

An aerial rendering of a sustainable city park. A large river flows through the center, with several sailboats on the water. The park is lush with greenery, including many trees and grassy areas. A modern, white, curved stadium with a green roof and solar panels is situated on the right side of the river. A multi-lane highway with cars is visible on the right, curving along the riverbank. In the background, a dense urban skyline is visible under a bright sky.

The Partner for Sustainable Change

RAMBOLL



Ramboll is a global architecture, engineering and consultancy company with more than 18,000 experts who create sustainable solutions for governments and companies all over the world.

As architects, engineers, designers and consultants, we help clients and communities realise their goals and aspirations in a climate of ever-pressing challenges, collectively navigating towards a flourishing sustainable future. We combine vision with insights to drive positive change for our clients and the wider society, in the form of ideas that can be realised and sustained. We call it: **Bright ideas. Sustainable change.**

By bringing our global knowledge base to Asia Pacific, we aim to drive sustainable impact across the board from buildings to masterplans, to energy transition, water infrastructure, advisory services and more. Driven by people, passion and signature expertise, we stand at the forefront in delivering holistic solutions at any project scale, big or small.

Meaningful change is only possible through collaboration and dialogue.

This is why we work closely with our clients and stakeholders to truly understand their needs, formulate the right strategies and provide the right advice and solutions tailored for the region's diverse markets and geographies.

By reducing the complexities and risk of managing sustainable change, we are able to create and realise opportunities. We not only build success but also create long-term value as trusted partners, together charting an ambitious course towards a bright life-centric horizon.

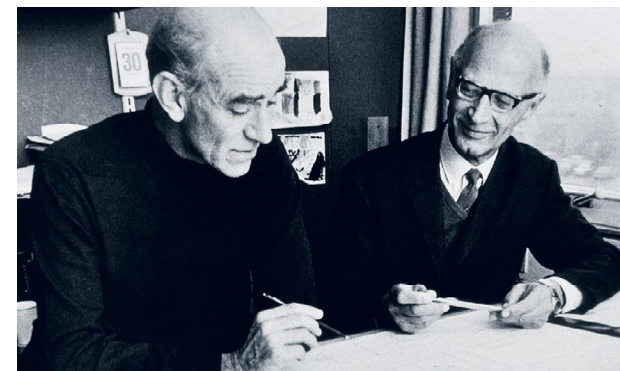
A Nordic heritage in Asia Pacific



Developing our strong history of sustainability, expertise and multicultural insight in the world's most populous region

A car-lite culture, urban farming and local produce markets, renewable energy grids, carbon-neutral cities: our Nordic heritage, based in more ecologically sustainable societies, lies at the core of our approach and expertise development in the built and natural environments.

We couple this tradition with our extensive portfolio of projects and experiences across Asia Pacific to bring necessary multicultural insight to every project we undertake, and pursue viable and beneficial solutions for the region's diverse communities, cities and ecosystems.



Driven by purpose, for the common good

The Ramboll Group is owned by **the Ramboll Foundation**, a philanthropic Danish enterprise and majority shareholder of 98% shares with the remainder held by Ramboll employees. Since its inception in 1972, the Foundation has strived to ensure the independent long-term financial continuance and transparent support of the group, its affiliated companies and associates, and to give employees the best possible experience in vibrant and inspiring workplaces worldwide.

This active ownership reflects the ambition of our founders, Børge Johannes Rambøll and Johan Georg Hannemann, to create a company for the common good where revenue is reinvested in education, research and development, to support the welfare of former employees and their families, and humanitarian philanthropy globally.

Discover more at rambollfonden.com

Shaping our legacy of a better tomorrow

As the global economy shifts towards carbon neutrality, we at Ramboll are doing our part in committing our global expertise and efforts towards halving greenhouse gas emissions by 2030.

Our strategy is to partner to solve the toughest challenges in Asia Pacific through our Unifying Sustainability Themes:

1 DECARBONISE FOR NET-ZERO

Driving low-carbon initiatives and solutions by leveraging on cross-market synergies

Industry-wide energy engagement on renewables, low-carbon technologies, transportation, net zero architecture, sustainable materials

2 RESILIENT SOCIETIES & LIVEABILITY

Planning and creating developments that are in harmony with nature and promote sustainable living

Building resilient infrastructure, smart mobility, environmental and natural resource protection that focuses on health, wellbeing and economic opportunity

3 RESOURCE MANAGEMENT & CIRCULAR ECONOMY

Transitioning from unsustainable practices in production and consumption to a circular economy

Applying circular principles in the protection and management of natural resources

4 BIODIVERSITY & ECOSYSTEM

Preserving and protecting against rampant loss of environment in the region

Restoring nature and ecosystems through planning and design as an integral component of any urban development

A partner for global sustainability

In 2007 Ramboll Group became a member of the United Nations Global Compact framework for sustainable and socially responsible policies, and through its business has significantly contributed to the UN Sustainable Development Goals.

In addition, Ramboll's global climate targets are approved by the Science Based Targets initiative in line with the 2015 Paris Agreement.

SUSTAINABLE DEVELOPMENT GOALS

SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

PART
PLAY?



Achieving sustainability together

From advice to implementation and delivery, we simplify sustainability for businesses.

We help develop strategies to optimise business value, and provide holistic solutions that realise sustainable growth aligned to business goals.



Above

Hydro Aluminium Smelter Remediation Framework, Australia

As part of client corporate responsibility requirements to improve social and environmental values, Ramboll provided contaminated land and environmental planning studies to assist in the closure and remediation of Hydro's Kurri Kurri aluminium smelter. Through a sustainable remediation framework, we assisted in obtaining approval from the regulator and community to manage legacy waste on site, as well as developing a financial assurance model for long-term liability provisioning.

Above right

DB Schenker Sustainability Strategy, Singapore

Ramboll developed a sustainability strategy for a global logistics and supply chain management company's Singapore operations, in line with its corporate commitment to a net-zero future. Following extensive engagement with leaders across the business and review of operations, we delivered baseline metrics for GHG, energy, water and waste, an interactive guide to the company's green office, target-setting and an actionable roadmap for implementation.

Opposite page

LOHAS Park, Tseung Kwan O, Hong Kong

Slated for full completion in 2024, the multi-phase LOHAS (Lifestyle of Health and Sustainability) Park is a 34-hectare residential development designed to accommodate 58,000 residents. Ramboll has assisted the developer MTR on environmental-related statutory and building plan approval mechanisms throughout the project's life cycle. Our comprehensive advisory services has helped garner LOHAS Park's Gold certification on Hong Kong's green building certification scheme.



At Ramboll, we leverage our knowledge of **sustainability** to develop strategies customised to client businesses and industries and help tackle the most complex environmental problems.

With our combined corporate ethics we work together with our client partners to change behaviour towards making sustainable impact in the value chain. Through our strategic advisory services we offer **end-to-end holistic solutions that incorporate sustainability at all levels of a project.**

Conserving non-renewable resources in a consumption-based economy is vital, as is the sustainable utilisation and replenishment of existing renewable resources. Circularity for Ramboll is not an independent product or solution, but a way of thinking that guides the manner in which products are conceived and used throughout their life cycle.

Our approach is based on a set of key steps incorporating principles of optimisation, innovation and integration which can guide our clients in the transition to a circular economy. We consider circularity in our projects – when planning a city, evaluating impacts from a wind farm, permitting a waste to energy plant or remediating a legacy contaminated site.

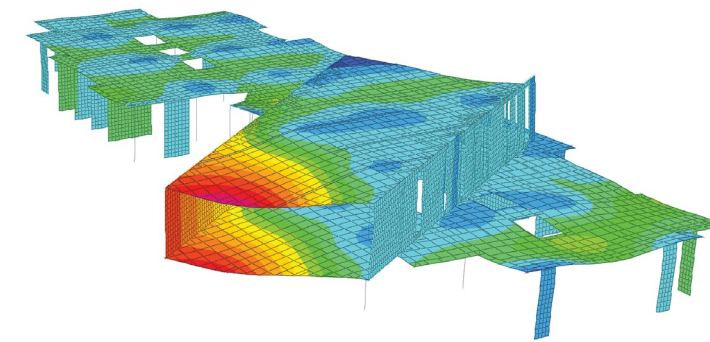
We have developed a range of tools that can qualitatively or quantitatively evaluate the **net benefits to all stakeholders including nature**, in a transparent and consultative framework. Through stakeholder engagement combined with our scientific knowledge, we seek outcomes that are best for today, and for tomorrow.

And still, we can aim higher. From green building consulting to smart logistics, flood mitigation planning and biodiverse nature-based designs, our integrated offerings reflect Ramboll's cross-market capabilities, helping clients in their transition to a profitable and sustainable future.



Excellence in Design

Elevating the art of structures through cutting-edge fusion engineering



Factory in the Forest, Malaysia

A multi-award-winning manufacturing plant and office, Factory in the Forest is a 12,163m² facility commissioned by a California-based electronics company to push the envelope on energy efficiency and design in the tropical climes of Penang. Malaysian firm Design Unit Architects conceived the 5-acre site as a forest that penetrates, surrounds and grows over the factory to maximise occupant contact with nature. All office levels have direct access to roof gardens and natural daylight, with a lush central courtyard that acts as a focal point of informal activities and break out between the office and manufacturing blocks.

Our specialist input on civil and structural engineering included the need to resolve the building's trademark feature: a skewed reinforced concrete box with an 11-metre cantilever from the nearest column. The gravity-defying boardroom presented a significant structural challenge both in terms of self-support as well as maintaining the slenderness of the box itself. Through precision modelling and detailing we were able to deliver on the architectural vision which has gone on to become the 2020 Commercial Award Winner of the World Green Building Council Leadership in Sustainable Design and Performance Asia-Pacific.

Ramboll is a leader in building engineering and tall buildings, designing more than 10-million m² of floor area each year with over 150 tower projects completed to date, including the world's most leaning tower.

To the rapidly growing cities of Asia Pacific, we bring the brightest talents in building engineering and computational design to solve the complexities of new avant-garde architecture. We call our approach fusion engineering, where we balance design and cost sensitivities to develop the most innovative yet cost-effective structures for architects, developers and building owners. In the completed work, architecture and structure resonate to create a single entity or fusion of high aesthetic value, functionality and climate resilience.

By applying out-of-the-box concepts to every project, we are able to deliver on unorthodox solutions that truly bring to life the client's vision and intent.

This dynamic way of thinking – where a creative attitude drives the desire to produce something new instead of tried and tested conventions – is what propels our projects to award-winning levels of excellence.



Our proactive open-minded approach to non-conforming design means to forge strong and trusted partnerships with our clients. Through this honest and transparent engagement, we gain an explicit understanding of needs and the positive affirmation to pursue the very limits of structural design, employing a rigorous and immersive design process from project inception to final completion.

Beyond structures, we bring **global capabilities in civil, geotechnical, façade, sustainability and environmental engineering**. Our geotechnical expertise includes foundations for supertall buildings in seismic locations throughout the world, complex soil conditions, and geologically-diverse and challenging terrain morphology in many countries around the region.

The pressing need for more sustainable construction remains a key aspect of our practice as we continue to reduce carbon emissions in Asia-Pacific projects with a clear goal of 30% reduction by 2025 and 50% by 2030.

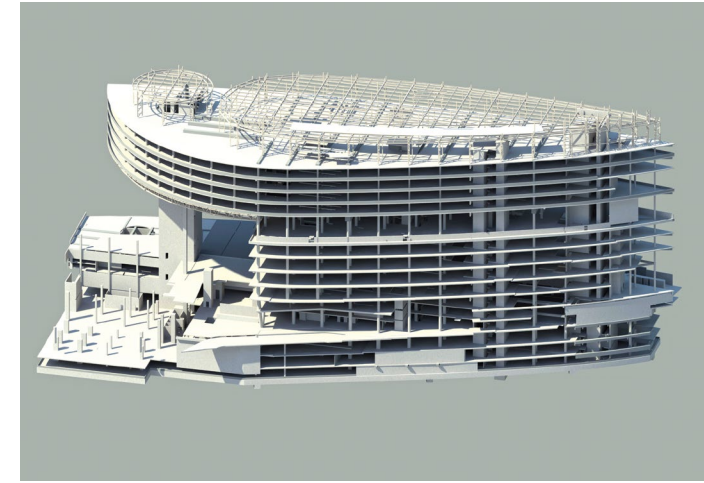
This opens the door to a prime renewable material – timber – whose benefits include shorter construction programmes due to offsite prefabrication, good thermal and fire performance, and overall lighter buildings that make possible a total carbon-neutral structure.



Capella Resort, Singapore

A hotel and resort development in Sentosa, this adaptive reuse project began as a World War II army barracks building converted into a hotel foyer, while an open-sided excavation behind the legacy structure made space for the new hotel extension. The design incorporates one of the first permanent passive soil nail retaining systems in Singapore.

Key in the functional viability of the scheme was a seamless integration of the old and new; to achieve this, structures were set out in a such way that hotel guests did not have to travel from one space to the other but to effortlessly move from one building and back. The end result of an iconic heritage colonial building and its curvilinear extension tucked into verdant rainforest surroundings exemplifies our fusion engineering approach.



MediaCorp, Singapore

Designed as a new epicentre for creative production, the campus by Japanese architect Maki Associates in collaboration with DP Architects is a 74,322m² complex recognisable by its iconic sweeping forms of polished metal and glass. As the structural engineers on this competition-winning architectural landmark, a huge challenge lay in the design of a 36-metre-wide transfer floor that suspended 5 storeys of building over column-free box-in-box structures of production studios underneath.

Awarded the BCA Green Mark Platinum rating in 2013 for its eco-friendly building technology, MediaCorp has also won the Institution of Structural Engineers Singapore Structural Award 2016 (Entertainment category) and the President's Design Award Singapore 2018 for Design of the Year.



8 Conlay, Malaysia

8 Conlay is a mixed-use development situated at the heart of Kuala Lumpur's golden triangle, comprising a 72-storey hotel tower and two twisting residential towers at 61- and 56-storeys respectively above a 10-storey retail podium.

The residential towers curvilinear silhouette is achieved as they rotate on Z-axis, thus creating a signature torsioning geometry and making them the tallest twisted twin towers in the world. Our detailed parametric optimisation to position the building's centre of gravity directly above the centre of support played a crucial role in the architectural design.

While the concept of finding balance is the focus of this grand project, building materials and a response to climate are also priorities for the client and project team. The concept and design of the building dictates the materials applied in order to achieve the desired aesthetic and to maximise constructability.

The future of mobility today



Above right
North Hanoi Smart City, Vietnam
In collaboration with Oriental Consultant Group (OCG), Ramboll has developed a Smart Mobility masterplan for North Hanoi Smart City for Sumitomo Corporation and BRG Group. The 300-hectare masterplan aims to set a benchmark for sustainable mobility in Vietnam and utilise technology to reduce dependence on private vehicles.

From evaluating mobility technology to planning streetscapes, vehicles and pedestrian movement at a microscopic level, we worked closely with local representatives to study impacts on the wider network and the staged implementation of the smart city over time. By placing sustainable mobility at the core of the masterplan, the project enables walkable communities supplemented by high-quality zero-emission public transport.

Below right
Tuas Port, Singapore
The Maritime and Port Authority of Singapore (MPAS) has launched the new Tuas Port to consolidate container terminal activities in the future, in addition to other potential developments surrounding the area. Together with MPAS and various government ministries and agencies, we helped develop the transport masterplan including Traffic Impact Assessment (TIA), design of transport infrastructures and mesoscopic transportation model to study the port's impact on the greater Tuas/Jurong transport network, understand future demand and propose a holistic transport strategy that integrates the accessibility for all developments within the port compound.



Through better planning and technology, we move people safely, efficiently and sustainably to make better cities

As the region's cities continue to rapidly grow, we need to ask the question, how can we design our cities better? How can we shift to low-carbon modes of transportation while maintaining a good quality of life for users?

By integrating urban planning with transport modes and systems, and employing digitalisation, we are shifting the focus from the machines that move us to the freedom of mobility for all.

Ramboll tackles the region's hardest mobility challenges through a holistic approach built upon our legacy of planning in the Nordic capitals. It is an approach rooted in local context, where every individual project is part of a bigger picture, and that any plan must always consider the community's larger vision as well as the long-term needs of society.

We combine our technical domain know-how with our understanding of the complicated governance and financial structures of the transportation sector. Our deep knowledge in this area, informed by our decades of collaboration with clients and partners, enables us to utilise smart mobility to develop the right strategies and implementation in cities throughout the region.

From pedestrian and passenger simulations, to impact-testing urban energy systems and estimating socio-economic transportation impacts, we offer a wide gamut of smart services to solve the challenges of navigation and commute in the built environment.

Through new technologies like autonomous vehicles, electric buses, MaaS (Mobility as a Service) solutions and non-motorised barrier-free action plans, we can bring sustainable mobility of the future to serve our cities and communities of today.





Nurturing beautiful breathing cities

Jurong Lake Gardens, Singapore

Completed in 2019, the 53-hectare Jurong Lake Gardens restores the landscape heritage of swamp and forest as a canvas for recreation and community activities. The effort to bring back nature unique to Jurong connotes a shift towards environment- and community-building in the country's most heavily industrialised region.

Henning Larsen's expertise in water-sensitive urban design and approach to ecosystem regeneration manifests a restored swamp forest and wetlands as a public attraction, supported by allotment gardens and other communal components such as a nature-themed play area, lifestyle and sports facilities. Design elements like a meandering boardwalk seek to enhance

visitor connection to Jurong Lake by weaving close to the water's edge.

Enhancing habitats for wildlife and maintaining the area's tranquility are key considerations in the development of Jurong Lakeside Gardens as a public enclave of nature and biodiversity. The gardens form part of a western belt of green spaces and waterways that represent the Urban Redevelopment Authority's decentralisation efforts, bringing closer to Jurong residents more quality employment, amenities and recreational areas. It puts liveability and biodiversity at the fore, and marks our commitment to sustainable change towards better and healthier communities.

Above right

Dongguan Central Park, China

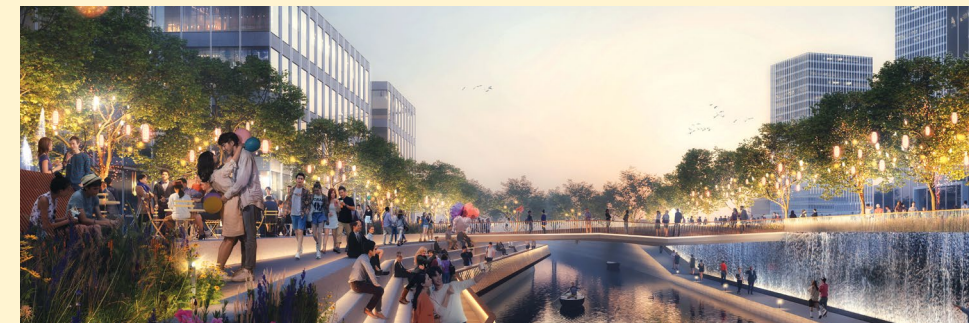
The park sits at the heart of a new international business district and reimagines an isolated urban village as a dynamic and vibrant civic space. Henning Larsen introduces *PLACE*, five placemaking strategies of people-centric design to create an urban living space through integrated connections, active interactions between the built form and environment, restoration of riverine habitats and enhancing ecology and biodiversity with green corridors.

Below right

Kampung Admiralty, Singapore

A flagship one-stop community and residential integrated development, Kampung Admiralty explores inter-community dynamics and urban density in land-scarce Singapore where increased ground-level stress demands creative ways of intensifying land use.

Our landscape architecture complements and enhances WOHA Architects' layered 'club sandwich' design through abundant greenery equally terraced to serve as community relaxation points. Our tree-planting strategy is a biodiverse mix of foliage and fruit trees, while our productive landscape approach in the Community Farm and Herb Garden invites residents to plant vegetables and herbs for communal use.



Part of the Ramboll Group, Henning Larsen is an interdisciplinary practice working across architecture, landscape, and urbanism

With our shared Nordic legacies and responsibility to have a positive impact on our environment, Ramboll and Henning Larsen's mission is to craft sustainable societies where people and nature flourish.

It is this drive that enables us to design with signature local expertise, relative to the wealth of culture across Asia Pacific, and magnified by our global capabilities.

In the world's most populous and biodiverse region, we aim to create resilient and liveable places, by moving the needle from conservative business-as-usual attitudes towards more regenerative ways of thinking and designing, and turning conversations into actions.

We believe in the power of collaboration between clients and stakeholders that at a project's early stages can increase efficiency and opportunities to manifest sustainable design solutions.

Our partnership brings the world's leading designers, engineers, experts, and technologies, with a shared ambition to be the partner for sustainable change, together under one umbrella.

We are owned by the Ramboll Foundation, an ownership model that allows revenue to be reinvested into the company's continued development and innovation. By investing in partnerships with industry and academia, we strive to develop design tools and technologies which progress innovation within the built environment.



Enhancing liveability everywhere



Kota Harapan Indah Transit Oriented Development, Indonesia

The perennial congestion in Kota Harapan Indah (KHI) has long stymied the development of this east Jakarta suburb. To harness its full potential, the client has embarked on an ambitious programme to transform KHI into a transit-oriented district (TOD) by aligning with future public rail corridor plans and allowing metro expansion into the suburb. Our studies into KHI introduces a human-

centric development model focusing on placemaking, walkable neighbourhoods and Environmentally Sustainable Design (ESD) that both creates a unique image and makes the area an attractive local destination. By leveraging on these and its strategic location, KHI TOD aims to capitalise on its attractive land values to concretise its implementation ability towards better serving the various communities of Greater Jakarta.



Above

Taopu Smart City and Forest Park, China

In Shanghai's northwest Putuo District, a disused and heavily polluted industrial site was the subject of a new smart city and park competition. Henning Larsen, one of three shortlisted finalists, applied our multi-scalar approach that considers the site's integration into the larger surrounding ecological fabric, bringing smart city and park together to push the boundaries of industrial rejuvenation.

Envisioned as a forest, the park is a central anchor that not only strengthens ecology and biodiversity within the precinct but also its biophilic connection to smart city residents, workers and visitors. This is in line with the "Shanghai 2035" vision that aims to create a city of innovation, humanity and sustainability of international standing.

Below right

Sentul Urban Masterplan, Indonesia

Henning Larsen was appointed to lead the design of a new estate in Indonesia and enhance its accessibility. Its unique location beside a natural tributary becomes a focal point as we seek to define the social and environmental significance of rivers to residents and visitors.

Our design illustrates how sustainability principles can be embedded into a masterplan to develop a liveable community. Through visits and engagements, we collaborate with our stakeholders towards setting the standard in water-sensitive urban design development in the country.

Throughout Asia Pacific, our urban planning teams continue to build upon our successes in developing more liveable cities designed for people, interaction and enjoyment. We introduce concepts and ideas that stem from our Nordic traditions where quality of life is based on freedom of accessibility, attractive inclusive open spaces, ease of mobility, high environmental quality and personal safety.

At all stages of planning, we work with and assist clients in achieving their ambitions and goals while creating opportunities to enhance sustainable living and our connection with natural surroundings.

From formulating visions and strategies to tackling brownfield development and retrofitting, we plan and design cities and urban areas through integrated solutions in energy, environment, traffic, water and cityscape. This holistic approach and systems thinking reflects our multidisciplinary expertise in urban sector planning, implementation and delivery that encompasses all levels of the development chain.





Water is life

With more than 1000 water consultants worldwide, we provide specialised and integrated services across the entire water cycle to help turn water, climate and sustainability challenges into opportunities

Engineering Assessment of Textile Wastewater Treatment Plant & Water Recycling System, Thailand

Ramboll provided comparative assessment of membrane bio-reactor and moving bed biofilm reactor technologies as well as performance water recycling system (WRS) optimisation towards the client's wastewater treatment plant (WWTP) upgrade to meet zero discharge of hazardous chemicals (ZDHC) limits and to ensure high-quality WRS feed. At the same time the upgraded WWTP required reduced footprint for future production expansion.

Our advisory led to a more informed and holistic decision on WWTP technology and production expansion that factored ZDHC, WRS and capital expenditure.

From flood risks to water resources, to water and wastewater treatment and water infrastructure, Ramboll has more than 50 years of experience solving water management issues across all sectors internationally.

We continue to build on our strong Nordic tradition of environmental and water supply sustainability, complemented by our North American water management expertise where some of the most complex and advanced regulatory requirements exist. Both experiences are today helping to protect the world's water environments through design and operational efficiency in wastewater handling, drinking water quality and supply reliability for cities, agriculture and industry.

Working closely with municipalities, utility and industrial clients, **we tackle the critical water issues of this vast region that range from coastal protection and flood-risk management to water and advanced wastewater treatment.** Early-phase assessments, strategic analyses and project scoping, water infrastructure design and



Urban Flood Resilience Diagnostics, Indonesia

Flood events in Indonesia are becoming more frequent due to a combination of climate change, deforestation, urbanisation and sprawl, land subsidence, watershed degradation and poor waste-disposal practices. Low-density sprawl – the result of rapid urban development with only ad hoc planning – coupled with limited investments in flood and drainage infrastructure has resulted in metropolitan areas accounting for about half of all recorded disaster-related fatalities between 2003 and 2017.

Ramboll was assigned the task of conceptualising integrated urban design and long-term flood resilience assessments and identifying priority investment options for selected cities. Our role would include an array of activities ranging from analyses on proposed intervention mapping, flood hazard and risk assessments, down to stakeholder and community engagement, technical workshops and identification of the investment options via Cost Benefit Analysis (CBA) and Multi Criteria Analysis (MCA).

implementation all form part of our wide array of integrated solutions.

Our signature smart integrated infrastructure master-planning expertise best demonstrates our holistic approach. With urban water infrastructure often accounting for up to 80% of total capital investments, we plan and execute important cost-effective measures to achieve high system efficiency for our clients.

By integrating urban planning, landscape architecture and water infrastructure, we can build accessible and inclusive community ecosystems of active human-centric neighbourhoods and flexible natural systems, both intertwined to create better and more liveable cities.

As extreme weather phenomena continues to impact our environments and people, we remain steadfast in our mission to help develop and manage water sustainability and resiliency in the Asia Pacific. And through the power of partnership – with our clients, stakeholders, communities and collaborators – we believe that can be accomplished.



Norrvatten Water Treatment Plant, Sweden

To meet the needs of a growing population and future drinking water requirements, the Swedish water utility Norrvatten is planning to upgrade the Görväln water treatment plant (WTP) which abstracts water from lake Mälaren and distributes it to 14 municipalities north of Stockholm. Ramboll was appointed to lead the WTP's design management and contracted to an 8-year framework covering its process technology and mechanical engineering, as well as delivering the final design.

In 2019 we conducted a feasibility study on water treatment technology which investigated three different process technology alternatives. These included precipitation, standalone ultrafiltration or in combination with sand filtration, and as a third option the Suspended Ion Exchange (SIX) technology Ramboll is currently implementing at the David L. Tippin WTP in Tampa, Florida, set to be the largest SIX plant in the world.

Making a difference of lasting impact



Energy demands in Asia Pacific are continuing their upward trend, making the need to transition to sustainable renewable energy a logical one

Above

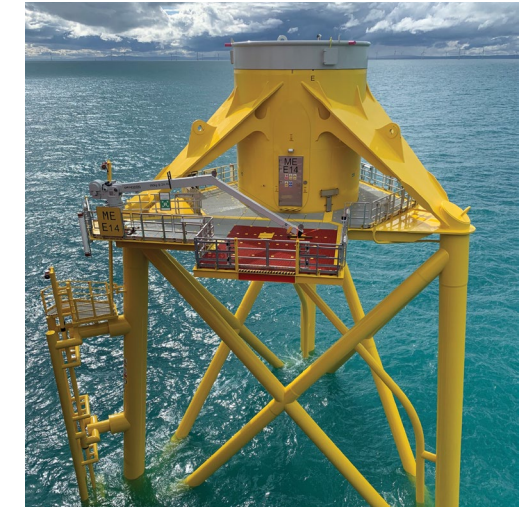
Waste-to-Energy Facility, Maldives

Appointed as the owner's engineer to support Urbaser – a major Spanish Waste Management Company – to deliver the Maldives' first waste-to-energy facility, Ramboll will aim to set the benchmark in environmental management in the region. The facility will be a significant step in building the Maldives as a sustainable tourist destination, diverting around 200,000 tonnes of waste from landfills yearly. It will also generate 100,000 MWh of renewable energy and reduce the CO2 emissions by 200,000 tonnes equivalent to the emissions of 40,000 cars.

Above right

Hai Long Offshore Wind Project, Taiwan

Ramboll is set to perform the FEED and detailed design of the jacket structures supporting the project's Siemens Gamesa's 14 MW flagship wind turbines that will provide a total capacity of 1,044 MW. Installed at water depths between 43 and 56 metres, the jacket foundations face unique environmental challenges. Situated in-between tropics, Taiwan's offshore waters are exposed to extreme natural forces such as earthquakes, sand waves, and soil liquefaction, all of which requiring innovative thinking and flexibility in terms of foundation design and engineering as well as installation.



Independent from traditional fossil fuels, renewables generate over 16% of global energy production and are efficient cost-effective solutions in today's testing economic climate. They present a promising future for the energy sector and developing societies, and require the right expertise for optimal development and implementation.

With over five decades of experience in the business, **we understand the strategic, financial, commercial and technical challenges of moving beyond conventional carbon-based energy sources.** Our role as a trusted partner is to support our clients in the energy transition process and help realise their sustainable and business goals.

We see offshore wind and waste-to-energy as key drivers of green energy transition in the region.

Having designed more than 50% of all offshore wind foundations worldwide and provided consulting engineering services for 200 new waste-to-energy units and retrofits in 50 countries across all continents, we are committed in developing these renewables towards improved energy infrastructure, efficiency and change of fuels while balancing socio-economic and environmental considerations.

We strive to always be at the forefront of innovation and the optimisation of energy production, thereby offering the most advanced and cost-effective solutions for our clients. Be it wind farm simulations in virtual reality or digital waste-to-energy facility systems planning, we embrace our Nordic and global leadership in renewable energy, to make a difference of lasting impact on our planet.



Smart solutions, signature expertise

Penang South Islands, Malaysia

The 2020 Penang South Islands (PSI) international design competition organised by the Penang State Government sought to create a sustainable global destination subsequently won by the multi-disciplinary team of Bjarke Ingels Group (BIG), Hijjas Architects and Planners and Ramboll.

In a masterplan entitled BiodiverCity, our team made clear its focus not just on liveability, economy and quality of life but critically on creating environmentally-rich, biodiverse and regenerative developments that would be a first in the region.

PSI comprises three man-made islands off Penang's southern tip; totalling 4,500 acres, the islands feature mixed-use districts, 4.6km-long public beaches, a 25km-long waterfront and 600 acres of parks for a 15,000- to 18,000-strong population.

The objective was to manifest a collectively resilient urban realm where high-performance infrastructures create alternative modes of mobility and, simultaneously, valuable habitat where land and water meet.



Smart islands

Supporting the designers' vision, we unveiled our expertise in smart mobility, ICT smart technology and energy infrastructure. We coupled ideas of autonomous vehicles, logistics drone corridors, e-mobility, a high-quality light rail – seamlessly integrated with last-mile connectivity – with extensive pedestrian and cycling facilities for an unparalleled street-level experience largely free of automobiles. Islands-wide sublevel networks addressed private vehicle use fully integrated into a smart, cost-effective and ecologically-sensitive land reclamation approach that obviates the harmful dredging of surrounding seabed.



Ecological network of life

Our blue-green web of park and water corridors are designed to enhance PSI's connectivity of ecosystems, ensuring that terrestrial fauna can navigate freely between the aquatic and terrestrial habitats and sanctuaries. The web is supported by a decentralised network of water management tools that detain and treat stormwater; waterways, canals, streams and drainage infrastructures coalesce to form a dynamic system ready to respond to extreme weather.

The high-level integration of cutting-edge design and engineering, smart mobility and blue-green infrastructures underpins BiodiverCity's vision of a



built environment that doubles as an ecological network of life, providing habitat surface area while encouraging diverse native fauna species to flourish.

By amplifying biodiversity and ecosystems growth, the masterplan becomes a sustainable catalyst and an ecological engine for southern Penang that ensures socio-economic and quality of life benefits for both present and future generations.



ASEAN Australia Smart Cities Trust Fund

With the urban population in Asia rapidly increasing from 47% in 2014 to 65% in 2050, the Asian Development Bank (ADB) together with financing and guidance from the Australian Department of Foreign Affairs and Trade (DFAT) have established the ASEAN Australia Smart Cities Trust Fund (AASCTF), which focuses on facilitating the smart and equitable transformation of participating cities in the region to become livable through people-centric digital solutions.

Ramboll, through AASCTF and in collaboration with ADB and DFAT, has been developing smart city interventions in eight Southeast Asian countries that can be piloted, implemented and potentially scaled up. **This initiative aims to address urban challenges within liveability, climate change and resilience, and gender equality and social inclusion.**

We deploy smart solutions to a variety of clients through **three interrelated dimensions**:

1

Smart Governance

where cities establish appropriate governance and organisation that enable inter-department collaboration and ensures the implementation of strategic, holistic and realistic planning

2

Smart Technologies

where ICT is used to support improved sustainability, including technologies such as water metering, free parking-space detection systems and 'green waves' that prioritise bicycle traffic flow

3

Smart Technical Concepts

where cities explore and identify available smart concepts to solve their challenges such as district heating/cooling, energy and blue-green infrastructure



Punggol Digital District, Singapore

A vibrant transformation

The 50-hectare Punggol Digital District (PDD) developed by JTC Corporation with WOHA Architects is part of the North Coast Innovation Corridor being developed as Singapore's new decentralised economic centre, and is envisioned as the driver of the Smart Nation push through technology and ideas innovation. As the island's first district to adopt an integrated masterplan approach, PDD brings together a business park, Singapore Institute of Technology's (SIT) new campus, an underground MRT station and other community facilities. Leveraging on this integration, PDD builds synergy between businesses and academia to foster a connected and vibrant environment that maximises opportunities for mutual collaboration.

Smart mobility

In close collaboration with JTC and WOHA, Ramboll has devised a district-wide mobility solution that maximises Smart City objectives and presents an example of future integrated developments in Singapore. Incorporating a bus interchange, MRT station connectivity and shared car parking, our solution adopts a car-lite strategy to minimise private vehicle trips.

We introduce extensive active mobility facilities for pedestrians, cyclists and personal mobility devices that connect adjacent housing estates and the SIT campus - distributing demand and reducing required supply across PDD - thereby lowering overall traffic. Autonomous vehicle provisions as well as logistics hub planning are similarly embedded to future-proof this landmark development.

Building optimisation

Acknowledging the project's massive scale of construction, we have looked into the efficient integration of design, built structures and environment such that the overall carbon footprint (embodied and operational) is optimised. Extensive adoption of precast construction was designed into all structural elements to facilitate off-site fabrication, reduce construction time and ease on-site activities. Sophisticated design techniques also helped to lower cost and environmental impact of structures.

Life-centric enhancements

We enhance PDD's quality of environment and spatial ambience through innovative strategies incorporated into the masterplan that include building-integrated landscape systems, nature-based solutions, ABC Waters engineering procedures and urban design principles. These life-centric approaches seamlessly connect the surrounding residential areas, including green links to the waterfront and a campus boulevard at the centre of PDD that link residents and the working and student communities to major venues, shops and other amenities.

Sustainable development

The net result of this integrated approach on PDD confers substantial sustainable value to the development, both in tangible financial savings and greatly reduced carbon emissions.





People at the heart of sustainable change



Our passionate professionals build meaningful partnerships thanks to Ramboll's culture of curiosity, diversity, and doing the right thing

We support and empower talented people from diverse backgrounds and perspectives. Embracing team members of various nationalities working across Asia Pacific, our colourful and inclusive work culture draws its strength from Ramboll's spirit of personal development and equality.

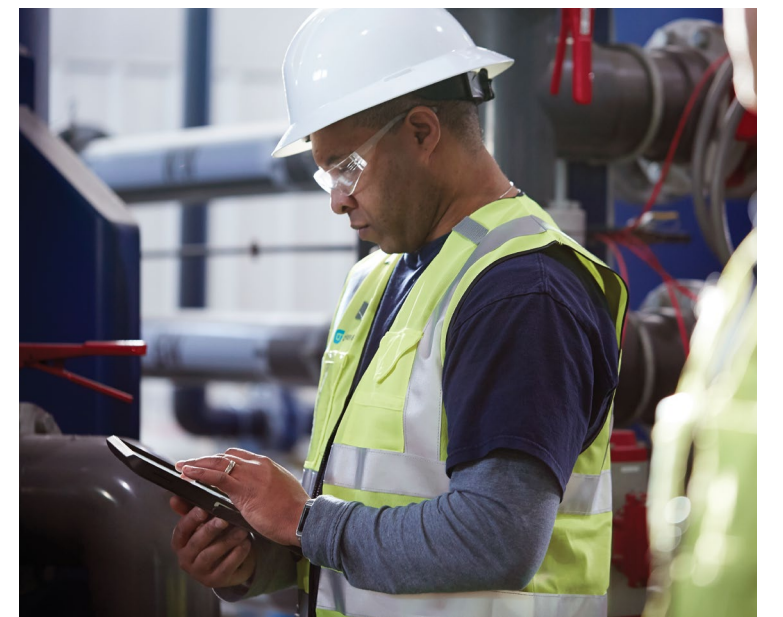
Our passion for what we do shines through in the way we partner our clients and colleagues alike. We prioritise work that creates meaningful value, fostering collaboration to

bring to partners our very best, and enabling tailored solutions to address each circumstance's specific opportunities.

We are committed to provide excellent service across our full-spectrum of professional capabilities to meet our diverse clients' needs across Asia Pacific. In a rapidly changing world, we invest in our people and forge new partnerships to help to advance the agenda of positive change.

Decency forms the bedrock of our business.

The strong ethical beliefs of Ramboll's founders, Danish engineers Børge Johannes Rambøll and Johan Georg Hannemann, endure at the core of everything we do today. In practice, this means we select partners and projects that align with our values, and where we believe our people can co-create the most meaningful impact to meet our shared challenges.



Let's talk

A journey of sustainable change starts with conversation. Talk to us, and together we'll help you plan your next move in creating value and opportunity towards a smarter, profitable and more sustainable business.

Ramboll
100 Amoy Street
Singapore 069920

+65 6958 2300

AsiaPacific@ramboll.com

ramboll.com

IMAGE CREDITS

JTC Corporation

2-3, 32, 33

DB Schenker

11

Mediacorp

15 (middle left)

Sumitomo Group

17 (above right)

Maritime and Port Authority of
Singapore

17 (below right)

WOHA Architects

19 (above right)

Moray East

23 (above right)

Bjarke Ingels Group

28-30



**FORESTS
FOR ALL
FOREVER**

Printed on X Silk 140gsm, 250gsm



Bright
ideas.
Sustainable
change.

RAMBOLL