Enjoy the journey through these pages!

Jonathan Miles
Managing Editor



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COMPUTE. Alberto Corigliano presents the ERC Advanced Grant project IMMENSE, which focuses on structures that compute.

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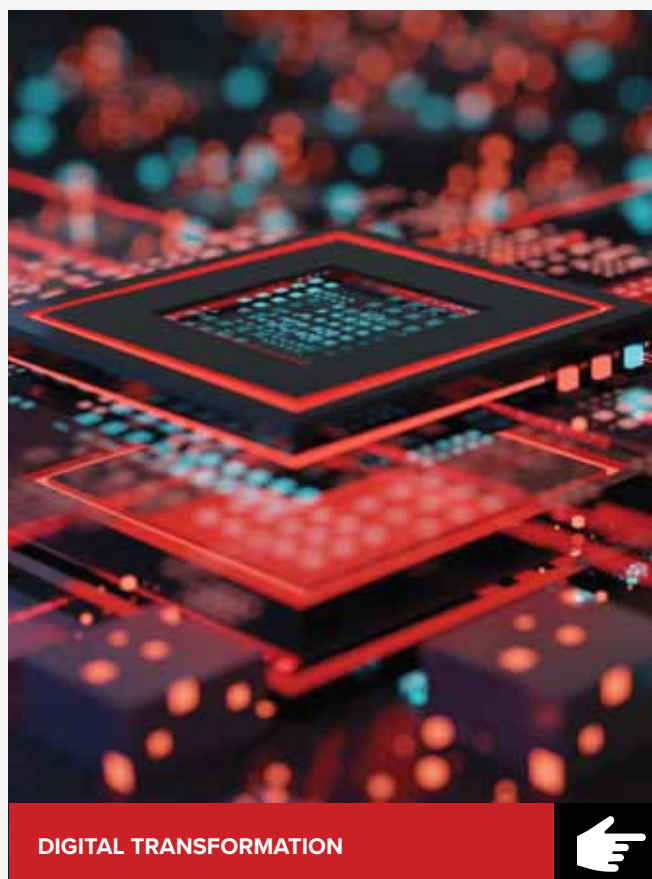
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278 | SUPPORTING PUBLIC SECTOR ORGANISATIONS TO DELIVER CHANGE THAT WORKS. Tara Jones, Director of The Good Change Consultancy Ltd, explains how the firm supports public sector organisations to deliver change that works.

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284 | FROM AI PILOTS TO PUBLIC SERVICE OUTCOMES: REALISING THE VALUE OF SECURE AI. How secure, practical AI is helping public organisations reduce delays, improve productivity and deliver better citizen outcomes.

286 | WHY PUBLIC SECTOR DIGITAL TRANSFORMATION KEEPS UNDERDELIVERING AND WHAT TO DO ABOUT IT. While digital transformation initiatives have made strides in enhancing public-facing services, operational issues remain problematic. Dr Graham Turnbull from Reinvigoration explains.

ARTIFICIAL INTELLIGENCE

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Ash Gawthorp, Chief Technology Officer at Scale Factory, states that the artificial intelligence productivity gap is an engineering issue rather than a lack of ambition.

290 | ISAMBARD-AI: BUILDING THE UK'S MOST POWERFUL AI SUPERCOMPUTER. Simon McIntosh-Smith looks at Isambard-AI, which combines highly advanced systems architecture and rapid deployment with world-leading energy efficiency to deliver UK's most powerful AI supercomputer.

292 | WHAT DO WE KNOW ABOUT GENERATIVE AI AND LEARNING? Nancy Butler Songer from the University of Utah discusses what we know about generative artificial intelligence and its impact on learning.

294 | PREPARING FOR AI USE AND INTEGRATION IN THE WORKPLACE. Colin Wheeler from Survey Solutions highlights the importance of training and integrating artificial intelligence tools in the workplace, emphasising the rapid evolution of AI technology and the need for strong organisational governance to manage its use effectively.



298 | HOW DEFENCE REFORM CAN LEAD THE PUBLIC SECTOR. Gurpreet Sehmi, Head of Central Government at Public Digital, discusses how defence reform can lead the public sector; resilience, not spending, is the true foundation of transformation.

300 | STRENGTHENING THE UK'S DEFENCE WORKFORCE THROUGH FLEXIBLE DOCTORAL TRAINING. The University of Southampton offers doctoral programmes for military personnel, engineers, and industry specialists, allowing them to develop the advanced skills and research capability to support the UK's evolving defence technology landscape.

302 | SEA DENIAL IN THE BLACK SEA: LESSONS FOR EUROPE. Ukraine turned maritime vulnerability into a strategic advantage in the Black Sea. Europe must now turn those wartime lessons into lasting maritime security.

304 | HAVE YOU WEIGHED UP YOUR 'EMPTY RATES' OPTIONS? A compelling case has emerged for clamping down on 'empty rates' avoidance and for enabling a pioneering 'win-win' solution to flourish, says Shaylesh Patel, Founder and CEO at ASTOP Limited.

306 | WHY CIVIC LIFE WORKS DIFFERENTLY IN AMERICA'S RURAL SOUTH. Learn about why civic life works differently in America's Rural South with Rebecca Nesbit and Laurie E. Paarlberg.

FINANCE

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310 | PUBLIC COMPANY DIRECTORS HAVE WEAK INCENTIVES DESPITE GETTING 60% OF PAY IN EQUITY. Public company directors have weak incentives despite getting 60% of pay in equity; Stephen F. O'Byrne, Shareholder Value Advisors, explains.

314 | DISCRIMINATION, FAIR LENDING AND THE ROLE OF COMMUNITY BANKS IN THE U.S.. Nathalie Janson, Associate Professor of Economics at NEOMA Business School, considers discrimination, fair lending and the role of community banks in the U.S..

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320 | FROM COST SAVINGS TO COST RECOVERY: A DIFFERENT APPROACH TO PUBLIC SECTOR EFFICIENCY. Twice2Much outlines the financial challenges faced by public sector organisations, emphasising the need for a shift from traditional cost-saving measures to a focus on cost recovery.

322 | GEOPOLITICAL INSTABILITY IN OUR COMPLEX BUSINESS WORLD. Ray Dorney, the Director at Rockford Associates, explores conflict in today's complex business world. While much attention is placed on logistics, inflation, and procurement, we should not forget Accounts Payable.



TRANSPORT



ENVIRONMENT



326 | WE ALL HAVE A PERSONAL RESPONSIBILITY TO IMPROVE ROAD SAFETY. Liz Kimmins, Minister for Infrastructure at the Department for Infrastructure, in the North of Ireland, says that we all have a personal responsibility to improve road safety.

328 | A PROVEN WEAPON IN THE BATTLE AGAINST POTHOLE REPAIRS. Road maintenance and repair specialists Velocity pioneered an innovative technique to tackle pothole repairs, using it to fix over 750,000 defects per year.

330 | IN DEFENCE OF THE EU EMISSIONS TRADING SYSTEM. Antony Froggatt, Senior Director at the European Federation for Transport and Environment, defends the EU ETS and explains why 2026 is pivotal for the world's most comprehensive carbon market.

332 | SHAPING THE HUMAN DIMENSION OF CCAM: SKILLS, JOBS AND THE FUTURE OF MOBILITY. Matina Loukea discusses the transformative impact of Connected, Cooperative, and Automated Mobility (CCAM) on European transportation and the vital need for workforce adaptation and skill development.

334 | ACHIEVING ULTRA-LOW CARBON INTENSITY FOR SECOND-GENERATION SUSTAINABLE AVIATION FUEL. Paul Hubbard, CEO of Northpointe Energy, discusses how achieving ultra-low Carbon Intensity for second-generation Sustainable Aviation Fuel necessitates integration with regional Carbon Capture, Utilisation, and Storage and clean energy facilities.

336 | ELECTRIC VEHICLES: INCREASED SIZE OF THE FUNDING FOR CHARGE POINTS FOR RENTERS AND LANDLORDS. Yselkia Farmer and Matthew Adams at BEAMA, discuss their view on the increased size of the funding for charge points for renters and landlords when it comes to electric vehicles.

338 | CLOSING THE DRIVEWAY DIVIDE IN EV CHARGING. On-street residential charging is crucial for providing home-style convenience to the 9.6 million households in the UK that lack off-street parking, explains Matt Croucher, Chief Commercial Officer at Believ.

342 | PROTECTING NATURE IS ONE OF CANADA'S GREATEST STRENGTHS.

The Hon. Julie Dabrusin, Canada's Minister of the Environment, Climate Change, and Nature, explains why nature is one of Canada's greatest strengths. Protecting it, we read, is essential for building a strong Canada.

344 | WATER QUALITY LOSS IN THE CANADIAN PRAIRIES.

Cale Gushulak from the University of Manitoba discusses the significant challenges related to water quality loss in the Canadian Prairies, a region facing severe water security threats due to agricultural expansion and climate change.

346 | FROM COORDINATION TO CO-OWNERSHIP: WHAT REFLEXIVE MONITORING REVEALS ABOUT BUILDING NATURE-BASED SOLUTIONS EDUCATION PARTNERSHIPS. In this article we aim to demonstrate how structured reflection within multi-actor partnerships can strengthen the integration of Nature-Based Solutions (NBS such as urban green corridors that cool cities, restored wetlands that buffer floods, or green roofs that retain rainwater) into higher education and vocational training.

348 | THE EUROPEAN OCEAN PACT: AN OVERARCHING STRATEGY FOR A GLOBAL COMMON GOOD.

Charlina Vitcheva from the European Commission's Directorate-General for Maritime Affairs and Fisheries examines the European Ocean Pact, which is an overarching strategy for a global common good.

350 | FROM FISH STOCKS TO FOOD WEBS: ENHANCING ECOSYSTEM FOCUS IN EU FISHERIES POLICY. The MARHAB project examines fish stocks and food webs to enhance ecosystem considerations in EU fisheries policy.

352 | COMMERCIAL AND LOGISTICAL CONSIDERATIONS FOR MCDR IMPLEMENTATION. In this fourth article of the SEAQ₂-CDR mCDR series, Frank Meisel, Jill Storey and colleagues discuss the challenges associated with scaling Marine Carbon Dioxide Removal approaches in a commercially viable and logistically feasible way.

354 | CLIMATE ADAPTATION, GOVERNANCE GAPS AND THE FUTURE OF EUROPE'S COASTAL FISHERIES. Paul Müller from the Climate Service Center Germany (GERICS) explores climate adaptation, governance challenges, and the future of coastal fisheries in Europe.

356 | HOW THE EU TURNED THE PARIS AGREEMENT INTO A MARKET-SHAPING REGULATORY SYSTEM.

Eva-Maria Ségur-Cabanac and Gabrielle Galdino-Glaeser explore a decade of climate lawmaking, detailing how the EU turned the Paris Agreement into a market-shaping regulatory system.

358 | SANTA MARTA AND THE FUTURE OF CLIMATE LEADERSHIP. The Santa Marta Conference was more than a meeting on transitioning away from fossil fuels. Here, Professor Richard Beardsworth examines what the initiative reveals about the future of climate leadership.

362 | EU PEERS PROJECT: STRENGTHENING THE EUROPEAN COMMUNITY FOR HOME ENERGY RENOVATION. The LIFE-funded project EU Peers, coordinated by Climate Alliance, unites One-Stop Shop (OSS) practitioners and key stakeholders into a European Community of Practice, streamlining the complex home renovation market and accelerating building decarbonisation.

364 | HOW SUSTAINABLE ADVERTISING SHOULD BE COMPOSED: A RESEARCH PERSPECTIVE. Prof Gino Verleye, PhD, and Wim Vermeulen provide a research perspective concerning how sustainable advertising should be composed.

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The ForestNavigator consortium provides forest data and pathways to support forest policy towards EU climate neutrality.

368 | NATURAL SYSTEMS. DURABLE SOLUTIONS.

Closing the Carbon Dioxide Removal Gap with Algae-Based Surfaces and Advanced Carbon Materials.

370 | CAN GEOLOGIC HYDROGEN BE A GAME-CHANGER FOR MINING? Dr. Estibalitz (Esti) Ukar from the University of Texas at Austin explores whether geologic hydrogen could transform the mining industry, providing a compelling response to this intriguing question.

372 | THE EESC'S CONTRIBUTION TO THE UN WATER CONFERENCE 2026. Paul Rübig is a EESC Member and Rapporteur for the 'EESC Contribution to the UN Water Conference 2026: from the EU Blue Deal and Water Resilience Strategy to global water action'. Here, he analyses water resilience at a turning point, specifically the EESC's contribution to the UN Water Conference 2026.

374 | LIFE4ZOO: EXPLORING THE POTENTIAL FOR WATER REUSE IN ZOOS. How can zoos address water scarcity while ensuring animal welfare? The LIFE4ZOO project provides a solution, as researchers in Liberec and Barcelona test ways to reuse water from animal enclosures using a blend of nature-based and advanced technologies.

376 | EUROPE'S CIRCULAR ECONOMY ACT HAS ENTERED THE IMPLEMENTATION PHASE. Cecilia Van Cauwenberghe from Everest Group explores Europe's circular economy agenda as it moves into the implementation phase.

382 | BIODIVERSITY AS INFRASTRUCTURE FOR COASTAL PROTECTION. Dries Bonte from Ghent University informs us about biodiversity as a means of infrastructure for coastal protection, highlighting the DuneFront Horizon Europe project.

384 | INTEGRATING BIODIVERSITY, CLIMATE AND SOCIAL OBJECTIVES IN LAND USE PLANNING: THE PLUS CHANGE PROJECT. Julia Leventon and Vincent O'Connell lead us through the PLUS Change project, which integrates biodiversity, climate, and social objectives in land-use planning.

386 | LIFE-SYNFLUOR PROJECT: FROM HAZARDOUS BY-PRODUCT TO STRATEGIC RESOURCE. LIFE-SYNFLUOR transforms fertiliser industry waste into strategic materials for Europe's green industrial transition. FLUORSID'S R&D Director, Luca Pala, tells us more.

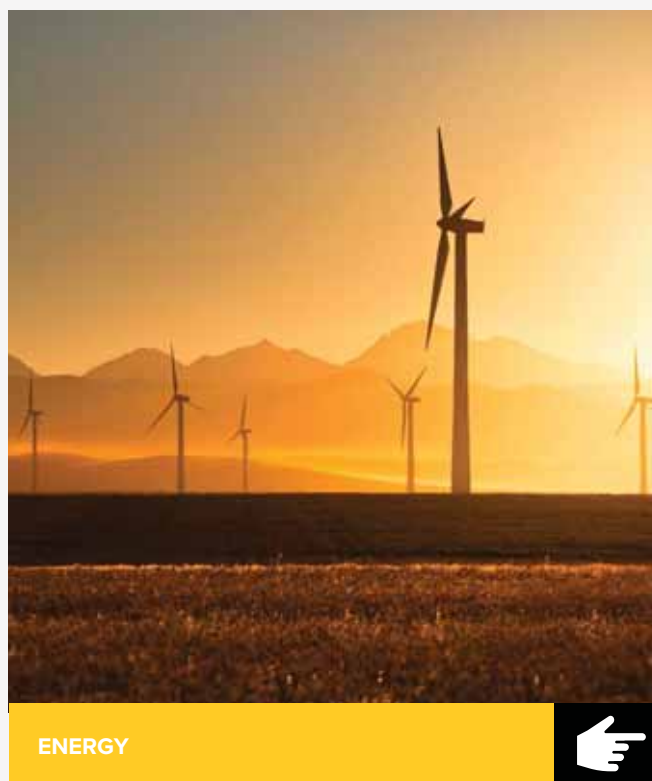
388 | THE DIGITAL TWIN EARTH FOR HYDROLOGY: A PARADIGM SHIFT IN WATER MANAGEMENT. Luca Brocca discusses the concept of Digital Twin Earth for Hydrology, representing a significant shift in how water management is approached.

390 | THE ISSUE OF WATER RESOURCE SUSTAINABILITY: SUSTAQUA. José Sandoval Moreno, Legal representative of SUSTAQUA, examines the sustainability of water resources, as demonstrated by the SUSTAQUA project.

392 | A GUIDE ON MAKING CIRCULAR PLASTICS A REALITY. Dr Damjan Krajnc and Dr Lukáš Rýček provide guidance on making circular plastics a reality in this insightful commentary.

394 | TECHNOLOGY-DRIVEN INNOVATION IN GEOLOGICAL SURVEYING. Jonathan Watson, Head of Interpretation and General Manager at UK geophysical company Metatek, introduces essential information about technology-driven innovation in geological surveying.

396 | GLASS EARTH® TECHNOLOGY: 3D SUBSURFACE GEOPHYSICAL IMAGING FOR NATURAL RESOURCE EXPLORATION. Michael Zhdanov, a Distinguished Professor and Director of CEMI at the University of Utah, outlines the potential of Glass Earth® technology in improving geological interpretation, leading to better management and exploration of critical natural resources.



399 | THE EUROPEAN COMMISSION'S ENERGY PRIORITIES.

In this interview, Anna-Kaisa Itkonen, the European Commission's Spokesperson for Climate, Energy, Environment, Transport, and Housing, discusses the European Commission's energy priorities for the coming months.

402 | ENERGY COMMUNITIES IN EUROPE'S OUTERMOST REGIONS: FROM POLICY EXPERIMENT TO INVESTMENT REALITY.

Why energy communities in Europe's outermost regions need investment, governance and technical assistance to scale.

404 | FROM POLICY AMBITION TO HOUSEHOLD REALITY: THE UK'S CLEAN ENERGY TRANSITION. Mark Sait, CEO of SaveMoneyCutCarbon, explains that the UK's clean energy transition now relies on public participation, turning policy ambitions into household realities.

406 | SCALING DECENTRALISED ENERGY: HOW PLUG-IN HEMS RESHAPES EUROPE'S NET-ZERO TRANSITION. As European energy policy shifts from centralised utility assets to household-level flexibility, Zendure's plug-in Home Energy Management Systems democratise grid resilience, offering affordable, intelligent storage that cuts bills and balances local grids. Find out more in this exclusive interview.

410 | PLUG-IN SOLAR: UNLOCKING ACCESSIBLE CLEAN ENERGY FOR UK HOUSEHOLDS. Lorna Wallace-Smith, the Head of UK PR for EcoFlow, clarifies plug-in solar technology, which provides accessible clean energy to UK households.

412 | SOUTH-EAST ASIA'S CLEAN ENERGY PUSH HINGES ON REGIONAL POWER LINKS. Experts from ESCAP and the ASEAN Centre for Energy explore why South-East Asia's clean energy push hinges on regional power links.

414 | METHODOICAL DESIGN AND DEVELOPMENT OF ELECTROCATALYSTS FOR AGORA'S CO₂ REDOX FLOW BATTERY. Christina C. Gyenge, P.h.D, guides us through the systematic design and development of electrocatalysts for Agora's CO₂ redox flow battery.

416 | THE WARM HOMES PLAN: TURNING AMBITION INTO PRACTICAL RETROFIT. Carl Bairstow, Director of Operations – Materials and Retrofit at specialist social housing consortium Efficiency North, discusses transforming ambition into practical retrofit for the UK Government's Warm Homes Plan.

418 | POWERING AHEAD: PLUG ME IN EXPLORES HOW SOLAR PV IS DEFINING THE UK'S CLEAN ENERGY LANDSCAPE. Across the UK, organisations leading on clean energy are discovering something exciting, that a commitment to solar PV is not only cutting their costs and reducing carbon, but it is future-proofing their assets for decades to come.



AGRICULTURE



432 | FROM FRAGMENTED TESTING TO SHARED EUROPEAN CAPACITY. What spray drones reveal about the future of European technology governance.

434 | EUROPE'S FOOD SAFETY REFORMS PRESENT A CROSSROADS FOR GLOBAL TRADE.

In this opinion piece, Mac Ross, Vice-President of Trade Policy and Crop Protection at the Canada Grains Council, discusses how Europe's food safety reforms represent a crucial turning point for global trade.

436 | CANADA'S SOIL HEALTH STRATEGY FOR AGRICULTURE: SUPPORTING FARMERS FROM THE GROUND UP.

Here, the Honourable Heath MacDonald, Canadian Minister of Agriculture and Agri-Food, outlines collaborative efforts to conserve and enhance agricultural soils and secure Canada's status as a global leader in food production.

438 | ADVANCING SUSTAINABLE GRAIN PROCESSING IN CANADA.

Associate Professor Iris J. Joye discusses the sustainability of Canada's grain sector, highlighting its achievements while pointing out the challenges which necessitate a reevaluation of long-standing agricultural practices.

440 | ENHANCE RESILIENCY: ASSESSING NEW GRAPE CULTIVARS FOR CANADA'S GRAPE AND WINE INDUSTRY.

Debra Inglis and Jennifer Kelly provide an update on resiliency strategies to select elite-performing grapevine varieties suited to the climate extremes of Canada's grape-growing regions.

442 | SOIL HEALTH: THE EFFECTS OF HERBICIDES. Lynette Abbott and Pankaj Singh from the University of Western Australia highlight relationships between herbicides and soil health.

444 | FROM LAND MANAGEMENT TO SOIL SECURITY: WHY GOVERNMENTS NEED SOIL POLICY. Professor Alexander (Alex) McBratney AM FAA explores the importance of soil-centred policy for governments, addressing issues from land management to soil security.

ANIMAL HEALTH

446 | INTEGRATING ANIMAL WELFARE INTO DISASTER RESPONSE.

As the frequency and severity of disasters and emergency situations increase, there is a greater urgency to ensure animal-inclusive preparedness and response systems are in place. Aimee Lauer, Managing Director of Global Animal Disaster Response at Humane World for Animals, tells us more.

448 | DECONTAMINATION OF COMPANION DOGS RESEARCH.

Debra L. (Deb) Zoran, DVM, PhD, is from the Texas A&M Veterinary Emergency Team at Texas A&M University. Here, she summarizes recent research on the decontamination of companion dogs.

NEWS, VIEWS AND OPINION

We welcome contact from all experts with an interest in making an editorial contribution, and from those with an opinion to express.

CONTACT

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PRESERVING VALUE, SECURING THE FUTURE: THE EVOLUTION OF ADVANCED MATERIALS

Andreas Falk examines how advanced materials have evolved with a focus on preserving value and ensuring a sustainable future

To achieve true circularity in Advanced Materials (AdMa), deep collaboration across diverse scientific and industrial disciplines is essential. By mapping 'Who does What', the InnoMatSyn project is building a comprehensive AdMa Ecosystem that connects all initiatives under a single strategic umbrella. The transition to a circular model is more than an environmental necessity; it is a powerful driver of innovation that enhances regional resilience, global competitiveness, and the overall quality of life.

The understanding of AdMa is following the OECD's 2022 working description "AdMa are understood as materials that are rationally designed to have (i) new or enhanced properties, and/or (ii) targeted or enhanced structural features, with the objective to achieve specific or improved functional performance."⁽¹⁾ While their superiority over conventional materials offers

enormous potential, it also introduces significant challenges that require coordinated cooperation and commitment to responsible, value-preserving applications.

A multi-level coordination strategy

The European Commission has identified coordinated cooperation at regional, national and European levels as the cornerstone of effective innovation.⁽²⁾ To facilitate this, the Commission established the AdMa Technology Council, to bridge the political representatives on this topic of the Member States, as well as identify 14 measures⁽³⁾ to be implemented at various levels, including:

- **Regional:** Close networks between companies, research institutions, and scientific organisations enable rapid development.

- **National:** Coordinated strategies ensure the efficient use of funding, common standards, and a robust industrial base.

- **European:** Joint programmes (e.g., the next European research framework programme), cross-border research, and harmonised framework conditions create the economies of scale necessary to protect and enhance global competitiveness.

The multi-stage cooperation is therefore essential for addressing complex hurdles such as sustainability, resilience, and technological sovereignty. BioNanoNet Forschungsgesellschaft mbH (BNN) plays a pivotal role in this structure by coordinating ATIMA⁽⁴⁾ (the Austrian AdMa community), contributing to the creation of national roadmaps and strategies (federal states), and serving as a vital link to the broader European context through the

InnoMatSyn-project, an EU-funded Coordinating Support Action.

As Coordinator of InnoMatSyn, BNN plays a key role in establishing the European AdMa ecosystem in cooperation with all relevant AdMa initiatives in Europe. A survey distributed at the European level identified over 100 AdMa initiatives across Europe, and their interaction is currently the focus of further activities implemented within InnoMatSyn. Moreover, supporting both public and private funding organisations towards the definition of future joint calls is another key objective of InnoMatSyn.

Valuable application/use: A success factor

Modern material development must move beyond technical performance to address the ecological and social dimensions of sustainability, as highlighted some time ago by the European Green Deal⁽⁵⁾ and its successor programme, the Industrial Clean Deal, the GD Industrial Plan,⁽⁶⁾ and the resulting CSS – Strategy for Sustainability in the Chemical Industry.⁽⁷⁾ The Commission emphasises two cross-cutting elements for the success of AdMa: Digitalisation and the implementation of the Safe and Sustainable by Design (SSbD) framework.

Digitalisation is ubiquitous across all disciplines and can also be seen as a complementary process to support the implementation of the SSbD concept. First introduced in 2022⁽⁸⁾ and updated in March 2026⁽⁹⁾, the SSbD framework aims to ensure that chemicals, materials, processes and products are safe and sustainable for humans and the environment throughout their entire life cycle. By proactively identifying and minimising risks and environmental impacts early in the innovation process, SSbD acts as an

engine of innovation rather than a regulatory hurdle. Crucially, materials must remain safe while their value is preserved during processing, throughout the product life cycle, and even after their use to enable a truly circular economy.

BNN: A partner in implementation

Since 2013, BNN has focused on material safety to prevent costly development errors and maximise the value of materials (incl. nanomaterials). This decade of expertise, gained through numerous European research projects, enables BNN to act as a key implementation partner for companies looking to integrate SSbD into their innovation cycle. By balancing regulatory requirements – such as those for pharmaceuticals and medical devices – with tailored SSbD strategies, BNN helps companies transform safety and sustainability into a competitive advantage. The ultimate goal is therefore clear: a decisive move toward circular, value-preserving Advanced Materials.

References

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