

## CURRICULUM VITAE

<b>Name</b>	<b>RASHMI RANJAN PATRA</b>  <b>106, Sai Samast CHS Ltd., Behind Lakme</b>  <b>Factory, ST Road, Deonar, Mumbai -</b>  <b>400088</b>  <b>Phone: 022 35637631, Mobile: +91 9096534739</b>
<b>Date of Birth</b>	8 <sup>th</sup> July 1961
<b>Nationality</b>	Indian
<b>Education</b>	1. 2002, University of Florida, M.S., Civil and Coastal Engineering  2. 1984, Indian Institute of Technology, Kharagpur, B.Tech (Hons)
<b>Memberships</b>	1. Indian Society for Hydraulics,  2. International Association for Hydro-Environment Engineering and Research  3. American Society of Civil Engineers  4. Indian Port Association
<b>Key qualifications</b>	i. Port planning, design of Port structures, such as breakwater, Jetties, data analysis, simulation of coastal flow and design of coastal structures. Mathematical Modelling, Beach Nourishment, Inlet management and design of coastal protection and Coral reefs. Design of sand traps and sediment traps, Ports and harbours. Use of MIKE 21/3 series of software in simulation of global and regional models for evaluation of coastal tranquility, hind casting and storm surge, littoral drift, harbour resonance and agitation.  ii. Inland Water Navigation, Planning of surveys and data collection, Fairway Development, Traffic, Waterway Engineering, Vessel design, Terminal Planning, Navigation and Communication, Environmental and Social aspects, Institutional Requirements, Project Costing and Financial analysis.  iii. Design of Bridges, Marine structures, multi-storied residential and Industrial Buildings, Industrial Structures and Other Special Structures using STAAD PRO, other structural and Geotechnical Software. Knowledge of FORTRAN, MATLAB, ARCVIEW, etc.  iv. Construction & Management of Ports and Harbours, Bridges, Industrial Projects, Marine/Offshore Projects using MS Projects, PRIMA VERA and other CAD software. Tender Specifications incorporating FIDIC Conditions of Contract for Marine Structures, Highways, Bridges and Multi-storied buildings, Hotels and Industrial Projects.  v. Identification of potential Port locations, Brown Field Projects for development with sound business acquisition and turnaround strategy.  vi. Environmental and Statutory Clearances of critical Marine Projects

## Employment Record

Year	Firm	Position and Responsibilities	
01.09.2022 to date	Oceanus Coastal Engineers LLP	Chief Executive Officer & Principal Planner & Designer	Consultancy services for the Port Harbours, Fish landing Facilities, Ship yards, Coastal Structures, Inland Water Ways, Material handling systems, Water Resources Projects etc. Completed about 32 projects, in the last 2 years.
			Site Data collection, Design, detailing, Mathematical and Physical Model studies for a Fishing Harbour, at Hasik, Dofar Governate, Sultanate of Oman
			Detailed Project Report, Mathematical Model studies, Traffic studies, Financial analysis and Master planning for the development of a Dry Bulk cargo at Simar Port, Chhara, Gujarat for Sapoorji Pallonji Limited, Mumbai.
			Feasibility study for a 5 <sup>th</sup> Generation Shipyard for repair and new build up to Cape Size vessels in the Gulf of Kutch, for ACT Infraports Limited, Gujarat
			Feasibility of cargo handling and capacity enhancement of the river front facility at Essar (Hajira) Ports Limited, including mitigation methods for siltation and deepening.
			Mathematical Model studies for various ports and water ways in and around India namely, Swan Shipyard, Pipavav, Sun Petro Limited (Oil explorations) etc.
			Conceptualize and design the LPG handling terminal in the Swan LNG terminal for Swan Energy Limited, at Pipavav.
			Conceptual planning, site selection and feasibility for Cement handling facility including the economics of handling from the Port of Fujairah, in to the Dharamtar Creek systems for Shree Cements Limited, Gurgaon.
Consulting Advices	Oceanus Coastal Engineers	CEO	HSE (Thrust Area – 12) report for enabling all Indian ports HSE compliant to Global benchmarks as part of vision 2030 prepared for Ministry of Shipping Recommendations on the Blue Economy, published as Maritime Amritkal Vision 2047
Consulting	C-Borne Services LLP	Principal Consultant	a. Detailed Project Report, Inland Water Transport in Vasai Creek – Ulhas River for Thane Municipal Corporation b. Feasibility Report for Inland Water Transport in Vasai Creek – Ulhas River for Thane Municipal Corporation. c. Design of 11 river terminals including on land connectivity.
Consulting	C-Borne Services LLP	Principal Consultant	a. Detailed Project Report for development of multi-cargo port at Revdanda Port near Mumbai, including 3000 m long breakwater, 12 km long approach channel for cape size carriers, including on shore infrastructures and material handling systems. b. Feasibility Report for Development of Multi-Cargo port at Revdanda Port near Mumbai for Indo-Energy International Limited

March 2011 To 31.08.2022	JSW Infrastructures Limited, Mumbai	Sr. Vice President – Strategy & Planning	Heading Port Business planning, Engineering Conceptualisation, identification of green field Expansion, Brown Field expansions and strategic acquisitions. Statutory clearances and Permissions for enabling speedy implementation. Shaping the Policy initiatives for Private Sector participation in the Rail, Road and Inland Water Ways sectors with the State as well as the Central Government agencies.
	JSW Infrastructures Limited, Mumbai	President - Pro- jects	<p>Head of Projects, Strategy and Environment for JSW Infrastructures Limited and for statutory environmental applicability and compliance for the JSW Steel Ltd across locations.</p> <p>The Responsibility includes;</p> <p>Project Identification, planning, Devising business plan, viability, and bidding for green field and brown field projects.</p> <p>Planning, design, Engineering, tendering, monitoring, contract managements, environmental clearances etc.</p> <p>In charge of the environmental strategy, and other statutory applicability and compliances of the JSW Steel across locations.</p> <p>The Projects include</p> <p>A. Brown Field Projects</p> <p>i. Second Phase expansion of the Jaigarh Port, consisting of 400 m breakwater, 700 m long container berth, one Vale-max vessel berth, one transshipping bulk berth</p>
			<p>one Liquid (ULCC), one LNG (<math>Q_{max}</math>) and one Chemical and other liquid edible cargo. (completed)</p> <p>ii. Development of LNG facility in association with H-Energy. The facility would include berth for <math>Q_{max}</math> vessel, 2 no 210,000 m<sup>3</sup> storage tanks, regasification, metering and send out facility. Operation of FSRU facility in the interim, till the fixed terminal is made.</p> <p>iii. Expansion of the Berths 5 and 6A inside the Mormugao Port Trust, for handling of cape size vessels and increasing levels of mechanisation at berth and yard, in- motion and parallel loading at the rail yard for better evacuation. Implementation while the berths are in operation. Capacity expansion from 7.5 MTPA to 15 MTPA Completed</p> <p>iv. Study of the National Water Way no. 10, Amba River for transportation of 40 MTPA cargo per year. The study included Optimisation of Vessel Size using Discrete Event Simulation Study technique, depth to be maintained and smart use of the tidal cycle. Terminal planning, cargo handling and dispatch.</p> <p>v. Expansion of the Dharamtar Port facility by implementing new berth of 1685 m for handling about 38 million tons of raw material for meeting the demands of the expanded steel plant. Back up storage and</p>

			<p>evacuation to the plant, without affecting the pristine environment. (Under execution, work completed.</p> <p>vi. East Quay Coal Terminal to handle 30 MTPA of export coal cargo, involving refurbishment of the old berth for accommodating deeper and bigger vessels including the mechanisation and stockyard development. The commercial operation started in 2021.</p> <p>vii. Development of Deep-water Iron Ore Berth at Paradip Port for Iron ore, pallet. The facility includes wagon tipplers, transport and storage, loading at the berth. Commenced commercial Operation in 2019.</p> <p>B. Green Field Projects</p> <p>i. Captive/Commercial Port (under evaluation) at Village Keni, Karwar, Karnataka, for handling Bulk and container cargo with an approximate cost outlay of 5500 Crores INR. Consisting of;</p>
			<p>a. 2 breakwaters of 5600 m and 4785 m on the east and west.</p> <p>b. 14 berths for various cargos consisting of bulk, break bulk, container, and liquid cargo.</p> <p>c. 12 Km long approach channel consisting of 45 Million Cubic mt dredging.</p> <p>d. Material handling systems and onshore infrastructure</p> <p>ii. Captive port at Village Nandgaon near Tarapore Industrial Area, Boisar, about 100 km north of Mumbai, India. The DPR, Environmental Clearance is completed. Financial closure is in progress. Concurrently the various tender packages being readied for commencement of construction in September, 2016.</p> <p>ii. Captive Jetty (975 m) at Salav in the Revadanda Creek, about 60 km from Mumbai for direct berthing of Panamax vessel for handling bulk, break bulk and containerized cargo. This would replace the existing barge berth. Studies are in progress and environmental clearance is being pursued.</p> <p>iii. Captive Port at Cuddalore for handling bulk, break bulk and containerized cargo. (under application)</p> <p>iv. Development of captive port at Honaver in Karnataka (under bidding)</p>
June 2006 to Feb 2011	DHI Water & Environment, New Delhi – A wholly owned subsidiary of the DHI Water & Environment, Copenhagen, Denmark	Technical Director	Master Planning, Harbour Layouts, Design, Coastal and River Morphology, Dynamics, littoral drift Coastal Management, Design and Planning of offshore and port structures, oil rigs and exploration platforms and shore protection works.
Jan 2003 to May 2006	Coastal Planning Inc, Green Bay, Wisconsin	Project Manager	Planning of harbours and Marinas, Beach nourishments etc.

Aug 2001- Dec 2002	University Of Florida, USA	Research Assistant	Coastal morphology, Ports and harbours and Offshore structures. Design of sand traps and sediment managements in estuary.
April 1993 – July 2001	WAPCOS (India) Ltd.	Deputy Chief Engineer (Ports and harbours)	Planning and design of Ports and harbours, offshore structures and onshore storage. Multimodal transport planning and economics. De- sign of structures for shore protection and bridges.
Feb1989 - Feb1993	WAPCOS (India) Ltd.	Sr. Engineer (P&H)	Design & Drawings and planning of Ports and Bridges, Offshore structures and Industrial Buildings
June 1986- Jan. 1989	Jayshila Consultants, Madras	Sr. Engineer (Design) (Structures and planning)	Design & Drawings and planning of Ports and Bridges, Industrial Structures and Roads
June-1985-June-1986	National Dairy Development Board.	Asst. Manager (Engg.)	Design & Drawings and planning of Industrial Structures and residential structures Roads.

### **Experience Record**

Year	Project	Details of Activities
01.09.2022 to date	Ports & Harbours, Shipyards and Coastal & Offshore Projects	Dealing with projects related to Ports & Harbours, Ship Yards, Fish Landing Facilities, LNG Facilities, Coastal Structures, Off Shore Structures, Water Resources and other Infrastructure Projects. Have completed about 3 Full fledged Port projects, 2 Shipyards, various model studies and project reports, totaling to 25 projects in the last 2 years.
07.03.2011 to 31.08.2022	Various	Strategizing Business initiative, Statutory clearances, Memorandum of understandings and Concession Agreements for development of Ports and Harbours, Ship Yards, Coastal & Offshore structures, Rail, Road and Inland Water Ways with various Government and Private agencies.
	Conceptualisation, initial planning and feasibility reporting, Environmental and Mathematical Model studies, Real-time ship simulation and Environmental and forest clearance for Green Field Multi-cargo Captive Jetty for Bulk and unitised product handling to the tune of 52 MTPA.	Conceptualisation, preparation of Initial reports for clearance from the state and other regulatory authorities, Specification and monitoring of the studies on Marine Environment, Hydraulic, Geo-technical, Mathematical Modelling, Real Time Ship simulation and Environmental clearance of the Project. The project consisted of 35 million cubic meter of dredging, two breakwaters of 3200 m length, 8 berths for bulk and break-bulk cargo handling. The project also included hinterland connectivity, land reclamation of about 450 ha of land and grade elevation for storm surge ingress. .
	Refurbishment of the existing East Quay Terminal for deeper draught vessels to enable handling of 30 MTPA of export coal cargo under BOOT.	Was associated with the project from the initial BOOT process and instrumental in obtaining the bid. The refurbishment and deepening of the berth front involved installation of a series of Piles for retaining the old dilapidated diaphragm and re-decking the Jetty for installation of advanced mechanical equipment for rapid loading of material. Involved receiving of the bottom opening rakes and transferring to the stockyard or berth or both simultaneously Project completed and in commercial operation.
	Deep Water Iron Ore Berth and Mechanisation of the Coal Export Bert EQ1-3 at Paradip Port, Odisha	Receiving railway yard with wagon tippers, conveying arrangements with closed conveyors and transfer houses to the storage yard for stacking, reclaiming from the storage and feed the loaders on the berth. Design and construction of berth
	Modernisation and expansion of the berth 5A and 6A inside the Mormugao Port Trust for handling 15 million tons of cargo per year from the present 7.5 MTPA.	Modernisation of the berth with new fenders and provision of on berth rails and GSU (grab ship unloaders) for handling cape size vessels. Upgrading the handling and storage space, covered storage, loading system at the rail- way yard with facilities of in motion loading and parallel loading. Dou- bling of capacity without any change in the storage facility area and waterfront length.

Year	Project	Details of Activities
	Expansion of the Dharamtar Port Facility – Dolvi Works	Study the Flow Hydrodynamics, and plan the expansion of the Material handling and Storage facility for the proposed up-gradation of the Steel Plant from the present 3.2 million TPA to 14 million TPA in phases. Planning of the Berthing facility and the other back up facilities for handling or about 45 million tons of cargo is under commercial operation. Further hike in capacity to about 50 MTPA is being carried out in view of the likely increase in the plant capacity to 18 MTPA.
	Green Field Port at Nandgaon, District Thane; Maharashtra	<p>Site Selection, Conceptualisation, preparing the scope and the extent of field data collection, based on the field data master planning of the port, design the plan for carrying out model studies, appointment of consultants. Pre- pare plan for acquisition of land. Initiation of environmental clearance by successful holding of Public Hearing etc.</p> <p>The project consisted of two breakwater in North and the South of 6532 m and 4856 m respectively, Dredging of about 16 Million Cubic Meter, Development of 17 berths for handling of bulk, break bulk, Container, LPG, LNG, POL and Chemical berth, with 600 ha of reclamation, road and rail connectivity.</p>
	Green Field Port at Haldipur in Karnataka State, India.	Working with the consultants for evaluating the design and the planning for the port. Preparation on the Detailed Project Report, based on the data collected and discussions with the Government of Karnataka for approval of the report etc. The report has been submitted to the Government and pending decision. The project consisted of 4500 m length of breakwater, 10million Cubic meter of dredging, 12 berths and 230 ha of reclamation.
	Phase II expansion of the Jaigarh Port, Ratnagiri district, Maharashtra State, with addition of 7 berths and other associated facilities	Head of the Project Team and Head technical advisory group for the planning, layout, design and detailing of the proposed 7 berths to be added and 400 m of breakwater in the phase II expansions. This included carrying out the navigational simulation, Mathematical modelling for hydrodynamics, siltation and wave tranquility at the individual berths. The responsibility al- so included overseeing preparation of the conceptual plans and de- signs and tendering for construction.
June 2006 to February 2011	Integrated Coastal Zone Management Studies of the Tamil Nadu shore line	<p>Integrated coastal Management Study including the following,</p> <p>Land Use and Land Capability Map,</p> <p>Resource Mapping</p> <p>Vulnerability Mapping of the Coast Line</p> <p>Design of Special Area Protection Measures</p> <p>Preparation of Inter-Sectoral Environmental Assessment Report,</p> <p>Prepare an Integrated GIS based management plan and decision support system</p>
	Feasibility, Detailed Project Report and Detail Engineering for Water front facilities to handle ODC Cargo for export for M/s Godrej Boyce Manufacturing Company at Dahej, Gujarat	<p>Soil Investigation, planning design of Wet and Dry Basin, slip ways and retrofitting Jetty for export of heavy ODC cargo being manufactured there.</p> <p>Feasibility Report</p> <p>Detailed Project Report, consisting of the design and the financial aspects of the facility.</p> <p>Detailed Engineering for the wet basin and the retrofitting jetty.</p> <p>Prepare good for construction drawings</p>

	<p>Feasibility, Detailed Project Report and Detail Engineering for Multi-Cargo, multi user Green Field port at Cuddalore, Tamilnadu for JSW Infrastructures Limited.</p>	<p>Soil Investigation, planning design of breakwater protection structures, Berthing Jetties and planning the port is different phases based on traffic flows. Preparing the Dredging plan.</p> <p>Preparation of vendor specifications for cargo handling.</p> <p>Financial Analysis etc.</p> <p>Feasibility Report</p> <p>Detailed Project Report, consisting of the design and the financial aspects of the facility.</p> <p>Detailed Engineering for the wet basin and the retrofitting jetty.</p> <p>Prepare good for construction drawings</p>
	<p>Mathematical Model studies for the setting up of SPM facilities off Mangalore Coast, Karnataka for Mangalore Refinery Petrochemical Ltd (MRPL)</p>	<p>Project Manager</p> <p>Analyses of hydrodynamic data (tides, currents), Processed the UKMO data (10 year), Mathematical modelling study for different cyclonic condition, Near shore Wave Modelling, Modelling of flow pattern (3-Dimensional), Oil Spill Modelling.</p> <p>Preparing specifications for the SPM and the PLEM including the sub-sea pipeline and the on-shore tank farms.</p>
	<p>Sea Water Intake Study for the UMPP at Krishnapatnam (Coastal Andhra Pradesh – Reliance, India)</p>	<p>Project Manager</p> <p>Structural Design of the Intake and Out fall structures including a shore-based Jetty for handling ODC cargo for the Power Plant, including Breakwaters, Intake and Out fall channels/Pipe lines, Dispersal System, Pump house and intake well.</p> <p>Modelling of flow pattern (3-Dimensional), Advection-Dispersion study (3-D) for the effect of hot water &amp; Brine water, Design Calculation for the Intake &amp; out fall, Sedimentation study &amp; Reporting.</p>
	<p>Wave Measurement &amp; Mathematical Model Study-Jafrabad, Gujarat for Geostar Survey India</p>	<p>Project Manager</p> <p>Analyses of hydrodynamic data (tides, currents), Processed the Wave Rider Data for waves, Modelling of flow pattern, Sedimentation study, Wave Modelling Studies, Shoreline Change &amp; Reporting</p>
	<p>Data Collection, Flow Modelling Studies, Sedimentation, and Short line Studies, Wave Modelling Studies, EIA/CRZ Studies and Approval from Govt. Agencies at Mahuva for AFCON</p>	<p>Project Manager</p> <p>Analyses of hydrodynamic data (tides, currents), Processed the UKMO Data for Wind &amp; waves &amp; plotted the Rose diagrams, Modelling of flow pattern, Sedimentation study, Wave Modelling Studies, &amp; Reporting.</p>
	<p>Dredge Disposal and Ship Maneuvering Studies at Karaikal Port for MARG, India</p>	<p>Project Manager</p> <p>Analyses of hydrodynamic data (tides, currents), Modelling of flow pattern, Dredged Disposal Study &amp; Reporting.</p>
	<p>Comprehensive Feasibility Report for the development of Greenfield captive port on the ORISSA Coast, for ArcelorMittal</p>	<p>Project Manager</p> <p>Analyses of hydrodynamic data (tides, currents), Analyses and Processed the UKMO data and plotted the Rose diagrams, Modelling of flow pattern, Sedimentation/Siltation Study at the proposed port site, Littoral Movement study, Near shore wave Modelling Study, Disposal of Dredged material study. Prepared the Modelling study Report.</p>
	<p>Development of Vadarevu and Nizampatnam port in Andhra Pradesh for VANPIC Ports Private Limited</p>	<p>Project Manager</p> <p>Detailed Project report and Model Studies for the Vadarevu and Nizampatnam Port;</p> <p>Analyses of hydrodynamic data (tides, currents), Analyses and Processed the UKMO data and plotted the Rose diagrams, Modelling of flow pattern, Sedimentation/Siltation Study at the proposed port site, Littoral Movement study, Hind casting Study for wind and waves, Carried out mathematical modelling study for different cyclonic conditions and storm surge modelling, Near shore wave Modelling Study, Disposal of Dredged material study.</p> <p>System design for the cargo flow.</p>

		<p>Handling Berths and other infrastructures</p> <p>Breakwater Protection</p> <p>Financial Analysis</p> <p>And Environmental Clearance.</p>
	Mathematical Model Studies for assessing the Near Shore waves for the Proposed Port at Positra for SKILL	<p>Project Manager</p> <p>Analyses and Process the UKMO data and plotted the Rose diagrams, Hind casting Study for wind and waves, Carried out mathematical modelling study for different cyclonic conditions and storm surge modelling, Near shore wave Modelling Study. Prepared the Modelling study Report.</p>
	Mathematical Modelling Studies of Hydrodynamics & Siltation in view of proposed construction by ABG	<p>Project Manager</p> <p>Studied the flow dynamics and calibrated the model with the measured data, Sedimentation/Siltation pattern near the proposed construction and reporting</p>
	Numerical Model Study of Advection/ Dispersion at the Desalination Plant, Jaigarh, Maharashtra for JSW Energy Ltd.	<p>Project Manager</p> <p>Analysis of hydrodynamic data (tides, currents), Modelling of flow pattern, Advection-Dispersion study &amp; reporting.</p>
	Numerical Model Study of Advection/ Dispersion at the Desalination Plant, Near Lakhpat, Gujarat for Deepak Cement and Chemicals Ltd.	<p>Project Manager</p> <p>Carried out the numerical modelling study of flow and dispersion of the proposed desalination plant at the Kori creek. Calibration of the hydrodynamics results with the measured tide and current speed and direction. Prepared the Modelling study Report</p>
	Integrated Development of Malad Creek (Mumbai) for Inland Water Passenger Transport, Fishing Jetty and setting up a Small Boat Marina, MMB	<p>Project Manager</p> <p>Studied the flow pattern inside the creek and validate the model with the measured tide and current, Sedimentation/siltation pattern also seen by using numerical model MIKE 21 software. Prepared the modelling study report</p>
	Mathematical Model Studies and Ship maneuvering Simulation Studies for the Development of Port Facility at Machillipatnam (Vajra Seaport Private Limited)	<p>Project Manager</p> <p>Carried out flow modelling, Sedimentation/siltation study, wave hind casting study, Near shore wave modelling and prepared the modelling study report</p>
	Mathematical Model Studies for Siltation & Shoreline change at Proposed Shipyard near Ratanpar, Gulf of Khambhat (Modest Shipyard Limited)	<p>Project Manager</p> <p>Analysis of Tide, current &amp; sediment sample data, Carried out the modelling study of Hydrodynamics, sedimentation and shoreline change in the proposed site and prepared the final report of the study.</p>
	Techno Economic feasibility study for deep water port project in West Bengal	<p>Project Manager</p> <p>Numerical modelling study for hydrodynamics and sedimentation in the proposed channel, Provided the proper location for the proposed port</p>
	Remedial Measures for Bank Protection at Kaladara, Bharuch, Gujarat	<p>Project Manager</p> <p>Carry out field observations at the Shoft Shipyard site, undertaken 2 &amp; 3-dimesional model studies and calibration and then examining the improvements in terms of bank protection, of various remediable measures, Evolve design details of various remedial measures with cost details</p>



DPR for Design of Shipyard at Dholai, Gujarat	<p>Project Manager</p> <p>Estimate optimal capacity and dimensions of barges/ships with reference to draft availability, tranquility at proposed facility, Planning of facilities required with adequate details for the proposed structures and land based facilities, Analysis of the measured tide and Current data, Numerical model studies for flow filed and sedimentation and prepared DPR</p>
Mathematical model studies for development of all-weather direct berthing port at Gopalpur, Orissa	<p>Project Manager</p> <p>Carry out wave agitation model in order to determine the optimum layout of the breakwater for achieving the required level of tranquillity, Carried out Flow Pattern, sedimentation study to estimate the alongshore sediment movement and the possible siltation in the channel</p>
Hindcasting and met ocean studies in the three basins (Cauvery-Palar, Krishna & Konkan)	Hind casting of cyclonic waves, Estimation of Significant wave heights and time periods and extreme and normal conditions of Wind, Waves and Currents for all the three-exploration blocks (return period-1 year, 10 years and 100 years).
Wave tranquility study for the Rewas Port, Maharashtra	Carry out wave agitation model in order to determine the optimum layout of the breakwater for achieving the required level of tranquility. Determine the down time at berths, effects on the shore line and Inner harbour.
Development of all-weather deep water port Hooghly estuary, west Bengal	Numerical model study carried out for hydrodynamics, sediment transport and near shore wave pattern for the existing and proposed port in the estuarine region,
DPR and Techno-economic Feasibility Report for development of Captive Port in the Daman Kul Bay, Jaigarh	<p>Analysis and collection of data carry out feasibility level Model studies for flow hydrodynamics and wave propagation and design of harbour layout, sizing of the breakwater etc. The work also included the following,</p> <ul style="list-style-type: none"> <li>• MIKE 21 NSW and PMS for wave disturbances</li> <li>• MIKE 3/21 AD and PA for Dispersion of the dredged materials at the Dumping location</li> </ul> <p>MIKE 3/21 AD for Simulating the excess salinity and temperature for the cooling water discharge.</p>
Master Plan for Harbor Facilities and Site Preparation for Integrated Steel Plant of POSCO, Orissa	Collection and analysis of historical data for determination of storm surge, hind casting of cyclonic waves, carry out Optimisation of layouts for achieving most tranquil condition, determine and quantify sediment transport and littoral drift, harbour resonance and wave agitation for determining the down time at the berths and effects of extreme weather conditions. Determine diffusion of outfall point of the thermal discharges and identification of the dumping ground for dredging. Determine the total annual maintenance dredging and siltation pattern post development. Modules used MIKE 21 HD, SW, NSW, ST and MIKE 21/3 PA.
Kulpi and Port and SEZ Feasibility Study, including Container handling Hub	Collection and analysis of historical data, examine the tranquility and layout of the port structures. Determine the morphological changes in the river. Carry out Global as well as regional model to determine the effects of the development on the immediate environs and the down stream. Modules used: MIKE 21 SW, NSW, EVA
Shore Protection, Land reclamation and flood mitigation for River Toorsa, Bhutan	Data collection, analysis, Model studies, and design of structures for the shore protection, land reclamation and flood mitigation work for the River Toorsa near the City of Phuentsholing, Bhutan.

	Numerical Wave Modelling and structural design recommendations for Construction of a Breakwater at Port Louis	Carry out wave agitation model in order to determine the optimum layout of the breakwater for achieving the required level of tranquillity. Determine the down time at berths, effects on the shore line and Inner harbour. Carry out model studies for new developments on the Fort Williams and quantify the effects. MIKE 21 SW, NSW and BW.
2005-2006	Planning and Design of Marinas, Harbours and Beach Nourishment etc.  Design of river Terminal at Mingo Junction on River Ohio for receipt and despatch of goods for the Steel Plant.	Old Stone Quarry Harbour in the Great Lakes region and Marinas in the Fox River estuary.  Beach Nourishment for 8-mile-long coast line on the Western Coast of USA  Involved, survey, Geotechnical studies, structural and hydraulic design and implementation scheduling for the river terminal to handle 3 Barges at time.
2004	Beach Nourishment and coastal protection of 3 beaches in Long Island, USA  Material Receiving Terminal at Port New Orleans, USA  Numerical Modelling of Indian Ocean Wave and Tsunami	Site investigation, Data collection, Beach slope design and the protection of the breach under wave and other marine influences.  Consisted of survey, investigation and Detailed Engineering of the terminal to receive vessel up to 70,000 DWT.  As a part of training in the MIKE 21/3, LITPACK software modules developed the wave and other oceanographic parameters like Salinity and temperature at DHI Head office at Copenhagen.
2003	Cedar-Ortega River Management, Florida, USA	Analysis of data and estimate the Dredging requirement and suggest measures for keeping the Navigation Channel sediment free. Flow regulation and costal erosion management.
	Sediment Management in Loxahatchee River, Florida, USA          Sediment Management in Loxahatchee River (Modelling), Florida, USA	Management of sediment in the Loxahatchee River (Jupiter Inlet) Central Embayment and design a self-sustaining Navigation channel for better flushing. Determine the effects on the shore line. The dimensions and the layout to achieve Equilibrium flow pattern for flushing under Ebb Flow.  Modelling of the Loxahatchee River estuary using Environmental Fluid Dynamics Code (EFDC) for evaluating Sedimentation and design of sand traps and examining their effectiveness for trapping sediment. Design of self cleansing channels for navigation.  Dissertation: Sediment management issues in low energy Estuaries: The Loxahatchee, Florida. The modelling of the estuary was carried out using Environmental Fluid Dynamics Code (EFDC).
August 2001-December 2002	University of Florida	Masters Degree in Civil and Coastal Engineering and Doctoral Research
February 1989 to July 2001	Construction of Bridge across sea at Okha     Development of Fresh water lake at Flat bay in Port Blair for M/s ALHW	Principal Designer  Site selection, soil investigation, detail engineering, detailing, construction drawings and implementation for 2059m long bridge over sea providing connection to Shankhodhar Island from main land near Okha Port in Gujarat, India.  Principal Coordinator and Design expert for Development of Fresh water lake at Flat bay in Port Blair for creation of fresh water lake being executed for the first time in the country, the works involved,  Design of structures on 25 m thick marine clay including improvements to the foundation, dynamic analysis for Seismic forces etc. Estimates, bill of quantity, tender documents, detailing and construction drawings for bridge across the bay. The consists of 40 spans of 35 m PSC girders to form a roadway width of 7.5 m, excluding the foot- path.

	New lock at Thrikunnapuzha, Kerala for M/s IWA	Design and Planning Expert, Detail Engineering and design of New lock at Thrikunnapuzha for accommodating bigger vessels in the West Coast Canal including soil Investigation, evaluation alternatives and preparation of construction methodology and financial analysis.
	<p>Feasibility study for development of Multi-Cargo Port at Maroli for M/S Gujarat Maritime Board.</p> <p>Construction Jetty for Dabhol Power Plant</p> <p>River Front Development of various port and infrastructural facilities for Naphtha - Cracker Plant Complex for M/s Reliance Industries Limited at Hazira (Surat)</p>	<p>Sr. Engineer (P&amp;H)</p> <p>The study Included; Field Investigation, Survey, Geophysical and Geotechnical Investigation, Traffic Survey, Preliminary design, Layout and Financial analysis.</p> <p>Design Expert, Proof Consultancy for the design of Feasibility study for development of Multi-Cargo Port at Maroli for M/S Gujarat Maritime board. Corporation being constructed by Bechtel International Inc., London.</p> <p>Coordinator and Design Expert, The services rendered included :</p> <p>Conceptualisation, planning, preparation of schedule of rates and tender specifications, detailed work proposal including detail engineering, drawings and methodology of implementation using STAAD III and MS Projects for,</p> <p>Loading/Unloading facilities for salt and lye, Containers on pile foundation with RCC/PSC superstructure.</p> <p>Processing Plant for Naphtha-Cracker plant, Polymer unit and Storage Bay.</p> <p>Preparation of Tender Specifications and schedule of rates.</p> <p>Preparation of detailed drawings and designs using SAP 80, STAAD- III and other CAD software.</p> <p>Connecting 4 lane highway and railway connection and the associated bridges with steel and PSC girders on pile foundation.</p>
	Feasibility for Development of Captive facility at Okha for Alpine Industries Ltd. At Okha for Gujarat	Co-Ordinator and Planner, Port for Oil Cakes, Edible oil and other Agro-products including geophysical Investigation and Preliminary design and Layout for Alpine Industries Ltd. At Okha, Gujarat
	<p>Captive Jetty for handling of cement and clinker for M/s Gujarat Ambuja Cements Ltd. at Magdalla, Surat.</p> <p>Feasibility study for carrying out Inland Navigation from Paradip to Haldia through East Coast Canal and Brahmani-Kaharasuan River system</p>	<p>Design Expert, Design and detailing of berthing facility, plant structures, storage Silos, conveyors, administrative office complex for 3 million tonnes per annum cement plant.</p> <p>Planning Expert, Inland navigation for transportation of Coal, Iron Ore, and other products including Survey, Site Investigation preliminary design of layouts and financial analysis and design of supporting Infrastructure.</p>
	Feasibility Study for Inland Water Navigation in the Damoder Valley Corporation Canal	Planning Expert, Transportation of cargo from Durgapur to Calcutta. The Study included site Investigation, data collection, design of control structures location of handling facilities and financial analysis.
	Master Plan for Jawaharlal Nehru Port Trust	Design Expert, Master Plan for Jawaharlal Nehru Port Trust for evaluating the capacity of the existing terminals and suggest measures for strengthening the same. Preparation of Layout and locate additional berths for Containers and Oil.
	Feasibility and rehabilitation Plan for the Jetty at Karanja Creek for M/S Essar Industries.	Design Expert, Feasibility and rehabilitation Plan for the Jetty at Karanja Creek for M/S Essar Industries.

June 1986-Jan.1989	Ship repair facilities at Madras Port Trust. The project included the operation of one 40,000 DWT and one 20,000 DWT dry docks with all other shore and sea based infrastructural facilities for repairing of ships carried out first time in India by M/s Chokhani Internationals Ltd., New Delhi, in collaboration and equity participation of M/s Kepel Shipyard, Singapore.	<p>Senior Engineer, Design Expert</p> <p>The work involved included :</p> <p>Hydrographic and topographical Survey, Field data collection, Field survey and soil investigation (sub-marine and on land), Preliminary planning and preparation of project report, Preparation of project estimate and tender specification for</p> <p>Detailed design, detailing, preparation of drawings and bill of quantities, construction supervision of structures consisting of :</p> <ul style="list-style-type: none"> <li>i. 40m x 165m platform on pile foundations</li> <li>25m x 125m workshop and office building on the platform</li> <li>iii. 12m x 65m small dock jetty extending from the platform</li> <li>iv. 12m x 210 m finger pier jetty on pile foundation, carrying a 100 T wharf crane for ship repair</li> <li>v. Dredging, reclamation and Shore protection measures</li> <li>vi. On-shore multistoried office building and 50m x 250m work shop etc.</li> </ul>
	Construction of 4 lane highway between Madras and Chengulpet	Design Expert, Project Management for construction of 4 lane highway between Madras and Chengulpet including the over bridges and crossings.
	Fishing Harbour at Cholachel, Tamilnadu for State Port Department	Design Expert, Construction supervision and planning, preparation of detailed Schedule of Rates for a 4 lane 1200m Bridge and connecting road way to Fishing Harbour at Cholachel, Tamilnadu for State Port Department
	Harbour at Nagapattanam for Ports Department, Tamil Nādu	Design and planning expert for minor port at Naggapattanm, Tamil Nādu.
	Bridge at Sethiatope, for Tamilnadu State Construction Corporation	Design Expert, Preparation of detailed design, drawings and planning including implementation of launching of 90T beams using launching truss for bridge at Sethiatope, for Tamil Nādu State Construction Corporation.
	2-lane bridge on pile foundation and R.C.C./ pre-stressed beams for Southern Railway.	Design Expert, Design, preparation of detailed Schedule of Rates and construction supervision of 2-lane bridge on pile foundation and R.C.C./pre-stressed beams for Southern Railway.
	<p>4 lane bridge at Coimbatore, Tamil Nādu for Urban Development Project</p> <p>M/s Gherzi-western, Oman at Kathmandu, Nepal. The Project Included a 8 storied School building and office complex.</p>	<p>Design Expert, Preparation of models, detailed proposal, design, estimation, schedule of rates, for 2570m 4 lane bridge at Coimbatore, Tamil Nādu for Urban Development Project with pile/well foundation and R.C.C./pre-stressed super structure</p> <p>Design Expert, Design and detailing of Multi-storied Office complex</p>

June-1985-June-1986		<p>Asst. Manager (Engineering.)</p> <p>Construction Management, Tender Evaluation of Industrial and Multistoried Buildings, Roads, Water Supply &amp; Sewerage Systems.</p> <p>Projects Handled:</p> <p>Dairy Plant at Bhubaneswar with Multistoried residential and Industrial complex including the connecting Highways with 200000 liter per day capacity and Chilling Plant at Keonjhar, Orissa with 25000 litre per day capacity</p>
Country of Work Experience		
Year	Place	Subject
August 2001-December 2002	Gainesville - Florida	Master in Civil and Coastal Engineering and Doctoral Research
January 2003 – October 2005	Wisconsin, USA	Design and planning of Ports, Marinas and Beach Nourishment.
November 2005 to May 2006	Copenhagen, Denmark	Mathematical modelling using MIKE 21/3 Soft ware
August 2006 to July 2007	Singapore	Planning and modelling of Port in Indian Ocean

Signature  
R.R Patra