



Jo da Silva

Arup global sustainable development leader, **Jo da Silva**, was made a Dame in the recent New Year Honours. She talks to Jackie Whitelaw about social responsibility in business, the engineering response to COP26 and the impact of the pandemic on future planning of cities.

WHEN JO DA SILVA BECAME A DAME in the New Year Honours list, she made history. Records suggest she is the Institution's first ever dame, and one of few structural engineers to receive that level of honour in recent decades.

Da Silva received her award for engineering and international sustainable development, potentially a high-level signal as to what is needed from engineers in the years ahead. The profession is increasingly being asked to concentrate not just on its ability to build at the cutting edge, but to apply those technical skills for the health and wellbeing of others in fields such as zero carbon and building back better after the Covid-19 pandemic.

Da Silva has been promoting concerns of vulnerability and sustainability for over 15 years, first as Arup's director of international development and now also as an Arup Fellow and its global sustainable development lead. But having the government recognise her work and rewarding it with a damehood was a huge surprise. 'I never aspired to the honour and when I got the email, I was astonished, and delighted,' she says. 'But I did think they were giving it to me for the right reasons and at the right time.'

According to the government, 'no other individual UK engineer is so personally associated with shifting the approach of a major engineering company to prioritise social outcomes for vulnerable communities in developing countries. She is an extremely effective proponent of the "build back better" philosophy for humanitarian relief, as well as being one of the most successful women structural engineers globally'.

Finding a sense of purpose

Da Silva is now 53 and began her career at the end of the 1980s after studying at Cambridge University. That was a decade when computers were a revelation, engineers were pushing the boundaries of what was possible and designing exquisite, awe-inspiring structures was the focus of most ambitions.

'I did contribute to some amazing buildings, such as Chek Lap Kok airport terminal in Hong Kong (Figure 1) and the National Portrait Gallery (Figure 2). Back then, when people asked me to describe my job, I'd say "making architects' dreams come true".' That job description changed significantly.

It was a tour in Rwanda in 1994 for engineering disaster relief charity RedR, building warehouses, food distribution centres and toilets for refugees escaping from genocide, that changed the direction of her working life.

'When I came back, some said to me, "you were very brave". I replied, "no, I'm lucky. Lucky to have the skills and expertise to make a difference to people's lives".'

The humanitarian aid side of her career began to take priority until, in 2005, she left Arup for 10 months to work for the UN refugee agency as the senior shelter co-ordinator in Sri Lanka following the Indian Ocean tsunami (Figure 3).

'Back in London with Arup, I realised that I didn't want to design beautiful buildings anymore, but to use my engineering skills in the international development field.'

Da Silva started to promote the idea of establishing an international development business separate from the firm's philanthropic humanitarian

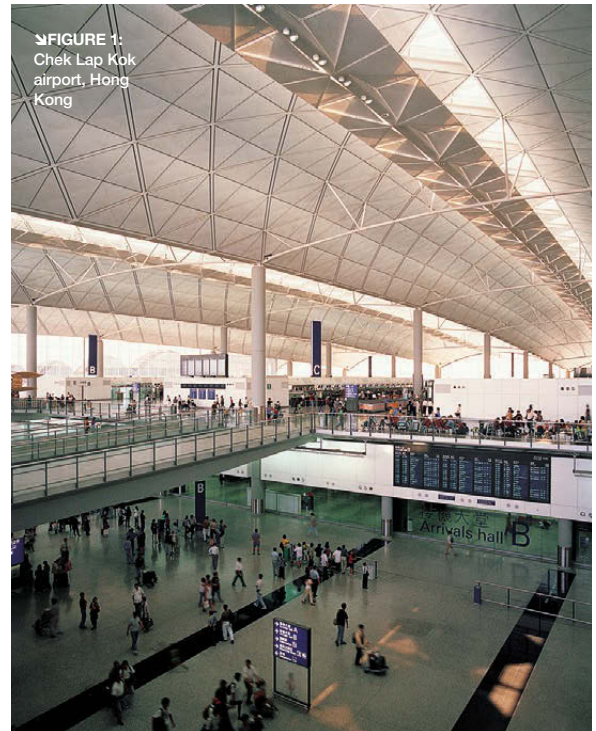


FIGURE 1:
Chek Lap Kok
airport, Hong
Kong



FIGURE 2:
Ondaatje Wing,
National Portrait
Gallery, London



↑ **FIGURE 3:**
Carrying our
community
consultation in Aceh,
Indonesia for Oxfam-
Muslim Aid

investments. 'It was 2006, there was a building boom. I was very much swimming against the tide,' she says.

But lobbying paid off and 'when you work for an organisation for a while, there is an element of trust. I stressed this was not about me but the future of the firm. I can remember being on the steps of 13 Fitzroy Street when Terry Hill [the then Arup chairman] said, "OK, Jo, I get it. It's not about next year, it's about 10 years' time".'

The division was formed in 2007 with da Silva at the head with a brief to focus on reducing vulnerability and increasing wellbeing of the global south. Just over a decade later, da Silva says the lessons learned are now an integral part of the Arup way of working and a prerequisite for what is needed from engineers in the decades ahead.

Time to think again

The Covid-19 pandemic is in the course of highlighting the gaps in fairness in society, living conditions and environment around the world. 'What you learn in the humanitarian field is that health and wellbeing depend on the quality of the built and natural environment,' da Silva says. 'People who are poor and marginalised tend to have a poor quality of built environment.'

'Covid-19 has underscored what we have always known but tried to ignore, that this applies in the developed as well as developing world. We have seen highlighted the problems for those who have less access to health care, inequality of education, poorer living conditions and less access to green space.'

The accepted view of how cities will develop has been challenged during

“ HEALTH AND WELLBEING DEPEND ON THE THE QUALITY OF THE BUILT AND NATURAL ENVIRONMENT

the crisis. 'This extraordinary pandemic occurred when digital connection has made it possible for lots of people to work at home. So, the paradigm where people commute to central business districts to work, with cities defined by arterial transport networks, and property prices linked to transport will change radically,' she believes. 'We have also realised the necessity of much more green space.'

Da Silva understands as much as anyone about city resilience. Thanks to a grant from the Rockefeller Foundation, da Silva and Arup produced in 2014 the City Resilience Index (www.cityresilienceindex.org/). This contributed to her being awarded the Institution of Structural Engineers Gold Medal in 2017 (Figure 4). The index is designed to help an increasingly urbanised world respond to the challenge of climate change and other shocks and stresses.

'When we started that work, the majority of cities were talking about economic resilience rather than people. Why the City Resilience Index was successful was that it adopted a people-centric approach.'

'I think the pandemic has really made

us realise that cities are made up of neighbourhoods and their sense of place is defined by the buildings and even more important, the meeting places, whether these are structures or open spaces (Figure 5).

'Covid has changed us as a profession, I believe. Hopefully, it will make us think more about what our designs actually achieve, rather than just the fine structural details; the outcomes not outputs, and who benefits.'

Climate challenges

The changes being wrought by Covid-19 sit alongside climate change, da Silva points out.

'It is an incredibly exciting moment to be an engineer,' she says. 'I wish I was at the beginning of my career again. The climate change and sustainable development agenda gives us a real purpose to what we are doing. We are designing a sustainable future for everyone, not solely the dreams of architects as I was in the 1980s and 90s.'

Sustainability has been around for decades, da Silva says. 'But what is different now is that it is incredibly urgent and it needs to be done at scale. And we now have data and technology to help us. The data enables us to understand the performance of built design. It gives us the evidence and information so we can use less material and keep materials in use. We can use digital technology to work more efficiently and faster, which frees us to think more creatively.'

The COP26 global climate summit, to be held in Glasgow in November this year, she says, is an opportunity for structural engineers to commit to the role they will play in meeting the climate emergency. 'We need to understand that what we do over the next 10 years matters for future humanity. We can't wait, we have got to act.'

The issues that da Silva has been focusing on in the developing south are issues that increasingly apply

↓ **FIGURE 4:**
Receiving IStructE
Gold Medal in 2017



everywhere. ‘The things I care about, such as vulnerability, inclusivity, safety, resilience and sustainability, are becoming real issues generally because of the pressure of increasing numbers of people on the planet,’ she says.

‘Arup has always had a humanitarian attitude and social usefulness is one of the six aims of the firm. But what we have learned in international development is strengthening the firm’s determination that our projects will have a positive impact on both people and the planet. We are making big shifts in sustainable development, so rather than taking resources to make an amazing building, we are concentrating on net zero, our impact on the natural environment and issues such as how to sequester carbon.’

Da Silva sees two major challenges ahead that present big opportunities for structural engineers.

‘The first is to think not about new build, but how we can better utilise existing buildings and retrofit at scale so we keep materials and their locked-up carbon in use.

‘The second is how are we going to support rapid urbanisation over the next decade? The planet can’t afford for everything to be built out of concrete

and steel. We need to be talking about industrialised construction, minimising and tracing materials and the use of renewables. And we need to do it quickly. Above all, we as engineers need to step up to the big challenges facing the world, and find the solutions. No other profession is better placed to do so.’

FIGURE 5:
Lavender Nursery,
Mitcham, London



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