



# ASIA Panel 2021

Mott MacDonald's proposal for thought leadership and success cases for the ASIA Panel

August 2021



# Future of Infrastructure

Topic	Digital-cloud based decision-support systems for climate resilient cities	Making Cities More Liveable - Systems thinking for successful and resilient infrastructure outcomes	Vertical urbanism: developing advanced air mobility and commercially viable vertiport terminals in Asia
<b>Synopsis</b>	Artificial Intelligent Decision Support System (DSS) for Flood Management aims to increase the city's ability to undertake short, medium and long-term planning for flood risk management and optimise flood mitigation strategies and related investments. The DSS combines well-proven technologies such as Geographical Information Systems (GIS) and hydraulic modelling with the latest data science techniques, such as machine learning, to add value to existing data, inform decision making and help institutionalise proactive flood management practices.	Our built environment plays a fundamental role in the social, economic, and environmental outcomes that determine the quality of people's lives. Infrastructure is a complex, interconnected system of systems that must deliver continuous service to society. Without infrastructure, society would not survive. Mott MacDonald's flourishing systems approach outlines how we must envision and manage infrastructure to unlock greater value for society. We consider wider context to see the connections and interdependencies between what we're doing and the infrastructure around us. A systems-based vision of infrastructure centers around these following four pillars: <ul style="list-style-type: none"> <li>● People</li> <li>● Connections</li> <li>● Sustainability</li> <li>● Digitalization</li> </ul>	Advanced air mobility is the next step to major transformative transport infrastructure in Southeast Asia over the last 50 years. Advanced air mobility is a fast-developing industry that will transport people and cargo using revolutionary new electric aircraft with vertical take-off and landing capability to connect locations not served or underserved by other aviation services. This new industry will provide a sustainable, zero-carbon alternative to travel which will revolutionise short journey transfers across congested cities and link up different modes of transportation. Mott MacDonald intends to push the boundaries of modular methods of construction to optimise the speed, ease and quality with which vertiport terminals can be built. We will support the build and fabrication of the terminal in Singapore, which is expected to be ready for commercial flying in early 2023.
<b>Thought Leadership</b>	<a href="#">Taking decisions based on evidence: How the Global Future Cities Programme in South-East Asia is using digital infrastructure to build climate resilience in Bangkok</a>	<a href="#">Flourishing systems - re-envisioning infrastructure, Centre for Digital Built Britain</a> <a href="#">WEF Infrastructure Technology Adoption 2021.pdf (weforum.org)</a>	<a href="#">The Skies the limit: exploring the next dimension in mobility (to be published) by Prof Jason Pomeroy</a>
<b>Case study</b>	<a href="#">Decision Support System for flood management in Bangkok, Thailand, part of the Global Future Cities Programme for Southeast Asia, 2021</a>	<a href="#">Project 13: collaborative contracting models by infrastructure project outcomes</a>	VoloPort: First vertiport prototype in Singapore

# Technology in Infrastructure

Topic	Driving Economic Prosperity through adaptation of technological advances in infrastructure projects: Digital Twins	Extraction of immediate value and insights through big data and automation with digital-cloud based technology	Digital Monitoring, Reporting, Reporting and Learning (MREL) systems for infrastructure project delivery
Synopsis	<p>One area Mott MacDonald has identified is the adaptation of Building Information Modelling (BIM) as a sector-wide initiative to drive technological advances in infrastructure projects.</p> <p>We support BIM delivery internationally across hundreds of ongoing projects. We see that BIM adoption can improve lives by providing major opportunities for the construction industry to tackle the challenges of climate change in the waste, energy consumption and resilience of the built environment (Urban Planning and BIM). An example of this initiative is the UK Prosperity Fund BIM Program focused on Indonesia and Vietnam, with a team across Centre for Digital Built Britain (CDBB) and Mott MacDonald providing BIM expertise and international support.</p>	<p>Digital-cloud technology transforms traditional methods in automated processes to drive technological changes in the early project preparation and design stages for all infrastructure sectors.</p> <p><b>MM's Smart Energy:</b> suite of digital tools that optimises performance and maximises returns from renewables. The tool can help solve challenges associated with intermittent renewables, such as solar and wind. These might include energy market volatility due to demand being suppressed or curtailed, assets not performing as expected, problems with delivery and risks faced by investors, for example, improving the revenue performance of merchant projects.</p> <p><b>MM's Environmental, Social and Governance (ESG)</b> solution provides insights into the impact of infrastructure assets on environment and society; the solution rapidly calculates environmental, social and governance measures to help reduce risk, inform future investment decisions and improve competitive advantage, enabling a transparent and consistent approach to investment decision making.</p> <p><b>MM's Carbon Portal</b> is our carbon monitoring solution for the built environment, enabling a net zero future. The Moata Carbon Portal is a solution for calculating and reducing embodied carbon in new assets. It enables designers and engineers to quickly identify carbon hotspots in a project, facilitating low carbon design.</p>	<p>Large infrastructure developments are highly complex with ambitious goals to deliver positive socioeconomic impacts within the constraints of finite resources. During the early strategic stage of project development, cities can design its roadmap to change using logical frameworks to structure the needed outputs, outcomes and planned impact. These logical pathways demonstrate how an action causes an impact by design in the strategic development plan. An example is the application of logical framework to Singapore 2030 Green Plan to demonstrate effectiveness in a standardised digital approach.</p> <p>Mott Macdonald's MREL Hub is a digital-cloud based platform to gather data in a consistent and evidence based principle. The new approach helps cities authorities to demonstrate and visualise the positive changes their infrastructure programmes are making. This new technology catalyses transparency in infrastructure investments to demonstrate the tangible benefits to the society and outlines the roadmap that the cities take to improve and provide better services.</p>
Thought Leadership	<p><a href="#">Urban Planning and BIM</a></p>	<p><a href="#">Moata ESG, Moata Smart Energy, Moat Carbon Portal , Moata Geospatial</a></p> <p><a href="#">We can improve infrastructure with ISO 19650 - Mott MacDonald</a></p> <p><a href="#">BIM before you digital twin - Mott MacDonald</a></p> <p><a href="#">Digital-first organisations at the heart of aviation's recovery - Mott MacDonald</a></p> <p><a href="#">A new model for infrastructure - Mott MacDonald</a></p> <p><a href="#">Enterprises are needed to transform infrastructure — and the planet - Mott MacDonald</a></p> <p><a href="#">Digital transformation can help infrastructure rebuild with purpose - Mott MacDonald</a></p>	<p>TBC</p> <p><a href="#">Monitoring, evaluation and research - Mott MacDonald</a></p> <p><a href="#">International development consultancy - Mott MacDonald</a></p> <p><a href="#">Development in action (1).pdf</a></p>
Case study	<p><a href="#">Adoption of BIM in renewable energy project in Vietnam, Prosperity Fund BIM Programme</a></p>	<p><a href="#">How we're helping deliver net zero carbon infrastructure in New Zealand</a></p> <p><a href="#">Grid balancing using machine learning, Taiwan (TBC)</a></p>	<p>Global Future Cities Programme for Southeast Asia.</p> <p>Climate Resilient Cities Programme for Shared Prosperity in India (CRESP)</p>

# Sustainable Investment Financing

Topic	Driving cities toward a better, faster, cheaper net-zero future through decarbonisation investments	Embedding climate risks into asset models and investment decisions
<b>Synopsis</b>	<p>Net-zero future must become an industry-wide mission that transcends traditional investments to become a fundamental part of the way we all make decisions. A city-scale transition to net-zero will require extensive collaboration between public and private sectors. Mott MacDonald's findings covered partnerships and knowledge sharing, local applicability, mobilising investments and unlocking local benefit</p> <p>We knitted them together into a 4-pillar strategy with recommendations on Power, Partnerships, Platform and People. It is clear that local insights, partnerships and solutions have the potential to add significant forward momentum to the national net-zero ambition.</p> <p>Mott MacDonald is leading work at the nexus of science and practice with our staff's work co-authoring the IPCC scientific reports, the Publicly Available Specification PAS2080 on managing carbon in the infrastructure sector, and performance standards for thermal power plants for IFC has since influenced many lender's carbon thresholds.</p>	<p>Mott MacDonald is pioneering an industry first approach to embedding climate risk into asset models and investment decisions through our appointment to lead the engineering module for the global <a href="#">Coalition for Climate Resilient Investment (CCRI)</a>.</p> <p>CCRI builds on the formidable momentum created by disclosure initiatives such as TCFD (Task Force for Climate-related Financial Disclosures), by advancing solutions for a practical integration of these risks in investment decision-making.</p> <p>From the prioritisation of investments at a national level, to their design and structuring and their financing, CCRI's expertise covers critical stages of the infrastructure investment value chain, and its solutions are at the forefront of responding to the emerging needs of private and public investment decision-makers.</p>
<b>Thought Leadership</b>	<p><a href="#">A place-based approach to net-zero; IPCC Special Report on Climate Change and Land; PAS2080 specification on carbon management</a></p>	<p><a href="#">MM's suite of tools on investing in climate change adaptation</a></p>
<b>Case study</b>	<p>Net zero 2030 routemap for UK water industry, 2020 City-level low carbon development roadmap in the Philippines and Vietnam</p>	<p><a href="#">Embedding climate risks into investments in renewable sector: offshore Wind Power Project in Taiwan and hydropower project in Indonesia</a></p> <p><a href="#">Building climate risk assessment into airport asset in the Philippines</a></p>

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# Connect with us

✉ [Stephanie.Tseng@mottmac.com](mailto:Stephanie.Tseng@mottmac.com)

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