

**Kramer Ausenco**

# Ports & Marine



PAPUA NEW GUINEA | FIJI | SAMOA | SOLOMON ISLANDS | TONGA | VANUATU | AUSTRALIA

# South Pacific Engineering Design Leaders

## Who we are

Kramer Ausenco is the largest independent professional project management, engineering, survey, quantity surveying, construction management and planning services organisation resident within Papua New Guinea and the Southern Pacific Region. Originally founded in 1978, Kramer Ausenco is the leading engineering and project management firm in the South-West Pacific. Our 35 year history in the South Pacific is a testament to the sustainability of Kramer Ausenco and our experience ensures that we can provide you with solutions of excellence and a high level of Professional Service

## What we do

- Professional Project Management
- Procurement & Planning
- Civil Engineering
- Structural Engineering
- Maritime Engineering
- Building Services Engineering
- Hydraulic Engineering
- Environmental & Social

- Quantity Surveying/ Cost Planning
- Architectural Design Services
- Surveying
- Construction Management
- Studies
- CAD Services.

Kramer Ausenco service capability covers the complete project lifecycle, from concept development through to detailed design, financing, planning approvals and construction of small and large scale projects.

From small studies to large scale EPCM (Engineering, Procurement and Construction Management) and EPC (Engineering, Procurement and Construction) contracts and operations solutions for a range of commodities, we deliver.

## Our vision

Kramer Ausenco is devoted to the development of excellence in professional engineering and allied sciences, and we are also truly committed to the development of the South

Pacific Region.

Our successful record attests to our achievements of our corporate goals and the high level of professional service provided to our clients.

## Our people

Our achievements are driven by our experienced leaders and highly talented people in our company. The way that we care for, develop and encourage our people is an important part of each of our cultures. Our approach to delivering projects is complementary and this means that we are able to put together the best people to form a tailored project team to deliver any project.

## Our values

Our core values below guide the way that we work every day. These core values also represent our commitment to our clients and ensure that we focus on providing the best fit sustainable solution which meets the needs of all stakeholders.

Safety in  
all we do

Our people  
are our  
strength

Innovative  
solutions  
that work

The client is  
our focus

We are open,  
honest,  
collaborative

Respect the  
community, the  
environment

## The Pacific context

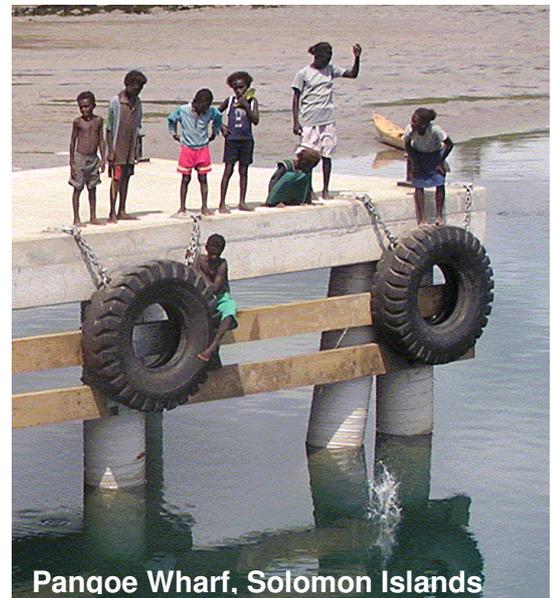
Pacific countries rely on ports and shipping for imports, exports, domestic and regional, transport of goods and passengers. There is a growing recognition of the significant impact efficient port operations make on Pacific nation's economic growth.

International shipping facilitate trade activities between neighbouring Pacific countries as well with major industrial nations of the world. In addition for many Pacific Island communities, domestic shipping is the only means of travel and trade.

Kramer Ausenco is the only truly Pacific based consultancy to have the experience and expertise to help develop and deliver ports and maritime infrastructure to the South Pacific.

## Steering you safely into port

Kramer Ausenco has been working on maritime projects in the Pacific for its full 35 years while our partner Ausenco has been delivering ports and terminal solutions around the world for 85 years. We've successfully designed ports for private and government clients ranging from small-vessel harbours to bulk terminals. Using innovative techniques, we design cost-effective facilities that also meet the highest standards in environmental management and safety. Our engineers have designed steel and concrete marine structures able to withstand high seismic zones, dynamic forces from large vessels, and harsh climatic and wave environments.



Panqoe Wharf, Solomon Islands

We provide a comprehensive range of port and marine infrastructure services, including:

- port planning and design
- port site selection and scoping studies
- equipment selection and design
- throughput assessments
- infrastructure design
- procurement
- construction management
- operator training
- environmental and navigational risk assessment
- coastal engineering.

Services for greenfield sites include site selection, planning of site investigations and conceptual studies, and detailed design and EPCM services. We have specialist knowledge of coastal and metocean conditions, and are able to carry out weather-downtime and berth-availability assessments.

## Strong marine solutions

Our people have worked on a wide range of marine structures, including:

- wharves and jetties
- spread mooring systems
- trestles
- fendering designs
- seawater intake and outfall facilities
- breakwaters



Antamina Concentrate Export Terminal, Peru



Mangrove Environment, PNG

- jacket and caisson structures.

Using our expertise, we tailor solutions to meet the individual needs of your project. Our people can draw on many years experience in marine structures and facilities, including work on:

- bulk materials
- LNG, LPG and oil terminals
- general cargo and container terminals
- ferry terminals and barge ramps
- marinas and small craft harbours
- cruise-ship terminals.
- provincial wharves and jetties.



Royal Papua Yacht Club, PNG

## Coastal engineering and science

Coastal engineering and coastal process studies include some of the most complex and demanding challenges faced in modern engineering disciplines.

We provide a comprehensive range of coastal engineering services supporting ports and terminals, environmental impacts, coastal developments, intakes and outfalls, nearshore and offshore structures, and dredging and construction issues covering all project engagement levels from feasibility studies, concept and preliminary (FEED) design, as well as detailed design to support EPC and EPCM works.

## Simulation modelling for transportation systems

What can simulation modelling do for you?

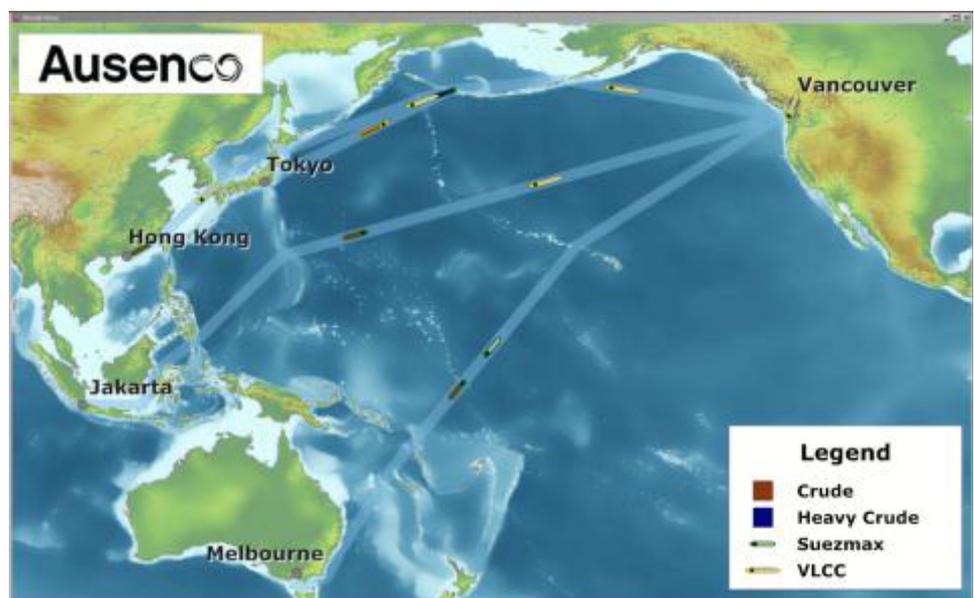
A simulation model mimics your real system with sufficient accuracy for projections from the model to reflect real system behaviour, allowing iteration step-by-step towards a balanced system design. Ausenco's simulations act as an invaluable tool for evaluating past performance, improving present operations and planning future facilities.

With over 35 years of experience and more than 300 simulation projects completed, Ausenco is a world leader in the use of computer simulation modelling to optimize transportation networks for bulk commodities, oil and LNG.

We combine our vast engineering experience with simulation expertise to create simulations with a high level of detail and quality. We understand the operations we model, and we work closely with leading design engineers to ensure our models capture reality.

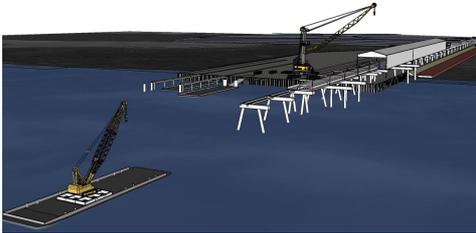
We have the capability to create complex simulation models, including:

- Mine-to-port supply chain logistics
- Port-to-port supply chain logistics
- Port terminals for solid bulk materials and liquid bulk products
- Pipeline systems for slurry, crude oil and refined products



## Examples of Kramer Ausenco's Maritime experience are shown below:

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### PNG LNG Jetty Tender Design

#### Port Moresby, PNG

- Ausenco's scope was to provide engineering advice to support Leighton's tender submission including:
- Developed level analysis of structures
- Design sketches suitable for quantity take-offs for specific requests from Leighton
- Responding to Leighton and CJJV generated technical queries during the tender period.
- Facilities included 2.44km access trestle, 46.5mx45m loading platform, dolphins, tug moorings, Navigation Aids.
- Responsibilities: Maritime, Civil and Mechanical Engineers.



### PNG LNG Jetty Design Review

#### Port Moresby, PNG

- Kramer Ausenco's scope was to undertake design review of successful contractors design on behalf of PNG Ports Corporation.
- Reviewed the access trestle, loading platform, dolphins, and tug moorings.
- Responsibilities: Maritime, and Civil Engineers.



### EU Marine Infrastructure Project

#### Solomon Islands

- Kramer Ausenco successfully tendered for this project which was funded by the European Union.
- Scope of works covered design and documentation, feasibility studies, investigation, site selection, tender, construction of 14 new wharves and navigation Aids located throughout Solomon Islands, procurement and refurbishment of landing barge.
- Responsibilities: Project managers, Construction managers, Maritime, Civil, and Structural Engineers.



### FASITO'O-UTA, MANONO-UTA & MULINU'UA

#### Apia- Samoa

- The project involved three (3) phases of works which were undertaken concurrently:
  - Phase 1 – Structural reconstruction of approximately 784m of existing coastal protection measure to the Mulinu'u Peninsular.
  - Phase 2 – Structural reconstruction of approximately 815m of existing almost non-existent coastal protection measures to the foreshore at Fasito'o-uta.
  - Phase 3 – Structural rehabilitation of approximately 4,169m of existing almost non-existent coastal protection measures to the foreshore at Manono-uta and Apolima-uta. Works included the provision of improved drainage and concrete boat-ramps.
  - Responsibilities: Maritime, and Civil Engineers.
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## ROYAL PAPUA YACHT CLUB

### Port Moresby – PNG



- The project includes the development of fully serviced marina, boat repair facilities and club house in Fairfax Harbour. The marina has the capacity for 300 boats.
- Kramer Ausenco provided Topographic and hydrographical surveys. Marine planning and club house concept development. Tide studies and marine works design.
- Construction supervision, project management on behalf of the client. Design and documentation of facilities including building site works and building services.
- Responsibilities: Project Managers, Maritime, Civil and Structural Engineers.

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## QUEEN SALOTE BIRTH NO.1

### Nuku'Alofa – Kingdom of Tonga



- Kramer Ausenco was responsible for the site investigation, planning, design and construction management for the rehabilitation and strengthening of the existing containerized Queen Salote Wharf Berth No.1.
- Works included piling, suspended concrete wharf decking, precast and insitu concrete fender system connection and 70 tonne bollards.
- Responsibilities: Project managers, Maritime, Structural, Civil and Electrical Engineers

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## LIHIR WHARF

### Lihir, New Ireland- PNG



- Kramer Ausenco (in association with Davey Kinhill Fluor Daniel), was responsible for the engineering and Project Management of the Lihir Gold Mine.
- As part of this work, Kramer Ausenco's maritime division was involved in the design of certain marine facilities.
- Services extended from feasibility and planning through to detailed design, tender documentation and review of construction methodology. The port is to be used for importation of all materials and equipment for the mine and also function as a service port for the operational facility.
- Responsibilities: Project Managers, Maritime, Structural and Civil Engineers.

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## FOA CAUSEWAY

### Ha'apai Islands – Kingdom of Tonga



- Kramer Ausenco was responsible for the design and construction supervision of the causeway.
  - The causeway is 575m long, and joins Lifuka and Foa islands.
  - The works were 680m long and included the approach roads at each end.
  - The causeway successfully withstood cyclone TC Ian in January 2014.
  - Responsibilities: Maritime, and Civil Engineers
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## TALOGA BAY WHARF

Gisborne – New Zealand

- The Project involved major reconstruction and refurbishment of an old Wharf for the Gisborne Regional Council, New Zealand.
- Kramer Ausenco secured this project in a Design & Construct Tender in association with Concure Pty Ltd. Kramer Ausenco was responsible for all design, documentation and inspection services for.
- Design was completed in 2004 with construction completion early 2006.
- Responsibilities: Maritime, Structural and Civil Engineers



## Centerm Container Port Expansion

Vancouver, Canada

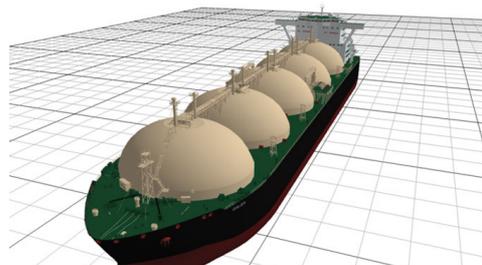
- This complex project doubled terminal capacity and improved the efficiency of container-handling operations while maintaining terminal operations throughout construction.
- Ausenco provided a range of services, including project management and engineering, operational review, detailed design, tendering and construction supervision.
- The project included construction of a new piled platform immediately in front of the existing berth, dredging and reconstruction of the entire container yard to allow rubber tyre gantry service.
- Responsibilities: Maritime, Structural and Civil Engineers



## Canaport LNG Terminal

New Brunswick, Canada

- Ausenco, in a joint-venture partnership with Peter Kiewit and Weeks Marine, undertook the offshore EPC contract for Canaport LNG Terminal, the first LNG terminal in Canada.
- The terminal is located in the Bay of Fundy, home to the highest tides in the world, and includes an access trestle with roadway and pipe support, unloading platform, spill-containment system, berthing and mooring dolphins, and catwalks.
- Ausenco prepared the detailed design for the LNG jetty to accommodate LNG vessels up to 270,000 m<sup>3</sup> capacity.
- Ausenco was also responsible for quality assurance and quality control during construction of the offshore components.



## LNG Transport Simulation

Various locations worldwide

- Ausenco is a world leader in the simulation of transportation systems. Our Numerical models optimize the design of a wide range of transport systems including marine and gas pipeline
  - Our proprietary marine transportation model software (MTM) is licensed to companies including ExxonMobil, ConocoPhillips and Saudi Aramco and is rapidly becoming the industry standard for this type of modelling.
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