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**The concept of carbon neutrality, a state of net zero where there is a balance between the amount of greenhouse gas produced and the amount removed from the atmosphere, is well recognized and mainstreamed.**

In the run-up to COP 26, there has never been more information in the public domain on climate change mitigation and adaptation, and net zero is at the heart of the change. The built environment has often been criticized for being slow to respond within decisive and timeous action to the climate crisis. Since the adoption of the then, Millennium Development Goals, and the now Sustainable Development Goals (SDG's), in the era of the net zero conversation in the wake of the Paris Agreement, the emergence of multiple global engineering voices, coupled with action is hard to ignore.

With the Built Environment and the Construction Sector accounting for almost 38% of global carbon emissions, we are seeing an encouraging trend toward policy and legislative changes with addressing the climate crisis at the heart. Country's Nationally Determined Contributions and commitments to net zero coincides with their post-COVID pandemic recovery plans. With infrastructure development underpinning most of the recovery plans, the entire value chain of the built environment is critical to the achievement of net zero for the sector. The role of consulting engineers is particularly critical as the custodians of the type and nature of infrastructure solutions that are delivered.

From industrial to agricultural, commercial to residential and social to green open spaces, engineers literally shape the world. Given the long planning and development horizons for each infrastructure type, each stage of its lifecycle lends itself to drive the net zero ambition starting with the planning and design, construction, and operations for the life of the asset. The post-net zero world is one where the focus shifts from driving down embodied carbon to accelerating the shift to a circular economy, underpinned by resilience and adaptation matched by comparable levels of mitigation. The engineering industry has always subscribed to sustainable development principles, however the unintended consequences of not paying as much attention to the climate change aspects of the previous technological and industrialisation booms has seen a collection of policies and strategies that remain unenforced and unactioned in much of the infrastructure development we have seen over the years. Engineers offer the unique differentiator to other stakeholders in the infrastructure value chain by being the connector. This places engineers at the cold face of policy and legislation implementation on behalf of clients/project owners, establishing the basis for planning, undertaking design, on the execution front with developers and implementors and at the delivery front with supplies and contractors.

Whilst the SDG's, the climate crisis and net zero has always been seen as a highly political agenda, the mainstreaming of climate change conversations and the visible and tangible changes to the world around us, amplified by frequent extreme weather events and the consequent loss of lives as one example, the science is undeniable and the profession has prepared itself to respond accordingly.

From energy generation to food production, water security to sustainable sanitation, low carbon alternative materials, nature-based solutions to innovative heating and cooling solutions, the problem-solving expertise of engineers has never been more critical. In the infrastructure development value-chain, going beyond net zero is more than policy creation, and raising finance but also to sufficiently capacitating the engineering sector to rethink current infrastructure and to deliver tomorrow's net zero infrastructure. The scale and range of capacity building initiatives required to support the experienced engineers currently practicing in the sector and for the future leaders who enter the profession each year, is a unique opportunity afforded to the engineering profession, but also to the development of the climate change adaptation and mitigation body of knowledge as economies and infrastructure transitions to circularity and net-zero.

It is an incredibly exciting time to be an engineer and to be able to contribute to the solutions of developing infrastructure that adapts and responds to the needs of a transitioning future. Undoubtedly, engineers are key to delivering a net zero emissions future.

