Bringing the highways family closer together

After the exciting news about the launch of a new international branch of the Institute of Highway Engineers (IHE), covering the Middle East and North Africa (MENA) region, Dominic Browne speaks to its vice-chairman, Khalid Mahmood *(left)*, about connecting the world of highways, and the key priorities in his part of the world

How does it feel to have established a new IHE branch and what is your message to the engineers of the Middle East and North Africa?

I am both excited and determined to see the IHE-ME branch add value to the current network of IHE branches across the globe.

Specifically, we in the Middle East wanted to connect with the IHE family of members worldwide and most importantly help our professionals attain recognition through registrations and exposing them to programmes of continuous learning and development. So, I would ask the engineers to connect with us and we will facilitate their journey to professional excellence.

What are your priorities for the branch in the next few years?

It was not an ideal start as we were hit by the COVID-19 pandemic quite early on after establishment of the ME branch. In addition, we had to factor in the impact of the three-year blockade of Qatar by some of the Gulf Co-operation Council (GCC) countries, until the issue was resolved amicably in December 2020. Now we are looking forward to accelerating the momentum of our membership base in the region, and drafting collaboration agreements with regional educational institutions and organisations.

We aim to look into the possibility of satellite office setups down the line in the Kingdom of Saudia Arabia (KSA) and the United Arab Emirates (UAE), supporting our learning and development efforts and encouraging individuals to pursue professional registration tracks.

How will you be communicating with engineers across the region and what plans do you have to bring people together (either in person or virtually)?

The COVID-19 pandemic quite drastically changed the way we work and communicate. The virtual working platforms became the new normal. This change helped us promote our agenda and we started having professional development webinars with participation from around the world. This was a relief compared to going through the complicated process of arranging physical get-togethers for limited audiences.

The downside is that we are not able to connect virtually with the clients and authorities to better present our objectives and seek their collaboration; maybe something we would need to work on after the pandemic subsides.

How many people are in the branch so far?

As of now we have around 68 members from the Middle Eastern region representing Qatar, KSA, UAE, Bahrain, Kuwait and Oman and there is potential to grow manifold, especially after the recent end of the Qatar blockade.

What are the main challenges highway engineers face in the MENA region and what are the main opportunities/areas of growth?

I believe the biggest challenge faced by highway engineers in the MENA region is to make roads safer for commuters, starting from design strategies to the implementation and enforcement of regulations on the road. The MENA region has 2% of the world's vehicles but a 6% share of road-related fatalities. This is a statistic that needs serious attention to turn around things.

We already have energy efficient electric vehicles fast replacing the more conservative petrol cars and buses. The way things are progressing in the MENA region, the transport industry of the future will be dealing with drones, hyperloops and autonomous vehicles. Neom, dubbed as the futuristic city of Saudi Arabia, promises the use of technologies like robots and flying taxis.

How would you describe the MENA highways market?

There is a huge market for development of highways. The metro train networks that have mushroomed in this region within a decade or so cater for just a small share of the travel and haulage needs. Hence the focus is still on the roads and highways and shall remain so for the next several years. This emphasis has resulted in some mega infrastructure development projects that have received attention, like Neom in KSA, Simisma in Qatar, Al Shamkha in UAE as a few current and recent examples.

What are the main engineering challenges in the region and how are you solving them?

I believe one of the main engineering challenges in the region is finding quality staff in big numbers, considering the large number of ongoing and planned projects.

I believe integrated regional standards need to be developed. The professional growth of individuals needs to be emphasised and opportunities for training and development must be enhanced to fill in the gaps that exist.

Can you describe a typical specification for a major highway/motorway in the region?

Major highways are typically four-lane dual carriageway, with shoulders and vehicle safety barriers in the middle and on either side.

In Qatar, the design and posted speeds of such a road are 140kph and 120kph respectively and the design is aligned to the *Qatar Highway Design Manual*. Likewise, similar specifications are in place with reference to each country's design standard document in the GCC and MENA regions.

What is the picture like for the integration of smart and digital technology and civil engineering in the region?

Governments in the MENA region have ambitious plans for developing large-scale infrastructure projects worth hundreds of billion dollars. Companies in the Middle East are turning towards digital transformation with better and more efficient work processes. It is a race to continue being competitive in the market. BIM is now the new norm of the information modeling process.

On the roads, speed cameras and radars are the commonly used enforcement tools coupled with the ITS systems, making roads safer and reducing traffic jams and congestion levels. Smart parking apps are being introduced that help in reducing personnel, operation and maintenance costs.

What do you like most about being a highway engineer and what projects have you worked on that you are most proud of?

It excites me to work on highway projects of varying nature, with each posing a unique set of challenges, be it in design, management and construction or dealing with stakeholders or convincing a strict client.

As a young engineer, it was exciting for me to make a difference on a 1,200km survey project that slipped from its schedule in Pakistan. I automated its data analysis tasks managed by a team working in three shifts to mitigate the situation and bring things back on track. My team's effort on the design of a signalised junctions project was recognised by the client in UAE and resulted in an award.

More recently, it was professionally satisfying to contribute as lead traffic engineer on a multi-billion-dollar storm water management programme in KSA, managing the city traffic, acting as the 'saviour of the city' during flash flooding in times of unprecedented rains, in co-ordination with the local authorities.

Can you describe a typical day in your job?

During the COVID-19 pandemic my typical working day comprises dealing with the design leads to get feedback on ongoing projects using communication platforms. I keep aware of the progress on projects, taking a note of the hurdles, if any, to meet the project schedules.

A big portion of time is dedicated to getting involved in design reviews or online client meetings to help the teams in defending the project deliverables. Another task is interacting with the project managers and escalating issues, if required, with the senior management. I also follow up periodically on my design delivery efficiency initiative with the software programmer and respond to any requests coming from any company regional offices.

What is your impression of the UK highways sector?

I believe the UK highways sector is well established and quite competitive. To continue making profits a contractor would need to keep reviewing its business strategy as service oriented while ensuring the delivery efficiency.

What type of learning exchange do you hope to have with UK colleagues in the IHE?

By connecting with IHE-UK, we hope to get exposure to the latest technology and trends in the field of highway engineering and stay abreast of the evolving changes.

We aim to exchange our experiences on projects and the research we are taking up to formulate our solutions on technical problems.

Would you like to add anything?

I believe collaboration between the regional players is essential to developing strategies to face the imminent challenges effectively.