

# GEO

GLOBAL ENGINEERING CONGRESS



Under the patronage of  
**UNESCO**

United Nations  
Educational, Scientific and  
Cultural Organization

**ice**  
**200**  
Institution of Civil Engineers

**WFEO / FM01**  
**50 YEARS**

**22 - 26 OCTOBER 2018**

**ICE.ORG.UK/CONGRESS**

Mobilising the global engineering community  
to deliver the Sustainable Development Goals.



SPONSORED BY

**ARUP**



**bre**





# Foreword



**DR. MARLENE KANGA**  
AM FTSE Hon.FIEAust  
Hon.FIChemE  
**PRESIDENT**  
World Federation of  
Engineering Organisations

The World Federation of Engineering Organisations (WFEO) is proud to be leading the celebration of engineering as part of the bicentenary of the Institution of Civil Engineers, a national member of the Federation representing the UK, and to also celebrate the 50<sup>th</sup> anniversary of the founding of WFEO.

Engineers are at the heart of sustainable development, using their ingenuity to develop and implement the solutions that the world needs to manage resources, address climate change and protect our planet, and provide basic amenities to so many around the world who are in need of clean water and sanitation, electricity and a source of income.

The congress fittingly addresses the Sustainable Development Goals (SDGs) relating to water, energy, innovation, sustainable cities and climate change but we are also discussing the need for a more diverse profession and education for the engineers of our future. I am looking to maximise the many unique opportunities for discourse and decision-making and to develop plans for addressing the challenges we face through engineering. GEC2018 is an opportunity to celebrate but also to look ahead, to plan for a sustainable future and to create a better world.

## Triennial Statement of Intent

The Institution of Civil Engineers, American Society of Civil Engineers and Canadian Society of Civil Engineers, have long recognised the key role that the civil engineer has to play in tackling the planet's grand challenges.

The infrastructure made by our members is the interface through which we ensure human well-being and interact with our environment. It dictates the patterns and flows through which we live our daily lives and long-term prosperity. As our global infrastructure becomes more interconnected and demands more resources for its development, how can we ensure that the necessary growth is sustainable? How can we 'meet the need of the present without compromising the ability of future generations to meet their own needs?'

The SDGs were developed to address these challenges. They set out a 'bold and transformative plan of action which could shift the world onto a sustainable and resilient path, leaving no one behind.' Using the SDGs as our framework, and the GEC as our launchpad, we intend to bring about transformative change in the way that infrastructure is designed, built and maintained.

We will provide leadership and advocacy; nurture collaboration; build capacities, knowledge and skills; and share our stories.

**We will transform our combined knowledge into action.**



**ROBIN KEMPER**  
**PRESIDENT**  
American Society  
of Civil Engineers



**GLENN HEWUS**  
**PRESIDENT**  
Canadian Society  
of Civil Engineers



**PROF. LORD  
ROBERT MAIR**  
**PRESIDENT**  
Institution of Civil Engineers

# Engineering for sustainable development

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Over the past four decades, the concept of sustainable development has become an increasingly central theme of nation states and their citizens. Amongst others, the SDGs, as part of the 2030 Agenda for Sustainable Development<sup>1</sup>, demonstrate high-level international commitments in this area on the part of governments, international organisations, business and civil society.

Underpinning many of societies' critical functions, infrastructure systems form a key determinant of future development. Energy, water and waste systems provide essential services to support healthy, productive and enriched lives while managing our environmental footprint. Transportation and digital communications systems are essential for enabling access to resources, education, work, culture and participation in governmental decision-making. **The estimated \$97 trillion of investment in infrastructure that is required globally by 2040<sup>2</sup>**, represents a massive opportunity to achieve meaningful progress. Rapid urbanisation, demographic and climate change are placing unprecedented stresses on our already ageing infrastructure systems, restricting and curtailing development. The long life-spans and high-costs of infrastructure mean that the wrong infrastructure policy and investment choices can lock-in unsustainable practices for decades in to the future. With so much at stake, timely action is required to ensure this important opportunity is realised.

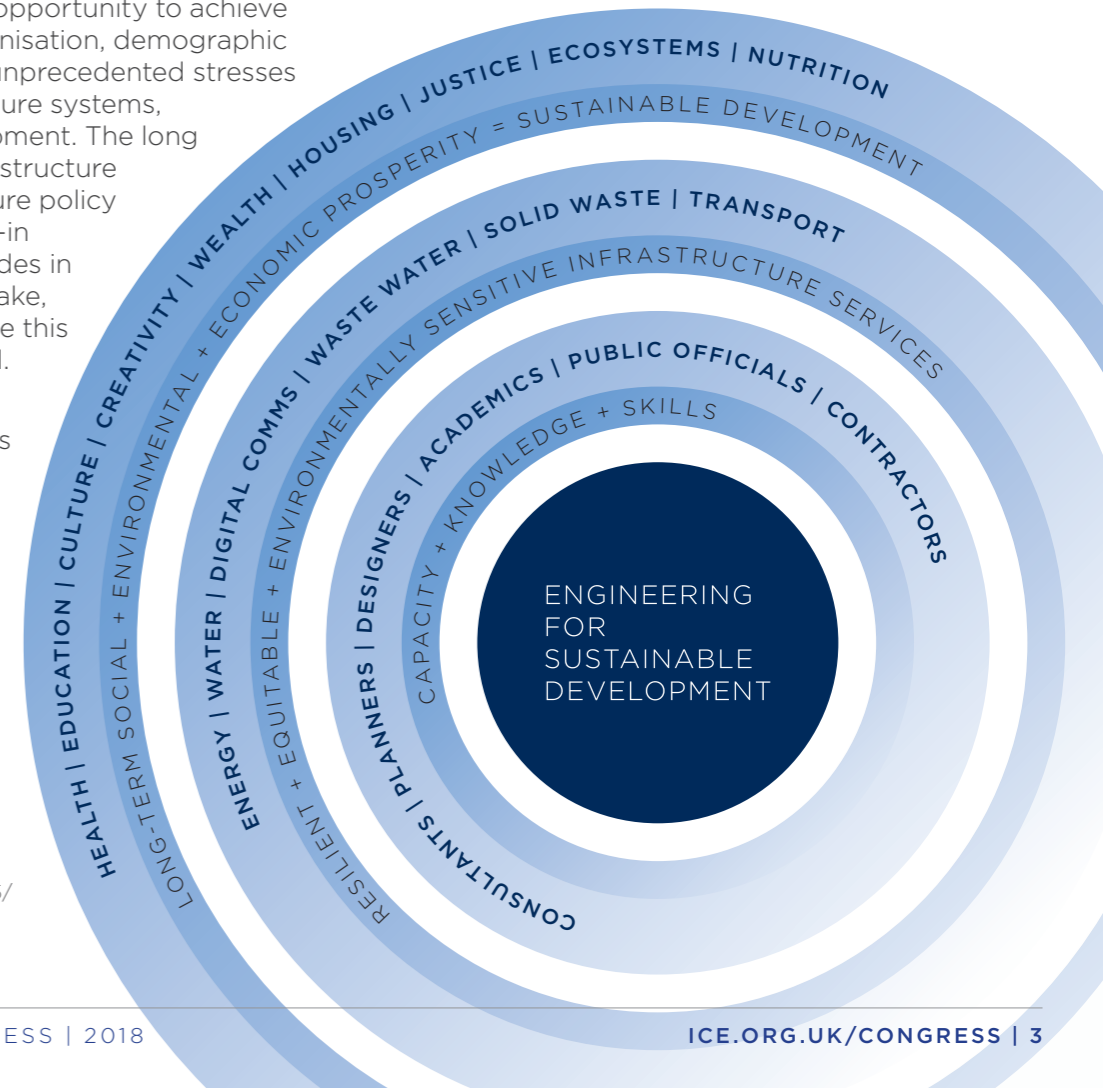
Through their role in the infrastructure life cycle, engineers are at the front line of ensuring this sustainable development agenda. Despite the magnitude and complexity of this challenge, the engineering community is well placed to lead on the solution, helping to ensure a sustainable future for all.



<sup>1</sup>Source: United Nations. 2015. <https://sustainabledevelopment.un.org/post2015/transformingourworld>

<sup>2</sup>Source: Global Infrastructure Hub. 2018. <https://outlook.gihub.org>

The United Nations Office for Project Services (UNOPS [www.unops.org](http://www.unops.org)) and the Infrastructure Transitions Research Consortium (ITRC [www.itrc.org.uk](http://www.itrc.org.uk)) are committed to supporting partners across the globe to achieve their development goals through practical infrastructure solutions, which are underpinned by the best available evidence.



# What are the Sustainable Development Goals?

In 2015, the United Nations' 193 member states agreed to adopt 17 international Sustainable Development Goals (SDGs) and achieve them by 2030.

These goals and their 169 associated targets are global, universally applicable and integrated to facilitate a domino effect of change. Each government sets its own national targets, guided by the global level of ambition and taking into account national circumstances, planning processes, policies and strategies.

## Why are the SDGs important to engineering?

Engineers are responsible for developing and implementing technologies and systems that relate to water, energy, environment, sustainable cities, natural disaster resilience and other areas; all of which benefit people and the planet, offering greater prosperity and better quality of life.

We also stand at the forefront of global 'grand' challenges such as climate change and the interrelationship with mitigation through infrastructure investment<sup>1</sup>.

### AS A COMMUNITY, WE CAN LEAD AND MOST DIRECTLY IMPACT ON FIVE SDGs:



2018 is a unique year of opportunity for the engineering community. With ICE's bicentenary, WFEO's 50th anniversary and the Year of Engineering in the UK and Europe, it has stoked the ambition to think big and act big.

**The Global Engineering Congress aims to harness this ambition and unite the global engineering community to identify the demands and challenges of the SDGs, take action and commit to change.**

**This is your chance to have your voice heard in this historic discussion and help shape the future.**

<sup>1</sup>Source: The Davos World Economic Forum



# Your input could change the world

The world is looking to the global engineering community for solutions. Here are just a few of the challenges to sustainability.

The world's cities occupy just 3% of the Earth's land but account for:

**60 – 80%** of energy consumption

**75%** of carbon emissions



Renewable energy is expected to represent a **21% share** of global energy consumption by 2030, with modern renewables growing to

**15%** of global energy consumption. **This falls short of the SDG7 target**

In the built environment, **global expected average annual loss (AAL)** associated with earthquakes, floods, tsunamis, storm surges, and wind from tropical cyclones **is now estimated at**

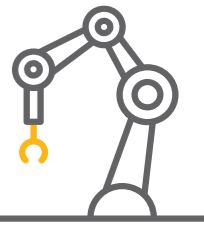
**US\$314 billion**

<sup>1</sup>Source: Tracking SDG7: The Energy Progress Report

<sup>2</sup>Source: GFDRR and World Bank

<sup>3</sup>Source: UN High Level Political Forum

In the field of science, technology and innovation, **there is a need for increased international industrial cooperation** to raise public and private resources in developing countries to achieve industry-related SDGs, in particular SDG9



**3.5 billion** people live in cities, and by 2030 **almost 60%** of the population will occupy urban areas

Currently, **828 million people live in slums** and **95% of urban expansion** in the next decades will take place in the developing world



Each year, diarrhoea kills around **525,000** children under age five

Safe drinking water and adequate sanitation and hygiene could **prevent 1.7 billion annual cases** of childhood diarrhoea disease



<sup>4</sup>Source: UNDP

<sup>5</sup>Source: WHO



# Sustainability risks are key business risks

Sustainability is rarely seen as a strategic opportunity for competitive advantage, which means it has not been a priority for business. However, issues such as resource scarcity and the impact of climate change on supply chains are now key business risks that cannot be ignored.

## Climate change is now a strategic business risk

- 72% of 8,000 supplier companies that sell to multinationals reported that **climate change could significantly impact their operations, revenue or expenditures**<sup>1</sup>
- 340 business leaders found that the harms from not meeting **sustainability challenges risked raising operational costs and disrupting the supply chain**<sup>2</sup>
- The two greatest business risks reported by CEOs are climate change and water scarcity. Infrastructure-related issues such as the spread of infectious diseases, food crises, energy price shock, failure of critical infrastructure and failure of urban planning all appeared in the top 10 too<sup>3</sup>

Businesses can only ameliorate these risks through investment in appropriate, resilient infrastructure and engineering. **The Global Engineering Congress will demonstrate how this can be achieved and provide a renewed vision through creating shared value.**

The concept of 'creating shared value' (CSV) must be at the core of how society, business and the engineering community come together because it:

- Recognises the interdependence** between society and business
- Moves society and business away from zero-sum competition **to positive-sum competition**
- Enable new ways for a business to **create a competitive advantage** that is more resilient against sustainability risks and mimicry by other firms
- Combines traditional corporate social responsibility (CSR) and business operations into new integrated and company-specific strategies for CSV

Using CSV as the strategic framework, the SDGs cease to be an additional external cost on business but **become the key input for transformational business strategies that enable both business and society to flourish**, even in uncertain or challenging times.

<sup>1</sup>Source: Harvard Business Review

<sup>2</sup>Source: McKinsey

<sup>3</sup>Source: PwC



Infrastructure and engineering have a unique part to play in this transformation.

As a result, the role of engineers, their understanding of the SDGs and how they can be achieved on engineering projects is critical to delivering them by 2030.

“ **THE SDGS PROVIDE A VERY USEFUL FRAMEWORK WITHIN WHICH TO PLAN, DELIVER AND OPERATE THE ORGANISATIONS AND THE INFRASTRUCTURE IN OUR INDUSTRY... THEY PROVIDE AN OPPORTUNITY TO SENSE CHECK THE CONTRIBUTIONS WE ARE MAKING TO SOCIETY IN GENERAL AND ENSURE THAT WE ARE WORKING TO COMMON GOALS ACROSS THE INDUSTRY** ”

**MIKE HAIGH**  
GROUP MANAGING DIRECTOR  
Mott MacDonald

**Spend one to five days with the global engineering community from 22 - 26 October 2018.**

**TICKETS FROM ONLY £150 + VAT PER DAY**

Student and group discounts are available.

Visit the Global Engineering Congress website to secure your place:

**ICE.ORG.UK/CONGRESS**

See page 14 for more details.

# Why attend the GEC?

Join more than 2,000 engineers in a practical programme designed to produce answers that can improve the lives of millions around the world. Engage with some of the world's greatest engineers, thought leaders, policy makers, asset owners, and experts from across the built environment.

## 1. ENGAGE

**Contribute to an industry-wide response to sustainable development challenges facing our planet as outlined by the UN SDGs.**

## 2. LEARN

**Learn from multidisciplinary engineers and worldwide thought leaders in a wide range of engineering, innovation and policy-making disciplines.**

- Be inspired by our in-depth range of streams and keynote presentations

## 3. INVEST

**Empower your business and effectively compete for talent by integrating sustainability, raising your global profile.**

- Become part of the solution and demonstrate an unprecedented opportunity for collaboration as the global engineering community comes together

## 4. CONNECT

**Network with resilience officers, sanitation experts, clean energy developers, innovative thinkers and climate change gurus in one of the world's most prestigious venues.**

- Contribute towards a plan that tackles the big sustainability challenges facing the world
- Mix with delegates from more than 50 countries who have already confirmed their attendance



# Working together

Many find the SDGs to be high level and impenetrable – the GEC is about changing this and creating a clear action plan for the whole engineering community.

**Pathway to increase the impact of SDGs and enable profit with purpose for business ultimately benefiting society and the environment.**

The crucial question is: how can we assess which tools and capabilities are needed to provide a coherent link between engineering project delivery and the SDGs?

We want to encourage collaboration, decision-making and meaningful action to achieve the SDGs.

## Global Engineering Congress 2018

Strategic direction for organisations to prioritise sustainable development is highlighted in WFEO's 2030 plan taken from the Paris declaration (March 2018). ICE initiates engineering SDG impact survey to build a baseline of current practices and performance across projects.

ASCE, CSCE and ICE develop joint Statement of Intent and a strawman of the Engineering Sustainable Development Routemap for post-GEC action to build sustainable development capacity.

The GEC will be focused on understanding the engineering impact on selected SDGs. An Engineering Sustainable Development Routemap is developed to act as a call to arms across the engineering community to harness our power to meet SDG 2030 goals.

**What tools and skills will be needed to increase engineering SDG capacity?**

### Report quantitative impacts.

Use momentum from the 'storytelling' of SDG impacts to deepen the reporting against the Engineering Sustainable Development Routemap, potentially using an agreed measurement tool that provides a smart, usable, common structure and approach to linking engineering project outputs to SDG goals and outcomes.



MAR 2015 – MAR 2018

MAR 2018 – OCT 2018

OCT 2018

POST-GEC ONWARDS

**Baseline research**

**Deepen research**

**Measure**



### Build awareness

POST-GEC ONWARDS

#### Share success stories.

The global engineering community is actively engaged with the Engineering Sustainable Development Routemap. We are proactively building awareness of engineering impact across the SDGs through ICE TV.

### Share knowledge

CONTINUOUS

Use the stories of SDG impact to build a greater understanding of which projects deliver the greatest SDG benefits and share solutions.

### Share analytics

CONTINUOUS

Align reporting to SDGs and share progress with wider stakeholders across governments, regions and international organisations to globally enhance performance.

### Achieve greatest SDG impact

POSSIBLE BY 2022 ONWARDS

#### Prioritise resources and build engineering capacity to deliver success.

Identify and challenge the skills and capabilities needed in the new project manager to allocate resources and drive increased SDG impact.

# Get involved

**We'll be working with like-minded partners from across the global engineering community to create an Engineering Sustainable Development Routemap. This will be informed by collected input leading up to and during the GEC.**

The Routemap approach will enable cross-fertilisation of innovations and knowledge via different work streams. It will also identify the 'capacity enablers', including leadership, strategy, stakeholder engagement and governance required to increase our contribution to SDG 2030 targets.

We recognise that this is an ambitious agenda but we all know there is no time to spare. There is a huge willingness to act now, and to use the GEC to unite the global engineering community, to agree and mobilise a response to progressing the Sustainable Development Goals.

**We value your ideas for actions that we can take forward together.**

Throughout the congress, the Action Room will provide the mechanism to turn knowledge into action. We expect each session to become an action in the Engineering Sustainable Development Routemap.

*The below diagram is an example of the Engineering Sustainable Development Routemap we will be building throughout the five days of the congress, extracting action points from each session in the Action Room.*

	2019	2020	2021
CAPACITY BUILDING	Assist Education bodies to achieve required standards in engineering education and professional development.	Develop tools, processes and systems to increase capacity building, i.e. ISTIC, WFEO, RAEng.	Develop an annual report on rating of engineering activity, needs, capacity and quality, comparing countries or regions to allow re-prioritisation of resources.
LEADERSHIP, ADVOCACY AND COLLABORATION	Develop partnerships across engineering firms, with governments and relevant networks to strengthen SDG understanding and commitment.	Build coalition of the willing who demonstrate good behaviours and a clear focus on CSV or profit with purpose.	Deepen the reporting using an agreed measurement tool providing usable links between project outputs to SDG outcomes.
TELLING THE STORY	Use the stories of SDG impact to build greater understanding of which projects deliver greatest SDG benefit and share solutions.	Proactive storytelling across the globe demonstrating SDGs is embedded at project level and initiated at organisation level.	Localised and shared learning across institutions, industry and education bodies.

## The vision

**Transform how engineers and engineering firms engage with SDGs, demonstrating impact in the SDGs delivery on project, national and global scales. Strong leadership has proven success of embedding SDG capacity by improved shareholder values.**





# What will the SDGs' impact really be for engineers?

In response to this emerging new agenda for infrastructure, ICE has supported new research into engineers' views about sustainability and the SDGs.

## Key questions

1. How do engineers understand sustainability and the SDGs?
2. What are engineers' views on current infrastructure projects and their achievement of the SDGs?
3. How could future infrastructure projects be improved?

### The research evidence is overwhelming

All of the engineering CEOs interviewed are actively engaging with how they can increase their impact on SDGs. They all believe that they can do much more to deliver real impact. They identify 'creating shared value' as being in their business interests as well as societies' interest and they have plans to develop an approach that broadens CSR to include the CSV targets of UN SDG impacts.

**But, there is much to do to build a more coherent model for measuring SDG impact, as detailed opposite.**

## Key points

- Millennials, representing the new Project Leaders, were 15-20% more demanding of the need to drive improved SDG impact measurement.
- There is a thirst for knowledge and a desire to trial new tools and approaches that will address the perceived gap between engineers' current ability to impact SDGs.
- Five SDGs 'stood-out' as having specific engineering relevance.
- Are we willing and able to do things differently to increase impact and tell the engineering story to inspire this and the next generation of engineers?



The quantitative survey analysis, led by Paul Mansell (PhD Researcher at LSBU and UCL), was a joint research initiative between ICE and the Nathu Puri Institute.

## Key findings



**Nearly nine out of ten engineers** surveyed want to measure SDG Impact on projects



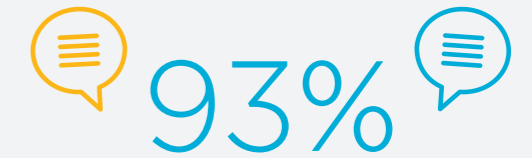
**But, only one third** of engineering firms have an effective means to measure impact



**83%** stated they want to know more about SDGs and what can be done to demonstrate success against the SDG 2030 targets



**78%** do not believe that you should 'cherry-pick' SDGs for self-serving targets, but instead, **balance profitable growth with a longer-term view on global SDG impacts**



**93%** want to discuss **what they can do** while at the GEC



**87%** wanted **standard bodies and institutions to lead the design** of the Routemap for actions that will increase SDG impact. Only 4% disagreed

The top challenge for measuring SDG impacts was

**defining 'success'**

which is more than just the business priorities of time, cost and quality

### Top opportunities:

- Leadership showing a tangible interest and drive to do better
- A simple, common, usable tool
- Increased training and education
- Business skills to apply to a log-frame

It is only through the active engagement of all within the engineering community that we will be able to develop an effective and relevant Routemap to guide engineering's efforts on the ambitious SDG agenda.

**THIS STUDY IS PART OF ONGOING RESEARCH AND FURTHER INFORMATION WILL BE AVAILABLE ON THE ICE WEBSITE.**



# Tickets

## Tickets for the Global Engineering Congress 2018 get you more than you might think.

Every ticket option includes:

- Access to plenary and stream sessions on the days you attend
- Refreshments throughout the day
- A variety of lunch options at One Great George Street
- Access to speaker's presentations
- Post-event report and Sustainable Development Capacity Building Routemap

## One day

Each day has a clear theme and outcome. You are welcome to attend the day that best fits your knowledge, experience and seniority level. With six sessions to choose from on most days, there is always something of interest happening.

## Three days

You can choose to attend the first three days to gain a better understanding of the role of engineering in sustainable development and the levers to further progress in sustainable engineering. Alternatively, attend the last three days to focus on the solutions and forward-planning needed to overcome the biggest blockers to sustainability (governance, investment, education).

## Five days

Are you seeking better ways of measuring your impact on sustainable development? By attending the full five-day congress, you will become an intrinsic part of the Routemap plan creation, leading the community through a step-by-step guide to progressing the SDGs through engineering.

### KEY

- Clean water and sanitation
- Affordable and clean energy
- Industry, innovation, infrastructure
- Peace, justice and strong institutions
- Sustainable cities and communities
- Climate action
- Inspiring the next generation

**ONE DAY TICKET**  
**£150 + VAT**

**THREE DAY TICKET**  
**£375 + VAT**

**FIVE DAY TICKET**  
**£500 + VAT**

**Student and group discounts are available.**

**ICE.ORG.UK/CONGRESS**

# The role of engineering in progressing the SDGs

Establish a global perspective and explore the scale of change possible via a coordinated plan.

## PROGRAMME: DAY ONE

### MONDAY 22 OCTOBER 2018

08:00 Registration and refreshments					
09:00	<b>Welcome remarks and official opening of the Congress.</b> NICK BAVEYSTOCK Director General, ICE	<b>Opening remarks from the Chair.</b> LORD ROBERT MAIR President 2017 - 2018, ICE	<b>Keynote address:</b> UNESCO brings creative responses to the challenges of the times. MIGUEL CLÜSENER-GODT Director, Ecological and Earth Science Division, UNESCO	<b>Keynote address:</b> WFEO engineering leadership for sustainable development. MARLENE KANGA President 2017 - 2019, WFEO	
10:00 Networking, refreshments and exhibition					
10:30	<b>ENERGY</b> <b>Energy strategy and policy: Promoting sustainability in engineering.</b> European policy and its achievements. Transition and innovation of systems. China: Vision, mission and progress of energy internet vision.	<b>INNOVATE</b> <b>Strategic approaches to improving diversity.</b> An understanding of 30 by 30 and how Engineers Canada and its stakeholders plan to achieve change. Measuring performance on diversity: A New Zealand experience. Global progress of women in STEM.	<b>CITIES</b> <b>The paradigm shift needed in the new world of advanced technologies.</b> The necessity of a new paradigm in education. Mindset change and new dynamics in fostering engineering talents. Training and capacity building in the engineering consulting industry.	<b>CLIMATE</b> <b>Future climate: Engineering solutions.</b> Low carbon energy development in China: Assessing progress and challenges. Strengthening mobility: Promoting SMEs for sustainable development in Asia Pacific.	<b>INSPIRE</b> <b>Driving progress towards the Sustainable Development Goals (SDGs): Huawei's approach and the role of innovation.</b> Huawei's approach and the role of innovation. <b>Panel discussion:</b> Visualising the future of engineering to 2030 with innovative technologies.
12:00 Networking, lunch and exhibition					
14:00	<b>WATER</b> <b>Hydrological programme and water strategy challenges.</b> Water management challenges in Pakistan. Global approaches to water for sustainable development. Water strategies in Portugal and Spain.	<b>INNOVATE</b> <b>Intelligent transportation: Promoting use of technology.</b> Autonomous driving and the future of transport. Integration of intelligent infrastructure and carrier: A China outlook. Clean transport: Public initiatives in Italy.	<b>CITIES</b> <b>Humanitarian engineering for sustainable development.</b> Engineering sustainability and the SDGs. Infrastructure capacity assessment to support achieving the SDGs. Showcase the leadership efforts of young engineers to progress the SDGs.	<b>CLIMATE</b> <b>Engineering decision-making when faced with climate uncertainty.</b> Integrating climate vulnerability assessment with asset management to build resilient infrastructure. Sustainable infrastructure for a successful economy. Developing infrastructure resilience: A nexus of engineering and socioeconomic disciplines.	<b>INSPIRE</b> <b>Governance, security and standards for artificial intelligence technologies.</b> How Baidu will connect and apply AI technology to city design, construction, implementation and operations. <b>Panel Discussion:</b> The impact of AI.
15:30 Networking, refreshments and exhibition					
16:00	<b>Governance for Sustainable Development.</b> Session chair: SENG CHUAN TAN Executive Treasurer, WFEO and Managing Director, TEMBUSU Asia Consulting	<b>Keynote address:</b> Corruption: A crisis for engineering. NEILL STANSBURY Founder, Global Infrastructure Anti-Corruption Centre	<b>Panel discussion:</b> Governance for implementing the SDGs: What have we learnt today to progress the SDGs? Panellists: HONG BIN SUN, MICHAEL AUER, ALFONSO ALBERTO GONZÁLEZ FERNÁNDEZ, EVELINE KOKX & ANIA LOPEZ		



# Challenges and opportunities to address the UN SDGs

Define what is needed to remove barriers to change.

## PROGRAMME: DAY TWO

TUESDAY 23 OCTOBER 2018

08:00	<b>Registration and refreshments</b>				
09:00	<b>Opening remarks from the Chair:</b> MARIA LAFFARGUE, Past President, WFEO <b>Keynote address:</b> Engineering partnerships for development. DAME ANN DOWLING, President, Royal Academy of Engineering <b>Keynote address:</b> Tackling the global imperative for sustainable development using AI. DEREK WANG, Ph.D. Chief Architect, Alibaba Cloud International				
10:00	<b>Networking, refreshments and exhibition</b>				
10:30	<b>ENERGY</b>	<b>INSTITUTIONS</b>	<b>CITIES</b>	<b>CLIMATE</b>	<b>INSPIRE</b>
	<b>Smart villages and cities.</b> Empowering smart communities: Electrification, education and sustainable entrepreneurship in promoting smart villages. Implementing a smart cities strategy in The Netherlands. Infrastructure report cards as aids to achieve the SDGs.	<b>The cost of corruption: Barrier to sustainability.</b> How can corruption be prevented? Promoting ISO 37001 to combat corruption-identified impacts on sustainable development. Implementation of ISO 37001 as a way to demonstrate a commitment to beating corruption.	<b>Engineering education for capacity building in Asia and Africa.</b> One Road Initiative and its game-changing impact on engineering in Asia and Africa. Educate to climate change: A challenge for scientists and engineers. Advancing the SDGs through inclusive engineering education.	<b>Resilience against natural disasters.</b> Piura River's early warning system. Infrastructure resilience in Florida after 2017 hurricanes. Challenges in achieving transportation infrastructure resilience in Puerto Rico as a result of category 5 Hurricane Maria.	<b>Human at the centre of technology development.</b> AI and the knowledge society. IBM Practice: Using AI to improve human life. <b>Panel discussion:</b> Consider how to address the challenges raised by the emergence of AI, and the principal basis for technology management and legislation.
12:00	<b>Networking, lunch and exhibition</b>				
14:00	<b>WATER</b>	<b>INNOVATE I</b>	<b>INNOVATE II</b>	<b>ENERGY</b>	<b>INSPIRE</b>
	<b>Changing approaches to sanitation and hygiene.</b> The Newton Prize: Case studies from South Asia and Latin America. UNESCO International Hydrological Programme: Bridging science and policy. Leading Gaba communities within the Federal Capital Territory to be Open Defecation Free (ODF).	<b>AI, Robots, Internet of Things (IoT) and the future of work.</b> Industrial robots' role in intelligent manufacturing. Digitally connected engineering professionals for sustainability and transparency: Case of Rwanda. How AI can help to advance our society.	<b>Capacity building for sustainable development and education.</b> Capacity building in natural disaster management: Indian scenario. ICT and science capacity building in Asia and Africa, also through a gender lens. Education, management and capacity building process in the digital era.	<b>Energy efficiency strategies.</b> Step towards sustainable development. Improvement of rural energy efficiency for sustainable development. Energy efficiency management in Africa.	<b>How diverse leadership teams boost innovation.</b> An international perspective on women in STEM careers, leadership and collaboration. UNESCO Engineering Programme: Why the need for more women in engineering? Retention strategies for mid-career women.
15:30	<b>Networking, refreshments and exhibition</b>				
16:00	<b>Session Chair:</b> GONG KE, WFEO President Elect and Member, UN Science Advisory Council	<b>Panel discussion:</b> What have we learned and how can we progress the sustainability agenda? Panellists: ALAIN BENTEJAC, DATO LEE YEE CHEONG, GAIL MATTSON & LUCILLA SPINI	<b>Release of Statement:</b> WFEO leading engineering for SDGs. MARLENE KANGA, President, WFEO		

# Building sustainable economies and resilient communities

Delve into how climate resilience can be incentivised, funded and built into all stages of decision making.

## PROGRAMME: DAY THREE

WEDNESDAY 24 OCTOBER 2018

08:00	<b>Registration and refreshments</b>					
09:00	<b>Moderator:</b> LINA LIAKOU, Regional Managing Director, 100 Resilient Cities <b>Opening remarks:</b> SHIRLEY RODRIGUES, Deputy Mayor for Environment, and Energy, Greater London Authority <b>Keynote address:</b> Integrating climate resilience into infrastructure decisions. MICHÈLE BLOM, Director General, Ministry of Infrastructure and the Environment, The Netherlands <b>Keynote address:</b> Infrastructure for sustainable and resilient development. NICK O'REGAN, Director of Infrastructure and Project Management, United Nations Office for Project Services (UNOPS) <b>Keynote address:</b> Implementing the National Infrastructure Systems Modelling in Curacao. ZITA JESUS-LEITO, Minister of Traffic, Transportation and Urban Planning, Curacao					
10:00	<b>Networking, refreshments and exhibition</b>					
10:30	<b>WATER</b>	<b>ENERGY</b>	<b>INNOVATE</b>	<b>CITIES</b>	<b>CLIMATE</b>	<b>INSPIRE</b>
	<b>Achieving economies of scale in the provision of ecologically relevant services.</b> Collecting and treating waste water: Kolkata's sewer rehabilitation project The provision and treatment of water and wastewater in cities and rural Egypt. The role of the Thames Tideway Project in sustaining London as a leading global city.	<b>Complex, resilient and intelligent systems.</b> DFID Energy Policy: Whole systems approach and future directions. PV electricity: Assured pathway to energy access goals for rural communities in Africa. Sustainable structural design: Energy efficiency vs. structural efficiency.	<b>Supporting evidence-based infrastructure development worldwide.</b> Overview of Evidence-Based Infrastructure (EBI). Introduction to tools. Highlighting specifically technical developments (tools) within EBI and case study applications: NISMOD-Int Curacao and CAT-I.	<b>An introduction to resilience in an urban context.</b> 100 Resilient Cities: Our 5-year journey. Discussing common city challenges and success stories. Bringing stories to life: Developing the business case for cities.	<b>Construction targets.</b> Analysing the unique challenges in aligning construction targets, presenting possible sectoral decarbonisation trajectories. Cut carbon by cutting complexity. Carbon management at High Speed Two.	<b>A joint lecture from ICE, Stantec and Heriot-Watt University.</b> <b>Panel discussion:</b> Climate resilient infrastructure.
12:00	<b>Networking, lunch and exhibition</b>					
14:00	<b>WATER</b>	<b>ENERGY</b>	<b>INNOVATE</b>	<b>CITIES</b>	<b>CLIMATE</b>	<b>INSPIRE</b>
	<b>Leap Frogging: The case for non-sewered sanitation.</b> The economic case for decentralised sanitation.	<b>Benchmark tools to track progress toward goal.</b> Global perspectives on the energy transition. Identify and develop new mechanisms for growing the market for low carbon energy.	<b>Getting smart about future transport: Embracing and responding to uncertainty.</b> Workshop led by Mott Macdonald.	<b>Knowledge and innovation gaps in cities.</b> A new research pipeline to mobilise resource and knowledge generation for cities: How gaps can be filled through collaborative action.	<b>Financing decarbonisation.</b> Reorient capital flows towards sustainable investment to achieve inclusive growth. Heat networks decarbonisation and its complexity.	<b>Inclusive cities.</b> 'What is the city but the people?' The role of the engineer in creating inclusive cities.
15:30	<b>Networking, refreshments and exhibition</b>					
16:00	<b>Keynote address:</b> Building institutional capacity to deliver evidence-based and sustainable infrastructure strategies. SIR JOHN ARMITT, Chairman, National Infrastructure Commission	<b>Keynote address:</b> The 25-year Environment Plan points to a more resilient country. EMMA HOWARD BOYD, Chair, Environment Agency	<b>Release of Statement:</b> Closing of the European Year of Civil Engineering. WLODZIMIERZ SZYMCAK, Acting President, ECCE			
19:00	<b>Drinks and canapé reception at Sky Garden, 20 Fenchurch Street, EC3M 8AF*</b>					

\*For tickets please visit [ice.org.uk/congress](http://ice.org.uk/congress) (limited availability).



# Engineering societal impact and the influence of technology

Create guidance on how engineers can use technologies to deliver economically feasible and socially equitable projects.

## PROGRAMME: DAY FOUR

THURSDAY 25 OCTOBER 2018

08:00	Registration and refreshments					
09:00	<b>Opening remarks from the chair.</b> ANDREW WYLLIE CEO, Costain	<b>Keynote address:</b> ACSE's roadmap to sustainability. ROBIN KEMPER President, American Society of Civil Engineers	<b>Keynote address:</b> Providing leadership to embed sustainable engineering practice. GLENN HEWUS President, Canadian Society of Civil Engineers	<b>Panel discussion:</b> Release of the Triennial Statement of Intent.		
10:00	Networking, refreshments and exhibition					
10:30	<b>WATER</b> <b>Billion dollar bottom line.</b> Overcoming financial, regulatory, and other challenges to deliver a reliable 320 MGD water purification plant expansion.	<b>ENERGY</b> <b>The social-environmental impacts of low carbon energy expansion.</b> Hydro-electric power in the eastern Democratic Republic of the Congo. Nuclear: Sizewell C a reliable, low carbon source of baseload power. Waste-to-Energy: Delivering a low carbon future.	<b>INNOVATE</b> <b>The Resilience Shift.</b> Making resilience practical, tangible and relevant. Workshop led by Arup.	<b>CITIES</b> <b>Inclusive growth and measuring social value.</b> Inclusive growth and what this means for selected SDGs. Demonstrating how the economic, environmental and wider societal impacts of infrastructure projects can be measured.	<b>CLIMATE</b> <b>Adaptation without mitigation is immoral.</b> Why a knowledge-based construction industry is a prerequisite for a 1.5°C world. A global solution to the climate crisis: Making urgent action a necessity across every level of society.	<b>INSPIRE</b> <b>Transforming infrastructure with Project 13.</b> Guidance and next steps to develop more sustainable, productive industry working models. <b>Panel discussion:</b> What are the barriers to enterprise working, and how can we overcome them?
12:00	Networking, lunch and exhibition					
14:00	<b>ENERGY</b> <b>Social impact of new technological trends.</b> Who moved my cloud? Technological impacts on the US electric grid. Smart thinking, improving lives. Playing a key role in the transition to a sustainable, smart and energy efficient society.	<b>INNOVATE I</b> <b>Developing a methodology that enables engineers to measure project delivery impact against the SDGs.</b> Case study on the Prosperity Fund: UK's £1.2bn investment. Case study on the UNOPS approach. Measuring SDG on projects: HS2 Curzon Street Station. Measuring impact against SDGs.	<b>INNOVATE II</b> <b>Building the defining characteristics of effective professional engineering institutions.</b> 'Scaling it up' and innovation: WatSan and the engineering capacity to deliver it. <b>Panel discussion:</b> Transformational change from engineering, technical and professional perspectives.	<b>CITIES</b> <b>Planning for inclusivity and transport connectivity.</b> Building the right project: A paradigm for sustainability. Local perspectives: Community engagement in Rwanda. Planning for inclusive underground spaces. Planning for rapid urbanisation.	<b>CLIMATE</b> <b>Demonstrating benefits to communities.</b> The first and only offshore wind farm in the US. Generating power solutions for greater efficiency and flexibility. The role of the Offshore Wind Innovation Hub	<b>INSPIRE I</b> <b>How to use social media and technology to develop a sustainable project.</b>  <b>INSPIRE II</b> <b>Turning hindsight into foresight: The sustainability and resilience of knowledge.</b>
15:30	Networking, refreshments and exhibition					
16:00	<b>Session Chair:</b> CRAIG LUCAS Director Science and Innovation for Climate and Energy Directorate, Department for Business, Energy and Industrial Strategy	<b>Panel discussion:</b> Maximising the application of sustainability solutions in an interconnected world. Panellists: MARK ENZER Chief Technical Officer, Mott MacDonald JULIET MIAN, Associate Director, Arup				
17:30	Congress drinks and canapé reception for all delegates					
18:00	International Historic Civil Engineering Landmark ceremony					

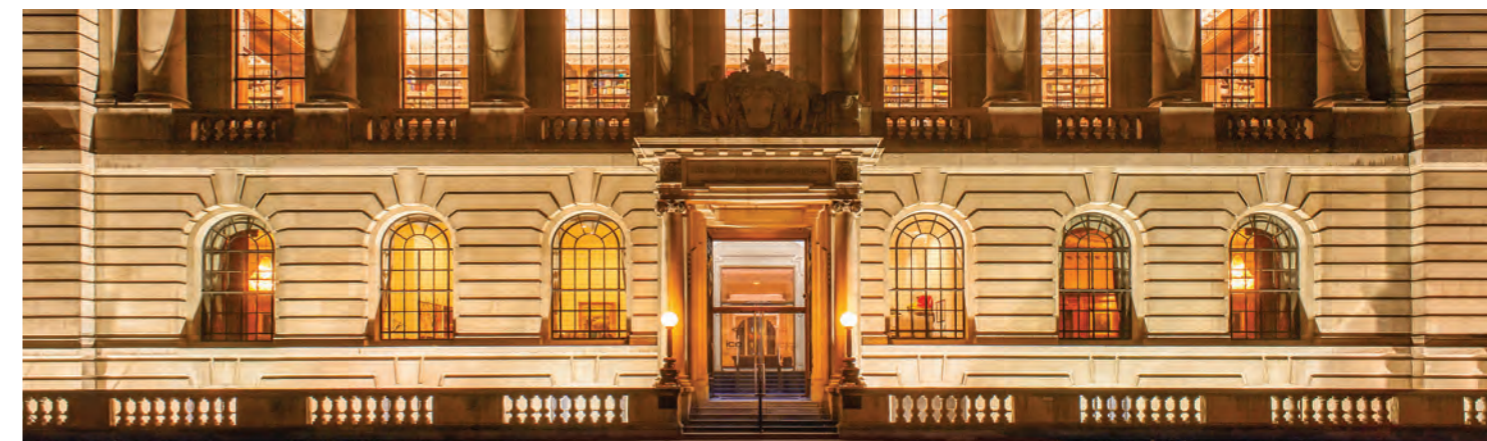
# Driving change, investment, education and governance

Exploring links between engineering, education, governance and finance through the Engineering Sustainable Development Routemap.

## PROGRAMME: DAY FIVE

FRIDAY 26 OCTOBER 2018

08:00	Registration and refreshments					
09:00	<b>Keynote address:</b> Financing sustainable infrastructure. JORDAN SCHWARTZ Director for Infrastructure, Public Private Partner and Guarantees, World Bank	<b>Keynote address:</b> Developing reliable, sustainable, and resilient infrastructure. GUNA GUNALAN Vice President, AECOM	<b>Panel discussion:</b> Making sustainability an investor's business.			
10:00	Networking, refreshments and exhibition					
10:30	<b>WATER</b> <b>Balancing availability and affordability of water.</b> Economic aspects in the water sector. Harmonising water governance systems through collaboration and cooperation.	<b>ENERGY</b> <b>What will a future energy market look like?</b> Engineering innovation in energy systems: A view from 2030.	<b>INNOVATE</b> <b>What are some engineering answers to water scarcity and its economic impact?</b> Workshop led by American Society of Civil Engineers.	<b>CITIES</b> <b>The emerging role of the engineer: Trusted partner and source of hope.</b> How the engineering profession is critical to community-led change.	<b>CLIMATE</b> <b>Sustainability is bad for good development practice.</b> Challenge Debate led by UKBCSD.	<b>INSPIRE</b> <b>Optimising the funding and financing of UK infrastructure.</b> <b>Panel discussion:</b> ICE State of the Nation 2018: Infrastructure Investment.
12:00	Networking, lunch and exhibition					
14:00	<b>INNOVATE</b> <b>Around the world.</b> Movements for change: The global Engineers Without Borders movement as a driver of innovation.		<b>CLIMATE</b> <b>Sustainable financing.</b> Understand how investors assess and compare ESG criteria to rate companies' sustainability. Financing the urban transition: Supporting sustainable finance for urban infrastructure.		<b>INSPIRE</b> <b>Infrastructure governance.</b> How do we improve quality, reach and impact of public service delivery and strengthen environmental protection? What innovations can we expect in the future? Which aspects of infrastructure service delivery could benefit from open data in the future?	
15:30	Networking, refreshments and exhibition					
16:00	<b>Panel discussion:</b> Providing an engineering Routemap to make sustainability a reality, including indicators to evaluate progression.		Panellists: PETER GREVATT Director of the Office for Ground Water and Drinking Water, US Environmental Protection Agency MARK HARVEY Head of Profession (Infrastructure), Research and Evidence Division (RED), Department for International Development (DFID)			
17:00	ICE Graduate and Student Network drinks reception					







# Water overview

Access to safe water, sanitation and sound management of freshwater ecosystems are essential to human health as well as to environmental sustainability and economic prosperity.

MON PM

## Hydrological programme and water strategy challenges

**CARLOS MINEIRO AIRES**  
Chairman, Portuguese Society of Civil Engineers

### Water management challenges in Pakistan

**IZHAR UL HAG**  
President, Institution of Engineers Pakistan

- In addition to efficient use of water, dams are necessary for the food security of Pakistan
- Ground water use is not sustainable and its extraction is being regulated

### Global approaches to water for sustainable development

**ALFONSO ALBERTO GONZÁLEZ FERNÁNDEZ**  
General Manager, Alpro Ingeniería

Water is core to many SDGs and requires engagement from all stakeholders to enrich discussions.

### Water strategies in Portugal and Spain

**TOMÁS SANCHO**  
General Manager, FYSEG

Best practice methods in integrated resource management, even in extreme conditions and with a climate change context to reach SDG6.

TUES PM

## Changing approaches to sanitation and hygiene

**TOMAS SANCHO**  
Executive Council Member, WFEO

### The Newton Prize: Case studies from South Asia and Latin America

**BETH TAYLOR**  
President, UK National Commission, UNESCO

Outline of the UK Government's Newton Fund Programme and the background to the Newton Prize.

### UNESCO International Hydrological Programme: Bridging science and policy

**YOUSSEF FILALI MEKNASSI**  
Programme Specialist, International Hydrological Programme, UNESCO

UNESCO is committed to provide a science-policy interface platform to help governments and policy-makers making data-driven decisions on water-related issues and ensure satisfying and sustainable outcomes.

### Leading Gaba communities within the Federal Capital Territory to be Open Defecation Free (ODF)

**VALERIE AGBERAGBA**  
Head of Contract Management, Niger Delta Power Holding

Enhancing gender equality through access to clean water and sanitation.

WED AM

## Achieving economies of scale in the provision of ecologically relevant services

**ANNA BRUNI**  
Trustee, The Happold Foundation

### Collecting and treating waste water: Kolkata's sewer rehabilitation project

**AYANANGSHU DEY**  
Wastewater Sanitation Specialist, Independent Consultant

Degradation of the system resulting in perpetual water stagnation, hardship for residents and commuters, and incurring significant indirect cost.

### The provision and treatment of water and wastewater in cities and rural Egypt

**RAWYA KANSOH**  
Professor of Hydraulics and Civil Engineering, Alexandria University

- Water status globally, in general, and in Egypt in particular
- Adopt measures to reduce water pollution, increase water quality and improve wastewater treatment

### The role of the Thames Tideway Project in sustaining London as a leading global city

**ROGER BAILEY**  
Chief Technical Officer, Tideway

The London Tideway Improvements Scheme, of which the Thames Tideway Tunnel is the last component, will work to reduce the number of discharges from more than fifty to four or fewer in a typical year.

WED PM

## Leap Frogging: The case for non-sewered sanitation

### The economic case for decentralised sanitation

**RÉMI KAUPP**  
Urban Sanitation Advisor, WaterAid

- The economic case for decentralised sanitation
- Approaches to urban sanitation: Improving small utilities' capacity, and Shit-Flow Diagrams

THURS AM

## Billion dollar bottom line

### Overcoming financial, regulatory, and other challenges to deliver a reliable 320 MGD water purification plant expansion

**CAROL HADDOCK & YVONNE WILLIAMS FORREST**  
Director & Deputy Director, Houston Public Works

Houston is midway through the delivery of a \$1 billion expansion to the Northeast Water Purification Plant using a progressive-design build approach.

FRI AM

## Balancing availability and affordability of water

### Economic aspects in the water sector

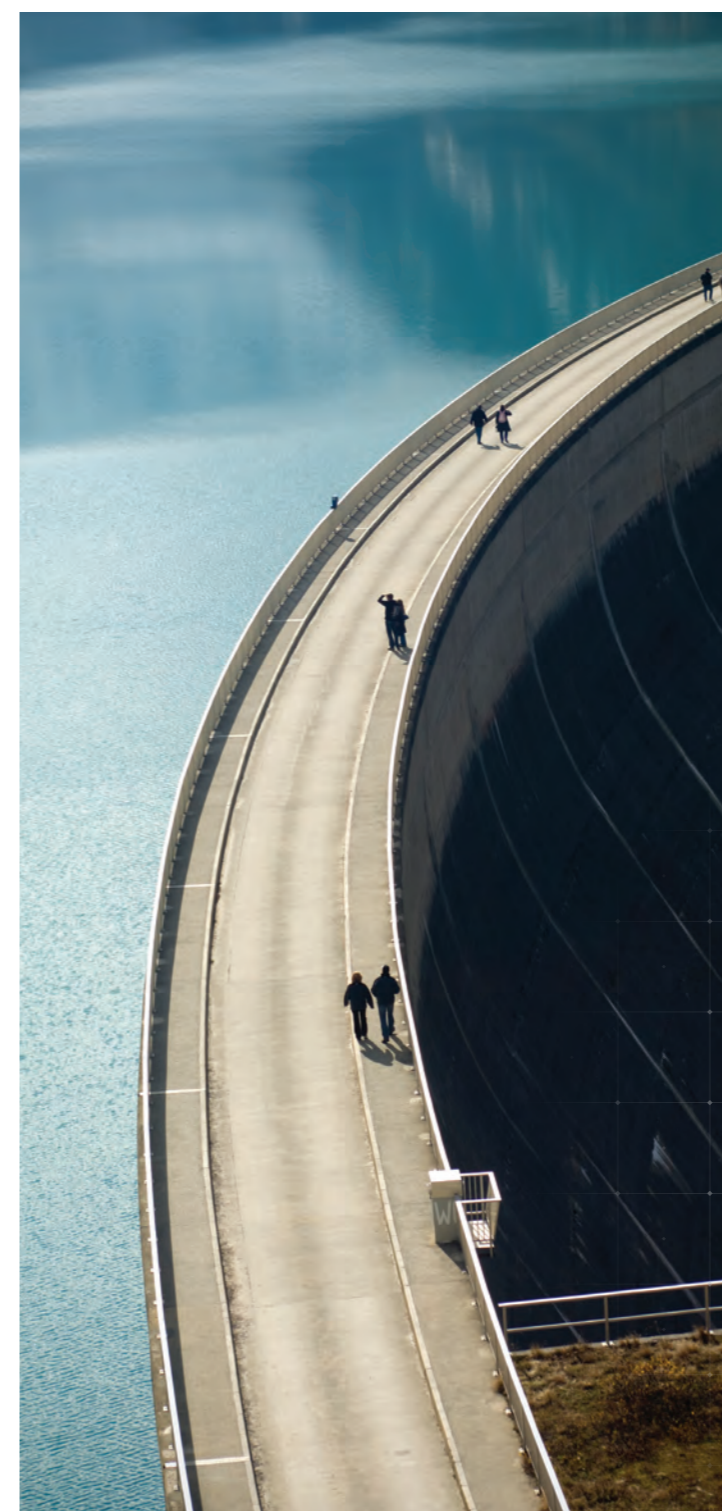
**PETER GREVATT**  
Director of the Office of Ground Water and Drinking Water, US Environmental Protection Agency

**DANIELLE GAILLARD PICHER**  
Director of Policy and Programmes, World Water Council

- Addressing environmental justice and equity in infrastructure funding

### Harmonising water governance systems through collaboration and cooperation

**HAKAN TROPP**  
Head of Water Governance Programme, OECD



This and the following overview pages outline each session and their related SDG topics. The key below will help you identify the interconnection with other SDGs being referenced for each talk.

### KEY

- SDG1: No poverty
- SDG2: Zero hunger
- SDG3: Good health and well being
- SDG4: Quality education
- SDG5: Gender equality
- SDG6: Clean water and sanitation
- SDG7: Affordable and clean energy
- SDG8: Decent work and economic growth
- SDG9: Industry, innovation and infrastructure
- SDG10: Reduced inequalities
- SDG11: Sustainable cities and communities
- SDG12: Responsible consumption and production
- SDG13: Climate action
- SDG14: Life below water
- SDG15: Life on land
- SDG16: Peace, justice and institutions
- SDG17: Partnerships for the goals





# Energy overview

Energy is crucial for achieving almost all of the Sustainable Development Goals, from its role in the eradication of poverty through advancements in health, education, water supply and industrialization, to combating climate change.

## MON AM

### Energy strategy and policy: Promoting sustainability in engineering

**MAJEED AL GASSAB**  
Executive Council Member, WFEO

### European policy and its achievements

- CARSTEN AHRENS** ● ●  
Professor, University of Applied Sciences, Jadehochschule
- Overview of the status quo
  - Development of fossil and sustainable energy
  - Ranking of European countries
  - Europe's sustainable energy role in the world and contribution to climate change

### Transition and innovation of systems

**JERRY YAN** ● ●  
Director of Future Energy Profile, Royal Institute of Technology (KTH) and Mälardalen University

Energy systems are transforming to deal with climate change, reduce energy poverty and be more sustainable.

### China: Vision, mission and progress of energy internet vision

**HONGBIN SUN** ● ●  
Professor of Electrical Engineering, Tsinghua University

Energy Internet (EI), a combination of energy system and internet, is an emerging concept to shape next-generation energy systems in China.

## TUES AM

### Smart villages and cities

**REGINALD VACHON**  
Executive VP, WFEO

### Empowering smart communities: Electrification, education and sustainable entrepreneurship in promoting smart villages

**ALEXANDER ANDERSON** ● ●  
Chair, IEEE Smart Village Partner Engagement

There are a number of critical elements which contribute to the success of a smart community including community partnerships, capacity building, and development of local enterprise and business models.

### Implementing a smart cities strategy in the Netherlands

**EVELINE KOKX** ● ●  
Vice Chairman, Stadswerk and Senior Advisor in Urban Development/Project Manager, The Hague Municipality

Smart cities use information and communication technologies to increase operational efficiency, share information and improve government services and citizen welfare.

## TUES AM CONT.

### Infrastructure report cards as aids to achieve the SDGs

**MARTIN VAN VEELLEN** ● ●  
Managing Director, MDT Environmental

A course on how to use the guide to produce sound and credible infrastructure report cards.

## TUES PM

### Energy efficiency strategies

**JORGE SPITALNIK**  
Past President, WFEO

### Step towards sustainable development

**DANIEL FAVRAT** ● ●  
Professor Emeritus, Ecole Polytechnique Federale de Lausanne

Taking steps towards sustainable development through improved design and planning methods, advanced technologies, and a more rational use of non-renewable and renewable energy sources.

### Improvement of rural energy efficiency for sustainable development

**PRADEEP CHATURVEDI** ● ●  
Vice-Chair Committee on Energy, WFEO

### Energy efficiency management in Africa

- MUSTAFA B. SHEHU** ● ●  
CEO, MBS Engineering
- Energy sufficiency vs. efficiency
  - Energy efficiency policies across Africa
  - Awareness and benefits
  - Financing requirements and opportunities

## WED AM

### Complex, resilient and intelligent systems

### DFID Energy Policy: Whole systems approach and future directions

**HAYLEY SHARP** ● ●  
Deputy Team Leader, Infrastructure and Energy Adviser, Economic Development Directorate, Department for International Development

### PV electricity: Assured pathway to energy access goals for rural communities in Africa

**PATRICK JAMES** ● ●  
Professor of Energy and Buildings, University of Southampton

Affordable and reliable sources of energy are essential in developing countries to reduce poverty, increase economic growth and improve well being.

## WED AM CONT.

### Sustainable structural design: Energy efficiency vs. structural efficiency

**ARIS CHATZIDAKIS** ● ●  
President-Elect, ECCE

Despite being an essential requirement, structural safety and integrity is a rather forgotten aspect of sustainable buildings.

- Sustainable structural design for new and existing buildings

## WED PM

### Benchmark tools to track progress toward goals

### Global perspectives on the energy transition

**MARZIA ZAFAR** ● ●  
Director, Innovation and Issues Monitor, World Energy Council

The World Energy Council's Issues Monitor provides the views of energy leaders from across the globe in highlighting the key issues of uncertainty, importance and developing signals in their energy transition.

### Identify and develop new mechanisms for growing the market for low carbon energy

**MARTIN HILLER** ● ●  
Director General, Renewable Energy and Energy Efficiency Partnership (REEEP)

This session will focus on experiences from the REEEP Portfolio in stimulating off-grid energy markets in Africa and Asia.

## THURS AM

### The social-environmental impacts of low carbon energy expansion.

**CHRIS YOUNG**  
Executive Managing Director, Tony Gee

### Hydro-electric power in the eastern Democratic Republic of the Congo

**JOSE LUQUE LUQUE** ● ●  
Director, Virunga National Park

By 2022, Virunga National Park aims to supply around 90 megawatts (MW) of hydro-electric power to the local economy, becoming the country's second largest power supplier.

### Nuclear: Sizewell C a reliable, low carbon source of baseload power

**HUMPHREY CADOUX-HUDSON** ● ●  
Nuclear Development Managing Director, EDF Energy

### Waste-to-Energy: Delivering a low carbon future

**NICK POLLARD** ● ●  
CEO, Cory Riverside Energy

Waste-to-Energy is a vital pillar of the circular economy, processing residual waste which cannot be recycled and generating low carbon, renewable energy in the process.

- Challenges and opportunities for the industry
- Filling the waste capacity gap

## THURS PM

### Social impact of new technological trends

### Who moved my cloud? Technological impacts on the US electric grid

**CHUCK HOOKHAM** ● ●  
Director, Consumers Energy

The US electric grid is evolving due to technology, climate change, economic factors, regulations, and customer demand. Technology has particularly been impactful, forcing infrastructure owners to address both positive and negative trends.

### Smart thinking, improving lives

**HELEN SIMMS** ● ●  
Capability Director, Consultant, Costain

Focused strategy and robust business management system delivering results.

- Investing in smart people to deliver smart solutions

### Playing a key role in the transition to a sustainable, smart and energy efficient society

**KRISTIAN RUBY** ● ●  
Secretary General, Eurelectric

- Achieving a carbon-neutral electricity mix in Europe well before mid-century
- Ensuring a cost-efficient, reliable supply through an integrated market

## FRI AM

### What will a future energy market look like?

### Engineering innovation in energy systems: A view from 2030

**JENNI MCDONNELL** ● ●  
Knowledge Transfer Manager, Environmental Sustainability

**DR LOUISE JONES**  
KTM, Energy Grid and Distributed Generation

**DR NAZANIN RASHIDI**  
KTM, Energy, Knowledge Transfer Network

As part of the Industrial Strategy, the government will invest in the 'Prospering from the Energy Revolution' (PFER) Industrial Strategy Challenge Fund to make the UK a global centre for integrated energy systems that deliver cleaner, cheaper energy for consumers and their communities.





# Innovate overview

Infrastructure provides the basic physical systems and structures essential to the operation of a society or enterprise. Industrialization drives economic growth, creates job opportunities and thereby reduces income poverty. Innovation advances the technological capabilities of industrial sectors and prompts the development of new skills.

MON AM

### Strategic approaches to improving diversity

**VALERIE AGBERAGBA**  
Ag Head of Contract Management, Niger Delta Holding

### An understanding of 30 by 30 and how Engineers Canada and its stakeholders plan to achieve change

**JEANETTE SOUTHWOOD**  
VP Strategic Partnerships, Engineers Canada  
Women currently comprise 17% of newly licensed engineers in Canada. 30 by 30 is Engineers Canada's national goal to have women comprise 30% of newly licensed engineers by 2030.

### Measuring performance on diversity: A New Zealand experience

**SUSAN FREEMAN-GREENE**  
CEO, Engineering New Zealand  
o How we approached the issue and what Engineering New Zealand put in place  
o Overview of the holistic programme and its impact (over 51 organisations have signed up)

### Global progress on women in STEM

**SANIYE GÜLSER CORAT**  
Director, Division for Gender Equality, UNESCO  
In a global society that is shaped around technology that evolves at an unprecedented pace, few sectors can have a higher impact on the lives and well being of women and men than engineering.

MON PM

### Intelligent transportation: Promoting use of technology

**JULIUS RUNGU**  
Chief Executive Officer, Tsavo Power Company

### Autonomous driving and the future of transport

**JIANPING WU**  
Professor, Tsinghua University  
o The development of autonomous driving technologies  
o The potential impacts to future transport

### Integration of intelligent infrastructure and carrier: A China outlook

**SUN ZIYU**  
Vice President, China Communication Construction Corp

### Clean transport: Public initiatives in Italy

**ANIA LOPEZ**  
Counsellor, National Council for Engineers of Italy  
The Italy situation in the context of Europe:  
o Introduction of electric and hydrogen buses and recharging stations

TUES PM: FIRST STREAM

### AI, Robots, Internet of Things (IoT) and the future of work

**RUOMEI LI**  
Executive Council Member, WFEO

### Industrial robots' role in intelligent manufacturing

**QU DAOKUI**  
President, SIASUN Robot and Automation Co.  
The development and evolution of robot technology in China accompanies a trend in intelligent manufacturing.  
o Significance of robot technology in Industrial 4.0  
o Human-robot relationships in future society

### Digitally connected engineering professionals for sustainability and transparency: Case of Rwanda

**PAPIAS KAWAWADI DEDEKI**  
President, Institution of Engineers Rwanda  
Digitisation is the only way to go in solving the membership and regulation challenges of most engineering organisations in the world for long-term sustainability.

### How AI can help to advance our society?

**SHIPENG LI**  
Corporate Vice President and Research Co-President, iFlyTek  
How AI can help to bridge the gap of human-to-human and human-to-machine communications.  
o Eliminating speech and language barriers  
o Open platform for developers  
o Improvements in education, healthcare, and judicature

TUES PM: SECOND STREAM

### Capacity building for sustainable development and education

**FRANCOIS LUREAU**, Past President, IESF

### Capacity building in natural disaster management: Indian scenario

**ASHOK BASA**  
Past President, Institution of Engineers India  
Transforming disaster management from a relief centric approach to a holistic multidisciplinary approach.

### ICT and Science Capacity building in Asia and Africa, also through a gender lens

**LUCILLA SPINI**  
Head of Sciences Programme, International Science Council  
Discussing the concept of capacity building at individual, institutional and system levels.  
o Capacity building through a gender lens

### Education, management and capacity building process in the digital era

**REINE MBANG ESSOBADJE**, CEO, Evolving Consulting  
Exploring new methods of building capacities based on e-learning and artificial intelligence.

WED AM

### Supporting evidence-based infrastructure development worldwide

### Overview of Evidence Based Infrastructure (EBI)

**NICK O'REGAN**  
Director of Infrastructure and Project Management, UNOPS

### Introduction to tools

**JIM HALL**  
Director, Environmental Institute

### Highlighting specifically technical developments (tools) within EBI and case-study applications: NISMOD-Int Curacao and CAT-I

**SCOTT THACKER & STEVEN CROSSKEY**  
Senior Analyst & Head of Strategic Initiatives, UNOPS  
Highlighting a range of co-developed tools and methodologies that are being implemented in various countries globally.

WED PM

### Getting smart about future transport: Embracing and responding to uncertainty

### Workshop led by Mott Macdonald

**GLENN LYONS**  
Professors of Future Mobility, University of West England, Bristol  
There is deep uncertainty about how our transport needs will evolve. With so many seductive prospects on offer, it is difficult for decision makers to know what will best serve their communities.

THURS AM

### The Resilience Shift

### Making resilience practical, tangible and relevant

**SAVINA CARLUCCIO, ÁINE NÍ BHREASAIL & LOUISE ELLIS**  
Project Managers, The Resilience Shift, Arup  
The Resilience Shift is equipping practitioners and decision makers with the tools, approaches, technology, and educational practices needed to put resilience into practice.

THURS PM: FIRST STREAM

### Developing a methodology that enables engineers to measure project delivery impact against the SDGs and case studies review

**PAUL MANSELL**  
Director, ImaQt Consulting, UK and PhD Research Fellow at LSBU and UCL

### Case study on the Prosperity Fund: UK's £1.2bn investment

**DANIEL DAVID**  
Head of Fund, Foreign and Commonwealth Office

### Case study on the UNOPS approach

**STEVEN CROSSKEY**  
Head of Infrastructure and Project Management Strategic Initiatives, UNOPS

### Measuring SDG on projects: HS2 Curzon Street Station

**CLAIRE GOTT**  
UK Head of Corporate Social Responsibility, WSP

THURS PM: FIRST STREAM CONT.

### Measuring impact against SDGs

**JO DA SILVA**  
Global International Development Leader, Arup

THURS PM: SECOND STREAM

### Building the defining characteristics of effective professional engineering institutions

### 'Scaling it up' and innovation: WatSan and the engineering capacity to deliver it

**PAUL JOWITT**  
President, Commonwealth of Engineers Council  
o Project delivery in developing economies

### Transformation change from engineering, technical and professional perspectives

**DAVID BALMFORTH**  
Chair, ICE Shaping the World Programme  
**MARTIN VAN VEELEN**  
Past President, Federation of African Engineering Organisations  
**TRUDY MORGAN**  
Member of Council, Institution of Engineers Sierra Leone  
**YOLANDA CHAKAVA**  
Deputy Team Leader, East Africa Research Hub, Department for International Development

FRI AM

### What are some engineering answers to water scarcity and its economic impact?

### Workshop led by American Society of Civil Engineers

**WILLIAM KELLY**  
ASCE  
Approaches and affordable solutions for poor rural areas where people lacking access to clean water reside and depend on agriculture for their living. These areas must also have access to the technical capacity to support appropriate water infrastructure.

FRI PM

### Around the world

### Movements for change: The global Engineers Without Borders movement as a driver of innovation

**KATIE CRESSWELL-MAYNARD, ELEANOR LOUDON & CATHY LESLIE**  
CEO Australia & Executive Director, Engineers Without Borders  
The Engineers Without Borders movement started over thirty years ago with an aspiration to focus the attention on engineers doing good in the world.





# Cities overview (and Institutions)

More than half the world's population lives in cities. By 2030, it is projected that six out of 10 people will be urban dwellers. Despite numerous planning challenges, well-managed cities and other human settlements can be incubators for innovation and ingenuity and key drivers of sustainable development.

## MON AM

### The paradigm shift needed in the new world of advanced technologies

**YASHIN BRIJMOHAN**  
Executive Dean, Business, Engineering and Technology, Monash South Africa

### The necessity of a new paradigm in education

**MICHAEL AUER**  
President, International Federation of Engineering Education Societies

We are currently observing a significant transformation in the development of engineering education such as; a changing focus of engineering, technical systems and global requirement for engineering graduates.

### Mindset change and new dynamics in fostering engineering talents

**JINCHENG KANG**  
Senior Strategic Expert, International Centre for Engineering Education under the auspices of ENESCO

With the more rapid development and application of new and advanced technologies, there has never been a greater need than there is today for engineers and technical personnel equipped with innovation-driven and problem-solving capabilities.

### Training and capacity building in the engineering consulting industry

**ALAIN BENTÉJAC**  
President, Federation of Global Consulting Engineers

- What is FIDIC's role and its body of knowledge?
- Enhancing capacity building in the engineering consulting industry

## MON PM

### Humanitarian engineering for sustainable development

**ZAINAB AL GHARASHI**  
Young Engineers Future Leaders Chair, WFEO

### Engineering sustainability and the SDGs

**TONY MARJORAM**  
Founding Editor, UNESCO Engineering Report

- UNESCO Report: 'Engineering: Issues, Challenges and Opportunities for Development'
- Implications for engineering and engineering education
- Changes in knowledge production, application and professional practice

### Infrastructure capacity assessment to support achieving the SDGs

**GEOFFREY MORGAN**  
Highly Commended Young Engineers Competition: Sustainability Engineer, UNOPS, Denmark

Sustainable, resilient, and human-centred development of infrastructure is critical.

## MON PM CONT.

### Showcase the leadership efforts of young engineers to progress the SDGs

**SIM SIANG TZE VICTOR**  
Deputy Director at Nanyang Environ and Water Research Institute Community Development (NEWRIComm)

Should we be thinking resiliency or sustainability? How can we be the enablers? Is science and technology solely the answer to the problems?

## TUES AM (INSTITUTIONS)

### The cost of corruption: Barrier to sustainability

**MARTIN MANUWHA**  
Anti-Corruption Committee Chair, VP, WFEO

### How can corruption be prevented?

**KAMEL AYADI**  
President, High Committee of Financial and Administrative Control, Tunisia

### Promoting ISO 37001 to combat corruption identified impacts on sustainable development

**PETER BOSWELL**  
Special Consultant, FIDIC

Developing countries will need two-thirds of their current total investment to avoid a massive increase in urban slums.

- Ready-made solutions and finance are limited
- Local capacity needs to improve

### Implementation of ISO 37001 as a way to demonstrate a commitment to beating corruption

**SARA WALTON**  
Market Development Manager, Governance, British Standards Institute, UK

- Understanding of the motivations for developing a standard such as ISO 37001
- Understanding of the standard and how it works

## TUES AM (CITIES)

### Engineering education for capacity building in Asia and Africa

**J.P. MOHSEN**, Professor and Chair, Civil and Environmental Dept. University of Louisville

### One Road Initiative and its game-changing impact on engineering in Asia and Africa

**DATO LEE YEE CHEONG**  
Hon Chairman, ISTIC-UNESCO

### Educate to climate change: A challenge for scientists and engineers

**PIERRE LÉNA**  
Founder, Office of Climate Change Education, France

Article 12 of the Paris Agreement at the COP21 asks for every country to care for climate change in education.

## TUES AM (CITIES) CONT.

### Advancing the SDGs through inclusive engineering education

**YVETTE E. PEARSON**  
Associate Dean for Accreditation, Assessment, and Strategic Initiatives, School of Engineering, Rice University

Global engineering challenges can only optimally be solved by a diverse group of problem solvers. Diversity, equity, and inclusion (DEI) in engineering education and practice is a matter of ethics.

## WED AM

### An introduction to resilience in an urban context

**LINA LIAKOU**  
Regional Managing Director, 100 Resilient Cities

### 100 Resilient Cities: Our 5-year journey

### Discussing common city challenges and success stories

### Bringing stories to life: Developing the business case for cities

## WED PM

### Knowledge and innovation gaps in cities

### A new research pipeline

**SETH SCHULTZ**  
Special Advisor on Science and Innovation, Global Covenant of Mayors Climate and Energy

A new research pipeline to mobilise resource and knowledge generation for cities: How gaps can be filled through collaborative action.

## THURS AM

### Inclusive growth and measuring social value

### Inclusive growth and what this means for selected SDGs

**JENNIFER ANDERSON**  
Director of Economics and Social Value, Jacobs

Understanding the wider impacts and benefits of policy and infrastructure investment has become a key issue across the OECD for governments and increasingly for private sector organisations.

### Demonstrating how the economic, environmental and wider societal impacts of infrastructure projects can be measured

**DANIEL FUJIWARA**  
Directors, Simetrica

A renowned leader in social value impact and well being assessment, setting out the methods for best-practice social value and inclusive growth measurement.

## THURS PM

### Planning for inclusivity and transport connectivity

### Building the right project: A paradigm for sustainability

**CRIS LIBAN**  
Executive Officer of Environmental Compliance and Sustainability, LA Metro

Sustainability is more than the essence of environmental stewardship and economic development. The application of sustainability to build the right projects, ensures the safety and enhancement of society's quality of life.

### Local perspectives: Community engagement in Rwanda

**MOLLY STROYMAN**  
Stakeholder Engagement Manager, COWI, Bridges to Prosperity Volunteer, UK

Bridges to Prosperity has built 36 footbridges in Rwanda since the inception of their programme there, which means safe access for more than 225,000 people.

### Planning for inclusive underground spaces

**HAN ADMIRAAL**  
Owner and Managing Director, Enprodes Management Consultancy

**ANTONIA CORNARO**  
Business Development Manager, Amberg Engineering

- Inclusive cities require public spaces
- Underground spaces need to be publicly accessible

### Planning for rapid urbanisation

**PETER OBORN**  
Vice President, Commonwealth Association of Architects and Global Alliance on Urban Crisis

Discussing the scale of the challenge facing cities in the Commonwealth and the critical shortage of built environment professionals available to meet this challenge.

## FRI AM

### The emerging role of the engineer: Trusted partner and source of hope

### How the engineering profession is critical to community-led change

**DEAN KIMPTON**  
President, Engineers New Zealand

The engineering profession is critical to community-led change, can embed the principle of stewardship and will be successful if accepted as trusted partners and sources of hope as our communities adapt and change.



Climate change presents the single biggest threat to development, and its widespread, unprecedented impacts disproportionately burden the poorest and most vulnerable. Urgent action to combat climate change and minimize its disruptions is integral to the successful implementation of the Sustainable Development Goals.

MON AM

**Future climate: Engineering solutions**

**JEAN VENABLES**  
Past President, ICE

**Low carbon energy development in China: Assessing progress and challenges**

**DADI ZHOU** ● ●  
Director General Emeritus, Energy Research Institute: National Development and Reform Commission  
Technology cooperation potential to promote low carbon development in the future, and policy requirement.

**Strengthening mobility: Promoting SMEs for sustainable development in Asia Pacific**

**SENG CHUAN TAN** ● ●  
Managing Director, TEMBUSU Asia Consulting

MON PM

**Engineering decision-making when faced with climate uncertainty**

**CRTOMIR REMEC**  
Executive VP, WFEO

**Integrating climate vulnerability assessment with asset management to build resilient infrastructure**

**DAVID LAPP** ● ●  
Manager, Globalisation and Sustainable Development, Engineers Canada  
Future climate uncertainty has necessitated the prioritisation of engineering design, operations/maintenance and responsible asset management for all types of infrastructure.

**Sustainable infrastructure for a successful economy**

**PRATARP SINGH** ● ●  
Managing Director, Entec Ltd.  
Modern day challenges in infrastructure development and delivery – identifying key facts supporting governments in disaster and crisis. Strengthening relationships with policy makers and development partners.

**Developing infrastructure resilience: A nexus of engineering and socioeconomic disciplines**

**VILAS MUJUMDAR** ● ●  
Senior Distinguished Fellow, Global Resilience Institute Northeastern University  
● Adaptation to climate requires all stakeholders to act  
● Of particular importance is the continuity of infrastructure operations

TUES AM

**Resilience against natural disasters**

**BARRY GREAR**  
Past President, WFEO

**Piura River's early warning system**

**JORGE ALVA HURTADO** ● ●  
Chair, Peruvian Association of Professional Engineers  
In recent years, extreme rainfall in Peru has caused damage to the infrastructure and the local population. This project aims to develop an early warning system in the Piura river basin, with application of satellite technology and methodologies to overcome the lack of data for this region.

**Infrastructure resilience in Florida after 2017 hurricanes**

**RAYMOND ISSA** ● ●  
Professor and Interim Director, Rinker School of Construction Management, University of Florida  
● Resilient water infrastructure for coastal communities  
● Developing new digital tools for hurricane preparedness in Florida

**Challenges in achieving transportation infrastructure resilience in Puerto Rico as a result of category 5 Hurricane Maria**

**BENJAMÍN COLUCCI RÍOS** ● ●  
Vice-President, UPADI Caribbean Region  
Focusing on rebuilding resilient infrastructure, creating sustainable livelihoods, particularly for the most vulnerable, and reducing vulnerabilities by integrating disaster risk reduction into national planning systems.

WED AM

**Construction targets**

**Analysing the unique challenges in aligning construction targets, presenting possible sectoral decarbonisation trajectories**

**JANNIK GIESEKAM** ● ●  
Research Fellow in Energy, Materials and Climate Policy, University of Leeds

**Cut carbon by cutting complexity**

**ED DIXON** ● ●  
Sustainability Insights Director, Landsec  
Understanding the role of construction in delivering climate change mitigation through material efficiency and supply chain collaboration.

**Carbon management at High Speed Two**

**MARK FENTON**, Climate Change Specialist, HS2 ● ●  
Awareness of value, client expectations for, and supply chain opportunities of reduced carbon infrastructure delivery.

WED PM

**Financing decarbonisation**

**Reorient capital flows towards sustainable investment to achieve inclusive growth**

**TOM BURKE** ● ●  
Chairman and Founder, E3G

Manage financial risks stemming from climate change, environmental degradation and social issues; and foster transparency and long-termism in financial and economic activity.

**Heat networks decarbonisation and its complexity**

**TIM CHAPMAN** ● ●  
Infrastructure Director, Arup  
Decarbonisation of heat is both vital and difficult. District heating may be a key part of a city's decarbonisation, but there are times when it may undermine future decarbonisation.

THURS AM

**Adaptation without mitigation is immoral**

**Why a knowledge-based construction industry is a pre-requisite for a 1.5C world**

**KEITH CLARKE** ● ●  
Chairman, Forum for the future and Vice Chair, Future Cities Catapult

**A global solution to the climate crisis: Making urgent action a necessity across every level of society**

**DIANE GUZMÁN-BARRAZA** ● ●  
Climate Reality Leader, Mexico  
Raising awareness on the roles engineers play in taking climate action by tackling the use of energy for cooling and heating spaces.

THURS PM

**Demonstrating benefits to communities**

**The first and only offshore wind farm in the US**

**DIANE BAXTER** ● ●  
Associate Principal, GZA GeoEnvironmental  
Block Island Wind Farm is the first and only offshore wind farm in the US and came online in 2016. The geotechnical investigation was designed and executed in 2009 by GZA to support the design of jacket foundations.

**Generating power solutions for greater efficiency and flexibility**

**REGINALD VACHON** ● ●  
Vice President, WFEO  
● Combined-cycle power generation already offers solutions for efficiency  
● Need for collaboration plus further development of key technologies

**The role of the Offshore Wind Innovation Hub**

**JOHN RANSFORD** ● ●  
Knowledge Transfer Manager (KTM), Energy  
The UK's primary coordinator for innovation, focusing on offshore wind energy cost reduction and maximising UK economic impact.

FRI AM

**Sustainability is bad for good development practice**

**Challenge Debate led by UKBCSD**

Multidisciplinary panel to be formed by ENGIE, BASF and Baytree ● ●

FRI PM

**Sustainable financing**

**Understand how investors assess and compare ESG criteria to rate companies' sustainability**

**Financing the urban transition: Supporting sustainable finance for urban infrastructure**

**RUBBINA KARRUNA** ● ●  
Urban Infrastructure Adviser, Department for International Development  
Countries experiencing high rates of urbanisation. Investing in urban infrastructure will be critical to supporting functioning cities in turn supporting economic growth and creating improved livelihoods for the poor.







# Inspire overview

Professionals of the future must be bought in to the ambitions of the SDGs, engaged with global solutions and equipped to deliver them.

## MON AM

### Driving progress towards the Sustainable Development Goals (SDGs): Huawei's approach and the role of innovation

#### GONG KE

President-Elect, WFE0 and Member, UN Science Advisory Council

### Huawei's approach and the role of innovation

#### WALTER WEIGEL

Vice President, Huawei European Research Institute  
Research has demonstrated that connectivity and sustainability are closely linked, presenting some results of the Huawei Sustainable Development Benchmark including some advice to decision makers.

### Panel Discussion: Visualising the future of engineering to 2030 with innovative technologies

**WALTER WEIGEL** Vice President, Huawei European Research Institute  
**ALEXANDER ANDERSON** Chair, IEEE Smart Village Partner Engagement  
**JIANPING WU** Professor, Tsinghua University  
**QU DAOKUI** President, SIASUN Robot and Automation

## MON PM

### Governance, security and standards for artificial intelligence technologies

#### JÜRGEN KRETSCHMANN

President, Society of Mining Professors

### How Baidu will connect and apply AI technology to city design, construction, implementation and operations

#### CATHERINE YANG

Vice President, AI Commercialisation, Baidu Group  
China's leading internet search company, Baidu, is investing heavily in a popular and powerful machine-learning technology called deep learning.

### Panel Discussion: The impact of AI

**CATHERINE YANG** Vice President, AI Commercialisation, Baidu Group  
**NEILL STANSBURY** Founder, Global Infrastructure Anti-Corruption Centre

## TUES AM

### Human at the centre of technology development

#### MARWAN ABDELHAMID

General Secretary, General Union of Palestinian Engineers

### AI and the knowledge society

#### INDRAJIT BANERJEE

Director, Knowledge Societies Division, UNESCO, France  
Human decisions and thoughts on AI: A UNESCO report:  
o Transform everything into data in order to transform everything through data

### IBM Practice: Using AI to improve human life

#### LIMING CHEN

Chairman, IBM Greater China Group  
Changing lives with artificial intelligence and quantum computing.

### Panel discussion: Consider how to address the challenges raised by the emergence of AI, and the principal basis for technology management and legislation

#### INDRAJIT BANERJEE

Director, Knowledge Societies Division, UNESCO, France  
**LIMING CHEN** Chairman, IBM Greater China Group

## TUES PM

### How diverse leadership teams boost innovation

**DATO LEE YEE CHEONG**, Hon Chairman, ISTIC-UNESCO

### An international perspective on women in STEM careers, leadership and collaboration

#### GAIL G. MATTSON

President, International Network for Women Engineers and Scientists  
Introduction of the International Network of Women Engineers and Scientists (INWES), its goals and the worldwide perspective it provides with regard to women in Science, Technology, Engineering and Math (STEM) careers.

### UNESCO Engineering Programme: Why the need for more women in engineering?

#### ROVANI SIGAMONEY

Engineering Programme Specialist, UNESCO  
o Focus on SDG5 and why more female engineers are needed to fulfil the targets of the SDGs  
o The current state of women in STEM and specifically engineering

### Retention strategies for mid-career women

#### NAADIYA MOOSAJEE,

Co-founder, WomEng, South Africa  
To gain a better understanding of the problem of losing mid-career women in the engineering pipeline and how to address internal factors that can influence the greater engineering industry.

## WED AM

### A joint lecture from ICE, Stantec and Heriot-Watt University

#### RICHARD DAWSON

Professor of Earth System Engineering, University of Newcastle

### Panel discussion: Climate resilient infrastructure

**DAVID SMITH** Chief Strategy Officer, Stantec

**RICHARD DAWSON** Professor of Earth System Engineering, University of Newcastle

**PAUL JOWITT** Professor of Civil Engineering Systems, Heriot-Watt University

**ADRIAN JOHNSON** Technical Director, Stantec

## WED PM

### Inclusive cities

### 'What is the city but the people?' The role of the engineer in creating inclusive cities

#### KATE CAIRNS

Cairns Consultancy

#### NEIL SMITH

Head of Inclusive Design, BuroHappold

#### MANON BRADLEY

Development Director, Major Projects Association

#### REBECCA WOODING

Infrastructure Advisor, Growth and Resilience Dept, Department for International Development

## THURS AM

### Transforming infrastructure with Project 13

### Guidance and next steps to develop more sustainable, productive industry working models

#### DALE EVANS

Director, @one Alliance

- o What is Project 13 and what do we mean by enterprise working?
- o How enterprise working can transform the way we deliver and manage high-performing infrastructure

### Panel discussion: What are the barriers to enterprise working, and how to overcome them?

#### DALE EVANS

Director, @one Alliance

#### ALASDAIR REISNER

Chief Executive, Civil Engineering Contractors Association

#### MIKE MOSELEY

Infrastructure Innovation Expert, KTN

## THURS PM: FIRST STREAM

### How to use social media and technology to develop a sustainable project

#### ANNA BRUNI

Trustee, Happold Foundation

Uncontrolled and undocumented population growth in urban areas strains infrastructure services and introduces risks that threaten health and well being.

## THURS PM: SECOND STREAM

### Turning hindsight into foresight: The sustainability and resilience of knowledge

#### GORDON MASTERTON

Chair, ICE Panel for Historical Engineering, Past President, ICE

### Canada's future is built on our civil engineering achievements

#### MIKE BARTLETT

Chair, CSCE National History Committee

### Learning from the past: Don't let history repeat itself

#### TED GREEN

Chair, ASCE History and Heritage Committee

### Making the best of Victorian stations in the 21st Century

#### ANDY SAVAGE

Executive Director, Railway Heritage Trust

## FRI AM

### Optimising the funding and financing of UK infrastructure

### ICE State of the Nation 2018: Infrastructure Investment

#### JAMES STEWART

Vice Chair and Head of Brexit, KPMG

#### PAUL SHEFFIELD

Former CEO, Kier & Laing O'Rourke

#### ANDREW ROSE

CEO, Global Infrastructure Investor Association

Through case studies and examples of international best practice, the SoN report is analysing how the flow of funding and finance can be optimised to support the capital and revenue needs of the infrastructure sector.

## FRI PM

### Infrastructure governance

### How do we improve quality, reach and impact of public service delivery and strengthen environmental protection?

#### CLARE BARRINGTON

Senior Infrastructure Advisor, Department for International Development

- o Using data to inform planning, decision making and programme design

### What innovations can we expect in the future? Which aspects of infrastructure service delivery could benefit from open data in the future?

#### PETTER MATTHEWS & JOHN HAWKINS

Executive Director & Head of Programmes, CoST International Secretariat

## An unrivalled speaker faculty



**NICK BAVEYSTOCK**  
DIRECTOR GENERAL  
ICE



**MARIA JESUS-LAFFARGUE**  
PAST PRESIDENT  
WFEO



**MICHÈLE BLOM**  
DIRECTOR GENERAL  
Ministry of Infrastructure  
and the Environment,  
The Netherlands



**ANDREW WYLLIE**  
CEO  
Costain  
**PRESIDENT-ELECT**  
ICE



**LORD ROBERT MAIR**  
PRESIDENT  
ICE



**DAME ANN DOWLING**  
PRESIDENT  
Royal Academy of Engineering



**NICK O'REGAN**  
DIRECTOR OF  
INFRASTRUCTURE  
AND PROJECT  
MANAGEMENT  
United Nations Office for  
Project Services, UNOPS



**SIR JOHN ARMITT**  
CHAIRMAN  
National Infrastructure  
Commission



**MIGUEL CLÜSENER-GODT**  
DIRECTOR ECOLOGICAL  
AND EARTH SCIENCE  
DIVISION  
UNESCO



**SANIYE GÜLSER CORAT**  
DIRECTOR, DIVISION  
FOR GENDER EQUALITY  
UNESCO



**ZITA JESUS-LEITO**  
MINISTER OF TRAFFIC,  
TRANSPORTATION AND  
URBAN PLANNING  
Curacao



**EMMA HOWARD BOYD**  
CHAIRMAN  
Environment Agency



**MARLENE KANGA**  
PRESIDENT 2017 - 2019  
WFEO



**GONG KE**  
PRESIDENT ELECT  
WFEO and Member,  
UN Science Advisory Council



**SENG CHUAN-TAN**  
EXECUTIVE TREASURER  
WFEO and Managing Director,  
TEMBUSU Asia Consulting



**WŁODZIMIERZ SZYM CZAK**  
ACTING PRESIDENT  
European Council  
of Civil Engineers



**NEILL STANSBURY**  
FOUNDER, GLOBAL  
INFRASTRUCTURE  
ANTI-CORRUPTION  
CENTRE



**LINA LIAKOU**  
REGIONAL MANAGING  
DIRECTOR  
100 Resilient Cities



**SHIRLEY RODRIGUES**  
DEPUTY MAYOR  
FOR ENVIRONMENT  
AND ENERGY  
Greater London Authority



**GLENN HEWUS**  
PRESIDENT  
Canadian Society  
of Civil Engineers





**ROBIN KEMPER**  
PRESIDENT  
American Society  
of Civil Engineers



**CRAIG LUCAS**  
DIRECTOR OF  
SCIENCE INNOVATION  
CLIMATE AND ENERGY  
DIRECTORATE  
Department for Business,  
Energy and Industrial Strategy



**MARK ENZER**  
CHIEF TECHNICAL  
OFFICER  
Mott MacDonald



**MARK HARVEY**  
HEAD OF PROFESSION  
(INFRASTRUCTURE)  
Research & Evidence Division  
(RED), Department for  
International Development  
(DFID)



**GUNA GUNALAN**  
VICE PRESIDENT  
AECOM



**WALTER WEIGEL**  
VICE-PRESIDENT  
AND CSO  
Huawei European  
Research Institute



**JORDAN SCHWARTZ**  
DIRECTOR FOR  
INFRASTRUCTURE  
Public Private Partner  
and Guarantees, World Bank



**CATHERINE YANG**  
VICE PRESIDENT AI  
COMMERCIALISATION  
BAIDU Group



**PETER GREVATT**  
DIRECTOR OF THE OFFICE  
OF GROUND WATER AND  
DRINKING WATER  
US Environmental  
Protection Agency



**LIMING CHEN**  
CHAIRMAN  
IBM Greater China Group

## Our partners

**New Civil Engineer**

**the ENGINEER**





# CEO

GLOBAL ENGINEERING CONGRESS

BROUGHT TO YOU BY THE INSTITUTION OF CIVIL ENGINEERS

22 – 26 OCTOBER 2018

ice  
200  
Institution of Civil Engineers

[ICE.ORG.UK/CONGRESS](http://ICE.ORG.UK/CONGRESS)

ONE GREAT GEORGE STREET, WESTMINSTER, LONDON, SW1P 3AA

