EXECUTIVE SUMMARY

The proposed fishing harbour is located in Cuddalore in Tamil Nadu. It lies between latitude 11° 0' 43" North and longitude of 79° 0' 45" East This Fishing Harbour is located in the survey land No.86 of Cuddalore Cuddalore is located at about 40 km north of Chidambaram and 18 km south of Puducherry. Cuddalore is surrounded on the north by Viluppuram District, on the east by the Bay of Bengal, on the south by Nagapattinam District, and on the west by Perambalur District.

The Cuddalore district has a coastal Length of around 60 km from Nallavadu in the North and Thandavaraya Sholagan pettai in the South comprising 46 fishing villages with total fishermenpopulation of 46634. Among them 23674 are active fishermen and nearly 22960 fisherwomen are engaged in fishing related activities as per Tamil Nadu marine fisher folk census 2010. It is well connected by both State and National highways and the nearest railway station is at Cuddalore.

Department of fisheries, Government of Tamil Nadu has planned to renovate the existing fishing harbour at Cuddalore. It is aimed to fulfil the long term aspirations of the people at Cuddalore and its neighbouring twenty five coastal villages. The further development on the existing fishing harbour at Cuddalore with sufficient protection from waves, storm surges and tsunami has become very important for the surviving group of the fishermen. The fishing harbor proposed by Department of fisheries can serve the needs of 1500 fishing vessels comprising the Motorized Non Mechanized boats, FRPs and Vallams. The harbour is planned to provide safe berthing facilities and improved fish landing/ handling facilities. The additional fish handling capacity from the proposed extended fishing harbour will be 9730 Tons per Annum.

At present there are about 245 mechanized fishing boats and 1155 motorized non mechanized boats operate in the locality of Mudhu Nagar situated in Cuddalore fishing harbour. In addition 55 nos. of mechanized fishing boats are expected to arrive in near future. Out of 1155 motorized non mechanized boats, 600 are operating from Mudhu Nagar fishing harbour and the balances are FRPs/Vallams which are operating from their respective fishing villages nearby. The fishermen find it difficult to navigate and berth the fishing crafts safely, unload their fish catches and transit through vehicles. The excessive accumulation of sand on the northern end of the Uppanar River and across the mouth of Gadilam River reduces the available draught and the free

movement of fishing vessels. The berthing areas and landing areas have become inaccessible due to inadequate depth especially during the low tide.

Proposed waterside facilities:

North and South breakwaters extension at mouth, Shore Protection on the northern side of the port, Diaphragm wall along the proposed creeks, Retaining wall along the eastern bank of Gadilam river, Dredging at Gadilam river, creeks near Fisheries Complex and Devanampatnam

Proposed land side facilities:

The land side facilities proposed in the project will have the following facilities.

Auction hall, Net mending shed, Gear room, Power room/Electrical/ Utility Room, Sloping yard, Admin. & Bank Building, Fueling station, Fresh water Sump, Bore water Sump, Pump house, Over Head Tank (OHT), Sewage Treatment Plant (STP), Solid waste collection area, Parking area, Security Room, Gents Toilet, Ladies Toilet, Cold storage rooms, Dormitory Block, Ice Plant, Work Shop, Radio / Telephone communication, Compound wall & Gate, Internal Roads for 1.5 km length, 7.0 m width, Electrification – (internal & External) including Transformers, Gen Set & High mast Tower, Site Development works such as water supply green belt, shore protection & land, scraping.

The north breakwater at present is 200 m and it will be further increased to a distance of 150. Similarly the south breakwater at present is 250 m and it will be further increased to a distance of 250 m. Dredging is proposed to deepen the main channel of the Gadilam River for a length of 2000 m and a width of 50 m to a depth of (-) 3.0 m CD. It is proposed to deepen the Bar mouth for a length of 200 m and a width of 100 m to a depth of (-) 4.0 m CD. It is proposed to deepen the northern creek for a length of 200 m and a width of 40 m to a depth of (-) 3 m CD for 55 MFB vessels and further extended upto 300 m to a depth of (-) 1.0 m for FRP vessels. It is proposed to deepen the South Creek for a length of 400 m and a width of 50 m to a depth of (-) 3.0 m CD.

Indomer Coastal Hydraulics (P) Ltd., Chennai, an ISO 9001:2015, NABET (QCI), NABL accredited and CDC accredited organization has prepared the respective EIA & EMP reports for the renovation of Fishing Harbour Mudhunagar, Cuddalore. Various studies and surveys were doneduring August 2015 to March 2016.

Terrestrial environment: The baseline data on terrestrial environment on air quality: PM2.5, PM10, SO2 and NO2, CO, NH3, H2S, HC, F and Pb; surface and ground water quality: Colour

(Hazen), Turbidity(NTU), pH at 25°C, Total Dissolved Solids(TDS)(mg/L), Total hardness as CaCO3(mg/L), lcium as CaCO3(mg/L), Total Alkalinity as CaCO3 (mg/L), Chloride as CI (mg/L), Free residual Chlorine (mg/L), Sulphates as SO4 2-(mg/L), Fluoride as F (mg/L), Oil and Grease, Sulphide as H2S (mg/L) noise levels, soil, major species of flora and fauna and socio-economic aspects were collected.

Marine environment: The baseline data on marine environment on physical, chemical and biological parameters have been collected. Physical parameters: Wind, Storm, Waves, Tides, Currents, Tsunami, Littoral Drift, Bathymetry. Water quality parameters: Temperature, pH, Salinity, Dissolved Oxygen, BOD, COD, Turbidity, Ammonia-N, Nitrite-N, Nitrate-N, Total Nitrogen, Inorganic phosphate, Total phosphorus, Total suspended solids, Phenolic Compounds, Petroleum Hydrocarbons, Cadmium, Lead, Mercury, Chromium, Oil and Grease.

Sediment quality parameters: Soil texture, Total phosphorous, Total Nitrogen, Total organic carbon, Calcium carbonate, Cadmium, Chromium, Lead, Mercury, Phenolic compounds, and Petroleum Hydrocarbons.

Biological parameters: Primary Productivity, Phytoplankton, its biomass and diversity, Zooplankton, its biomass and diversity, Macro benthos, its biomass and diversity, Microbial population in water and sediments, Turtles and Coastal vegetation, Biological status of floral and faunal communities and Fisheries

Environmental Impact assessment (EIA): Terrestrial environment: The impacts on Land, Air, Noise, Water, Ecology, and the socio economic status are arrived based on the primary surveys conducted. The various impacts associated with the renovation of fishing harbour during the construction phase and operation phase are evaluated. Marine environment: The impacts due to construction breakwater, wharf, Dredging and disposal, Storm/Tsunami and the impact on Shoreline, Turtles, seaweeds and Mangroves are presented. The environmental impacts are mainly the changes associated with the shoreline, coastal morphology, seabed, marine water quality, and sediment quality, pelagic and benthic habitats most of which are temporary during the construction phase.

Environmental Management Plan (EMP): The plan to mitigate the environmental and social impacts, the plan of action for execution of mitigation measures, environmental monitoring program, institutional mechanism for ensuring implementation and effective EMP are prepared. It also addresses the environmental issues associated with the project including potential effects

to the shoreline, coastal morphology, seabed, marine water quality, sediment quality, pelagic and benthic producer habitats and the ecosystem integrity.

Mitigation measures: A strict shoreline monitoring program based on monthly shoreline survey and satellite imageries are very essential to monitor the beach nourishment scheme. A shoreline monitoring committee should be formulated in consultation with Indomer. In case of any changes needed based on the monitoring programme, then it has to be implemented in consultation with above constituent body.

Controlled dredging is to be carried out confining to the area identified. Utilization of the dredge spoil as beach fill along the shore. Use of net enclosures with booms is suggested to prevent movement of turbid plume. Regular monitoring of the turbidity and heavy metal concentration in the water column should be carried out.

Disaster Management Plan (DMP): Emergency/Disaster management for events like Tsunami, storm surges, flood and cyclones are prepared. In order to minimize the effect of such natural calamities an effective disaster management plan is prepared.

Post project monitoring: The post project monitoring programme with details on various parameters to be monitored and periodicity of monitoring on both terrestrial and marine environment are presented.

GENERAL ABSTRACT					
SL.No	**Components**	**Unit**	**Area/Length**	**No**	**AMOUNT (in. Rs)**
	WATER SIDE FACILITIES				
1	Diaphragm wall	RM	1040.00	1	427,025,000
2	Retaining wall	RM	1000.00	1	193,200,000
3	Reclamation work				
	(a) Dredging	Cu.m	160000.00	1	33,600,000
	(b) Open excavation	Cu.m	51500.00	1	2,732,075
4	Revetment & stone pitching	Sq.m	4590.00	1	12,660,000
5	Slipway	Sq.m	1000.00	1	12,130,000
	Water Side Facilities- Total				**681,347,076**
	LAND SIDE FACILITIES				
6	Auction hall	Sq.m	1368.00	1	25,167,850
7	Net Mending Shed	Sq.m	1000.00	1	12,750,000
8	Surface Hardening	Sq.m	31900.00	1	41,660,000
9	Admin Building	Sq.m	92.48	1	3,080,000
10	Fresh water sump	Sq.m	25.00	1	680,000
11	Electrical Control Room& Gen.set	Sq.m	32.09	1	1,980,000
12	Over Head Tank	Litre	30000.00	1	1,530,000
13	Security Room Cum Front Entrance	Sq.m	14.10	1	1,360,000
14	Toilet Complex cum Septic Tank	Sq.m	40.87	1	2,640,000
15	Compound wall	R.m	1800.00	1	11,500,000
16	Double Lane road with pedestrian path & Drain	Rm	1500.00	1	39,270,000
17	External Electrification		LS		5,840,000

18	Sewage Treatment Plant of 15 KLD of capacity.	LS	2,500,000
19	Greeneries	LS	1,500,000
20	Rainwater harvesting	LS	1,000,000
21	Fire & Extinguisher	LS	500,000
22	Dismantling existing old wharf sheet piles on northern side creek	LS	1,500,000
23	Renovation of existing godown	LS	2,000,000
24	Dismantling the damaged godowns & site Clearence	LS	1,000,000
	Land side Facilities- Total		**157,457,850**
	Total Cost		**838,804,925**
25	Advertisement charges	LS	500,000
26	Documentation charges	LS	500,000
27	Provision for surveying & Testing	LS	1,000,000
28	Wetting for Structural Design	LS	4,500,000
29	Provision for unexpected sub soil variation	LS	2,500,000
30	Petty supervision charges-2.5%	LS	20,970,123
31	Labour welfare fund- 1.0%	LS	8,388,049
32	Unforeseen expenditure 2.5%	LS	20,970,123
33	Furniture Provisions	LS	710,189
34	Provisions for EB Service Connection Charges	LS	5,00,000
35	Provision for GST-12%	LS	100,656,591
	Total		**1,000,000,000**
(Rupees One Hundred Crores Only)			

RENOVATION OF FISHING HARBOUR AT MUTHUNAGAR,CUDDALORE DISTRICT ,TAMILNADU

LAYOUT SKETCH