



INSIDE

SCOPE

26

ISSUE 2



Nature

SUMMARY

COP26 was the first such event to feature **biodiversity as a key part of proceedings** and participants highlighted its incontrovertible link with climate change. The UN stated that there is “no pathway to net zero without protecting and restoring nature,” but only 3% of global climate finance is currently spent on nature-based solutions.

More than 90 countries (representing 38% of global GDP) signed the Leaders’ Pledge for Nature to reverse biodiversity loss by 2030: which states that “the interdependent crises of biodiversity loss and ecosystem degradation and climate change—driven in large part by unsustainable production and consumption—require urgent and immediate global action.”

The Glasgow Declaration on Forests and Land Use acknowledged that Indigenous peoples and local communities have a key role in forest stewardship: As stewards of around 80% of the world’s remaining biodiversity, they’re leaders in how to develop nature-based, resilient and effective solutions to climate change. US\$1.7 billion was pledged in recognition of this, but one Indigenous activist from Brazil responded, “we don’t just need funds, we need your respect, your commitments, because providing financial resources does not exempt you from your responsibilities.”

20 countries joined the Forest, Agriculture and Commodity Trade (FACT) roadmap: in which the UK

promised GBP500 million boost to protect more than five million hectares of tropical rainforests across Africa, Asia and Latin America. Meanwhile 33 major financial institutions agreed to **stop financing deforestation** driven by agricultural commodities by 2025.

The Science Panel for the Amazon released a report from over 200 scientists which found that more than a third of the world’s biggest tropical forest is degraded or deforested, rainfall is declining and dry seasons are growing longer.

Should we let nature take over? A “Forest of Hope” will be planted to “rewild” part of the Scottish Highlands to mark the country hosting COP, but using a people-centric, mass ownership approach to invoke “the full fighting involvement” of local communities.

The **World Bank** committed to annual spending of US\$25 billion in climate finance, including a focus on agriculture and food systems. And the **Global Action Agenda on Transforming Agricultural Innovation launched.** The **US\$4 billion** initiative includes increased investment in agricultural research and innovation; focusing at least a third of investments to protect nature and limit climate change; showcasing business models and public-private partnerships that deploy innovations at scale; and forge consensus on the evidence of what works.

26 nations set out new commitments to make agricultural policies more sustainable and less polluting, and to invest to protect food supplies against climate change.

Brazil plans to scale low carbon farming program to 72 million hectares, saving approximately one billion tonnes of emissions by 2030. The UK is aiming to move 75% of farmers to low carbon practices by 2030 and created a GBP65 million “Just Rural Transition” fund.

Campaigners used inflatable animals to call out the “unspoken cow in the room,” a lack of focus on cutting **meat consumption**, addressing food waste, or rethinking farm subsidies at COP. Trees were a headline issue, but not in the context of high consumption of deforestation-linked commodities like beef, soy, palm oil, and cocoa. Few people in the green zone went near the well-stocked beef sandwich shelf.

45 governments pledged urgent action and investment to protect nature, **Canada announced around C\$1 billion** for nature-based solutions in developing countries over the next five years, and **95 companies committed to being “Nature Positive:”** agreeing to work towards halting and reversing the decline of nature by 2030. Finally over **100 countries are now supporting the 30by30 target:** to protect 30% of the world’s oceans by 2030. But is it all too little too late?



Nature

JOSH RUNNING
Senior Associate,
Environmental Services
United States

The protection and restoration of our critical environments are paramount to slowing and reversing our current climatic trajectory. I have always thought of our environment as the “lungs” of the world, and the ability for us to weather the current storm, directly depends on their capacity. The larger the capacity, the more we will sustain. I am extremely excited to see the initiatives focused on reversing the loss of biodiversity and forests, protecting our oceans, and investing in regenerative agriculture and nature-based solutions. All of these play a critical role for sustainability, resiliency and food security. While the efforts discussed up to this point at COP26 are great, there will need to be even more done. We will have to be diligent towards meeting these goals, investing in the right practices, and using the best scientific data to support policy. We only get one shot at making sure we lay the groundwork

for the next generation, and this next decade will set the tone.

The World Bank has committed to annual spending of US\$25 billion in climate finance (in agriculture and food systems). This is an excellent start. But we have to continue to promote more private-sector money into these climate initiatives. Through policy in the US, and the introduction of critical habitat mitigation (401/404) and watershed driven requirements (TMDLs), a restoration economy has flourished. The use of carbon offset requirements in this sense would help drive private sector money into funding much-needed solutions. These carbon offsets need to be rooted in practices that truly make a difference and move the needle in a positive direction.

Additionally, we need to do more to protect developing countries. The Glasgow Forest Declaration will provide a platform to do so, by protecting those critical resources that are being threatened the most. The preservation of our greatest treasures

should not be tied to developmental potential or impoverished communities trying to feed their families.

Finally, we need to make sure we are honoring these commitments. A 2020 UN report found that the world failed to meet any of the 20 global goals set in 2010 to protect biodiversity. That is simply not good enough. Tracking and holding ourselves and our partners to these commitments is crucial. We need to act, and act with good intent.

ELAINE RICHMOND
Director,
Environmental Services
United Kingdom

The protection of nature and sustainable land use is at the heart of climate change action. At the start of COP26, broadcaster and activist Sir David Attenborough made it abundantly clear that action is needed without delay, and the consequences of failing to act are stark. WWF’s State of Nature report states that species abundance is declining, and humanity’s increasing destruction of nature is having

catastrophic impacts on biodiversity and human health. In order to solve the climate crisis, we need to solve the nature crisis.

A commitment to stop and reverse the loss of biodiversity by 2030, was made by over 90 countries in the “Leaders Pledge for Nature.” This outlines transformational action to address biodiversity loss and rebalance our relationship with the natural world to achieve UN Sustainable Development Goals.

It is also recognized that commitment is needed to invest in restoring nature, through the effective delivery of nature-based solutions including protecting and creating thriving ecosystems such as forests or wetlands. Benefits can be multi-faceted through taking an integrated approach to reducing flood risk, enhancing biodiversity, providing improvements in water quality and providing carbon sequestration. When taken together, they can increase climate resilience, and increase the quality of life and wellbeing.

Pledges have also been given by more than 100 countries to end or reduce deforestation by 2030, including large areas of tropical forests which have been used for oil palm and soy plantations. Instead, they can act as sinks and reservoirs for greenhouse gas emissions, and provide the valuable ecosystems needed for our planet to survive.

The pledges made at COP26 are certainly, a key step forward to reduce the decline in nature, but more needs to be done, and robust policy must follow to provide the mechanism for delivery. It is hoped that COP26 will track the pledges that have been given, to ensure they are translated into real action.

During Stantec’s Developing Professional Group’s COP26 webinar on Nature this week, a concept raised really resonated with me. Stantec’s mantra is to Design with Community in Mind, let’s purposefully expand the promise for the work we deliver to Design with Nature in Mind too.



Adaptation, Loss and Damage

SUMMARY

Adaptation is the process of making something suitable for a new purpose. The **Foreign Minister of Tuvalu standing knee-deep in water** to deliver a plea to the rich nations at COP26 to act was a poignant use of sea-level rise to make a point.

A fundamental battle of COP26 is the one fought by vulnerable and developing countries: “*Loss and damage*” is used within the UN process to refer to the harms caused by man-made climate change, but industrialized countries are loathe to accept liability, or pay direct compensation.

By one estimate, **climate change will push over 100 million people into poverty** and **US\$300 billion will be required for adaptation by 2030**. Calls sounded for adaptation plans that are created in partnership with the most vulnerable groups who have the greatest needs, using adaptation to address **climate inequality** in every region.

But to date, **very little financing has gone to adaptation**, possibly because outcomes can be harder to quantify than projects focussed on mitigation. For COP26, **over 30 countries—representing some two billion people—submitted national adaptation plans**, but step change is needed and funding to deal with the effects already being seen. Former UN Secretary General Ban Ki Moon called for plans to include a 50/50 adaptation and mitigation split.

A [UN report](#) found that **the countries that got rich through industrialization—and caused the problem—are releasing barely a tenth of the money poorer nations need** to adapt to the consequences.

The World Bank announced 35% of financing will support climate projects: 50% will go towards adaptation. It will contribute around one-quarter of the US\$100 billion pledged by western countries to support adaptation finance in developing countries. Frustration abounds that this figure promised back in 2009, has never yet been delivered, with calls to backfill historic shortfalls, and avoid financing in the form of high-interest loans.

Greenpeace, Amnesty International, Global Witness and Articulacao dos Povos Indigenas do Brasil called carbon offsetting a “smokescreen” to avoid real climate action: the demand for land to plant trees is forcing indigenous people away from ancestral lands.

A representative of Fiji concluded that **“if we fail to keep below 1.5°C, it will be on our epitaph.”**

SIMON DARCH

Sector Lead Non-Regulated Water *United Kingdom*

Meaningful progress or merely greenwashing? Draw your own conclusions from COP26, but what is evident is that we are enveloped in a sustained period of climate adaptation, with or without the delivery of promises. “Adapt or die” is the alarming strapline from the Environment Agency (EA). Emotive, but difficult to challenge with the climate influenced events we have witnessed around the globe, and ministerial speeches being delivered knee-deep in rising Polynesian waters. But what can we expect from a period of adaptation from a UK flood risk perspective?

We are already experiencing more frequently occurring intense rainfall and river flow events, and it is not sustainable to simply build defenses higher or rest on our laurels. A more integrated approach is needed for water level management that can bring together natural flood management practices in highland waters, urban capture through enhancing blue/green spaces in our communities, and strategic control and pro-active management within our lowland basins.

Wetter winters and dryer summers are predicted and will compound the already inequitable water resources across the UK. We have become too reliant on drawing-down easily accessible aquifers for potable water supplies, particularly



Adaptation, Loss and Damage

in the eastern region. It is a national embarrassment that a country with such a temperate climate should be faced with declarations of regional water stress that could impact our communities and ecosystems. With rising winter rainfall and increased public water demands, nature is offering us some pointers on how to solve these issues. More innovative recharge schemes, and investment in the infrastructure needed for water transfer, capture, and re-use is urgently needed, and a more robust long-term vision and resilience needs to be formed.

Maybe the EA will heed their own advice and adapt the governance around Flood Risk Grant in Aid? The recent release of additional funding is much needed and welcomed, but their stewardship can sometimes stifle delivery of critical asset refurbishment work on the ground. Our flood risk and natural capital assets are in a sorry state and require urgent capital and maintenance investment just to stand still. There has also been a historic

shift of emphasis towards investment in the protection of property, but our communities and impacts often extend well beyond the urban fabric. Recent global events and supply chain problems have highlighted a “food security” vulnerability in the UK, and with a more sustainable procurement movement towards local and seasonal sourcing, greater political importance needs to be placed on sustainable agricultural production and natural capital in our thinking and investments.

Perhaps the biggest societal threats are sea-level rise and the erosion of our coastal communities, both physically and figuratively. This is an area where damages and resilience come at a high price, and some hard choices will inevitably need to be made. Projects such as Wrangle Sea Bank have shown how coastal communities and stakeholders can come together to protect themselves. In other areas, a managed realignment approach is more appropriate and will bring enhanced biodiversity and social value outcomes.

COP26 will bring little change to the sector, but a shift in public and political perception may just help identify what we value most in society and help us custodians of the water environment to adapt and deliver the resilience we need to sustain it.

DOM KEMPSON

**Vice President,
Environmental Services,
Sector Lead, Water Resources
United States**

There seems to be a lot of confusion and misinterpretation regarding the purpose and need for carbon offset initiatives. In the long term, the ultimate goal should be to minimize and eradicate wherever possible the generation and release of greenhouse gas emissions (GHG).

However, the reality is that this will take time to achieve. The implementation of projects which capture GHG from the atmosphere now, needs to be part of the mosaic of solutions that will help us reduce existing concentrations, and offset future emissions as we move toward a GHG free future. Scientifically credible projects which engage nature based solutions are particularly important as they not only harness the power of natural systems to sequester carbon from the atmosphere, but also offset the damage to our current

global ecosystems. These initiatives provide a multiplicity of additional benefits to sustain and recover biodiversity and offset other impacts of climate change such as water quality/availability, flood/storm risk protection, and habitat loss.



Adaptation, Loss and Damage

DYLAN HEMMINGS

**Vice President,
Climate Solutions
Canada**

The science is clear: climate change will lead to more extreme weather events across the globe. How do we manage the risk of future climate impacts on projects when faced with these looming threats? Systematically. To design a resilient and adaptive solution that can withstand future climate change, a Climate Risk Assessment or Climate Risk and Vulnerability Analysis is required.

Codes, regulations, and guidelines in design are based on historical climate trends, but the pace of climate change is eclipsing the climate assumptions used to develop them. What was once considered a one in a 100-year flood event now occurs every 10 years. In Canada we've evolved common industry-accepted methods to assess future climate risk over the past 15 years.

Two key drivers are federal government policy focused on incorporating resilience, and financial disclosure recommendations released in 2017 by the Task Force on Climate-related Financial Disclosures (TCFD). Initiatives like the Invest in Canada Infrastructure Programme requires the completion of a Climate Lens Assessment, including a climate resilience, and greenhouse gas mitigation assessment. Green and Inclusive Community Buildings require a resilience assessment as part of the funding application. The Federal Contaminated Sites Action Plan will soon require future climate change is considered when assessing contaminated sites and designing remediation programs.

TCFD recommendations are structured around four themes: governance, strategy, risk management, and metrics. Companies across Canada and globally, are starting to incorporate TCFD recommendations into annual reports. It's anticipated that many

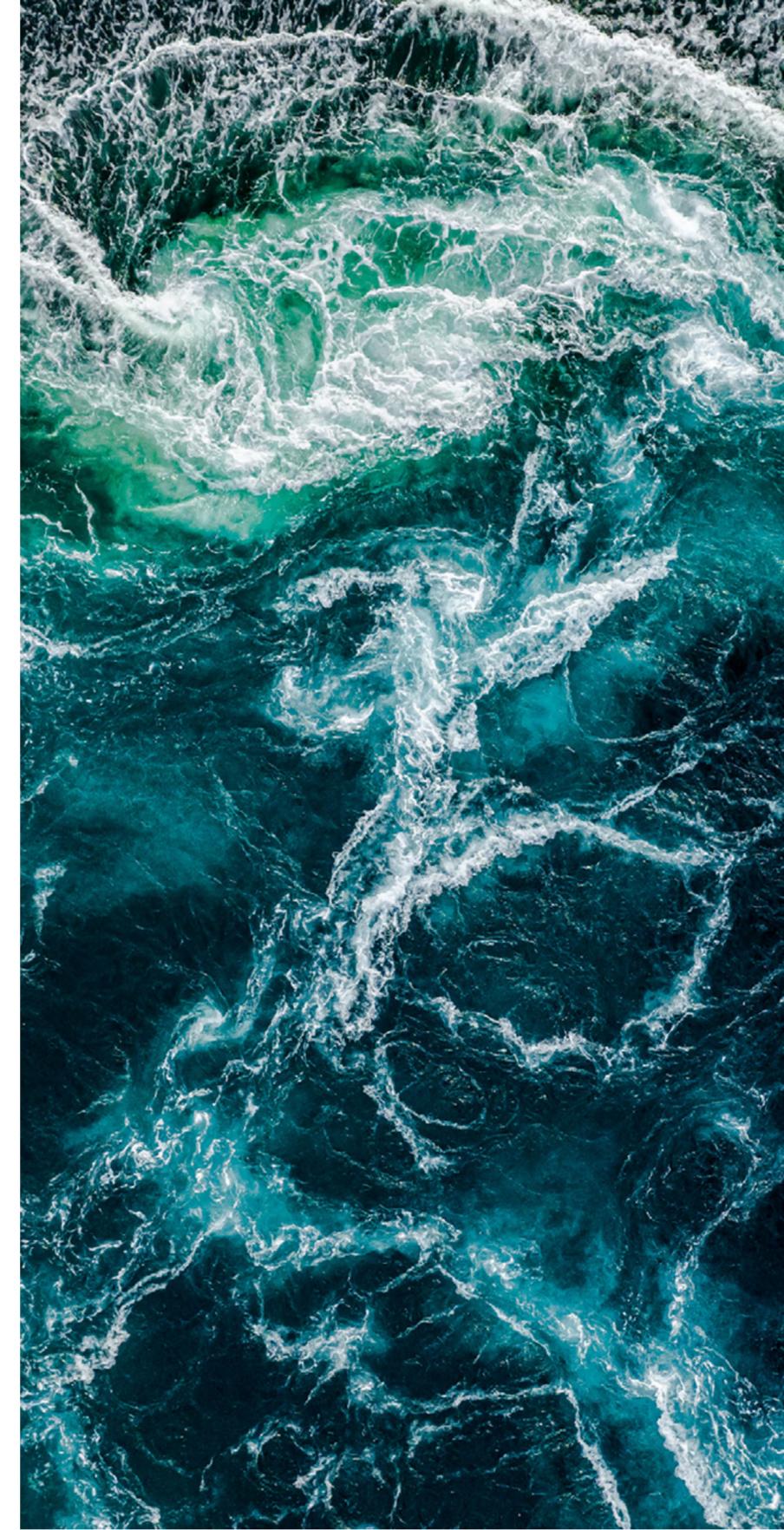
major security and exchange commissions will mandate public companies report on the TCFD recommendations. This trend is expected to increase through the energy transition.

Expect this trend—of considering climate risk and developing resilient solutions—to increase over time. After all, it mitigates risk and helps save money over the long run. Studies have shown that a one dollar investment in resilient infrastructure can save between three and 10 dollars in recovery costs when non-resilient infrastructure fails.

Where we manage projects impacted by severe weather, we have a responsibility to consider and include future climate risk. Rivers and lakes will flood more frequently. Sea levels are rising. Permafrost is melting. Precipitation patterns are changing. We have to consider how existing water, power, and transportation infrastructure supporting the project will withstand the changing climate.

As Benjamin Franklin once said, "If you fail to plan, you are planning to fail."

Read his full article [here](#).





Gender

SUMMARY

Women and girls bear the brunt of climate change: this is well known, and was freshly evidenced at COP26, with estimates showing 80% of people displaced by climate change are women and at least [four million girls](#) will be prevented from completing their education by climate-related events. As one speaker put it, climate change is sexist.

Investment in climate change adaptation is crucial. We heard calls to **achieve gender-responsive finance** and involve more women on the ground; funds need social and gender experts (not just technical ones); more women should hold seats at the table, and funds should be directly accessible to women's groups and female entrepreneurs.

Evidence shows that gender-equal societies are less likely to end up in conflict, and countries with more women in power have stronger climate policies. The climate emergency will not be solved by the same people who created it, but female representation at COP is nowhere near representative of society.

There were some gender commitments. Bolivia committed to promote the leadership of women and girls, especially indigenous, Afro-Bolivian, community, and rural women through its involvement in sustainable development

projects, reflecting gender data in its Nationally Determined Contributions, and working with UN Women to promote the use of gender breakdowns in official national statistics on environment and climate change.

Canada said it would ensure that **80% of its C\$5.3 billion climate investments over the next five years** targets gender equality outcomes.

Ecuador committed to strengthening leadership, negotiation, and decision-making capacities within women's organizations working on climate.

Germany announced a new gender strategy under its International Climate Initiative to promote gender-transformative approaches in international climate and biodiversity cooperation.

Nigeria expanded on its Implementation Strategy for their National Gender and Climate Action Plan.

Sweden announced new measures to firmly embed gender equality within all their climate action, as mentioned in Sweden's Climate Policy Action Plan.

The UK set out how GBP165 million in funding will address the dual challenges of gender inequality and climate change.

The USA committed new funding for gender-responsive climate programming including: US\$14 million of the Gender Equity and Equality Action Fund to advance women and girls' leadership in climate action and participation in green industries, while building climate resilience, and US\$3 million investment to support women farmers in East Africa to adapt to climate impacts.

Nearly half the world's population are women, but currently **only 3% of Official Development Assistance is directed toward them**, with the majority of climate finance focusing on reducing greenhouse gas emissions, capturing carbon, or responding to climate disruption.



Gender

NATASHA JONES

**Director,
Landscape Architecture
United Kingdom**

Until Gender Day at COP26, I wasn't aware that women are more vulnerable to climate change than men. The UN has identified that: women form a large majority of the world's poor; globally women often depend on small-scale farming that is highly susceptible to climate change impacts; and 80% of people displaced by climate disasters are women and children. It's only going to get worse.

Little Alma, a 3 ½ metre tall puppet that is walking 8,000 kilometres across the world this year, drew attention to how young women and girls are disproportionately affected by climate change, and the important role that they play in taking positive action against climate change.

Fatou Jeng, Founder of Clean Earth Gambia and Co Lead YOUNGO Women and Gender Working Group spoke about the additional burdens

and barriers for women and girls during times of climate-related crisis. She explained that women have fundamental roles in providing food for communities, and as carers and activists; making women uniquely placed to drive long term climate resilience. She called for more women to be "*...involved in the policymaking, project planning and implementation of climate adaptation projects... .*"

It was heartening to see countries starting to take this issue seriously. For me, the outcome of Gender Day at COP26 is a clear, global call to increase education and leadership opportunities for women and girls across the world, so that they are empowered to take effective climate action. It's a call to do more. We can all help to achieve this. Whether through our STEM work with schools, empowering our communities through our social value program, or supporting women in our built environment, planning, construction and environment professions, together we can design and create a better and more equal world. We rise by lifting others.

SOPHIE NIOCHE

**Associate,
Environmental Planner,
Community Development
United Kingdom**

Much of the COP26 focus has been on conversations and declarations inside the halls by world leaders, but if true equality is about hearing all sides of the story and acting upon it, we must also hear what is being said outside by the world citizens who have travelled, many very far, to be heard. One very moving example is Sii-am Hamilton, who over the past year has been involved in direct activism to protect ancient forest at [Fairy Creek](#), Vancouver Island. She [led a rally for murdered and missing indigenous women](#) with the chilling line: "remember it's not if, it's when you will go missing, if you are involved in land rights."

The climate emergency will not be solved by the same people who created it and we can see through many of the COP discussions that this is recognized; the challenge is how

to act upon it when our institutions globally are so engrained. One of the reasons that Greta Thunberg's unyielding challenges to world leaders have captured so many of us is her bravery as a young woman. When my 12-year-old daughter worries about climate change, we read Mya-Rose Craig's "We Have a Dream—meet 30 Young Indigenous People and People of Colour Protecting the Planet" together for inspiration and hope.

Following on from the finance discussions in week one, a principle gaining traction is around gender responsive finance with several nations making some financial and or leadership commitments to assist a transition to gender equality in climate matters.

At an individual level, we all have a role in recognizing the importance of gender equality in addressing the challenges of climate change and, crucially, acting upon it. For me, our teams designing future places for people to live, work and play around

the world must be representative of those people to truly make them safe and healthy places for all, while minimizing their impacts on the planet. I'm proud to be part of our Women@Stantec UK chapter, supporting the development of young professionals who have an incredibly important part to play in designing future places.



Gender

SHAGHAYEGH MIRMASOUDI

**Senior Research Advisor,
Research and
Innovation Services
Canada**

Rural communities' contribution to our food production system should not be neglected. We need to support local farmers and food producers to reduce greenhouse gas emissions and improve our carbon footprint.

Canadian Prairie provinces (Alberta, Saskatchewan and Manitoba) have the most crop farming, beef cattle operations and pig farms of any province. Farm women living in these provinces play an essential role in the region's agriculture. Climate change impacts will create a more difficult situation for women to enter the agricultural industry unless necessary actions are taken.

Canada's Ambassador for Climate Change announced at the COP26 Gender Day that 80% of Canada's C\$5.3 billion dollars climate finance

over the next five years will be allocated to projects targeting gender equality outcomes. This will bring further opportunities to empower women against climate change, by investing more in renewable energy, food and water security projects. By involving women in leadership, research and innovation, social and educational roles, by applying indigenous knowledge.

Now is the time for us to take strong action on climate change. Well said indeed the Maldives' special envoy for climate change, Ms. Sabra Noordeen, we need to half emissions by 2030 to limit temperature raised by 1.5°C. We have only 98 months to do this!

BECKY CLARKE **Human Resources, Client Services United Kingdom**

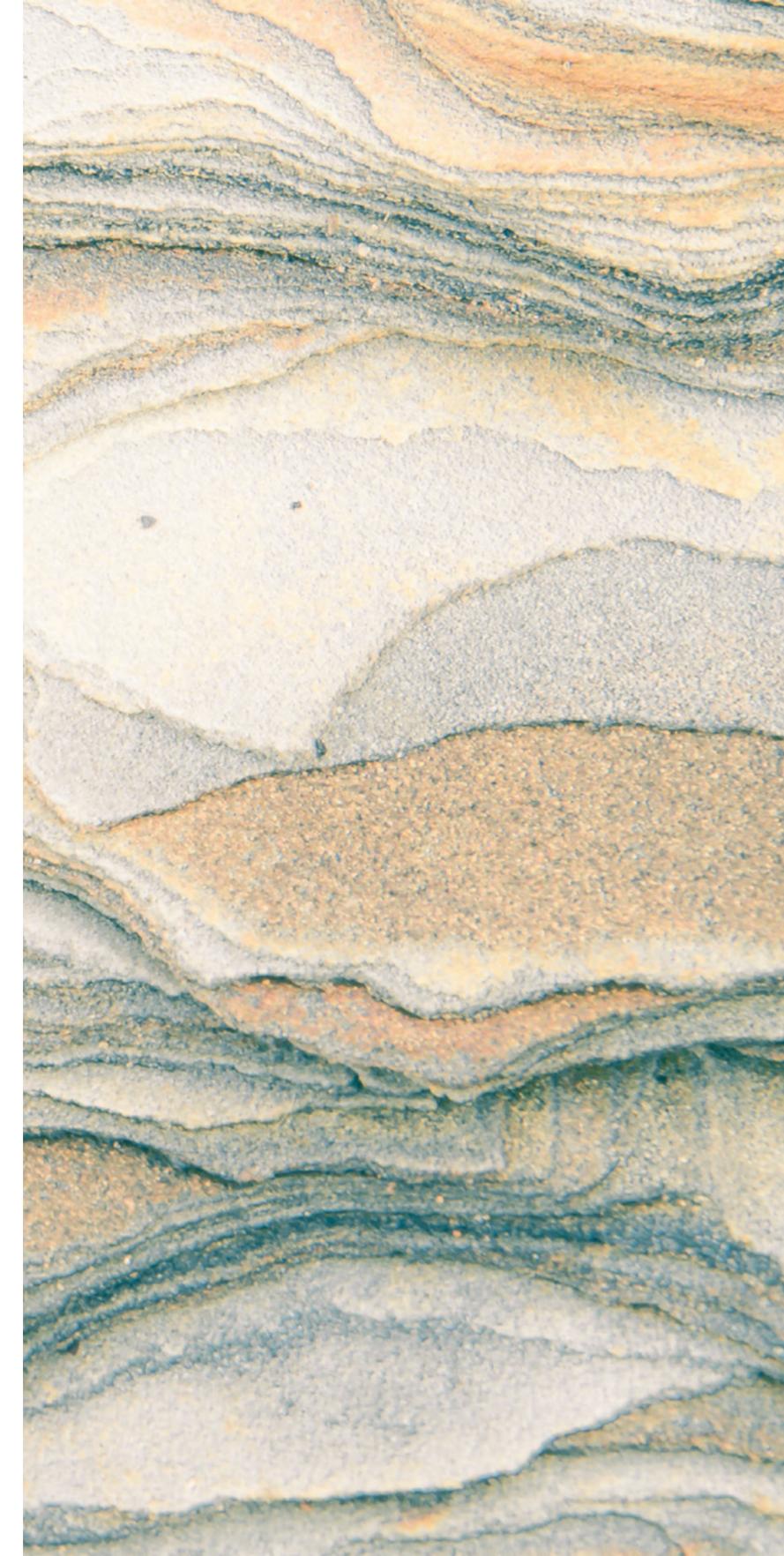
My obvious hope and expectation for COP26 is that we come together globally, agree on crucial targets on carbon emissions, and restrict the increase of global average temperatures.

However, without gender balance and the consequent diversity of thought, we are forced down the route of traditional thinking about solutions. For the incredibly different challenges ahead we need diverse thinking and representation. Sadly, you only have to look at the world leaders at COP26 to see that gender representation is poor.

We also know that women and girls are disproportionately affected by climate change, because women are more vulnerable to poverty. They tend not to be economically independent, often denied property rights, carry out the majority of domestic work

and experience violence and sexual abuse. All of these will be negatively impacted by climate change, thus affecting women in a disproportionate way.

It is absolutely crucial that we all work towards the ultimate goal of gender equality. COP26 is a real opportunity for us to make that difference, and we are already seeing change through commitments to investment in gender equality programs, promoting the leadership of women and girls in sustainable development projects and by strengthening women's organizations working on climate.





Science and Innovation

SUMMARY

By the middle of week two, 1.5°C was not alive, with the [Climate Action Tracker](#) putting the world on track for at **least 2.4°C rise** thanks to the “massive credibility gap” between targets and the policies to deliver them.

The UK's Met Office predicted about **one billion people will face crippling heat from a 2°C rise** in global temperatures, and scientists warned that without action **billions more people will be at risk of mosquito-borne diseases** such as malaria and dengue, warning “the outlook for our children is very bleak indeed.”

Worldwide health services account for almost 5% of global greenhouse gas (GHG) emissions, but **46 countries made commitments to build climate-resilient health services and become net zero.**

Climate adaptation and resilience research got a financial boost of GBP48 million from the UK, alongside GBP10 million from Canada to support the development of actionable solutions in the communities most vulnerable to climate change and extreme weather events. GBP40 million of the UK's contribution will be focused on Africa.

23 governments joined Mission Innovation to facilitate urban transitions, eliminate emissions from industry, enable carbon dioxide removal, and produce renewable

fuels, chemicals, and materials. The Urban Transitions Mission aims to deliver at least 50 large-scale, integrated demonstration projects in urban environments around the world, providing a pathway for all cities to adopt net zero carbon solutions by 2030.

So much of our carbon is embodied, but **Industrial Deep Decarbonization Initiative aims to disclose the embodied carbon in major public construction projects by 2025:** signed by the UK, United Arab Emirates, India, Germany and Canada, it will provide a baseline for developing a 2030 reduction on the road to net zero by 2050.

Out of sight, out of mind? Not with the **Space Innovation fund:** projects include a network of satellites measuring thermal emissions and energy inefficiency hotspots from buildings, and a forest management tool to monitor the health of ecosystems from space. The UK has agreed GBP7million for the fund.

PATRICK CHAMBERS

**Principal, Mechanical Engineer
Australia**

Humanity is in the pursuit of affluence and will always embrace science, innovation, and technology where it can feed this endeavor. At the personal level, this might take the form increased wealth, leisure time, personal health or spiritual reconciliation. At a population level, we tend to see this drive for affluence take the form of metrics such as economic development (GDP per capita), increased life expectancy and decreased child mortality. Unfortunately, these outcomes are often proportionally coupled to GHG emissions. This is because the technological solutions that have enabled breakthroughs in human development have been embedded in the carbon economy.

Science and innovation brought about the industrial, technology, and digital revolutions. At the start of this journey, society was somewhat blind to the repercussions. Twenty-first century technological innovations have been fast-paced and are increasingly driving the globalization of goods, services, capital, and labour. Spurred by our pursuit of affluence, the capitalistic free market has been an effective engine in facilitating exponential technological development. However, amid this industrial and technological boom, we have generally lacked the foresight to gain consensus in understanding the externalities of these endeavors.



Science and Innovation

In the future, science, and innovation will continue to create new technologies that make our lives easier and more enjoyable. We must make sure these breakthroughs are commercially viable as well as considering their environmental costs. Furthermore, if we cooperate globally to prioritize the environment and fiscal incentives, innovation will lead to technological solutions for a sustainable future.

Perhaps the most important thing to consider is that the pursuit of affluence is different for different people. In the context of global climate change, the greatest risk is that the emerging economies will make similar mistakes in the twenty-first century that “developed” nations made in the twentieth century. The population scales are so drastic that if the pursuit of a better life for developing nations becomes coupled to GDP per capita and GHG emissions as it was in the twentieth century, the global warming trajectory is catastrophic.

New ideologies are necessary, and technology and science will not solve the problem alone. The most sustainable school is not necessarily a shiny net zero carbon facility with onsite renewable energy, but perhaps a cloud-based school with no built infrastructure. The most sustainable automobile is the one that never got built. Energy efficiency of engineering systems in buildings should take a backseat to passive design features, adaptive re-use and vernacular architectural strategies that minimize the very need for engineered intervention.

To quote Albert Einstein, “We cannot solve our problems with the same thinking we used when we created them.”

RICH ANDRACHEK Senior Vice President, Environmental Services United States

I remember seeing the car bumper sticker “Think Globally, Act Locally.” It seems appropriate to comment on this concept relating to science and innovation at COP26—its origins appear connected to Scottish town planner Patrick Geddes, who believed in working closely with the environment. As we struggle to cope with, adapt to, and attempt to remediate a rapidly warming world, the need to develop and deliver creative minimal-energy solutions at various spatial and temporal scales is more urgent than ever.

My thinking on the topic of climate change is closely related to my fundamental training in the sciences of mathematics and thermodynamics. Today’s climate change problem is related to an incredible rate of change of warming, the first derivative in calculus. Our insatiable desire for energy ties us very closely to the

second law of thermodynamics and the concept of entropy, where a significant amount of energy is required to maintain systems that have been created through the initial infusion of energy. We are locked into continuous delivery of energy just to maintain the status quo. To date, most of that energy has come from carbon-based stores on or beneath the earth’s surface.

The creativity and innovation needed to minimize further atmospheric temperature increases will need to come at various spatial and temporal scales. Locally, we can reduce our energy footprint through personal choices and actions. Further, innovation is needed for energy systems at the county, provincial, state, national, continental, and global scales, and those of our supply chains. The thermodynamic complexities associated with direct air capture of well-mixed and extremely diffuse carbon dioxide and other greenhouse gases from the atmosphere is particularly challenging. Further energy will be

used to develop and deploy renewable systems that will protect lives, livelihoods and harden our assets from changing weather and climate.

My colleagues and I are energized and active in developing innovative [climate solutions](#). We are working on life-cycle embodied carbon assessments for buildings and communities, autonomous electric vehicle systems, satellite and internet-of-things data flows, while working with universities, entrepreneurial digital start-ups, and largest digital global enterprises.



Science and Innovation

JOHN WANBERG

**Knowledge Strategy Manager
Netherlands**

COP26 is an encouraging show of global solidarity to fight climate change, but we also recognize that individual behavior and consumption drives an outsized percentage of greenhouse gas emissions. Innovation has been brought up repeatedly as a strategy for addressing behavioral change, but I think this is only partially true.

Large scale behaviour change is very difficult when it requires people to act against their immediate interests. Consumer behavior tends to be driven by simple things like need, availability, cost, and convenience. If I have a baby, and run out of nice, reusable cloth diapers, I might lament the use of a disposable product, but most of us will buy and use the environmentally damaging product rather than go without. The same is true for transportation, use of plastics, waste disposal, building heating.

This is where innovation can shine, and specifically where we should be thinking about values-driven innovation. Companies that design and build all kinds of products should add environmental factors as design constraints. Personally, I think trying to change consumer behavior is not the best use of our time. Instead, we should be targeting the most damaging consumer products, and trying to replace them with better versions of themselves that are not as environmentally destructive.

Tesla is a great example of this when it comes to the electrification of transportation. I realize the whole life carbon accounting of a car is complicated, so ignoring this complexity, let's think about the simple goal of getting people to drive electric cars. Tesla did it by building a faster car. Some people buy it because it is electric, some because it looks cool or has fun features, and still, others buy it because it wins in a drag race (the fastest production car in the world is a Tesla Model S Plaid edition). The point is, there

is no dissonance between what the consumer wants, and what is environmentally conscious.

As designers, my colleagues and I think this way about the infrastructure industry. We're consistently investing in new products and services that track carbon earlier in the design process, so that we can design better buildings, water treatment plants, or power plants that also happen to be more sustainable.

Innovation is the art of creating that which does not yet exist. I believe that by adding simple values like net zero carbon, use of natural materials, and lifecycle analysis, we can usefully harness innovation to change what we consume, rather than trying to change the consumer.

MARK S. BARTLETT JR. **Engineering Insight and Analytics Technical Lead United States**

As climate change continues to bring extreme weather, it has become increasingly imperative to identify and protect against unprecedented events. Thus, it is crucial to show that the uncertainty of climate modeling is certain, and in turn, ask the question, "do we feel lucky?"

This question of luck, in a way, describes the state of the debate about acting on projected climate change. With the discussions at COP26, it's reasonable and healthy to have doubts and questions; however, it's unreasonable to deny that society is running significant risks that are indisputable in terms of the certainty of climate uncertainty. While there is variability in the projection, the trend is quite certain. Understanding this is crucial to settling with reason what may be doubted and answering exactly how lucky we feel.

Innovative approaches must convey the certainty of increasing risk as an integral part of discussions, so that the costs of government action are weighed against both the likelihood of damaging outcomes and likelihood of positive outcomes. For example, [recent work](#) highlighted the utility of uncertainty in quantifying the social cost of carbon under climate change projections. This aspect of innovation is crucial for countering campaigns that aim to sow the seeds of doubt and are effective in forestalling meaningful action.

My colleagues and I are excited and actively pursuing novel methods and approaches for quantifying the uncertainty of climate in certain terms—that clearly define the cost of climate impacts from flooding, extreme heat, wildfires, and drought, as well as other natural hazards that become a greater risk with climate change.



Science and Innovation

JONNY RIGGALL

**Director, Built Environment
United Kingdom**

Hidden amongst the headline-grabbing big number announcements, bilateral agreements are being struck on research, development and innovation between countries. The majority of actions required to reduce our global emission crisis will come from deploying technology, and delivering it is where the public and private sector will capitalize on the net zero transition.

The country that reduces the innovation abatement cost curve on technologies below that of the existing fossil fuel tech will reap the rewards.

The US–China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s, and the US–UK strategic energy dialogue are examples of where countries are looking to share initiatives in research and development, especially

around methane reduction, small modular reactors and energy security.

The innovation in discussion is predominantly here. *“Necessity is the mother of innovation”* and the necessity to deliver our collective goal is significant. This underpins the fourth Industrial Revolution.

Smart grids, energy storage and renewable energy are all vestiges of the third “Digital” Industrial Revolution. We will see more innovation to improve such technologies, but our eyes should be on the horizon as to what the fourth Industrial Revolution will bring.

The rise of artificial intelligence in data analytics, automation and internet of things will trump the existing “innovation.” Autonomous vehicles, biomimicry building materials and vertical agriculture will radicalize emission reduction.

How much reliance should we be placing on third industrial technology to mitigate our emissions in the fourth Industrial Revolution? Instead, can we imagine a future where living is affordable to all, infrastructure and new homes are delivered at variable speeds of economic growth, by information technology companies based on a global supply chain agreement? And all under an ethics charter that delivers income back to those who sourced the materials. That is what the fourth Industrial Revolution can deliver.





Transport

SUMMARY

By day nine of COP26, a lack of agreement on stronger transport targets, more money or greater clarity on delivery methods led the former UK Secretary of State for Energy and Climate Change, Ed Miliband, to acknowledge expectations were meeting a **"devastating reality check."**

A stark warning from [Climate Action Tracker](#) found we are on course for 2.4°C of warming, far more than the critical 1.5°C tipping point. Wateraid said world leaders had just "hours to turn around the life chances of millions of men, women and children across the globe who are facing the deadly impacts of climate change."

Such was the scene to tackle **transport, the sector responsible for around 30% of global greenhouse gas (GHG) emissions**. About 30 countries and six major vehicle manufacturers pledged that all cars sold by 2040 would be zero emissions. Whilst there are hopes this will kick start a mass market for Electric Vehicles (EV), questions remain about the carbon footprint of EV car production (70% higher than internal combustion engines), supply of renewable charging energy and resource recovery.

Volkswagen and Toyota did not sign the pledge. [Neither did US, China, or Germany](#), although many of their cities and manufacturers did. VW cited battery capacity and renewable energy grid development as potential barriers to meeting the target. Greenpeace is now suing them for failing to do enough.

Across our skies new, the Aviation Climate Ambition Coalition was launched to reduce aviation emissions in line with efforts to limit warming to 1.5°C, but backed by only 23 countries representing 40% of the aviation market. Spain and France restated intentions to ban short haul flights with alternative train routes of less than 2½ hours, and the UK Government, amongst others, is focused on exploring new technologies.

All aboard the **creation of zero-emission shipping routes** with 19 countries agreeing to the "Clydebank Declaration," which aims to create at least six "green corridors" with ports as anchor points for clean shipping solutions.

To boost cycling, 14 out of 27 EU countries have had at least one tax incentive or purchase-premium scheme which is a start. But achieving the EU's plan to create a climate-neutral continent by 2050 requires a 90% cut in transport emissions.

JOSH GRANTHAM

**Senior Urban Sustainability Consultant
United Kingdom**

The agenda for transport day—accelerating the transition to zero-emission vehicles—goes against the [transport user hierarchy](#). We need to refocus the conversation around the hierarchy, and it starts with walking. We've been doing it since the beginning of humankind, and we need to reconnect.

The solution is simple: infrastructure to make journeys more enjoyable and accessible whilst disincentivizing short-term vehicular journeys. Cycling and micro-mobility can help us remove cars and are great for journeys under five kilometres. To meet 2030 targets, the UK will need to reduce the number of vehicular journeys by 20%. We need to redistribute road space and deliver high quality protected infrastructure, and a global cycling culture. Electric bikes can help make cycling more accessible and micro-mobility can help provide last mile solutions.

The right public transport solution is location-specific, but generally, we need to electrify existing systems and build new ones to unlock growth in our towns and cities. These interventions will make transitioning to zero-emission vehicles far easier, as well as being better for health and urban environments. We need policies that help deliver the required infrastructure and shift behavior.



Transport

ALAN KERR

Sector Lead, Urban Mobility New Zealand

A lot of the dialogue at COP26 relates (either directly or indirectly) to the transport sector, with the potential to have a major bearing on how we travel, and on how we plan and design transport infrastructure.

In New Zealand, road transport generated 42.6% of all carbon dioxide emissions in 2018. Emissions from transport increased by a staggering 89.7% from 1990. Eye-watering figures like these hint at the positive impact that could be achieved by decarbonizing transport.

A number of impressive-sounding pledges have been made at COP26. But do these initiatives go far enough, or are they simply just another source of hot air? Only time will tell.

It is encouraging to see some focus on the decarbonization of the supply chain. In New Zealand, we're working on projects to investigate how rail

motive power can be decarbonized and how the amount of freight carried by rail can be increased. This will be an important step in reducing the impact transport has on the environment.

From an urban mobility perspective, a lot of the focus at COP26 was a round increasing the uptake of electric vehicles. While electrifying the vehicle fleet is an important step, it will only be part of the story.

Reducing the carbon footprint of transport will also require changes in land use and societal changes. Increased urban density and a move to shorten the average trip length, coupled with targeted infrastructure investment will encourage a shift to more sustainable forms of transport. Our cities need to be places where active and public transport options become the first choice for the majority of trips. This will require significant behaviour change. If nothing else, the media coverage of COP26 will continue to highlight the need for such behavior change and will hopefully result in a lasting legacy.

SARAH CONNOLLY

Transportation Sustainability and Climate Change Lead New Zealand

My hope is that by 2030 we are well on our way to lower emissions. The transport sector is ready for change, we already have many of the tools we need to progress.

I was encouraged to see the zero-emission shipping routes commitment. Although this won't reduce New Zealand's domestic emissions, it will help to maintain and strengthen its connection to the rest of the world and is essential for our supply chain. I am optimistic that once the first six routes are in operation, others will follow quickly, especially if this information is communicated to consumers.

I have seen little other commitment to action within this decade. The pledge on 100% zero-emission vehicle sales by 2040 were agreed, but 2040 is a long way away. Disappointingly, important players have not signed up.

However, pressure from shareholders and consumers could help those companies change their thinking. A powerful step to influence consumers would be to provide embodied carbon/transport emission data for products and services, and for this information to be displayed at point of purchase, like a star rating. This could create a new normal where people make informed decisions about the emissions impact before spending.

For transport, this could lead to a behavior change. It would allow people to understand the carbon cost of driving to work, compared to riding a bike, catching the bus or walking, as well as the impact of other trips such as flying overseas.

This could be the first step towards a carbon rationing system, an idea I read about from 2006, by the former UK Environment Minister David Miliband. Each person would have a set amount of carbon to "spend" each year. People would then make trade-offs: flying overseas might use

up your personal carbon budget for two years and require making other lifestyle changes, such as taking the bus or buying an electric car. This could lead to a more equitable system than making fossil fuel modes continually more expensive. Definitely an idea worth thinking about!



Transport

SARAH MATTHEWS

**Transport Planning Director,
Community Development
United Kingdom**

I was, along with many pressure groups, disappointed by the lack of discussion at COP26 about public transport, walking, and cycling, given that the UK Government's "[Transport Decarbonization Plan](#)" includes making low-carbon public transport more accessible, and provision of better cycling infrastructure.

The UK Climate Change Committee identified significant opportunities and advantages to reducing travel demand (by up to 34%) but advised it would not happen without firm policies. Investment in placemaking and transport is needed to create successful communities, which do not rely on the car and contribute to delivering a zero-carbon future.

Shared and micro-mobility have important roles to play. Even without the concerns of climate change, we cannot keep building roads to

accommodate continuously growing travel demands. Realistic alternative travel modes will help improve health and wellbeing, quality of place, and the environment.

TANYA MORAN

**Group Leader,
Western Australia,
Transportation
Australia**

TIM JUDD

**Senior Principal
Transportation Planner
Australia**

Transport was the second largest cause of anthropogenic greenhouse gases in 2020, causing 19% of national greenhouse gas (GHG) emissions, excluding infrastructure construction in Australia. The increase in electric vehicles for both private and business use is a key move to enable a reduction in carbon emissions. Government must take the lead on this and show the general public their intent, ensuring all public transport fleets, government pool/company vehicles for use by employees are electric and, where possible, begin the conversation around taxi's, heavy vehicle freight, delivery companies etc.

However, 100% zero emissions requires a large investment into charging stations to cater for the large distances within Australia, including fast charging, especially for heavy vehicles. Will electric trucks be able to efficiently move fully loaded 60 mile road trains?

Within Australia, the Mission Australia Youth Survey Report 2020 asked young people to list the three most important issues in Australia today. Three in 10 respondents reported mental health (30.6%) and the environment (29.8%) as important national issues.

The Australian Government's target to reduce total GHG emissions by 28%, from 2005 levels by 2030, is too small to avoid the significantly damaging effects from climate change. While the transition to electrically powered vehicles will be essential to meet net zero targets in the longer term, reduced reliance on and reduced use of cars in urban areas will be needed in the short to medium-term.

Large scale investment into cycling infrastructure would provide the biggest impact and ensure a safe and connected network is implemented. Tax incentives and purchase schemes along with "stick" de-incentives such as appropriate parking pricing or congestion charging will also be required, making cycling the natural mode choice and driving short trips economically unviable for the everyday person.

Investment in infrastructure and policy levers need to be hand in hand with measures to change the attitudes and behaviors toward travel by the general public. A holistic approach to making streets healthier to encourage people to walk, cycle and interact with the local community is imperative.



Transport

KEITH MITCHELL

**Regional Director,
Community Development
and Infrastructure
United Kingdom**

Transport decarbonization is complicated and can be controversial, making brave political decisions a tough business. As it turned out, COP26 reflected this by failing to fully meet the hopes that many had for it.

While it is a concern that the take up of new initiatives is not yet comprehensive, there are other important issues that are not being properly tackled. Most serious of these is the need for greater recognition that technological transition is not going to be enough.

The Climate Change Commission estimates that around 40% of the UK transition will require behavior change as well as technology change. This is in part because the full transition to electric vehicles would require very significant additional

power generation, which together with the need to produce hydrogen for heavy goods vehicles (HGVs) and industrial clusters could mean that we would need to produce 80% more electricity than we do now, thus exacerbating the already huge challenge presented by decarbonization of the grid. It would also result in traffic growth and demand for additional road capacity, leading to continued production of carbon and depletion of valuable natural resources in the production of infrastructure and new vehicles, and continued pollution from tire particulates.

We need to reduce the need for car travel, to promote greater active and other travel alternatives, and to introduce changes to the way we pay for travel (road user charging/mobility as a service etc). Scotland is taking a lead by aiming to cut total car use by 20%, yet there was little discussion of these critical issues by the politicians or vehicle manufacturers at COP. There was

however plenty of discussion at fringe events and amongst both professionals and activists who see this as a significant policy gap.

Four key areas which need greater attention in future policymaking are: the role of people and place in transport decarbonization; better data and evidence to support decision making; cross-sector collaboration and systems thinking; and the need for better education and skills.

DARREN DAVIS

**Practice Leader,
Transport and Land Use
Integration
New Zealand**

In Aotearoa/New Zealand, big issues and challenges can seem a very long way away. But in our own backyard are many low-lying Pacific islands where climate change is an existential threat to their very existence. Their countries are literally disappearing in front of their eyes. This helps make climate change very real for us. So, now more than ever, we need more true leadership and fewer high-sounding words at COP26. This is the last chance saloon for the planet because, unless meaningful change is achieved, our Pacific neighbors will become the world's first climate refugees. And meaningful change seems to be in short supply at COP26 thus far.

Globally, there is no shortage of role models for how we can do things better. Vienna's EUR€1 per day public

transport annual pass now has half the city's residents as regular public transport users. This has recently been extended nationwide with the EUR€3 per day climate ticket, covering all of Austria's public transport. The Netherlands has progressively built a world-beating cycle network over the past four decades, leading to a per capita annual cycling distance of 1,000 kilometres, the highest in the world. Vancouver has harnessed the power of technology with an automated rapid transit network that has driven big increases in public transport use and a raft of transit oriented developments around stations. So, we know how to do things. It's just that we are not doing these things. Or at least, not at anywhere near enough scale.

As Brent Toderian, the former chief planner of Vancouver says, "the best transport plan is a land use plan." The way we have designed cities over the past seventy years has typically put cars first and everyone else a distant second. By getting our urban form



Transport

right, anchored by mixed-use centers readily accessible by foot, bike or a short public transport journey, we make sustainable, climate-friendly mobility the no-brainer way to move around.

The pandemic has clearly shown where leadership is there and where it is missing in action. Entire nations have pivoted literally overnight to remote working. This shows that big, rapid change is possible where people perceive a clear and present danger. Climate change is a clear and present danger to the planet, and evidence is mounting of its devastating impacts on the world's communities. But action has largely been limited to clutching hard at straws of low hanging fruit and hoping that technology will ride in on a white charger to save the day.

We know what we need to do to achieve a just transition to a climate-friendly future, and how to do it. We just need decisive commitments to action from the world's leaders, to have the political

will and stamina to implement the changes needed and to resist powerful vested interests and massive system inertia. The experience of climate-friendly mayors from Sydney to Paris to Montréal, shows that the fruits of decisive climate action can be re-election. The time to act is today, not tomorrow, not the day after. Today.

COMMENTARY FROM OUR CLIENTS

LISA ROSSITER

Senior Manager Environment and Sustainability, Waka Kotahi New Zealand Transport Agency New Zealand

Transport is a critical sector in Aotearoa New Zealand: connecting people and places, contributing to our economic and social wellbeing and moving freight. It is also a significant contributor to our carbon footprint, contributing almost half of the country's carbon emissions. Although we are a small emitter by global standards, our per person greenhouse gas (GHG) emissions are amongst the highest in the OECD, which means it is vital that Waka Kotahi New Zealand Transport Agency supports work to decarbonize land transport.

In May 2022, the New Zealand Government will publish its first Emissions Reduction Plan (ERP), responding to independent advice

on how Aotearoa can achieve a low-carbon future. Unsurprisingly, transport is one of the key sectors identified with a 41% reduction in transport emissions recommended by 2035.

We have been supporting cross-government work to develop policy packages, including for transport, to be included in the ERP. Public consultation to help shape the ERP is currently underway. Comment is being sought on: reducing reliance on cars and supporting people to walk, cycle, and use public transport; rapidly adopting low-emission vehicles and fuels; and beginning work now to decarbonize heavy transport and freight.

These areas support a sustainable land transport system that minimizes the need for people to travel far from home; encourages people to take active or shared modes when they are moving around and promotes safe and clean vehicles, including electric buses and vehicles.

By taking a system-wide approach to these areas, working alongside other government agencies and partnering with indigenous Māori, we can improve not only environmental outcomes from transport, but also address wider outcomes. We have an opportunity to make transport more inclusive, safe, healthy and resilient, and better support economic activity.

We are at the beginning of our journey. The scale and pace of change required to reduce transport emissions cannot be overstated, but we must change for the sake of our communities and environment, now and for generations to come.





Cities and Built Environment

SUMMARY

The US and China signed a surprise joint declaration: committing to "enhanced climate actions that raise ambition" in the "critical decade of the 2020s." US climate envoy John Kerry said it was not just an effort but an "imperative to co-operate."

We saw the publication of the **UNFCCC [Yearbook of Global Climate Action](#)**: outlining the High-Level Climate Champions' five-year vision for enhancing the implementation of commitments and accountability for progress. It's seen a 22% increase in the number of actors registered on the **[Global Climate Action Plan Portal](#)** compared to 2020.

The GBP27.5 million Urban Climate Action Programme launched to provide technical assistance to at least 15 mayors of megacities in developing countries: helping them to shape and deliver goals to reach net zero emissions and build resilience to climate change.

The **[Beyond Oil and Gas Alliance](#) to phase out oil and gas production signed by countries and states:** core countries (Denmark, Costa Rica, France, Ireland, Wales, Sweden, Greenland and Quebec) commit to ending new licensing for oil and gas exploration and setting an end date for their exploration. Associate members Portugal, California, and New Zealand are taking other measures that contribute to aligning oil and gas production with globally agreed goals. Italy is supporting it as a "friend."

Global cities have taken up their role in climate action, with **1,049 cities and local governments are now part of the UN-backed Race to Zero**, representing 722 million people: This has the **[potential to reduce global emissions by at least 1.4 gigatonnes per year by 2030](#)**.

593 of them have committed to shifting towards resilient and sustainable energy systems, 501 are working to build zero-carbon buildings, and 415 aim to shift to zero waste. 222 have committed to divest from fossil fuels.

260 governments representing 50% of the economy and 1.75 billion people now aim to reach net zero emissions by 2050, with more members signing up the Under2 Coalition: The Race to Zero campaign already counts 67 state and regional governments.

[68 states, regional and city governments signed up to ambitious sectoral actions to accelerate climate progress by 2030](#), including on clean transportation, the built environment, energy, nature-based solutions, waste, agriculture, environmental justice, and inter-governmental cooperation and planning.

33 cities and more than 76 regional governments—including Maharashtra, India's largest state by GDP with a population of over 124 million—signed up to the

UN-backed [Race to Resilience](#) campaign. Nine new partners also joined to deliver stand-alone transformative actions on digital finance, urban water infrastructure, early-warning weather systems and knowledge sharing.

[C40's Mayors Migration Council Task Force](#) will champion investments to boost adaptation and reduce displacement in migrant communities, facilitate dignified movement and other efforts: The Robert Bosch Stiftung foundation is putting US\$1 million into supporting efforts in Africa.

[16 regional governments and networks, led by Scotland and Lombardy with Regions4, called on national governments:](#) to drive emission reductions, measurable and coherent actions on coherent and solutions-oriented collaboration.

San Francisco joins Los Angeles, Mexico City, Oslo and Budapest **in committing to at least halve emissions from the initial construction of buildings by 2030**, with a 30% reduction by 2025, as part of C40's **[Clean Construction Declaration](#)**.

And how have businesses responded to the climate crisis? **42 businesses signed the World Green Building Council's updated commitment to drive operational emissions to net zero by 2030:** now addressing embodied emissions, from initial construction, as well.





Cities and Built Environment

US\$1.2 trillion in real estate assets under management is now committed to halving emissions by 2030, along with 20% of architects and engineers, hitting a Race to Zero breakthrough on the path to net zero before 2050.

The number of construction companies in the Race to Zero campaign has also doubled in the lead-up to COP26.

11 forest sector companies, including seven of the top 100 companies have now signed up to the Race to Zero: representing 10% of global forest and forest product sales, with the aim is to reach 20% by 2023. These include Finland's UPM, Chile's CPMC and Arauco, Brazil's Suzano and Klabin, Sweden's Holmen, and Austria's Heinzl.

A punch for UK politicians, **with only 20% of Britons trusting politicians to come to a sufficient climate agreement:** 46% say they have been following COP26 and more had faith in climate activists than politicians.

Picture the scale of construction? Globally we build the equivalent of a city the size of Paris every week.

A sobering thought is that **if everyone wants to live the way they want, we'd need three planets.**

And the world remains on track for 'well above 2°C': UN Secretary General Antonio Guterres says "Keeping the 1.5°C goal within reach means reducing emissions globally by 45% by 2030 ... but the present set of nationally determined contributions—even if fully implemented—will still increase emissions by 2030."

ANDREW WILLIAMS Sustainability Section Manager *Australia*

Given it is responsible for around 40% of global carbon emissions, achieving carbon neutrality in the built environment sector is absolutely the priority issue that the sector needs to address over the coming decade.

While much of the focus of COP26 has been on what governments around the world are doing in terms of commitments and policy settings, we must face up to the reality that governments alone are incapable (or in the case of Australia, hesitant) of shifting the needle with the speed required to support a sustainable and resilient future for the sector.

The shifting of the needle is a shared responsibility. Notwithstanding the urgency, we must take the time to celebrate the effort and commitment made by industry players who are affecting meaningful reductions across the many industry sub-sectors, and we must encourage those that try

and fail, to get up again and keep going.

A key priority is extracting the most value out of our existing built environment assets. I challenge that, rather than financial paybacks; the feasibility model for any new construction should first and foremost consider the value that the retention of an existing asset has in terms of its contribution to a reduction of carbon emissions in the built environment. The rewards will benefit those countries whose governments choose to either enforce or incentivise this approach.



Cities and Built Environment

GARY SORGE

**Vice President,
Community Development
United States**

COP26—what will be different this time? Can we rely on world leaders aligned with their constituents and political aspirations to make decisions and commitments that will impact generations of people and all living species on earth? We speak of the cost and all nations paying their fair share, global temperature reduction goals, island nations that will not exist one or two generations from now—I get it, but I know we'll be wrestling with these hurdles for decades. I am not optimistic about the outcome of COP26, but I do believe the will resides in many of us—in business, local government, and as individuals—to make a difference. For starters, we need to make personal decisions and take personal action to foster change. We like what we like in our day to day lives, but perhaps the outcome of and awareness gleaned by COP26

empowers all of us to take greater responsibility for our actions.

Citing trends and statistics, the world population will reach nearly 10 billion people by the year 2050. And, globally, we're building the equivalent of a city the size of Paris every week! Under no scenario is this sustainable. On the same earth, we need to produce housing and food for that growing population, in areas that are becoming increasingly uninhabitable. In our industry we hear repeatedly that the result of a proposed development, highway or industrial facility will have "no significant impact" and, inexplicably, applications get approved. The compounding damage from these ordinary activities are significant and we are incrementally compromising our earth's ability to sustain living things. As businesses, individuals and local governments, we can't alter world population trends, but we can comprehend and accept the threats posed by climate change and respond accordingly.

We have choices to make as individuals. How we travel, seek entertainment, spend our discretionary income, invest, etc. Should collegiate and professional sports teams travel across the nation to play a game? Can we offer as much entertainment by playing a regular-season of games closer to home? I am sure we can get used to that. Should we continue to run high-emission small engines across millions of acres of lawn every day? Do people know the impact that they are having by their choices? They may alter their choices through education supported by policy, mandates, and impositions on their wallets. The leading equation for emissions and greenhouse gas reduction to achieve our goals will require a myriad of incremental changes in lifestyle and preferences. This needs to be factored into the global computations.

RACHEL

BANNON-GODFREY

**Vice President,
Sustainability Discipline
Leader, Buildings
United States**

Data is a key driver of action and accountability. It helps us find a signal in the noise and a mechanism for verifying progress is being achieved. The two weeks of COP have been a tsunami of data points, from declarations of massive dollar amounts in funding, to commitments of percent reductions in greenhouse gas (GHG) emissions, to the risk of increased global warming if we do not take action today. In the context of COP26, we look to these data points as a signal that the status quo of unsustainable development has finally been disrupted, that we truly are at a tipping point towards a carbon-neutral future.

The built environment is the largest source of global GHG emissions, of which buildings are responsible for roughly 40%. As we look to the

world's political leaders to fulfill data-driven commitments with transparency and accountability, we must apply those same standards and expectations within the building industry. And it starts with data. We must increase the percentage of built environment projects in which every design and construction decision is driven by the results of modeling the impact on the operational carbon emissions and embodied carbon emissions over the lifetime of the project.

You cannot manage what you cannot measure. You cannot finance what you cannot cost.

Of the nearly 1,050 cities and local governments that are now part of the UN Race to Zero, over 500 are working towards zero-carbon buildings. US\$1.2 trillion in real estate assets under management have committed to halving emissions by 2030. Design professionals have the power to generate carbon-related data that can be transformational for the entire value chain of the built environment,



Cities and Built Environment

and we have a responsibility to not only generate and share that data but also apply it towards design outcomes that accelerate progress in the race to zero emissions.

Stantec was among the top architecture firms in North America signing the COP Communiqué, pledging to take specific actions, within our sphere of influence in the built environment, to retain a 67% or better probability of meeting the Paris Agreement's 1.5°C budget of 340–400 gigatonnes (Gt) CO₂; a 50–65% emissions reduction by 2030, and zero CO₂ emissions by 2040. We are committing to increase the use of analytical tools and software in the design process, to help clients, cities, governments and nations understand the design and supply chain decisions needed to achieve zero carbon buildings and communities.

COMMENTARY FROM OUR CLIENTS

NAOMI BARUN
RMIT University, Melbourne
Australia

Tertiary institutions have traditionally been mini enclosed campuses, with a defined interface between the campus and the surrounding city—in terms of the physical layout and how ideas are created and published. Planning a future campus is about how where and how many car parking spaces, rather than the future carbon outputs.

It is evident that we all need to mobilize to address climate change, and tertiary institutions have an opportunity to be an asset to the city, with social spaces that incorporate landscape and ecology to form environmental assets for the city. They can also influence ideas through events, innovation partnerships and agglomeration of ideas. On many fronts they are at the start of change. For many tertiary institutions this, will

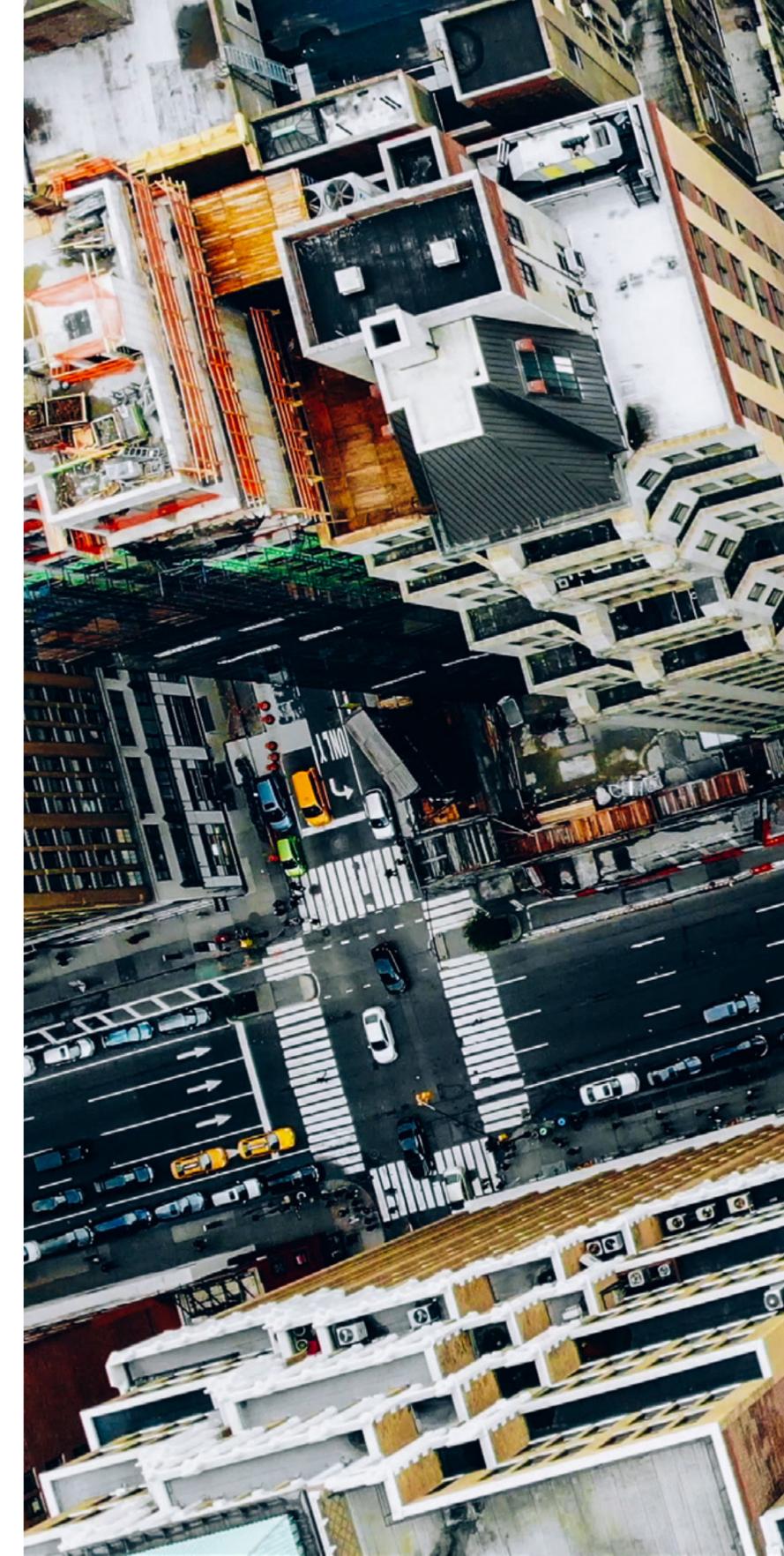
require a fundamental reimagining about how their campus function.

By being more holistic and diverse, a tertiary institution can expand the 'everyday experience' into one that generates a response to climate change: one includes coffee, veggies, but also a research lab into micro-composting and maybe a trial of an e-cargo.

These are big problems, so no one action will resolve the challenge. There needs to be an increase in the valuing of place: both in terms of learning in place by integrating the campus into learning outcomes, and in terms of the value the institution can add as a place for the wider community. We wouldn't be thinking about sustainability without higher education and institutions have a unique role in many cities as "different spaces" for innovation and ideas.

Tertiary institutions are great at research and getting better at commercialising ideas, with this

traditionally being applied to science and engineering. These principles could also be applied to developing adaption strategy—making our cities more sustainable. This is about applying ideas within the university system as a proof-of-concept, before commercializing them for wider use. The campus is a great environment for this, due to the degree of control the institution has over the built form and the public realm and the chance to see prototypes in practice and design iteratively based on the outcomes. One example is the University of Melbourne Burnley Rooftop Garden, which insulates the building and manages stormwater runoff. Since its implementation it has been visited by councils and used to develop their own design guidance. Research-based design at institutions is like a drop of ink in a well, with the application of these innovations splashing out into the wider community.





Notes from the Editors

ON THE GROUND IN GLASGOW

With over 10,000 police very visibly in the city, and more delegates associated with the fossil fuel industry than any one country, the stage was strangely set in Glasgow for an event billed as humanity's last, best chance to save our planet. Many people from other walks of life also came to Scotland, from delegates to activists, organizations, celebrities, journalists and a humble group of Stantec staff.

We joined walking tours in the pouring rain, entered (and very much did not win) Carbon Brief's annual quiz, witnessed activist shutdowns in the Green Zone, ate some great food, took copious notes at session after session, and covered miles of Glasgow (sustainably on foot).

And we debated if we were optimistic or pessimistic. Constantly. At times angry, on the verge of tears, delirious,

inspired and underwhelmed. We met people doing groundbreaking things, and people just using common sense—like the Welsh Minister whose role is to think about the long-term effects of decisions ... who gave us both much hope.

COP26 was an opportunity for leaders to set a dramatically new course, which did not happen. But what it did do was raise awareness about climate change to new levels on the public stage, galvanizing millions of people to take



to the streets, and seeing young people, businesses, indigenous peoples and charities all offering contributions to address climate change. And at the end, it feels like there is hope and opportunity in bringing these actions to life.

Week two didn't close with finished pact—negotiators deliberated on the weekend over the draft text of the Glasgow climate pact, which includes:

- Countries will meet in 2022 to pledge further major carbon cuts to reach 1.5°C goal, are asked to republish their climate action plans with more ambitious emissions reduction targets for 2030
- Developed countries need to increase the money given to those suffering the effects of climate change, beyond the US\$100 billion annual target

- Language about coal has been included for the first time ever in a global climate deal
- A pledge in a previous draft to "phase out" coal was watered down to a commitment to "phase down" coal

We will explore what the final text outcomes mean for our people, business, communities and clients, through ongoing [thought leadership articles](#), podcast episodes, and a deeper dive into all things COP26 and climate change.

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