

Infrastructure finance in East Asia

Solutions that provide confidence



Mott MacDonald – A winning team

The complete solution

As the world's pre-eminent lenders' technical advisor, we have unparalleled experience in unlocking the investment needed to get new projects off the ground. Last year alone we advised on more than 236 PPP/PFI projects in 39 countries, bringing public and private sector together to realise new assets.

The best designed assets bring economic benefits while having a positive social and environmental impact. Resilience is also important – in the event of unexpected social, economic, climatic or natural shocks, well thought through designs and business plans impact on service and returns on investment alike. This is especially crucial in the developing world where much of the estimated US\$5trn a year in infrastructure investment will be spent. Clients recognise that there is an evolving best practice to consider sustainability and resilience of projects. Moreover, a deeper assessment will lead to direct and indirect financial returns. So we are using our experience in project finance to assess projects to provide a more holistic approach to asset design and funding.

We are on the stakeholder council of SuRe – the Standard for Sustainable and Resilient Infrastructure – launched in December 2015 by the non-profit foundation Global Infrastructure Basel which promotes investment in sustainable global infrastructure. This new standard provides a platform for the public sector, investors and project developers to ensure wider risks and benefits of projects are considered.

We have also been working with the Sustainable Infrastructure Foundation to develop the International Infrastructure Support System (IISS), an online platform that will significantly speed up public sector asset delivery by demonstrating the 'bankability' of projects.

With constant demands for better service, the pressures of urbanisation, and a growing world population, the need for good, sustainable infrastructure is more important than ever. Our project finance expertise helps to get well designed, sustainable projects to completion.



No 1 in the global infrastructure finance market for the sixth time

Partnership Awards 2015
Best Technical Advisor of the Year

P3 Awards 2014
Best Technical Advisor



IJGlobal Awards 2015
Europe and Africa Technical Adviser of the Year

Asia Pacific Technical Adviser of the Year

NCE/ACE Consultants of the Decade Awards
International Consultant of the Decade



Services

Strategic implementation



Strategic planning and development

- Policy development
- Feasibility development
- Strategic and outline business case development

Strategic and market analysis

- Market entry strategy
- Competitive environment analysis
- Acquisition target identification and evaluation

Project inception



Feasibility studies

- Economic, environmental and social impact analysis
- Procurement strategy
- Project scoping and viability

Business case

- Full business case development, production and cost-benefit analysis
- Capex, Opex and lifecycle planning
- Revenue and cost modelling

Transaction advisory

- Technical and commercial due diligence and risk assessment
- Lifecycle review and modelling
- Operational reviews (including variation/change impact assessment)

Project development and delivery



Procurement support

- Procurement and contractual advice and tender administration
- Facilities management and operational strategy and planning
- PPP capacity building and institutional support

Programme management

- Programme implementation
- Contract and programme management
- Quality reviews and audits

Design

- Reviewable design data management
- Engineering design services
- Client representative

Project operation



Asset assurance and delivery

- Testing, certification and assurance
- Operation monitoring and payment control
- Condition survey

Business improvement

- Business change support
- Service improvement and consultancy
- Post-merger integration support

Acquisition/divestment

- Market sounding
- Portfolio optimisation
- Secondary market transaction support

Connecting with your world

Whatever your needs or ambitions and wherever in the world you are, we can align the right combination of expertise.

Working with us you get the advantages of size and stability that come from a US\$2bn organisation. We employ over 16,000 people, delivering projects in Africa, Asia Pacific and Australasia, Europe, the Middle East, North and South America, and South Asia. But you get the kind of openness, friendliness and personal commitment you might associate with a much smaller business.

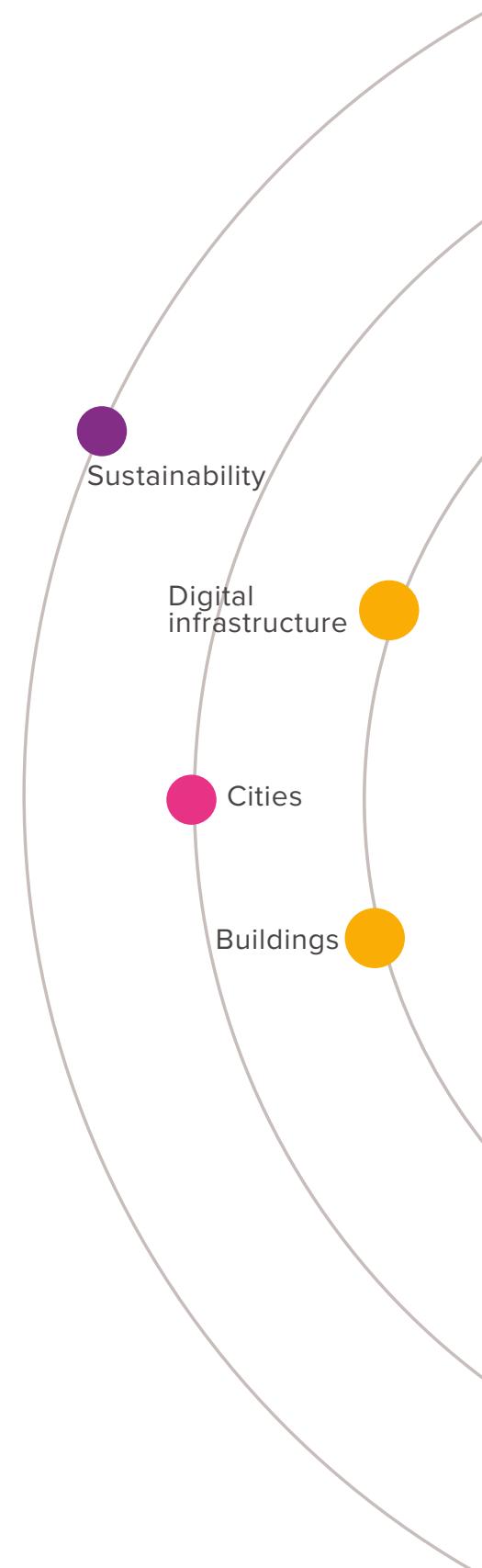
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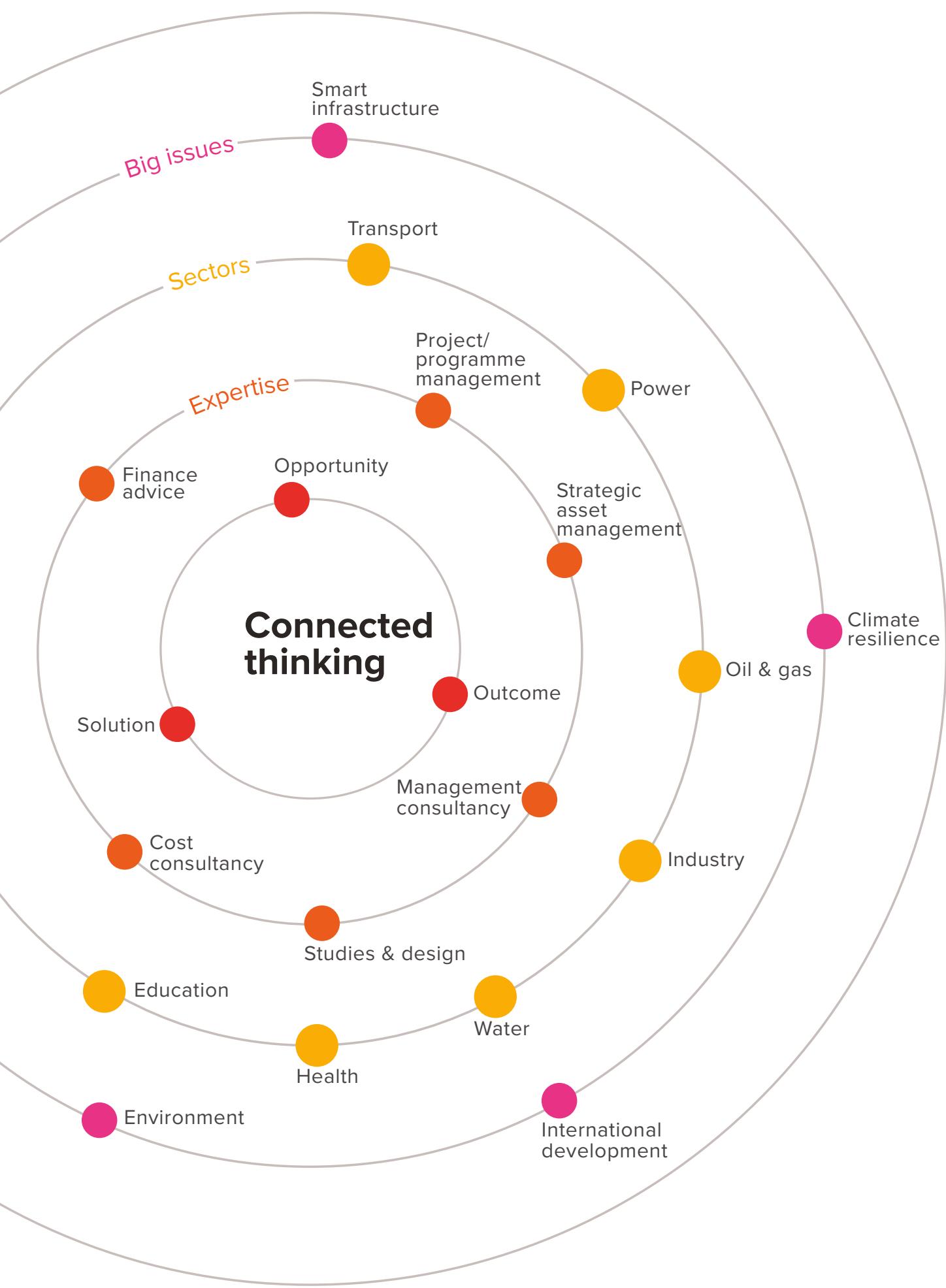
Mott MacDonald's universe of creative thinkers is centred around our clients – you. We're joined-up across sectors and geographies, giving you access to exceptional breadth and depth of expertise and experience. Over 80% of the work we do is for longterm or repeat clients, which we think underlines the great service we offer.

“Reaching out through our professional practice networks you can find a world expert in minutes.”

Cathy Travers

Business development director for Europe and Africa





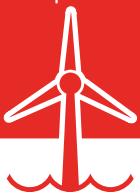
Key services

Making the infrastructure finance journey a safe one

Inception

Pre-feasibility and feasibility studies

- Project viability
- Economic, environmental and social impacts
- Technical issues
- Procurement strategy
- Project schedule



Business case

- Demand forecasting
- Revenue modelling
- Financial analysis
- Procurement strategy advice
- Business case development/production
- Cost development/analysis



Development and delivery

Procurement

- Specification: technical, service, performance
- Tender preparation
- Invitation to tender
- Bidder evaluation and selection
- Contract negotiation and supervision
- Construction supervision and monitoring



Project management

- Contractor support
- System design studies
- Fair, transparent and robust procurement
- Logistics
- Payment control



Concept and detailed design

- Civil
- Structural
- Mechanical, electrical and public health
- Environmental
- Construction and operational health and safety
- Design review



“Mott MacDonald is the world’s leading technical advisor for private finance projects, moving into new, innovative and challenging areas while delivering in traditional ones.”

Infrastructure Journal

Regulatory and policy advice

- Risks posed by changes in policy, regulation, law or government
- What must be done now/in the future?
- Programme design
- Develop regulatory structures

Identify and analyse risk

- Assess revenue risk and return on investment based on long-term demand
- Assess condition of existing assets, service provision and residual life

Risk management and mitigation

- Minimise technical and commercial risk
- Apportion residual risks to those best able to manage them
- Review long-term mitigation with delivery consortium

Operation

Ongoing review

- Technical, inspection and maintenance audits
- Technical, social and financial advice
- Operation monitoring
- Legal and regulatory compliance
- Renegotiation of performance measure

Due diligence reviews

- Project economics
- Technical, environmental and social issues
- Policy and regulatory advice
- Commercial performance
- Residual life

Water and wastewater



Project

Umbulan Springs Bulk Water Supply PPP

Location

Indonesia

Client

IFC



Provided certainty in the scheme costs and risk allocation

We undertook a technical due diligence and provided technical assistance to deliver PPP project for abstraction and supply of 346Ml/d of drinking water to Indonesian towns and cities. Technical advisory services include guidance on structuring of bulk water supply project to augment water supplies to the city of Jakarta, risk allocation and structuring for Government's Indonesia Infrastructure Guarantee Facility's guarantee and viability gap funding.

4,000l/s

bulk water supply, Umbulan,
Indonesia

**Project**

West of Bangkok Water Treatment Plant and Water Transmission Pipe

Location

Thailand

Client

Thai Tap Water Supply Public Company Limited

West of Bangkok water treatment and distribution facilities expansion

We undertook a feasibility study for the upgrade of the water treatment and network facilities serving the West Bangkok Provinces of Nakhon Pathom and Samut Sakorn in Thailand. The current assets produce 320,000m³/day. We designed additional facilities including a new water treatment plant, bulk transfer main, local distribution network and a service reservoir.

**Project**

Business case for Jatiluhur bulk water supply for Jakarta

Location

Indonesia

Client

AusAID

Technical business case to inform potential investors for a project to treat and supply 15m³/s of water to Jakarta

We conducted surveys for raw water intake sites at Jatiluhur reservoir, at the start of the Jatiluhur to Jakarta pipeline route. We determined the preferred route and alignment for the 80km triple 1.8m diameter pipeline through highly congested urban areas.

Airports

Project

Mactan-Cebu Airport PPP

Location

Philippines

Client

GMR-Megawide Cebu Airport Corporation



Lenders' technical advisor to a consortium of local banks for the upgrading and development of the second largest Philippines airport

We undertook a full suite of due diligence covering the existing condition of the assets, review of the proposed design, environmental aspects, operations and maintenance, cost and the financial model including independent traffic and revenue forecasts. Subsequent construction monitoring.

**Project**

Dalanzagdad Airport PPP

Location

Mongolia

Client

KPMG, funded by Singapore Cooperation Enterprise

Our role

We developed a business case for a PPP in the rehabilitation, operation and maintenance of Dalanzagad airport as the second largest airport of Mongolia.

Project

Manila International Airport PPP

Location

Philippines

Client

Government of the Republic of the Philippines

Our role

We provided technical advisory services to assess the feasibility of Manila International Airport as a PPP project, including traffic forecasting, review of airport revenue and existing asset condition, master planning and capital and operational expenditures.

Project

ASEAN Open Sky Policy Impact Study

Location

Indonesia

Client

Indonesia Infrastructure Initiative (by AusAID)

Our role

We prepared a road map for the implementation of an open sky policy in Indonesia, quantifying cost and benefits for 12 airports across the country.

Ports



Project

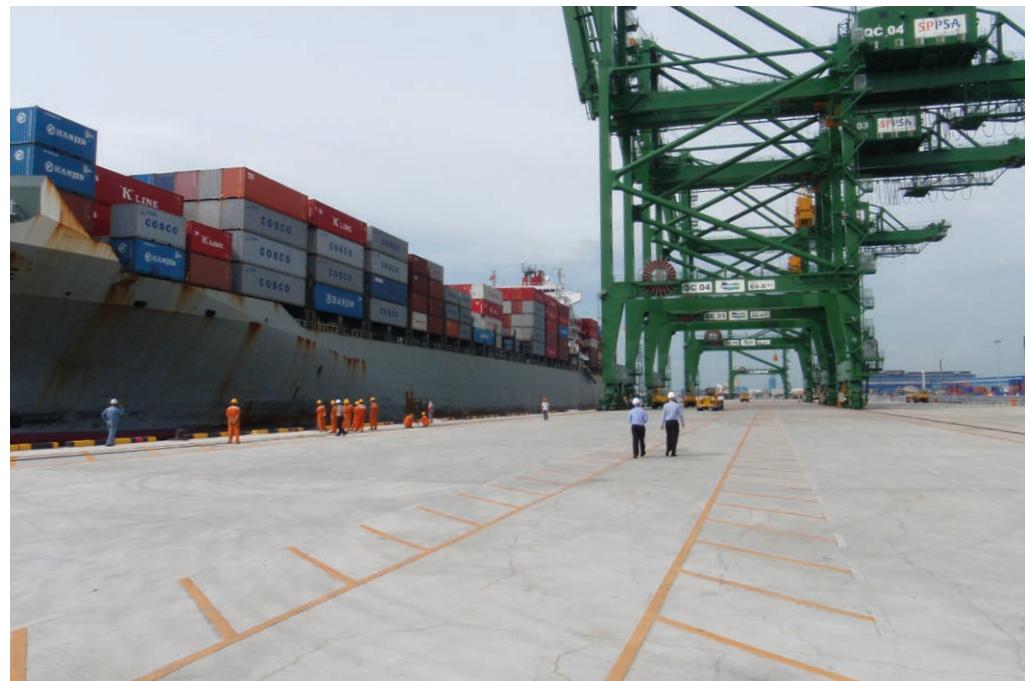
Thi Vai Container Port

Location

Vietnam

Client

Mizuho Bank, JBIC



Thi Vai Port Project, Vietnam – Independent technical and demand advice

We undertook a technical and demand review and demand review for a green field container terminal development on the Thi Vai River near Vung Tau in Southern Vietnam.

**Project**

Lach Huyen Container Terminal

Location

Vietnam

Client

Mizuho Bank, JBIC

Our role

We carried out a trade and shipping market review for a proposed new container terminal comprising two berths, a barging berth, container yard and equipment. As the Lender's Technical Advisor, reviewed the project owner's plan and programme, preliminary designs and budgeting for respective civil, building, plant and mechanical & electrical works and proposed recommendations. Conducted a macro-economic review, industrial sector analysis, port, international shipping sector evaluation and due diligence to review the environmental assessment status and define the overall framework required for the environmental impact assessment.

Project

Kuala Tanjung Port PPP

Location

Indonesia

Client

Indonesian Committee for Acceleration of Priority Infrastructure Delivery (KPPIP)

Our role

We prepared an outline business case and pre-feasibility study for the development of an international hub port in Sumatra envisaged to be implemented as a PPP.

Railways

Tender and independent cost estimate

We provided tender support and independent cost estimate for the project and benchmarked sub-contractors costs together with the preparation of functional specifications.

Project
Bangkok Redline Metro

Location
Thailand

Client
Mitsui & Co



Project
Ho Chi Min City Urban Railway
Line 1 Package 3

Location
Vietnam

Client
HITACHI

Our role
We provided tender document preparation services, including preparation of various project implementation plans; documenting the organisation and methodologies for system integration, operation and maintenance; and skill transfer.

Project
Hanoi MRT Line 2

Location
Vietnam

Client
Ministry of Planning and Investment

Our role
We undertook a due diligence review of the investment necessity and suitability to assess the basic design, review the economic and financial assumptions, operating issues, environmental and social aspects, project management and implementation assumptions

Project
Jakarta MRT

Location
Indonesia

Client
Obayashi, Shimizu, Jaya Konstruksi

Our role
As the Design Consultant of the JV, we prepared designs and design documentation for their successful submission of tender documents, subsequently retained to provide detailed design.

Project
South Sumatra Coal Rail and Port Supply Chain

Location
Indonesia

Client
PT Kerala Api and PT Bukit Asam

Our role
We provided technical assistance to railway and coal mining operators to establish a long term secure tariff structure based upon a Take or Pay agreement to ensure full cost recovery of significant upgrading in the coal railway infrastructure together with the port export terminal facilities, as a result of coal mining production expansion plans.

Project

MRT Downtown Line 2 Contract 921

Location

Singapore

Client

Ssang Yong Engineering & Construction

Two

new underground MRT stations in Singapore

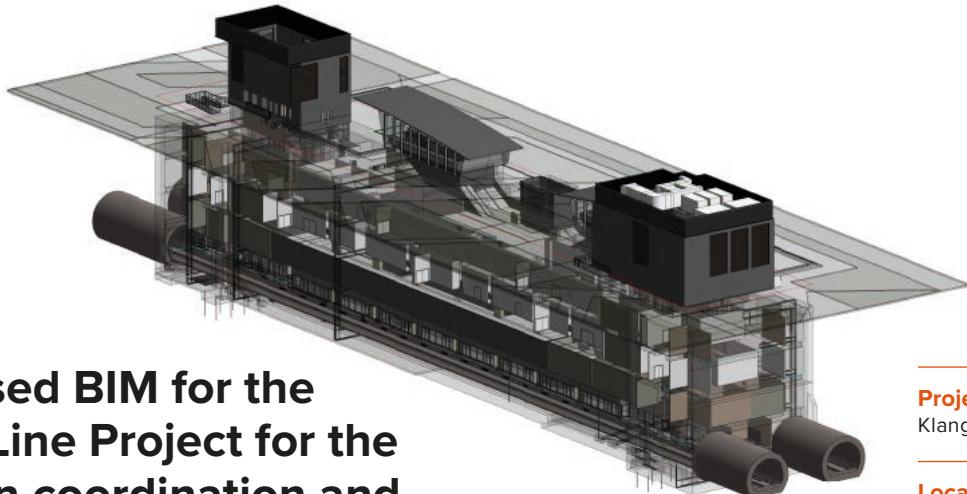


345m

long cut and cover tunnel

Lead Design Consultant for S\$850 million MRT design and built contract promoted by the Land Transport Authority

The works include two new underground MRT stations, 345m long cut and cover tunnel and 55m long mined tunnel connecting the two stations, and 290m long bored tunnel connecting new station with the existing.



We used BIM for the Blue Line Project for the design coordination and construction programme to coordinate designs of all disciplines concurrently with design development

We provided technical support in the development of design criteria and materials and workmanship specifications as well as carried out the design review on the proposed alignment, station planning and engineering design of both elevated and underground stations.

Project

Klang Valley MRT Blue Line

Location

Malaysia

Client

JV MMC Corporation Berhad and Gamuda Berhad

Highways



Project

ASEAN PPP Pipeline
Development

Location

Indonesia, Philippines, Thailand,
Vietnam, Laos

Client

World Bank

**We identified a pipeline of
viable road infrastructure
projects across ASEAN
countries which could be
implemented as PPP**

This included screening of the projects based on assessment of technical and financial feasibility, PPP option analysis, identifying potential issues for implementation, conducting consultations with government stakeholders and potential investors.



Technical and traffic advisory for 54km of toll road in south Vietnam

We provided technical and traffic advisory services for the development and construction of the Truong Luong My Thuan Expressway connecting Trung Luong and My Thuan as a part of expressway from HCMC to Can Tho, and mitigate the increasing traffic congestion.

Project

Trung Luong - My Thuan Expressway PPP

Location

Vietnam

Client

KPMG, funded by ERIA

54km
toll road

Project

Cikampek – Palimanan Toll Road PPP

Location

Indonesia

Client

IFC

Our role

Technical advisory for potential lenders for development and construction of 116km toll road in West Java. We undertook a review of technical specifications, slope stability and other geotechnical issues, highway structures, pavement design, drainage system, contractual issues, technical capacity of project concessionaire and the contractor, tolling system, operating and management plan, safety program during construction and operation, potential technical risks, construction and O&M cost estimates.

Project

Framework and Case Study for PPP in Thailand's Highway Program

Location

Thailand

Client

Department of Highways, Ministry of Transport, Thailand, funded by World Bank

Our role

We reviewed the technical aspects of the Saraburi-Bang Pa Kong Motorway PPP project documentation, as well as concession agreement, construction agreement, operations agreement, loan agreement, interface agreement and of the contractual structure of the project.

Social infrastructure

Project

Sports Hub PPP

Location

Singapore

Client

SMBC, Commonwealth Bank of Australia, DBS, Standard Chartered



Lenders' technical due diligence on behalf of five banks supporting the Alpine Consortium for the development of the world's largest sports facility PPP

The project comprises a new 55,000 seat national stadium, a 6,000 seat indoor aquatic centre, a multi-purpose arena, a commercial space, a water sports centre and the existing Singapore Indoor Stadium.

55,000

seat national stadium

6,000

seat indoor aquatic centre

Project Zhejiang Healthcare PPP Study	Project NUS Warren Student Town PPP	Project Ministry of Defence - Multi Mission Range Complex PPP
Location China	Location Singapore	Location Singapore
Client UK Foreign and Commonwealth Office	Client National University of Singapore (NUS)	Client Singapore Technologies Kinetics - John Laing Consortium
Our role <p>We provided strategic advice to the provincial Government on the potential transaction models for private sector participation in the delivery of healthcare to help tackle growing demand for healthcare services. This included a demand assessment of health infrastructure requirements across the province, procurement options evaluation and the development of a preliminary business case for a potential pilot hospital project.</p>	Our role <p>We provided transaction advice to the National University of Singapore on their “competitive dialogue” procurement for new residential accommodation for 4,000 students and ancillary academic, sports and recreational facilities. Responsibilities included output specification drafting (design and construction and facility management), inputs to payment mechanism development, NUS stakeholder consultations, bid evaluations, and bidder clarifications and negotiations.</p>	Our role <p>We provided lender’s technical advisory services supporting the bidding consortium for the development of a three story indoor complex to house seven shooting ranges at Pasir Laba Camp in Singapore. Equipped with electronic and video target systems, a Shooter Aid Trainer will enhance the ability to coach a soldier in shooting skills and the use of Computer-Generated Imagery to provide realistic scenario-based training.</p>



Industry

Lender's technical advisory for the development of a 2 million tonnes per annum alumina refinery

We provided technical advisory services for the US\$ 1bn alumina smelter and associated infrastructure facilities in West Kalimantan. The project included a coal power plant, port and social infrastructure to accommodate the labour force.



Project

Alumina Refinery

Location

Indonesia

Client

Development Bank of Singapore (DBS)

Project

Manganese Ferroalloy Smelting Plant

Location

Malaysia

Client

Confidential

Our role

We undertook a technical due diligence to a buyer for the acquisition of an integrated ferroalloy complex with an overall installed capacity of 250,000 tonnes per annum.

Project

Portfolio of Cement Production Plants

Location

Philippines

Client

Confidential

Our role

We were the independent technical due diligence provider, supporting the acquisition of a portfolio of five operating cement production plants in Philippines.

Project

Telecom and logistics connectivity project

Location

Myanmar

Client

ADB

Our role

We consolidated due diligence on the environmental and social safeguards and commercial/financial aspects in support of a loan to a private company to develop infrastructure projects in telecom and logistics sector.





**Technical due diligence to
Buyer in support of acquisition
of a portfolio of five operating
cocoa processing plants**



Project
Cocoa Processing Plants

Location
Global

Client
Confidential

Project
Clinker Grinding and Packaging Facility

Location
Indonesia

Client
United Overseas Bank

**Lender's technical advisory for
a greenfield clinker grinding
and packaging facility in East
Kalimantan**

Renewable

Project

230MW Setouchi Mega Solar PV Project

Location

Japan

Client

Setouchi Kirei Future Creation LLC

Project

70MW Manolo Fortich Hydroelectric Plant

Location

Philippines

Client

BPI Capital

Our role

We provided lender's technical due diligence including peer review of owners advisory report, hydrology analysis and associated generation yield assessment, and technical design documentation and drawings.



**Sponsor's technical advisor
for the largest solar PV
project development in
Japan, providing design and
construction supervision
services**

**Project**

100MW Humen Wind Farm

Location

Mongolia

Client

Soft Bank (JICA)

Our role

We provided technical and environmental appraisal as part of an overall JICA funded feasibility study with the objective of promoting Japanese infrastructure related technologies overseas.

Project

207MW Korat Wind Farm

Location

Thailand

Client

Kasikorn Thai PLC

Our role

We acted as independent engineer for the first utility-scale wind farm in Thailand. Reviewed the technical and commercial robustness of the plant design, interconnection arrangements and contracts prior to financing of the project, overcoming regulatory and interconnection challenges inevitable with a first-of-a-kind development.

Project

330MW Sarulla Geothermal IPP

Location

Indonesia

Client

Sarulla (ITOCHU led consortium)

Our role

We provided environmental technical advisory services on biodiversity risks and prepared a wide range of environmental management plans critical for the Sponsors to reach financial close by demonstrating compliance with JBIC's environmental & social environmental guidelines, the ADB safeguards and the Equator Principles of commercial lenders. Liaised with lenders and their advisors to obtain their early support to achieve smooth approvals.

Thermal power

Project

1,200MW Kien Luong coal-fired IPP

Location

Vietnam

Client

Tan Tao Energy Corporation

Project

Fukushima IGCC IPP

Location

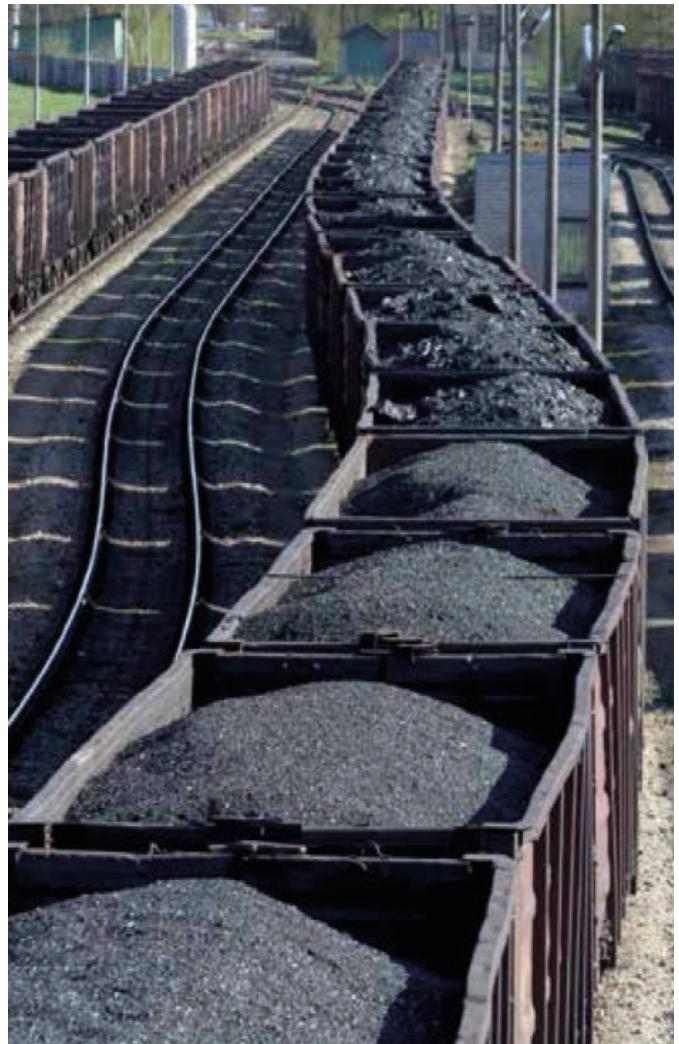
Japan

Client

BTMU (supporting Mitsubishi Heavy Industries)

Our role

Lender's technical advisory for two 540MW gross integrated gasification combined cycle units, including review of technical and contract documents and identifying key project risks with particular interest in the new IGCC technology.



Sponsor's technical advisory services for the largest coal-fired plant in Vietnam and the first IPP to be taken forward

We assisted in the selection of an EPC contractor and subsequent contract negotiation, followed by a design review of the project, overseeing of the construction, commissioning and performance testing and provision of monitoring services through the operational warranty period phase.



Project
1x660MW Cirebon coal-fired IPP

Location
Indonesia

Client
JBIC, KEXIM

Lender's technical adviser for supercritical coal-fired power plant, the first of a 'new phase' of Indonesian IPPs to be implemented under a revised power purchase agreement

We undertook a technical, environmental and social due diligence for the project's pre-financial close. We subsequently provided monitoring services for the construction, commissioning and operational phases.

Project
Central Java Ultra Supercritical Coal IPP

Location
Indonesia

Client
SMBC

Our role
Lender's technical adviser for the largest (2x1000MW) coal-fired power plant in Indonesia. Services included review of project technical and contract documentation, review of plant issues such as coal logistics, environmental compliance, operation and maintenance and financial model review.

Oil and gas

Project

Chemical & Petroleum Products Storage and Distribution Facility

Location

Singapore

Client

Development Bank of Singapore (DBS)



**Independent assessment
to Lenders for Oiltanking's
chemical & petroleum products
storage and distribution facility
at Jurong Island**



We were expert witness for a review of offshore platform design documentation

The review of the design document was to determine whether the sellers' claim of force majeure was justified following the breakdown of gas regeneration coolers and the malfunction of a fuel metering valve.

Project
Offshore Platforms

Location
Thailand

Client
Ashurst LLP

Project
Jurong Island Product Grid Feasibility Study

Location
Singapore

Client
JTC Corporation

Our role
Concept study including technical feasibility, risk assessment and business model for "Product Grid" initiative to enhance the long term competitiveness and sustainability of the energy and chemicals industry in Singapore. We enabled end-users to have transparent and open access to Pipeline Grid infrastructure to transport a variety of products.

Project
Pasir Gudang Liquefied Petroleum Gas Bottling Plant Expansion

Location
Malaysia

Client
NGC Energy

Our role
We provided owner's engineer technical advisory services, including design, procurement assistance, construction management and commissioning assistance of a new storage tank and transfer facility distributing liquefied gas to different locations within the facility and then onward distribution through tanker loading and cylinder filling.

Waste management

Project

Feasibility Study for Solid Waste Management Improvement Project

Location

Indonesia

Client

Indonesia Infrastructure Initiative (IndII by AusAID)



Feasibility study in preparation for a USD100 million World Bank loan application for financing to support improvements to solid waste management

The project included the waste collection and transport, intermediate waste treatment facilities, re-engineering, upgrading and extension of the existing landfills as well as the expansion of 3R's (reduce, reuse, recycle) facilities for two regions of Indonesia: Kartamantul and Manado. The scope of the study included technical, social and environmental, institutional, economic and financial analysis, as well as a market study, legislation and regulatory reviews.

Project	E-Waste Facility
Location	Malaysia
Client	Confidential
Our role	<p>Buyer's technical due diligence of a business for the treatment and recovery of industrial scheduled and non-scheduled solid waste and electronic waste.</p>



Energy from waste

Project

IP6 Waste-to-Energy PPP

Location

Singapore

Client

Singapore developer

Our role

Tender design for bidder



Project

Pre-Feasibility Study for EfW Plants

Location

Thailand

Client

Confidential

Our role

Screening bankability of potential waste collection systems as fuel supplies for 10MW EfW gasification plants under the EGAT Very Small Power Producer programme, including analysis of waste feedstock, site location and power grid network.

Project

Portfolio of Biomass & Biogas Plants

Location

Singapore

Client

Confidential

Our role

Buyer's technical advisor in support to acquiring a minority stake in a company developing a portfolio of biogas and biomass-fired power projects in SE Asia. Undertook review of contract agreements.

**Project**

Khon Kaen 10MW Biomass Power Plant

Location

Thailand

Client

Government saving bank

Lender's technical due diligence for biomass fired power plant and subsequent construction monitoring of the project

The plant has been designed to operate using low heating value and high moisture content fuels.

**Project**

Woodchip-fired Power Plant

Location

Thailand

Client

Confidential

Biomass power stations require clean woodchips as the primary fuel source

Technical due diligence assessment for 2 x 10MWe power plants.

Engineering. Management. Development.