



synergetics

Strategic Planning and Design of
Infrastructure Projects

Infrastructure Planning

Logistics
Maritime
4PL for Enterprise
Ports
Design
Buildings
Architecture
Inland Waterways
Coastal Shipping
Strategic Planning
Project Management

About Us

Since its inception in 1989, SYNERGETICS Management & Engineering Consultants Pvt. Ltd. has been providing consultancy services in the areas of Engineering and Resource Management including Design of Buildings, Bridge & Highways, Port & Maritime Structures, Aerial Ropeways, Inland Water Transport, Pipelines, Material Handling and Logistics Studies. It offers the entire range of services from the Project Formulation stage to Commissioning including advisory services for project financing and strategic planning.

Assistance From Concept To Commissioning

I Preliminary Stage

Project Formulation
Problem Specification
Technical Solution
Site Identification
Selection Attribute
Reconnaissance Survey

II Feasibility Stage

Technical Feasibility
Preliminary Site Survey
Demand Assessment & Forecasting
Financial Viability
Preliminary Cost & Time estimate
Implementation Schedule
IRR, ROI, ROR, Sensitivity analysis
Funding Options
Assessment of Viability

IV Contract Management Stage

Tender Preparation
Specification of Work
Bill of Quantities
Detailed Cost Estimation
Tendering
Pre-qualification of Contractors
Evaluation / Recommendation
Construction Supervision

Construction Drawings
Detailed Construction Schedule
CPM / PERT / Precedence Network
Site Supervision
Quality Control
Progress review / rescheduling
Measurement & Verification of Bills
Certification of Completion



III Engineering Stage

Schematic Plans
Layout of Services
Roads
Drainage & Sewage
HVAC
Electrical Distribution
Fire Fighting
Water Supply & Storage
Communication

Proposed Site Plan
Detailed Topographical Survey
Detailed Soil Investigation
Structural Designs
Estimation of Costs
Construction Scheme
Schedule of Construction
Approval for Execution

V Project Audit and Inspections

Audit check during various stages of a project by independent body of experts to assess & control the planning, design, quality, cost & time. Monitoring post completion of project from time to time to pre-empt any issues, and identify opportunities for improvement

Project Experience

Ports, Maritime, IWT and Logistics



Greenfield Port at Machilipatnam, Andhra Pradesh, India

Due diligence study for the development of a greenfield port for the Maytas Group involving review of the master plan, preliminary design of the breakwaters, capital dredging and berth structures, assessment of development costs and time frame for the project.

Greenfield port in Orissa, India

Due diligence for a greenfield port development on behalf of a private equity fund. Work included review of traffic forecast, identification of business risks, commentary on the layout plans and the phasing of cost estimates for the project.



Preparation of Business Plan for Kolkata Port

Review of Existing master plans preparation of future development plans based on traffic projections and preparation of cost estimates for inputs for financial analysis

Development of Cruise Terminal at Port Louis, Mauritius

Master planning, preparation of layouts, assessment of requirement of surveys and investigations, detailed design and engineering, construction supervision and project management.

Damage assessment for the marine works for the Adani Port at Mundra in Gujarat.

Work was carried out on behalf of Insurance company – Royal Sun Alliance as an associate of Insurance Surveyors & Loss adjustors – Cunningham Lindsey International and T S K Pvt. Ltd. Responsibilities included review of existing design, inspection of damage records and assessment of cause – damage correlation followed by review of repair / rehabilitation scheme for the affected marine works and shore side tankage.

Bulk cement storage terminal of 0.5 million tonnes at Vasai creek near Mumbai for Sau-rashtra Cement Limited.

Detailed feasibility study for the setting up of a cement terminal. Responsibilities included design and costing of berthing and handling facilities for ships of 3- 5000 DWT size bringing cement from the Porbandar Port loading terminal of the company



Due diligence of a shipyard in Goa

This was carried out for a private sector client involving valuation of existing infrastructure, cost estimates and financial analysis including review of balance sheets.

Rehabilitation of an existing jetty of GMB for Welspun industries

Review of stability of existing facility, strengthening and rehabilitation of the jetty, preparation of detailed specifications and detailed engineering

12 MTPA Coal Import terminal at Dahej Port for Adani Group

Detailed engineering for material handling system and port back-up areas.

Development of Harbour at Two Islands in Andaman and Nicobar

Master Planning, conceptual and detailed design, preparation of tender document, tender process management, construction supervision and project management.

Planning and Design for a proposed second container terminal at Chennai Port for a private developer

Designs for BOT bid preparation

Breakwater Designs at Gangavaram Port

Planning and design of two backwaters for a leading contractor as a part of their bid for design-build contract at Gangavaram

Inland Container Depot at Ennore by SI-CAL-CWT

Responsible for assessment of infrastructure required to manage/handle container traffic for a 10 year time horizon, assessment of the requirement of the container handling equipment; preparation of the layout plan, ball-park cost estimates etc.

Project Manager for the design of a multi-purpose bulk berth for loading Cement and Clinker and unloading of Coal at Vadodara Jhalla in Junagarh District of Gujarat.

Detailed design and engineering, tendering and construction supervision of a 300m long multi purpose berth with 300m long approach jetty.

Strategic partner for the development of a private port in Gujarat for a large industrial group.

Responsibilities included vetting of the detailed project report and other planning and environmental documents, reviewing the financial structuring of the project and finalizing the partnership agreement.

A techno economic feasibility study for the development of a Dry Port in state of Rajasthan for Project Development Corporation (a joint venture of ILFS & Govt. of Rajasthan) under funding from International Development Agency.

As a sub-consultant, responsible for the planning, layout, design and cost estimates for the proposed Container terminal.

Planning and Structural Design for extension of handling facilities at existing oil jetty at Cochin Port on behalf of Turnkey Contractors Punj – Lloyd.

Work comprised of an offshore piled platform 37m x 10m for the mechanical equipment, a 300m long offshore pipe trestle, submarine pipe –40" dia section 1000m long and 14 km land section of the pipe line. Work included preparation of construction scheme, bill of quantities and cost estimates for the EPC offer.

Detailed Engineering for the development of a Dry Bulk Cargo Berth for handling vessels upto 40,000 DWT for Saurashtra Cement & Chemical Industries Ltd. at Porbandar.

Structural design and site selection for the Ship Inspection & Repair Facilities (Ship Lift and Slipway) for the Inter Island High Speed Ferries for the Lakshadweep Island with Dutch Consultants F.C. De Weger International B.V.

Provided the design and construction advice to Engineering Construction Corporation (ECC), a subsidiary of L & T for the laying of a gas pipeline across Godavari river.



Detailed Engineering for the development of a Dry Bulk Cargo Terminal for handling vessels upto 60,000 DWT for Gujarat Sidhee Cement Ltd. at Veraval.

Structural designs for the Ship Repair Facilities involving Construction of Ship lift platform –6000 T lift capacity for Alang Marine Ltd. at Alang in Bhavnagar, Gujrat.

Layout and design of a Jetty for handling of Ethylene Barges upto 7000 DWT size for Reliance Industries Ltd. at Hazira for the Civil Contractors Simplex Concrete Piles (I) Ltd.

Layout and design of a Berthing Jetty for Vessels upto 2000 DT for the Construction of Breakwater at Kakinada Port for Simplex Concrete Piles (I) Ltd.

Techno-economic study on “Adaptation of Irrigation Canals for Navigation” for the Technology Information, Forecasting and Assessment Council of the Department of Science and Technology.

Traffic forecasting for the development of Inland Water Transport on the National Waterway No.1 – Ganga Bhagirathi – Hooghly as part of the Total Transport System Study for the Planning Commission.



Synergetics designs and implements integrated logistics strategies and systems that:

- Deliver on customer service
- Result in a balance between costs and service
- Bring across-the-board cost efficiencies
- Create meaningful relationships
- Build profit opportunities.

Using Synergetics to handle your logistics allows you to focus on the core competencies of your business. Whether manufacturing or services, hitech or mass market, we leave you to innovate while making the logistics aspect leaner, fitter and sharper.



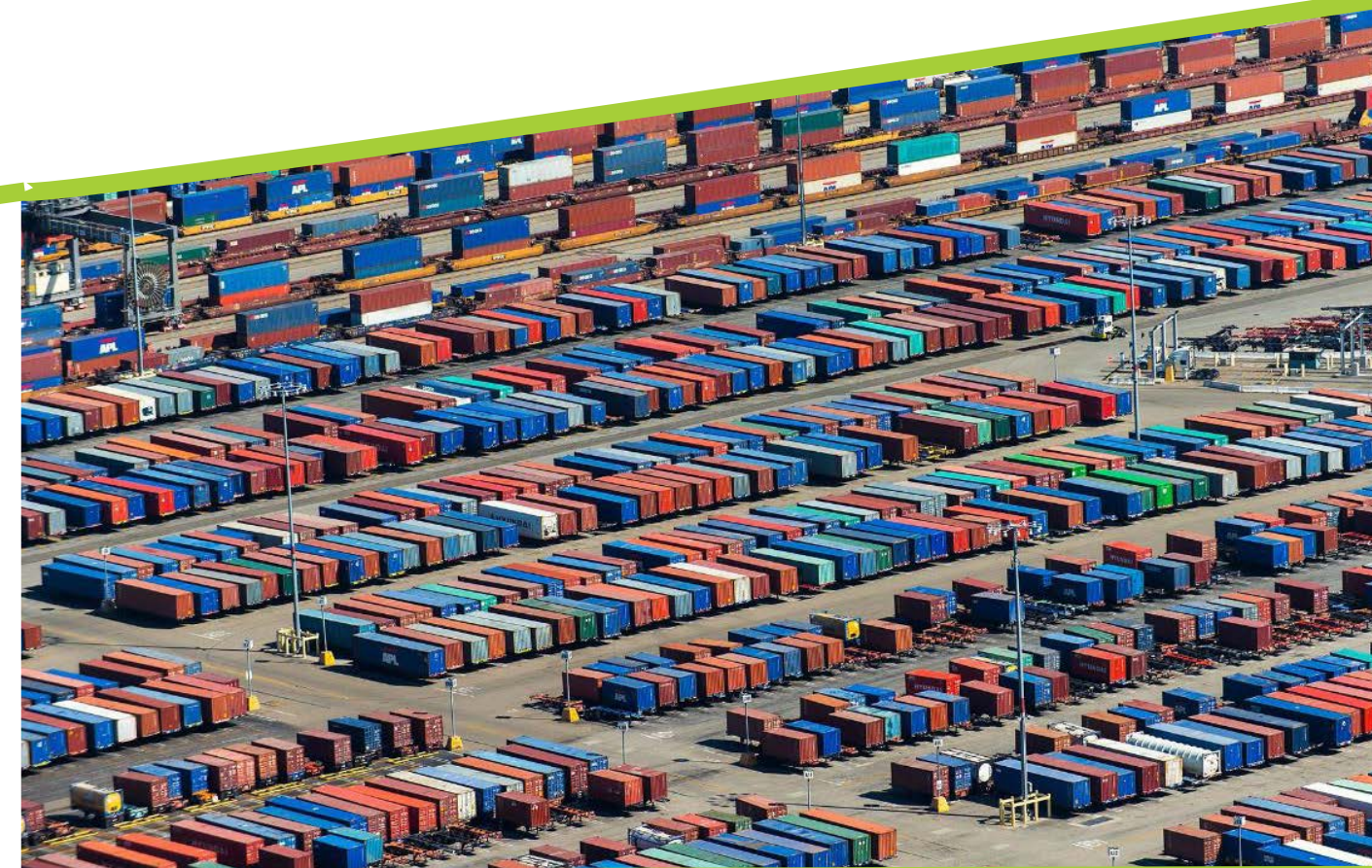
- Consider options of cost reduction like balancing flows, incorporating cross commodity linkages or just in time concepts to reduce the inventory to cut logistics cost.
- Consider options of alternative modes like Inland Water transport linked to Plant – Factory options.
- Containerized transport wherein inventory and storage cost items would also be influenced.
- Suggest solutions for logistics cost reduction and implement and manage the chosen solution.

Feasibility Study for Bulk Cement Transport from Porbandar & Veraval Ports in Gujarat to Coastal destinations of Bharauch, Mumbai, Goa and Cochin for Saurashtra Cements Ltd.

Logistic Study for design of Port Facilities and Shipping System for Slag Cement Grinding Units at Haldia & Cochin Port

plant in Veraval for containerized movement thru Porbandar port -for 180,000 t / annum versus their own captive port.

Modernization and performance improvement for the ICD near Ennore port for SICAL logistics. **Activities included** - review the cargo forecasting by Drewry, study of ongoing operations including dwell times, performance



At Synergetics, we:

- Undertake review of logistics chain
- Establish flow chain characteristics like origin destination, covering plant locations, market/warehouse connects (and ports of import/export) and work out distance matrix, cost matrix for different modal transports adopted at present (road, rail).
- Understand inventory management requirements and establish the cost of inventory in the system.
- Use principles of 6 Sigma to make leaner system flows and cut costs.

Synergetics brings a fresh and unique approach that is a result of:

- Domain knowledge and expertise
- Absence of any legacy bias
- Solution-orientation that tracks operational efficiencies

When Synergetics runs your logistics chain, it ensures that it:

- Adheres to existing regulations governing industry/sector
- Is sustainable and long-term in operation
- Foster cooperation and profitability for all partnering businesses

Logistics evaluation for movement of cement in bulk using self discharging bulk carriers versus moving it in flexible containers / jumbo bags on conventional bulk carriers.

Marine logistics study for Sanghi Cements, for movement of 120,000 t per annum from their plant in Kutch region using mini bulkers through their captive port with 4 m draft. Alternative movement by containerising the movement through Kandla port using chartered container ship was also covered

Marine Logistics Study for Ambuja Cements

and utilization of major equipment and setting up improved performance criteria and establishing different options of capacity expansion linked with traffic forecasts and providing techno economic evaluation of suggested improvement options based on life cycle cost analysis and multi criteria evaluation technique.

Project Experience

Structures and Project Management



Structural proof checking of design and drawing for IMT Building at Nagpur.

Built up area – 1,08,913 sq.ft.

Structural designs and drawings for Rohini Amusement Park for Unitec Ltd.

Built up area – 2,00,000 sq.ft

Structural designs and drawings for Agarwal Textile Factory Building at Faridabad, Haryana.

Built up area – 7000 sq.ft. Cost of Project

Design and Estimate of Road, Electrical, Plumbing works for the SADA Gwalior Township.

Site area – 78 Ha.



Structural designs and related services for the extension of existing Plant, at Malanpur.

8mx7m, 47 Mtrs High Steel Structure, Cost of the project

Analysis of Vibration and structural review of a Commercial Building for Daksha e Services, at Plot no-186, Udyog Vihar, Gurgaon, Haryana.

Built up area of – 1,20,000 Sft.

Structural designs for a drive-in restaurant of Mcdonald Corporation at NOIDA, Uttar Pradesh.

Delhi at Greenpark, Basantlok, Greater Kailash – I, Preet Vihar and Punjabi Bagh.

Responsibilities included assessment of the strength of old buildings, re-habilitation & refurbishing plan for certain floors within the existing multi-storied buildings including structural arrangement and erection scheme for the services including Generators, air-conditioning plants and additional water tanks on the roof terrace.

Work comprised of an offshore piled platform 37m x 10m for the mechanical equipment, a 300m long offshore pipe trestle, submarine pipe –40” dia section 1000m long and 14 km land section of the pipe line.

Structural designs for a 5 storied commercial centre at Chirag Delhi Builtup area of 7500 sq.m.



Architecture, Structures, Plumbing drainage and electrical works for a Factory building for M/s Unique Engineering Corporation at Mohan-Coperative Industrial Area, Mathura Road New, Haryana,

Built up are – 5480 sq.ft.

Structural designs and drawings for Software technology Park - Residential block on Plot no – 71, Friends Colony. Built up area – 25,000 sq.ft.

Architecture, Structures, Plumbing drainage and electrical works for a Residence at Sector - Alpha-II, Greater Noida, U.P ,

Built up are – 3,000 sq.ft.

Architecture, Structures, Plumbing drainage and electrical works for a Auto ancillary factory building of JNS Instruments Pvt. Ltd. in IMT Manesar, Gurgaon, Haryana.

Built up area – 69,000 sq.ft.

Structural designs and project management for a Conversion cum Re-habilitation of large span steel sheds (50m span x 100m long) - 5 nos with addition of 4 new sheds of same size in Tripoli, Libya for an Egyptian Contractor.

Structural designs for the conversion cum renovation works involved with the construction of 5 restaurants of Mcdonald in

Structural designs for the Axle Plant of SPICER Industries Ltd. (joint venture of Dana Corporation of USA and Anand Group, India) at Lucknow

Architectural, Structural, Electrical, HVAC, Plumbing and drainage design and drawings including preparation of tender documents and Contract Management for the Auto ancillary project of JAY-USHIN at HSIDC Udyog Vihar, Gurgaon

Structural Design for extension of handling facilities at existing oil jetty at Cochin Port on behalf of Turnkey Contractors Punj – Lloyd.

Architectural, Structural, Electrical, HVAC, Plumbing and drainage design and drawings including preparation of tender documents and Contract Management for the Auto ancillary project of Anu Auto Industries Ltd. Plant at Gurgaon.

Structural design and site selection for the Ship Inspection & Repair Facilities (Ship Lift and Slipway) for the Inter Island High Speed Ferries for the Lakshadweep Island with Dutch Consultants F.C. De Weger International B.V.

Preparation of a turnkey offer for a 2 x 30 MW Steam turbine Power project for Tractebel India.

Activities involved floatation of bid enquiries, framing of specifications, coordination with Tractebel Engineering International -Belgium, compilation of offer and post bid follow up.

Site Selection study for the Gujarat Fluro Chemicals for setting up a Pig Iron & a Coke Oven project in Gujarat based on evaluation of transport logistics for the raw material and finished products using alternative means of transport like shipping, road &

Site Selection study for the Birla Group Company - Hukam Chand Jute Industries Limited for setting up a Rs.1500 million Wax Refinery Project in Maharashtra State based on evaluation of a multi-modal transport system including Road, Rail, Pipeline and Water Transport.

Preparation of a Precedence Network for Management & Control of the Water Treatment Plant project of Geo Miller & Simplex



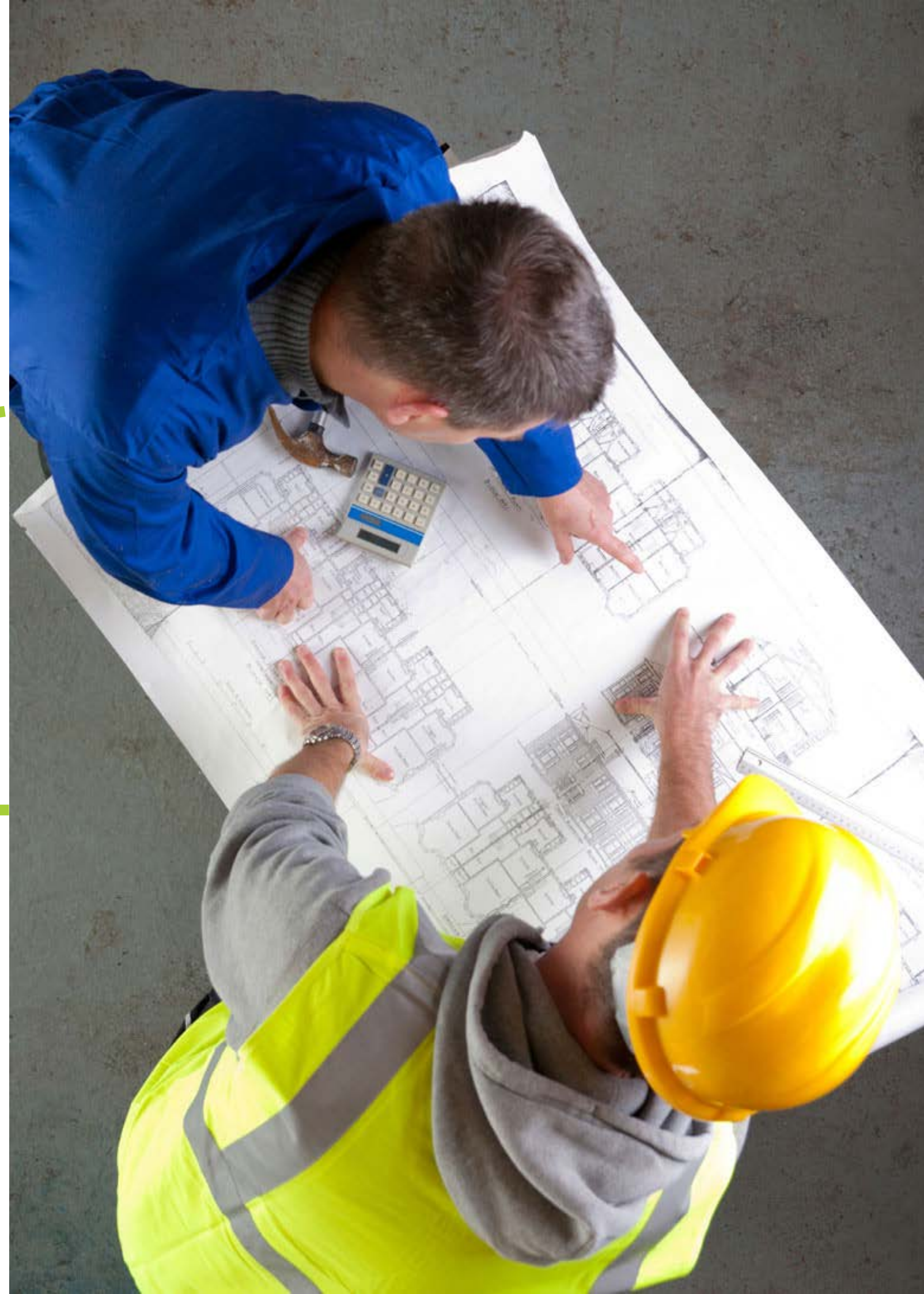
rail.

Preparation of a Precedence Network and Gantt chart for Management and control of the Factory Building of United Chemplast at Sonapat for AERO Traders.

Preparation of a Precedence Network for Management & Control for the Times of India Group building at 17 Aurangzeb Road. Preparation of Precedence Network for Management & Control of the Interior works of the Office cum Showroom or Banaras Beads Export House on behalf of Aakar - an Architect cum Interior design group.

Concrete Piles (I) Ltd. for the Hyderabad Urban Area Development Authority.

Preparation of Precedence Network for Management & Control of the 86 MLD Water Treatment Plant project of Geo Miller for the Kerala Water Authority at Trivandrum, Kerala,



Our Team

Synopsis of Key Personnel



Rajinder Khazanchi



Specializations

Structural Design, Port Design, Maritime Infrastructure, Project Management, Logistics, and Strategic Planning

Certified Energy Auditor by the Bureau of Energy Efficiency (Ministry of Power, Govt. of India) (2004)

Rajinder has over 35 years of experience in planning and design of Infrastructure projects like ports, multi-modal transport systems, industrial complexes and townships. He has led several multi-modal transportation studies, well versed with project financing as well as the underlying principles of transport economics and traffic forecasting methodology.

Rajinder has provided maritime services to most of the major ports of the country, and is regarded amongst the foremost maritime experts in India. In brief stints away from Synergetics, Rajinder has been a Business Head for Adani Group's Mundra Port SEZ, and CEO of Royal Haskoning India (a subsidiary of Royal Haskoning, Netherland). For most of his professional career, he has worked with Synergetics Management and Engineering Consultants for various infrastructure projects. He also worked with Rites and French Cable Transportation giant Pomagalski in the initial years of his career.

Rajinder holds both a Bachelor's Degree in Civil Engineering (1981), and a Master's Degree in Structural Engineering (1982) from IIT Delhi. He frequently provides guest lectures on Infrastructure and Transportation at institutes around Delhi.

Deepak Kaushik



Specializations

Design, Engineering, Project Execution, Project Management, Project Feasibility study, Cost/Benefit and life cycle analysis for HVAC & refrigeration systems, energy management and energy audit, waste heat recovery systems, non-conventional energy systems, dust and fume extraction systems

Mr Kaushik has more than 30 years of experience as a mechanical engineer in the field of mechanical (thermal) systems, HVAC and Refrigeration, dust and fume extraction systems, fluid handlers and fluid handling systems, energy audit, energy efficiency measures in thermal and electrical systems & electrical power distribution systems, planning and designing of MEP aspects of infrastructure development of colonies and mini townships

After starting his career with Blue Star Limited in 1982, he started and ran his own firm delta t SYSTEMS from 1989 to 2003. Thereafter he worked with various organizations like Amity Institute of Energy & Environment, TIFAC (Department of Science & Technology), Haskoning India Pvt. Ltd. & AECOM

He has vast experience in the field of detailed engineering work, feasibility studies, cost benefit analysis, designing, turnkey execution of projects.

Namrata Kaul



Specializations
Management Strategy, Project Financing, Go To Market Strategy, Governance, Leadership, Cross Functional Collaboration

Namrata Kaul is a career banker with extensive experience across Treasury, Corporate Banking, Debt Capital Markets, and Corporate Finance in India and UK. As Managing Director at Deutsche Bank AG, Namrata led the Corporate Bank practice as its India Head. She has a record of fostering strong client relationships, delivering record revenues and handling successful transaction execution for clients.

In her career of over 30 years in banking with Deutsche Bank and ANZ Grindlays Bank, Namrata has garnered multi-functional expertise, gained a deep understanding of the financial industry and built a vast industry network. She has a strong history of leadership, managing and leading diverse teams, graduate recruitment and mentoring, managing conflict and of working collaboratively across multiple business verticals.

Namrata currently serves on the board of several Listed and Private companies, along with being an Advisor at O2 Power, a renewable energy company set up by Temasek and EQT Partners. She also supports several Government and Non Profit Organizations, serving as a board member for Bhopal Smart City SEZ and CARE International.

Namrata is a Chevening scholar from the London School of Economics, a selective program in leadership and excellence for young leaders sponsored by the British Government. She holds a Bachelor of Commerce degree from Lady Shri Ram College, Delhi University (1985), and is a Management Postgraduate from IIM Ahmedabad (1987)

Adyut Khazanchi



Specialization: Project Management, Digital Transformation, Transportation Economics, Financial Modelling, Data Analysis, Reporting, Management Strategy

Adyut has over 4 years of experience in Management Consulting, and a strong analytical background. Prior to Synergetics, he worked at Deloitte's Strategy and Analytics practice in Chicago, focusing on Business Transformation and Technology Strategy. He was involved in the Project Management Office for several large scale transformation programs for Fortune 100 companies, and thrives at working collaboratively with numerous stakeholders, and ensuring progress towards achieving the project mission.

He holds a Mathematics and Economics degree from Northwestern University, along with a business certificate in managerial analytics from Kellogg School of Management.

Gopal Desai



Specialization: Market Research, Project Management, Data Analysis, Project Financing

Mr. Desai has an experience of over 20 years of experience in Consulting, Business Analysis, Market Research, Project Management and Business Development. His areas of expertise include Business Research Market Entry Strategy, Industry Analysis, Feasibility Study (TEFR), Competitor Assessment, Business Development, Market Development, Marketing, Process Improvement, Project Management and Sector Specific Research.

During his tenure with AECOM, he has carried out Infrastructure Design work for Water & Urban Development Projects such as Industrial Township, Residential Township Projects. He was handling SEZ Project related Environmental aspects including clearances, preparation of Technical Documents, CETP scheme finalisation etc. while working with Mundra Port & SEZ Ltd. - Adani Group

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