



Mormugao Port Trust, Goa

Risk Survey Report

21st April 2016

TABLE OF CONTENTS

GENERAL	3
EXECUTIVE SUMMARY	4
INTRODUCTION	5
LOCATION DETAILS	6
PORT OPERATION	7
STORAGE PRACTICES	9
CRITICAL EQUIPMENT	9
FIRE PROTECTION	10
ELECTRIC POWER SUPPLY	10
SECURITY MANAGEMENT	11
NATURAL HAZARDS EXPOSURES	12
PORT RISK EXPOSURE	15
RECOMMENDATIONS FOR RISK IMPROVEMENTS	16
DISCLAIMER	18
CONTACT INFORMATION	19
ANNEXURE-A: PICTURES TAKEN AT PORT SITE	20

GENERAL

Purpose of survey:

To carry out the complete risk survey, ascertain the risk exposures and collect underwriting information and prepare risk survey.

This Report contains findings of Mormugao Port Trust., Goa

Date of survey:

21st April 2016

Executives contacted:

Mr. Vinayak Roa

Mr. Anant Chodnekar

Mr. Sudin Prabhudessai

Survey carried out by Global Insurance Brokers Pvt. Ltd.:

Mr. Pranav Patel

Mr. Anshul Upadhyaya

Mr. Yogesh Bokde

We gratefully acknowledge the contribution of all personnel of Mormugao Port Trust involved in the survey and meetings.

EXECUTIVE SUMMARY

Global Insurance Brokers Private Limited carried out a risk survey at Mormugao Port Trust, Goa on 21st April 2016. We were accompanied by Executives from Mormugao Port Trust.

The purpose of the visit was to ascertain a general impression of the quality of risk, develop a risk perspective and to evaluate its exposure to various perils like Fire /Explosion, and Natural Hazards etc.

Key Positives:

- Office complex has been protected with Portable fire extinguishers and fire hydrant system
- Smoke detectors are provided for office complex
- Two fire tenders are provided for Port area
- Six mooring dolphins have been installed to avoid vessel traffic congestion
- Port is provided with one lighthouse at breakwater berth and one lighthouse at mole berth
- Harbour Mobile Crane (HMC) is provided for cargo handling purpose
- Security set up is well managed

INTRODUCTION

Mormugao Port, one of the oldest ports on the west coast of India, with a fine natural harbour, has been relentlessly serving the nation in its economic development for over a century. The port was commissioned in 1885 and is one amongst the 12 major ports of the country. The port is mainly an iron ore port and handling largest quantum of ore exports amongst all the Indian Ports. Though ore is the predominant cargo, there has been a steady increase in liquid bulk and general cargo traffic ever since its joining the ranks of the Major Ports of India. Excellent facilities, high productivity, streamlined administration and a dedicated workforce all go towards making this Port one of the most efficient Port in the Indian subcontinent.

It is an open type harbour protected by a breakwater and a mole built from the outer end of the breakwater and running parallel to the quay.

Access to the site

The state of Goa is located on the Western Coast of India. The coordinates of Mormugao port are latitude 15° 25' North and longitude 73° 47' East. Mormugao Port is connected through road with two national highways NH-17 and NH-4A. The NH-4A highway eventually joins with NH-14 which connects Mumbai and Bangalore. The NH-17A highway connects Mormugao.

LOCATION DETAILS

Mormugao Port Trust

Headland Sada,

Vasco da Gama, Goa-403804



Google snapshot of the site

Nearest	Agencies / Landmarks	Distance
Railway Station:	Vasco da Gama Railway Station	4 Km
	Madgaon Railway Station	35 Km
Domestic Town:	Vasco da Gama	5 Km
Airport:	Dabolim Airport	6Km
Police Station:	Police Station	3 Km
Fire Brigade:	Fire Station, Mormugao	4 Km
Hospital/Health Centre	Mormugao Port Trust Hospital	

PORT OPERATION

Mormugao port has total 11 berths out of which 8 berths (Berth No. 1,2,3,5,6,7,8,9) are leased out to some other organizations and remaining 3 berths (Berth No. 4,10,11) are under the operation of Mormugao port. Dry bulk, liquid bulk and general cargo handling activities are being carried out at these ports. The details about the port operations are given below.

Breakwater and Mole:

The port has been provided with one breakwater berth and one mole berth. It is of RCC construction supported with number of piles and constructed in the year 2012. The length of the breakwater and mole is 500 mts and 300 mts respectively and width is 20 mts.

Breakwater and mole are also being used as a berthing for vessels. Breakwater can be used by one side only and mole can be used by both sides.

Mooring Dolphins:

There are total six mooring dolphins provided for the Port. The structures typically consist of a number of piles driven into the seabed and connected above the water level to provide a platform or fixing point. It is a RCC constructed.

Approach Channel:

- Length of Outer Channel : 5.2.kms
- Length of Inner Channel : 2.3 kms
- Width of Channel : 250 m
- Depth : 14.4 m to 13.1 m below chart datum
- Turning Basins : 2 nos. of 480 m diameter
- Tidal Range : Springs- 2.3 m/ Neaps-1.0m

Berth No. 1,2,3 :

The old berths 1 to 3 are leased out to Western India Shipyard Ltd, for installing a modern ship repair facility. It was commissioned in the year 1995. The construction of the berth is of RCC structured. The length of the berth is approx. 331 mts with a draft of about 8.5 mts.

Berth No.4:

Berth No. 4 is under the operation and management of Mormugao Port only and was commissioned in the year 2010. This berth is being used for small crafts only. It is a RCC constructed. The length of the berth is approx. 190 mts and width is 16 mts and depth is 8 mts.

Berth No.5&6:

Berth No. 5 and 6 are leased out to JSW Steel. JSW which imports coal and exports finished steel products annually through the port. The construction of berth is of RCC structured. The length of the berth no. 5 & 6 is approx. 200 mts and 240 mts.

Berth No.7:

Berth No. 7 is leased out to Adani Mormugao Port Terminal Pvt. Ltd for handling of coal cargos.

Berth No. 8&9:

Berth No.8 is a Liquid cargo handling berth. The commodities like POL product, Furnace oil, Ammonia and other liquid products are being handled and managed by private agencies at this port. Berth No. 9 is dedicated for the handling of iron ore with mechanical ore handling plant (MOHP) and it belongs to Vedanta Limited. The structure is of concrete cribs with RCC decking. The length of the berth no. 8 & 9 is 260 meter and 360 meter respectively.

Berth No. 10&11:

Berth No. 10 and 11 are under the operation and management of Mormugao Port. It is being used as a general cargo berths and commissioned in 1985 and 1994 respectively and having a draft of 11.00 mts and 12.50 mts. It is a RCC constructed supported with piles. The length of the berth no. 10 & 11 is approx. 250 mts and 270 mts.

STORAGE PRACTICES

There are three dedicated storages provided for material export/import purpose at berth no. 10 & 11 which belongs to Mormugao Port. At present, wood chips have been stored in open shed and steel coils have been stored in closed shed.

CRITICAL EQUIPMENT

There is one Harbor Mobile Crane (HMC) provided for container handling purpose at berth no. 10&11. Maintenance of the equipment is under AMC contract.

Make: ITALGRU

Capacity * Radius

120 T * 11-20 m

37.5 T * 51 m



HMC

FIRE PROTECTION

Portable fire extinguishers of appropriate type and capacity have been provided in all the areas of administrative building. Administrative building is also protected with fire hydrant system.

For port area, there are two fire tenders available at site.



Fire Tender

ELECTRIC POWER SUPPLY

Incoming power supply:

The power is received from Reliance Energy Limited at the main receiving substation through a 33 kV supply line and is transformed to 3.3 kV for distribution to drive houses for their large capacity motors and to supply two other substations in the port area. Power is transformed to 415 volts for low voltage supply and lighting systems in the port areas.

SECURITY MANAGEMENT

Access control: Entry inside the port premises is controlled at the main gate by security with identification, verification of appointment. Security is on contact basis and is available round the clock.

Gunman: Gunman is available at the site.

Any past incidences: It was reported that there were no major incidences happened in the port premises.

NATURAL HAZARDS EXPOSURES

Natural Hazards Exposure (from Munich Re Natural Hazards Manual)



➤ **Natural Hazards Exposure (Pertaining to the location conditions)**

Peril	Exposure
Earthquake	No Data
Volcanic Eruption	Nil
Tsunami	Medium To High
Tropical Cyclone	Zone 0: Wind Velocity - 76-141 Km/Hour. Low.
Extratropical Storm	Nil
Hailstorm (Frequency and Intensity of Hailstorm)	No Data
Tornado	No Data
Lightning (Frequency of Lightning Strokes per sq.km. and year)	No Data
Flood	No Data
Storm Surge	Medium To High
Coastal Flooding	High

➤ **Natcat Exposure of Goa State As per the Vulnerability Atlas of India –**

i. Earthquake – Zone III: Moderate Damage Risk Zone (MSK VII). Magnitude (M) on the Richter Scale is 5.0-5.9 OR 6.0-6.9.

ii. Wind – Moderate Damage Risk Zone – B. Wind Velocity (Vb) = 39 Meters/Second.

➤ **Other Perils**

Fire: Moderate to High

There is a possibility of fire at berth no. 10&11 where combustible materials like wood chips have been stored in open shed area at other side of the berth.

Terrorism: Low

There is no history of any terrorists attack in this area.

Aircraft Damage: High

Aircraft damage is considered to be high. The distance of location from Goa Airport is about 8 km. Various domestic/international flights arrive & take off from the airport and may be passing above the port.

Burglary: Low to Moderate

Security arrangements are satisfactory within the facility. Every person entering and leaving the premises is being checked. All materials going out of the port are checked with necessary documents.

Impact Damage: Moderate to High

Movement of heavy vessels alongside of the port was noticed for the export/import activities. However, Impact of heavy vessels cannot be ruled out in case of uncontrolled driving.

Missile Testing Operations: Low

There is no missile testing area or artillery testing area in vicinity.

Riot, Strike, Malicious Damage (RSMD): Low

Good employee employer relationship is present in the port and majority of the workers are local.

Explosion: Moderate to High

Oil storage tank which is installed at berth no. 8 can lead to an explosion though it doesn't come under the custody of Mormugao Port.

PORT RISK EXPOSURE

- Damage to port structure by vessels contact
- Business Interruption/Increased Cost of Working due to physical loss, port or berth blockage, vessel impact, traffic congestion etc.
- Cargo Liability – loss of/damage to cargo in the client's care custody
- Falling of container while handling cargos
- Third Party Liability in respect of stocks damage, death/injury of people
- Equipment failure like cranes, fork lifts etc.
- Fire/Explosion
- Property damage due to Act of god perils like earthquake, floods, storm, coastal flooding, cyclone, lightning

RECOMMENDATIONS FOR RISK IMPROVEMENTS

- It was observed that fire water monitor which is installed at berth no. 8 was not functioning. It is recommended that all the fire monitors installed at the site should be checked/tested from authorized services.



- It was observed that the protection sheet which has been placed for wood chips material in open shed area at berth no. 10&11 found to be damaged. It is recommended that it should be replaced with a new one so that material will not spread out of the sheet. It is also recommended that source of ignition should be avoided like open flames, hot gases, hot surfaces, mechanical sparks and electrical sparks, smoking at site etc. Wood chip piles can likewise pose a hazard. Fires from these piles can spread, burning and/or destroying adjoining properties.



Guidelines for storage of wood chips (from NFPA 230- Standard for the Fire Protection of Storage):

- a) Piles should not exceed 60 feet in height, 300 feet in width or 500 feet in length

- b) Piles should be separated from one another by approved fire apparatus access roads
 - c) Low barrier walls should be provided around piles to define pile perimeter and prevent creeping
 - d) Physical protection should be provided to prevent heat sources such as steam lines, air lines, electric motors and mechanical drive equipment from becoming buried or heavily coated with material
 - e) A minimum of 15 feet should be maintained between piles and exposing structures, yard equipment or stock depending on the degree of the exposure
 - f) Appropriate number of fire extinguishers suitable for Class A fires shall be provided in accordance with NFPA 10, Standard for Portable Fire Extinguishers
 - g) Monitor pile temperature routinely
- It is recommended that speed limit boards may be placed in the access roads of the berths to minimize the risk of impact damage from the vehicle.

DISCLAIMER

This report and any recommendations in it are based on certain observations made by us and/or from information supplied to us from sources which Aon Global believes it is entitled to assume are reliable.

Conditions may have changed since our survey and/or the preparation of this report, and the reader must take this into account when acting in reliance on it.

It is not, and is not intended to be, exhaustive or conclusive, covering every hazard or risk potential, nor to guarantee compliance with any statute or regulation, nor does do its preparation and submission to insurers relieve you of your obligation to make full disclosure of all material facts to your insurers. It is offered to assist you in your assessment and/or management of risk. If you are in any doubt as to whether a fact is material and should be disclosed to your insurers, you should promptly discuss this with your insurance broker, if at all possible prior to the binding of the insurance contract.

For and on behalf of Global Insurance Brokers Pvt. Ltd.

CONTACT INFORMATION

Yogesh Bokde

Assistant Manager

Aon Global Risk Consulting

Aon Global Insurance Brokers Pvt. Ltd.

T: 91 22 61845678

M: +91-9920023434

yogesh.bokde@globalinsurance.co.in

Confidentiality Notice

This report contains information, which is confidential to Mormugao Port Trust and Global Insurance Brokers Pvt. Limited. Accordingly, we trust you will understand this report is given to Mormugao Port Trust and its officers and employees in confidence and may not be used, reproduced in any form or communicated to any other person, firm or company without the prior approval of Aon.

Privacy Notice

Aon has always valued the privacy of personal information. If you would like a copy of our Privacy Policy, you can contact us or access it from our website at www.aon-asia.com.

Copyright

© Aon Global Insurance Brokers Pvt. Limited 2008.

Written and published by Global Insurance Brokers Pvt. Limited. This work is copyright and confidential. Other than as permitted by law, no part of it may in any form or by any means be reproduced, stored or transmitted without permission of the copyright owner, Aon Global Insurance Brokers Pvt. Limited.

ANNEXURE-A: PICTURES TAKEN AT PORT SITE



Breakwater Berth



Lighthouse



Mole Berth



Berth No. 4



Berth No. 10&11



Berth No. 8



Berth No. 9