EXECUTIVE SUMMARY

For

"Proposed IInd Stage Development of Commercial Karwar Port"

At

Village: Baithkol
Taluk: Karwar
District: Uttara Kannada
State: Karnataka

By

M/s. The Directorate of Ports & Inland Water Transport.
Government of Karnataka, Baithkol
Uttara kannada, Karnataka - 581301

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1. Introduction

1.1 Project background

Karwar port is a natural all weather port, situated at the Northern extremity of sea coast of Karnataka in Uttar Kannada District. The port is located between the two major ports i.e., 70 Km's South of Mormugao and 276 Km North of New Mangalore Port. The port is located in the shelter of Karwar Head, which gives a great measure of protection to the Karwar Bay from South West Monsoon waves to form a natural harbour. The geographical characteristics and positioning of Karwar port qualifies Karwar as an all-weather port in the country.

With the growing cargo traffic across the Indian coastline, development of high quality port infrastructure with commodity focus is imperative and this has been recognised by the Government. As on May 2011, major ports in India have a total of 233 berths, 5 single buoy moorings and two barge jetties to handle cargo traffic. Including the non-major ports would account for more than 300 berths. However, it must be noted that Indian Ports largely continue to remain dominated by multipurpose berth (approximately 60%), which evidently is falling short of specialised commodity focussed requirements.

Based on preliminary study it is found that Mormugaon will be the major competing port, followed by New Mangalore, Vishakapatnam, Krishnapatnam and Tadadi in decreasing order of their threat to Karwar port's traffic. However it should be noted that although currently Tadadi is not a threat to Karwar, developing Tadadi will have significant amount of hinterland overlap with Karwar which may be a cause of concern for the developer.

1.2 Overview of Karwar Port

M/s. Karwar Port at Karwar is an all-weather intermediate port with an available draft of 6.5 – 9.5. The prestigious INS Kadamba Naval base is located very near to the port. The total traffic volume handled is 3Million TPA.

This port has been developed as an all weather port in the Karwar bay with 355m long quay for accommodating simultaneous berthing of two ships with other matching infrastructure facilities. At present it caters to vessels with draft of 8.5m only due to under water physical obstruction in front of berths. The port is declared for handling of all types of commodities including class 'B' and class 'C' petroleum products.

Presently Karwar port handles import and export of about 3 million tonnes of various commodities including class 'B and class 'C' petroleum products per year. INS Kadamba is a naval base at Arga village of Karwar which is used exclusively for berthing of naval vessels. A naval ship repair yard (dry Docks) is also attached to it.

M/s. Karwar Port was established in25 years back. It is located at Baithkol village, Karwar Taluk, Uttara KannadaDistict, Karnataka state.

1.3 Location of Project site

The proposed site is located at Baithkol Village, Karwar Taluk, Uttara kannada district of Karnataka. The site is about 17Ha and falls in 57 J/1 of SOITopo sheet and spatial location of the site is 14^0 48' 01.73" N & 74^0 06' 55.30" E.

1.4 Need for the study

All projects related to sea ports, harbour, jetties, marine terminals, break water and dredging development have been identified as category – A & B projects in the EIA notification issued by MoEF in Sep 2006. Environmental Impact Assessment (EIA) for ports and harbours is a mandatory requirement as per the MoEF EIA Sep 14, 2006 and is also governed under CRZ notification Feb 19, 1991 (As amended in Jan 25, 2005) as these projects can cause potential environmental impacts. Public hearing has been made mandatory for all the cases where the environmental clearance is required. It is however, not necessary to obtain site clearance or permission to conduct surveys.

2. Project Description

M/s. The Directorate of Ports and Inland water Transportproposed to IInd stage development of commercial Karwar port at Karwar for Import and Export of various products like Iron Ores, Manganese Ore, Bauxite, Sugar, Alumina, Food Grains, Granite, Coal, Cement, Sugar, Fertilizers, and Bitumen etc.

The imported products will be transported through Tankers and Trucks based on the market demand.

2.1. Cost of the Project

The total capital investment on the project is INR 1993.54 Crores.

3 Description of Environment

Project Influence Area (PIA)/Study Area: A 10 km radial distance with the proposed project site as the epicentre has been identified as the **General study** area for assessing the baseline environmental status. The **core study area** is the project area and its immediate surroundings to the tune of 1.0 km radius from the boundary. The **project area** is the reclaimed land where the proposed IInd stage karwar port is being developed. Further the Project Impact Area (PIA) is 10km from the boundary of the core area covering KarwarTaluka under uttarakannada district.

Monitoring Period: - April to May 2017.

3.2 Ambient Air Quality

To evaluate the baseline air quality of the study area, Four (04) monitoring locations have been identified as per IMD Climatological data-Karwar Region (1971-2000).The annual wind predominat is from North West to South East. The variations of the pollutants PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, Pb, O_3, NH_3, C_6H_6, C_{20} H_{12}, As & Ni, are compared with National Ambient Air Quality

Standards (NAAQS), MoEF&CC Notification, November, 2009. All values are found within the stipulated standards.

3.3 Noise Environment

Ambient noise levels have been established by monitoring noise levels at Four (04) locations in and around 10Km distance from project area during the study period using precision noise level meter. The noise monitoring locations in the study area were selected after giving due consideration to the various land use categories. The land use categories include commercial, residential, rural and sensitive areas. Noise levels were recorded on an hourly basis for one complete day at each location using pre- calibrated noise levels.

Values are ranging from 42-61 dB (A) at Day time and 45 - 55 dB (A) at night time.

3.4 Water Environment

Surface Water

The prevailing status of surface water quality of Kali River at upstream and downstream has been assessed during the study period. Marine samples were also collected to assess the water quality and to identify dominant zooplankton groups present in the samples.

pH is varying from 7.89 to 7.97
TDS is varying from 21450 to 23800
Hardness is varying from 4900 to 6700
EC is varying from 42900 to 47800
Chlorides is varying from 18063.19 to 19547.83
Sulphates is varying from 287.42 to 2135.46
Nitrates is varying from BDL to 1.76
Fluorides is varying from 0.12 to 0.22

Also give marine samples, which are important

Ground Water

Total Four(04) ground water monitoring locations were identified for assessment in different villages around the project site based on the usage of sub surface water by the settlements/ villages in the study area. The groundwater results are compared with the desirable and permissible water quality standards as per IS: 10500 (2012) for drinking water.

pH is varying from 6.23 to 7.95
TDS is varying from BDL to 10
Hardness is varying from BDL to 2400
EC is varying from 211 to 754
Chlorides is varying from 15.83 to 64.33
Sulphates is varying from 3.81 to 65.53
Nitrates is varying from 0.6 to 33.82
Fluorides is varying from 0.18 to 0.25

3.5 Socio – Economic

The occupation profile of the area is non- agriculture due to the urbanisation and industrialization of the area.

Of the total working population, 82.8% of them belong to the main workers category, i.e the majority of the working population engaged in any occupation more than a six months in a year.

Those who involved in the agricultural work are 4.69% of the total workers. The major (92.12%) workforce involved in the other activities like industrial workers, teachers, Government officials etc.

4 Anticipated Environmental Impacts & Mitigation Measures

The major activities associated with development of port are given in**Table 1**.

Table 1: Major Activities Proposed during Different Stages of Port Development

Stage	**Activity**
Construction Phase	
Proposed construction activities **Proposed capital dredging activities within the port area and deepening of navigational channel**	○ Construction material handling/ transportation of construction materials ○ Construction activities (marine terminals, railway tracks, roadways) ○ Labour force ○ Construction of jetty on piles ○ Capital dredging ○ Land reclamation / dredge spoil dumping at sea/ shoreline
Operation Phase	
Operations of Iron ore & coal terminals	○ Vehicular traffic ○ Storage & stacking of iron ore ○ Loading / unloading of iron-ore and coal through conveyors ○ Ship Operations ○ Maintenance dredging
Operations of container terminals	○ Vehicular traffic ○ Ship Operations

Details of the parameters likely to be affected by each of the activities taking placeduring construction and operation phases of the port, with their impact characteristics andlevel of significance with low cost EMP are summarized in **Tables 2 and 3** respectively.

Table 2: Summary of Impacts with Significance Level and EMP: Construction Phase

Activity	Impacts		Impact Characteristic	Significance Level with low cost EMP
	Parameter	Cause	Duration/ Nature / Reversibility	
Construction material handling/ transportation of construction materials/ quarrying	Air	Generation of dust from handling and transport of fine & coarse aggregate in uncovered trucks	Short term Negative Reversible	Low, by covering the trucks with tarpaulin sheets or by using water sprays
	Noise	Vehicular noise, use of excavation equipment	Short term Negative Reversible	• Medium when there are noise sensitive receptors • Low when there are no noise sensitive receptors in the vicinity
Construction activities	Air	Fugitive dust emissions and dust generation from concrete mixing, cement handling, welding, operation of construction machinery	Short term Negative Reversible	Low, by sprinkling water and wearing masks
	Noise	Use of construction equipment and power tools	Short term Negative Reversible	Low when workers are provided with ear plugs
	Water	• Water utilisation for construction • Turbid runoff from construction site washings	Short term Negative Reversible	• Low, as groundwater shall not be tapped • Turbid runoff from construction site can be minimized by construction of small bunds
Labour force	Water	• Exploitation of water resources for domestic usage • Disposal of untreated waste	Short term Negative Reversible	• Low, when workers are local, current usage pattern is maintained and when groundwater is not be tapped • Low, when wastewater is disposed with basic treatment such as soak pits.
	Land / Aesthetics	Springing up of temporary buildings / dwellings. Generation of solid wastes	Short term Negative Reversible	• Low, when proper collection and disposal is practised • Low, when hutments are within premises
	Socio-Economics	Increased employment opportunities	Short term, Positive Reversible	Low, since employment is temporary

Capital dredging	Noise	Use of dredging equipment and power tools	Short term Negative Reversible	• Low when soil is soft, silty clay • Medium when noise sensitive marine species are present
	Water	Sediment resuspension	Short term Negative Reversible	Medium for turbidity when the material is clay
	Sediment	Release of toxic substances and nutrients	Short term Negative Reversible	Low for toxicity when sediment toxicity is minimal
	Benthic Ecology	Disturbance of bottom sediments and/or destruction of spawning grounds	Short term Negative Reversible	Low, when commercially valuable species/ breeding/spawning grounds are not present
Land reclamation	Water	Sediment resuspension	Short term Negative Reversible	Medium for turbidity when the material is clay
	Sediment	Release of toxic substances and nutrients	Short term Negative Reversible	Low for toxicity when sediment toxicity is minimal
	Ecology	Loss of inter tidal area	Long term Negative Irreversible	Low since the area is a barren salt marsh with no vegetation
	Shoreline	Material dumping	Long term Positive /Negative Irreversible	Low when the site is km away from the water front or when the dumping provides nourishment to the existing shoreline
Construction of berths on piles	Noise	Use of pile drivers, boring equipment, power tools, drill bits etc.	Continuous for a Short period Negative Reversible	• Medium when noise sensitive receptors are in the vicinity • Low when ear protection devices are used
	Water	Increased suspended solids and turbidity	Short term Negative Reversible	Low, since area of impact is localised and negligible

Table 3: Summary of Impacts with Significance Level and EMP: Operation Phase

Activity	Impacts		Impact Characteristic	Significance Level with low cost EMP
	Parameter	Cause	Duration/ Nature / Reversibility	
Handling of iron ore & coal, stacking and loading through conveyors	Air	Fugitive dust emissions from stockpiles and conveyors due to dislodging of fine particulate matter by wind	Short-term Negative Reversible	• Low, when dust suppression is done using water sprinklers • Low, when wind direction is towards sea-side
	Water	Spillage into the marine environment	Short term	• Low, since quantity of spill is expected to be negligible with Standard Operating Procedures
	Sediment	Accumulation in sediments	Short-term	• Low, as spills will be minimum and localised • Iron-ore/coal is not toxic or hazardous to cause sediment toxicity
	Land / groundwater table	Infiltration from stockpiles into the ground	Short term, negative, irreversible	• Low, as groundwater table is low or potable water resource is not within the vicinity. • Low, when the stockpile area is lined and infiltration is minimum
	Ecology	Concentration of heavy metals from spillage on the sediments	Long term Negative Irreversible	Low, since commercially valuable species are not common and iron-ore/coal is not hazardous or toxic
Maintenance dredging	Water	Sediment re-suspension, release of toxic substances and nutrients	Short term Negative Reversible	Medium for turbidity when the material is clay
	Sediment	Movement of dredge spoils	Short term Negative Reversible	Low for toxicity when sediment toxicity is minimal
	Benthic Ecology	Disturbance of bottom sediments and/or destruction of spawning grounds	Short term Negative Irreversible	Low, when commercially valuable species/ breeding/spawning grounds are not present
Shipping Operations	Air	Exhaust emissions	Short term, Negative Reversible	Low, with well maintained vehicles with proper covering
	Water	Discharge of bilge, cargo residues, operational wastes, waste water	Short term Negative Irreversible	Low as there shall be strict adherence to MARPOL convention

9.2 Conclusion

- Considering the increasing demand for port services and trends in the traffic at Karwar Port, there is potential to develop and expand the facilities for meeting the requirements of trade.
- Development of IInd Stage of Karwar Port, with deepened drafts and addition of berths, would facilitate receiving larger parcel sizes.
- The commodity mix would include 22.95% dry bulk, 69.90% liquid bulk, 0.58% container cargo, and 6.57% general and other cargo.
- Karwar will be highly dependent on primary hinterland comprising Uttar Kannada, Shimoga, Belgaum, Haveri, Koppal, Bagalkot, Devangere and Bellary. While the secondary hinterland would include few districts from Southern Maharashtra and western Andhra Pradesh, development of ports like Tadadi and Haldipur and expansions at Mormugaon, NMPT and Krishnapatnam will substantially reduce the possibility of traffic emerging from secondary hinterland.
- Even under the best case scenario, the capacity utilization touches 100% only during the 21st year of operation. Hence, it may be apt to let the concessionaire decide on the phase-wise implementation of the project rather than implementation of the entire project in the first three years.
- In consideration of the above, it may be apt to allow the concessionaire the flexibility to develop the project as felt needed by the concessionaire. This could improve the viability of the project.