J. M. BAXI GROUP

TIDINGS

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Newsletter Issue XXVII

Table of Contents

J. M. BAXI GROUP

TIDINGS

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Discharging LNG Cargo at Petronet LNG Terminal, Dahej

* All maps are for representation purpose only

J M BAXI GROUP

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From the Quarter Deck

Dear Friends and Colleagues, Several several years back in one of the periodic economic cycles of ups and downs of India, whilst visiting one of our foreign principals, they brought up the issue of the economic situation in India and expressed their deep concern about the impending collapse. Frankly, it took me by surprise and incredulously asked what had they heard that I had not? As it turned out they had read a couple of newspapers to which I turned around and said it's not as bad as the headlines say. This period too is beginning to sound the same. Yes, there is a slowdown but it's not that bad. On a real-time basis, one can see that in the next 12 to 24 months an upward march of growth curve is imminent in India.

As this column has been consistently maintaining that the immediate issues that need to be fixed are 1) The resolution of the nonperforming assets (NPA's) of the Indian banking sector 2) The roll-out of well-considered infrastructure, AT PROPER PRICE POINTS especially in terms of the governmental share of income either as a royalty or sharing in revenue or even upfront fee expectations or valuation for their participating resources. On both these fronts, untiring efforts are on and progress, however slow, is happening.

One more issue that this column always comments on is the monsoon. We have had a more than decent monsoon in India this year and the latest agriculture and sowing reports seem to suggest that this year may well see a very good crop for Kharif and may also see a good Rabi crop as well due to soil/moisture combination as seen in September.

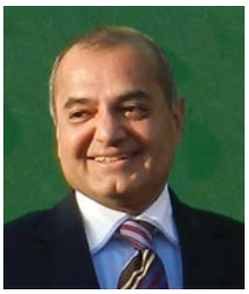
Continuing on the subject of progress, some of the interesting developments in the Gas sector may prove to be very promising for the future. It is expected that natural gas from the eastern Russia may begin to be shipped to one of the gas companies of India. It can well be predicted that gas could become a fuel option thus helping us to reduce our dependence on thermal coal or diesel. The other pointer which is interesting is the "Look East" direction from which Vizag, Paradip and Haldia can only continue to benefit from.

We are truly delighted to share with you a gratifying piece of news. We at J M BAXI GROUP have enjoyed a strong trusted and respected relationship with our bankers, lenders and financial institutions. In this regard, we are proud to announce our agreement with International Finance Corporation (IFC) for participating in the consortium of lenders for our VCT phase 2 project. IFC is indeed a venerable institution being a part of the World Bank family.

We have had a promising quarter at our terminals. Paradip is continuing to play its role as a prominent and pre-eminent gateway for Odisha as well as the East Coast of India for various clean cargo traffic. As compared to the past, PICT has significantly changed the productivity and efficiency norms for handling ships and cargo. These "invisible" benefits eventually do make a major difference in the clients perception of the ports and terminal preference and selection.

MONTH	BULK		CONTAINERS	
	NO OF VESSELS	QTY	NO OF VESSELS	TEUs
JULY	12	275,472	2	437
AUG	11	304,044	1	552
SEP	10	300,000	2	929

VCT has continued to see steady growth and the most exciting development has been the beginning of a direct deep-sea service connecting Vizag to Europe. Such a direct service will enable trade to connect to/ from Vizag to Europe faster and cheaper. Along with this very positive development, our construction activity for VCT 2 is in full swing and I would welcome any of our colleagues and clients who may like to visit the Vizag site. KICT continues



to play a positive growth role in the Gulf of Kutch and sooner than we thought we will be needing to have additional equipment to cope with increasing volumes at Kandla. MICT 1 and MICT 2 continues to be eveloping and growing well and Rozi has had a positive period with its strong role in fertilizer logistics. DICT has continued to evolve itself and is now in the top 5 ICD's of India in terms of volume and efficiency.

The logistics industry continues to be subdued especially in the field of projects and heavy lifts. This is directly linked to capital expenditure for growth and expansion. It is safe to say that this area of economic activity in India will be subdued and should begin to see an uptick in next few quarters.

These quiet times are a great opportunity for "housekeeping and house cleaning". Almost all of our businesses are a part of the logistics chain and are predominantly evolutionary. The 2 major mantras of the Government of India have been ease of doing business and cost of doing business. We are working closely with our clients and customers reviewing and renewing various processes to help achieve these goals.

The last quarter of this year will also see the various celebratory periods such as Navaratri, Durga Puja, Diwali, Christmas and the New Year. I take this opportunity to wish each and everyone and all your families a joyous and festive season and sign off till 2020 ■

Krishna B. Kotak
Chairman - J M BAXI GROUP

Agency & Services

J. M. BAXI & CO. Vessel Handling At KRISHNAPATNAM Port

J. M. Baxi & Co., a leading port agency house, handled five vessels at the same time at Krishnapatnam Port. The port has 13 berths and on 28 July 2019, five of the berths were occupied by vessels:

- MV Cape Lily berthed at berth 6 at 1154 hours on 25 July 2019
- MV Deccan Pride berthed at berth 8 at 1718 hours on 25 July 2019
- MV Vishva Malhar berthed at berth 7 at 1800 hours on 25 July 2019
- MV Mystras berthed at berth 3 at 2215 hours on 27 July 2019
- MV Junior berthed at berth 4 at 0112 hours on 28 July 2019

J. M. Baxi & Co. was the full agent for MV Deccan Pride, MV Cape Lily and MV Junior, and the charterer agents for MV Vishva Malhar and MV Mystras. At berth 8, MV Deccan Pride was carrying Indian coal from Paradip for M/s Sembcorp Energy India Ltd. The coastal cargo movement was contracted with carriers PCL (India). MV Deccan Pride successfully completed her 100th voyage recently, carrying 7.4 MT of coal from Paradip to Krishnapatnam. This contract has been running for the past 4 years and marks a remarkable achievement for Krishnapatnam Port. MV Mystras docked at berth 3 with 55,650 MT of Indian coal from Paradip for Mudhunur Power Plant, which is operated by M/s APGENCO. MV Junior had shipped 88,000 MT of hard coking coal from Australia for M/s JSW Steel Ltd. MV Cape Lily was at berth 6 with 88,010 MT of PCI coal and 79,286 MT of soft coking corex from Australia for JSW Steel. Finally, MV Vishva Malhar tied up at berth 7 with 52,850 MT of Indian coal from Paradip for Mudhunur Power Plant.

The J. M. Baxi & Co. branch at Krishnapatnam, Andhra Pradesh, was established in 2006 and obtained a steamer agency licence in 2007. The dredging of Krishnapatnam Port was first done by the agency vessel MV Transporter (a submersible vessel) in 2007. J. M. Baxi & Co. started handling granite in 2009 and by 2014, a total of 5.96 lakh tons of granite

Agency & Services

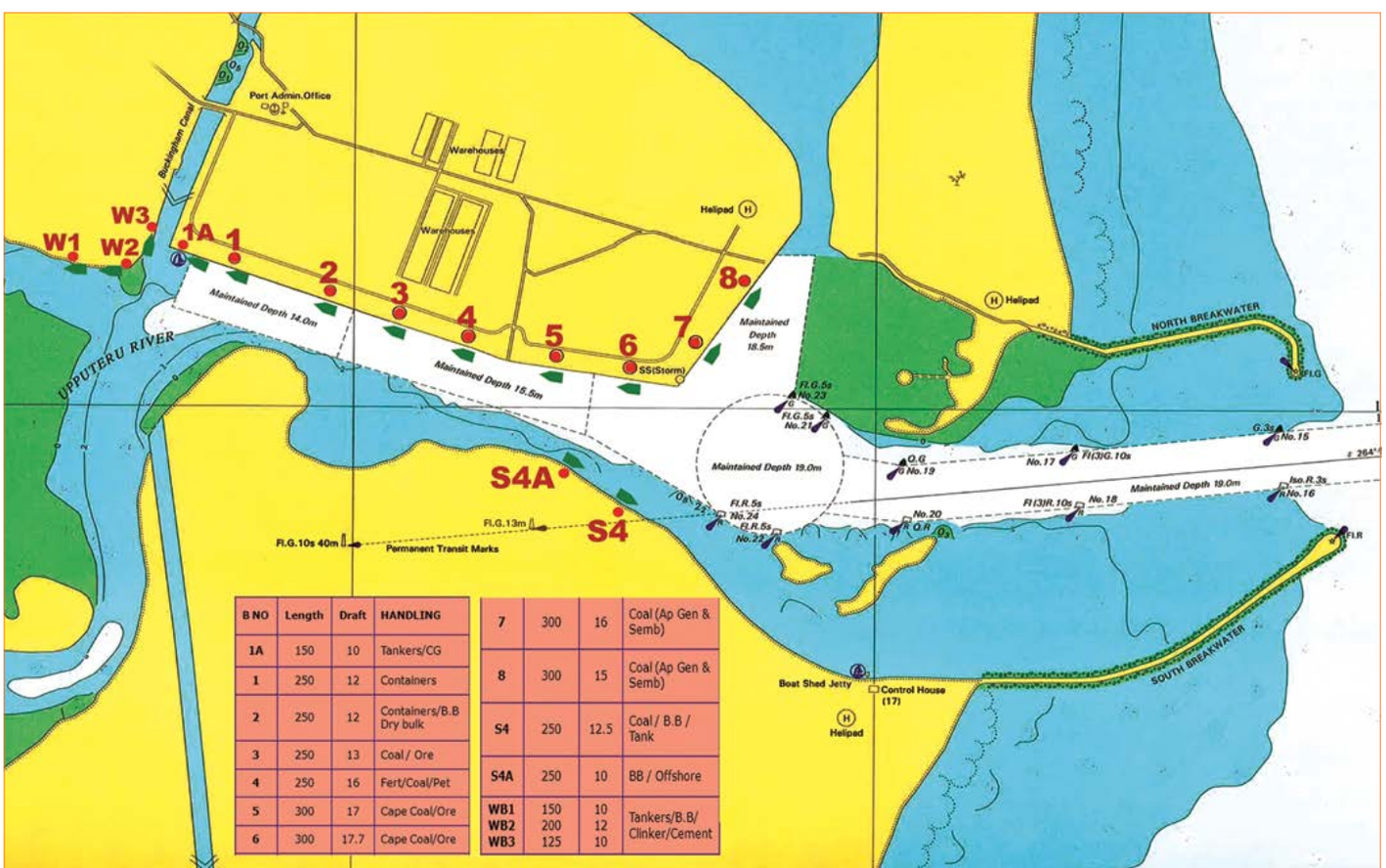
blocks had been loaded into 70 vessels at the port.

J. M. Baxi & Co. acts as steamer agents for tramp and container vessels and as stevedores for project and break-bulk vessels coming under liner terms. It has a CHA licence at Krishnapatnam Custom House, allowing it to undertake vessel importation and cargo customs activities.

The port has 13 operational berths and a deep draft of 18.5 m. It can handle 200,000 DWT super capesize vessels. It has specialised terminals for bulk, break-bulk, ODC, liquid and container cargo. Krishnapatnam Port's state-of-the- art container terminal has a current capacity of 1.2 million TEUs. After its next phase of development, it will have a capacity of 4.8 million TEUs, which will make this mega-terminal one of the biggest in the country. It encompasses container yards, coal storage yards, dedicated plots, warehouses and many railway sidings, all spread over 6800 acres.

Several major industries are reliant on Krishnapatnam Port, such as thermal power plants, refineries for edible oil, lubricant plants, steel plants, leather parks, fertiliser plants, special economic zones, pipe manufacturers, multi-product industrial zones, windmill manufacturers, mega food parks, etc. The region is expected to change the economic and trade outlook of East India by becoming the industrial growth engine of South and East India. A ro-ro terminal, liquid bulk terminal, and bunkering, rig repair and offshore facilities are all in development. It will be a catalyst, enabling an industrial revolution in the region by being a major gateway for exports and imports. The port has dedicated road and rail connectivity to the national road and rail networks and an evacuation capacity of 100 MTPA, which can be scaled up to 300 MTPA ■

MV Deccan Pride 100 Year Celebration



B NO	Length	Draft	HANDLING
1A	150	10	Tankers/CG
1	250	12	Containers
2	250	12	Containers/B.B Dry bulk
3	250	13	Coal / Ore
4	250	16	Fert/Coal/Pet
5	300	17	Cape Coal/Ore
6	300	17.7	Cape Coal/Ore

7	300	16	Coal (Ap Gen & Semb)
8	300	15	Coal (Ap Gen & Semb)
S4	250	12.5	Coal / B.B / Tank
S4A	250	10	BB / Offshore
WB1 WB2 WB3	150 200 125	10 12 10	Tankers/B.B/ Clinker/Cement

Map Of Krishnaptnam Port and Berth Information

Agency & Services

Efficient Handling At VADINAR

J. M. Baxi & Co. under its agency division handled full agency and recorded a very good rise in the number of vessels handled at Vadinar Lighterage Point Offshore (LPO) under Jamnagar branch. The present statistics indicate that the number has more than doubled since LPO season 2018.

This year the number has risen to a total of 23 vessels, of which 06 are STBL's (Ship to be lightered) & 17 are daughter vessels, and we are still counting. The number of vessels has grown more than double as compared to last year where we worked on 08 daughter vessels.

The LPO season usually begins with the onset of South West monsoon in India i.e., from mid-June and continues till end September.

Vadinar LPO is an ideal location for Ship To Ship operation as it is considered to be a sheltered location and therefore, the adverse effects of monsoon do not pose much risk to the lighterage operations. This also happens at a time when other lighterage ports in India have to put a halt to their lighterage operation due to the great risk brought in by the monsoon season.

With every agency nomination we receive, there also comes the opportunity to prove ourselves, as an agency house, which can deal with any situation that can arise there from. For instance, one of the vessel's reducers were not as per the governing Charter Party norms and team worked overnight to get the reducers fabricated and delivered to the vessel thereby cutting down on losses which could have been incurred if proactive measures were not taken.

The entire operation right after the appointment of agency till the granting of necessary permissions for lighterage operation is governed by strict customs regulations and every minute wasted will result in significant losses to Owners / Charterers ■

Infrastructure

The Last Mile Connection

ICD's have brought custom clearance to the doorstep of exporters and importers, however, due to uncertainty of rail transit some of the cargoes moved back on road to be cleared at the port.

While DICT had regular train services to gateway ports and has been running 8-9 trains/week to Mundra, cargo shift from rail to road was increasing on a regular basis due to uncertainty of train movement.

Vessel cutoff time has been very crucial for exporters who supply goods to big brands like Target, Walmart, K-Mart, etc. To overcome the situation of delay, Delhi International Cargo Terminal (DICT) discussed this matter with Indian Railways and started timetable trains assuring scheduled transit time from DICT to Mundra.

With detailed study on the customer requirement some of challenges faced by customers were identified like:

Selection of containers

Selection of right container worthy for stuffing of specific cargo is very important, with detailed checkpoints made in association with the shippers and buyers, DICT has nominated in house team for selection of right containers which has reduced the rejection of containers from 5-8% to almost nil.

Transportation for factory stuffing

With inhouse transport DICT can place the empty containers at the designated time slots at the factory premises, with placement of containers at the designated time, DICT has been able to reduce the idle labor time, thereby bringing increased efficiency and reduced loss due to idle man-hour.

Stacking as per customer's requirement

With proper yard planning and RFID tagging containers designated for same day clearance are pre stacked in a nominated place which requires minimum maneuvering of heavy equipment and manpower which helps in same day clearance by customs officials.

Pre-Stacking of containers for Loading on rail

Once the containers are custom cleared, containers are pre- stacked on rail side to avoid delays in shifting of containers, as soon as the rail is ready for loading, containers are loaded on the train.

Loading of containers on rail

With proper planning the loading of rakes is completed by 9 PM everyday and the train departs every day at 10 pm.

Tracking and Visibility to customer

With the use of technology and network DICT can track the entire movement of containers be it on road, inside the yard or on rail network which helps in bringing certainty in the entire movement chain.

By using rail transport, carbon saving would be approximately 24% which can be calculated as carbon credit for modal shift of freight movement.

All this has been possible only because of the large number of containers handled by DICT which gives confidence to Indian railways of load availability every day. DICT has assured customers that this timetable train service will bring about a change in the movement of export cargo and will benefit its customers and service providers ■

Delhi International Cargo Terminal At Sonepat

Infrastructure

Dredging in INDIA

With the global shipping fleet growing rapidly in terms of size and capacity, Ports in India have realised the importance of deeper channels and berths, which will help them accommodate bigger ships, attract more cargoes and increase revenues. With a significant amount of dredging activity that has taken place so far, draught levels at some Indian ports have increased. However, they remain considerably lower than international standards.

During the five-year period (FY2013 to FY2017), at least 440 million cubic metres was dredged at major ports. Another 103 million cum was dredged at non-major ports (FY2014 to FY2016) Besides ports, dredging is also undertaken at inland waterways (in rivers, canals, lakes, etc.). From 2011-12 to 2015-16, around 50 million cum of dredging was undertaken at National Waterways (NWs)-1, 2 and 3.

Quantity Dredged at Indian Ports during FY2013 to FY2017 (million Cubic Metres)

Year	Major Port	Non-Major ports
FY 2013	87.8	N.A
FY 2014	138.6	21.12
FY 2015	86.2	39.64
FY 2016	84.9	43.01
FY 2017	88.8	N.A

Source: Indian Infrastructure

Port-wise details of existing draft

Drafts at Indian Ports		
Ports	**Existing draft at berths Meters**	**Proposed draft Meters**
Mangalore	14	
Karwar	7.5	
Tuticorin – V.O.C.	8.6-14.2	17.8
Mumbai	7.5-10.4	
JNPT	15	
Haldia	8.5	9.5
Kolkata	6	6.5
Chennai Inner Harbour Outer Harbour	 13 17	
Kamarajar (Ennore)	13.0. -16.0	
Cochin	14.5	
Goa	7.5-14.0	
Vizag Inner Harbour Outer Harbour	 14.5 18	
Paradip	14.5	15
Jsw Jaigarh	11.5-17.5	
Angre Alongside	12	
Finolex Terminal-Ranpar Jetty	9	
Dabhol -Konkan LNG P.Ltd.	12	13.5
Krishnapatinam	10-17.70	18
Adani Kattupalli	13	
Bharuch (Dahej):	12.7-14	
Kakinada	14.5	
Kandla	9.8-13.0	
Mundra	10.3-17.5	
Hazira - AHPPL Hazira - EBTL – Coal & Steel Hazira - Iron Ore Pallets	14 13 14	
Port Blair	9	

Capital Dredging and Maintenance Dredging

Indian ports are under rapid expansion and hence the requirement of dredging in India has also shooting up and will be everlasting. In India the main market is for maintenance dredging rather than capital dredging

Maintenance dredging is undertaken for the periodic removal of silt and sediments from existing navigational channels, berths, etc., in order to maintain an appropriate depth for navigational and operational purposes.

Port-wise Quantity Dredged and Expenditure incurred on Maintenance Dredging during FY 2013 to FY 2017

Ports	Qty Dredged (in Million Cum)	Expenditure Incurred (In billions)
Kolkata	81.1	16.8
Paradip	25	3.1
Vizag	2.3	0.9
Chennai	1.4	0.9
Cochin	128.7	7.1
New Mangalore	33.9	2.1
Mormugao	13.1	1.4
Mumbai	11.6	1.5
JNPT	8.1	1.9
Kandla	54.4	6.5

Source: Indian Infrastructure

Major Port-wise, the maximum maintenance dredging was carried out at Cochin port, followed by the ports of Kolkata and Kandla. The Haldia Dock Complex (HDC) has depth limitations on account of high siltation, which results in high annual maintenance dredging and Cochin port has the highest annual siltation

Infrastructure

load among Indian ports, leading to a large demand for maintenance dredging all year round. About non-major ports, maintenance dredging of 22.7 million cum was undertaken between 2013-14 and 2015-16. Around 7 million cum of quantity was dredged at Dhamra port in 2014-15.

"DCI is mainly into maintenance dredging. 76% of the ₹700 crore maintenance dredging market at India's state-run major Port Trusts will be out of bounds for private dredging contractors after a consortium of four port trusts Visakhapatnam, Deendayal, Paradip and Jawaharlal Nehru buys the Centre's 74.44 per cent stake in the Dredging Corporation of India Ltd (DCI).

Capital dredging is undertaken to develop a new harbour, berth or waterway, or to deepen the existing facilities to allow access to larger vessels.

Port-wise Quantity Dredged and Expenditure incurred on Capital Dredging during FY 2013 to FY 2017

Ports	Qty Dredged (in Million Cum)	Expenditure Incurred (In billions)
Kamarajar	16.8	3.6
Paradip	8.8	1.8
Vizag	11	4.1
Chennai	1.1	0.4
VOC	1.6	4.4
Cochin	0.9	0.3
New Mangalore	0.8	0.3
Mormugao	2.6	0.4
Mumbai	8.9	1.7
JNPT	61.8	14.1
Kandla	12.7	3

Source: Indian Infrastructure

The maximum capital dredging at major ports of which 49% of the total quantity was carried out at the Jawaharlal Nehru Port Trust followed by Kamarajar port 13% and Deendayal port 10%. Non-major ports have also witnessed significant capital dredging. In year 2015-16 around 25.3 million cum of dredging was carried out at Mundra and 13.5 million cum at JSW Jaigarh port.

Main Players (National /International)

The Indian dredging market is serviced by both domestic and foreign players. In Profiles of Major Players, 13 domestic players (12 private and one public sector player) and five foreign players have been covered. The 13 domestic players own 115 dredgers.

Major Players	Fleet size (no.)	Total Quantity dredged during 2017-18 (million cum)
Dredging Corporation of India	15	47.00
International seaports Dredging ltd.	50	9.70
Mercator	9	1.78
Dharti	16	4.00
Rock and Reef Dredging	3	0.17
Boskalis	42	NA
Van Oord	56	6.2
Adani	19	NA
Mumbai	8.9	1.7
JNPT	61.8	14.1
Kandla	12.7	3

Source: Indian Infrastructure

At present, then DCI and a limited set of private vendors serve the Indian dredging market, the government needs to open the dredging market to attract more players particularly international players, in dredging activities to increase and maintain draft depth at ports to attract large vessels and enable them to become hub ports ■

(to be continued in issue XXVIII)

In Conversation

With Dr. BRUCE TOMLINSON HR WALLINGTON LIMITED

Q: HR Wallingford is a global organization providing various technical solutions in the water sector. Apart from the maritime sector, please explain the various services that your organization provides?

Ans: HR Wallingford Limited is an independent research and consultancy in Civil Engineering and Environmental Hydraulics. HR Wallingford has been offered the Scientific Research Association - SCIREA status.

We deliver practical solutions to complex water-related issues faced by our international clients. With a 70-year track record of achievements, our unique mix of know-how, assets, and facilities include state of the art physical modelling laboratories, a full range of numerical modelling tools and, above all, enthusiastic people with world-renowned skills and expertise.

In the Maritime and Coastal sector, we provide specialised consultancy and engineering services for Coastal Infrastructure, Dredging, Estuary Infrastructure, Ports/Terminals, and Harbours and waterfront development.

Along with the maritime sector, we serve the following sectors as well

1. **Flood and Water Management**

   - **Climate Change**
     We provide specialised assistance in determining the impact of climate change over the design engineering of marine facilities.

   - **Dams and Reservoirs**
     We can help all areas concerning the safety of dams and reservoirs; from safety inspections by qualified Panel Engineers, to risk assessments for reservoirs and dams, early warning systems and flood mapping.

   - **Flood Forecasting and flood risk assessment and Management**
     HR Wallingford delivers flood forecasting and warning systems that are designed to be quick, accurate and reliable under extreme catchment conditions. We also provide flood risk assessments tools and sustainable flood risk management solutions. Our skills and expertise cover the technology and science behind the different strands of sustainable and integrated catchment flood risk management.

   - **River Infrastructure Management**
     We assess the river stability, areas prone to Scour and erosion and advise on suitable mitigation measures including bank protection work etc. We advise on inland waterways.

   - **Urban Drainage Infrastructure and Sustainable Drainage System (SuDS)**
     We assess the hydraulic performance of drainage systems using traditional 1D and newer 2D modelling techniques, as well as advanced risk-based methods. This requires experienced engineers and drainage modellers familiar

Dr. Bruce Tomlinson is the Chief Executive Officer of HR Wallingford since 2014. Before joining HR Wallingford, he was the Managing Director of a UK-based marine survey and consultancy firm, Fugro EMU.

With more than 25 years of experience in the maritime industry, he has extensive project management experience in the Oil & Gas sector, Bruce brings high-level strategic business experience to HR Wallingford, as well as a wealth of technical expertise in the International Marine, Environmental, and Energy sectors.

After having been privatised in the 1980s, HR Wallingford secured the Scientific Research Association status (SRA). Given this SRA status, and HR Wallingford's highly academic workforce, Bruce has a vision for the company which includes ensuring that its Research & Development programme delivers the innovative tools and skills needed to solve its customers' present and future global water-related challenges.

In Conversation

with tools such as InfoWorks ICM.

- Water Resource Management

2. Energy (Oil and Gas / Petrochemicals / Power / Renewable)

HR Wallingford has an enviable track record supporting the global oil and gas industry with a range of specialist planning, design and engineering services to progress developments at every stage of the project life cycle: site selection, concept development, FEED, EPC and production phases.

Our expertise and specialist services are applied during refining projects to support the design of

- Marine terminals for import/ export of feedstock/product
- Water supply and wastewater disposal system
- Cooling/warming water systems
- Pipelines
- Site protection and shore protection
- Thermal plume dispersion and recirculation studies
- Flood risk management, including site protection from inundation
- Extreme water levels, including cyclones and tsunami risk
- Numerical models of engineering hydraulics
- Physical model testing of pumping stations and marine structures
- Design and assessment of marine off-loading facilities
- Environmental Impact Assessment (EIA)

3. Environment

We can undertake Ecological modelling to assess the process of interaction between water flows, sediments, water quality and ecology that lie at the heart of ecosystems. We study Biodiversity and can advise on conservation. We also undertake an Environmental Impact Assessment (EIA) studies.

Q: HR Wallingford has been involved with port developers in India both public and private. What is your view vis-à-vis their global counterparts?

Ans: India is a maritime country with natural long shorelines. The potential for development of port infrastructure is not fully tapped in India yet, although the Government of India is extremely keen to build modern port based manufacturing and export infrastructure as well as coastal and inland waterways transport network.

At HR Wallingford Ltd., we have been working very closely with various port developers in India and globally. We feel that Indian Port developers should spend more time and efforts in the initial due diligence, site study including detailed hydrodynamic assessment of the conditions at the site in order to develop cost-effective and efficient port layouts, using the modern numerical and physical modelling techniques. This requires state of the art tools along with experts. HR Wallingford Ltd. has global experience in the field of Maritime ports development and we bring about substantial savings by carrying out efficient due diligence. Every Port site is unique and the success of a port depends on the selection of most optimum location and developing efficient layout after carefully considering hydrodynamic/ geotechnical and geophysical conditions at the site.

Our experience is that port developers in India are not as enthusiastic about these issues related to up-front investment in these due diligence studies as compared with their Global Counterparts but the costs savings can be substantial.

Q: According to you, what are the major lessons that the maritime sector in India needs to learn from global players?

Ans: As stated above, the devil lies in details and if sufficient resources are deployed in detailing at the early stage, one can avoid costly and irreversible mistakes and create cost-effective, efficient and profitable maritime infrastructure and operational practices.

Q: Do you see areas of opportunity for co-operation between the J M BAXI GROUP and HR Wallingford? How it will benefit overall maritime trade in India?

Ans: We see a huge opportunity for cooperation between JM BAXI Group and HR Wallingford. I am listing here below a few of these opportunities -

1. Port Sector

We can work with you at an early stage of development of port infrastructure and advise you on

- Optimum layout
- Minimise dredging
- Optimise breakwater layout using our engineering expertise coupled with numerical and physical modelling tools.
- Mooring
- Navigation simulation
- Environmental Impact Assessment

2. Renewable

We can assist you in offshore wind farm installations particularly on site selection, metocean studies and ground conditions.

3. Offshore and Waterways Logistics

We can work with BOXCO in risk assessment and optimisation of transportation of cargo on barges including navigation.

4. Working with TRAMIN

We can assist TRAMIN as technical due diligence partner while working with transaction advisory companies ■

Logistics

Moving The Movers

Almost everyone at some time or other has imagined 'driving' a railway engine. However, it takes some big beasts to move these prime movers when they are not moving under their own steam.

A diesel–electric locomotive is a sight to behold. Its magnificent power and the seeming pride with which it hauls wagons and coaches inspire awe. However, moving these giants, when they are not on rails under their own power, is a mighty serious business. These iron horses, effortless in pulling thousands of tons over thousands of kilometres on rails, are literally 'heavily' dependent on expert care and strong mechanical sinews to make them move even an inch on roads.

It is most satisfying, then, to report that one of India's leading technical consultancy companies, M/s RITES Ltd, reposed its faith in Boxco for the logistics and allied services for the transportation of ten of these mega transporters. Boxco then, with its reach stretching from the heartland of India to Chennai on the east coast of the Indian peninsula, is doing its bit in the progress of our country and also of Sri Lanka, the country that had purchased these giants, which literally 'move' economies in more ways than one.

M/s RITES Ltd is a major Government of India enterprise under the aegis of Indian Railways. It is internationally recognised as a leading consultant with operational experience in over 55 countries in Asia, Africa, Latin America and the Middle East. It is the sole export arm of Indian Railways for shipping rolling stock overseas. It is, therefore, a matter of real satisfaction for us to have received such a prestigious logistics contract from this transportation consultancy, which is also an expert in infrastructure and related technologies.

M/s RITES Ltd has entrusted Boxco with the transportation of ten high-powered diesel–electric locomotives. These were manufactured at the Diesel Locomotive Works (DLW), Varanasi. Boxco will transport them right from where they were built, up to and alongside the vessel at the seaport at Chennai, from where they are shipped to Sri Lanka.

Boxco was required not only to carry the locomotives across the length of the country, but also to gather together all the spares and other essential items that were sourced by M/s RITES Ltd from abroad and also locally from various places within India. The heavy movement across the roads

Logistics

was arranged by a robust back office infrastructure that stitched together the documents and corresponding movements in close coordination with the client.

Apart from the usual challenges in such logistics, consideration had to be given to the nature of the cargo, a fully built and complex machine. The requirement was also to manoeuvre the upper part of the locomotive onto its wheel bogies at the port of loading. The complete railroad-ready locomotive was then hoisted onto Boxco's transport for carriage alongside the ship for its final adieu to the country of its birth. We sincerely wish and trust that these worthy products of India will do our country proud with their impeccable service in Sri Lanka.

Out of the contracted ten locomotives, five have already been delivered and the remaining five will be moved in October and November 2019.

The loco uppers when assembled each weigh 80 MT, and their dimensions are 22.3 m (l) × 3.1 m (w) × 4.1 m (h). Each was placed on suitably designed trestles and carried on hydraulic axles. The loco bogies, two sets per loco, each weigh 21.5 MT, with dimensions 6.10 m (l) × 3.0 m (w) × 1.3 m (h).

They were transported from the works at Varanasi to Chennai Port, a distance of 2,370 km.

Each heavy haul was closely supervised 24 × 7 by Boxco's experienced and qualified personnel. Road traffic permissions, electric line shutdowns, railway line shutdowns, cargo security, port permissions, police permissions and other compliances were all obtained well in time.

The assembling of the spare parts, consumables etc. from other manufacturers was coordinated such that the shipment moved together, as a unit and as agreed by RITES Ltd with its clients, Sri Lanka Railways. Customs clearance was obtained just in time, in a fully compliant manner. The challenge of meeting the schedules while handling a disparate variety of loads from multiple destinations, plus the complex port handling involving the assembly of the upper part of the locomotive onto its bogies, which was then re-loaded onto waiting axles, has been completed without a hitch each time.

Now, when all those involved in this project see a locomotive rushing along the rails with its huge loads, we think about the planning, the coordination, the muscle and the nerve that went into placing that locomotive on the tracks. Heavy hauls are always purposeful and the state of an economy can, in some ways, be measured by the heavy hauls occurring. However, moving the movers is something that BOXCO's customs clearance, heavy lift, heavy haul, route survey and port handling teams will always be proud of ■

Technology

Entering The ERA Of - Drones

Drones are becoming the eyes and ears of scientists by surveying the ground for archaeological sites, signs of illegal hunting and crop damage, and even zipping inside hurricanes to study the wild storms.

Drones are also called unmanned aerial vehicles (UAVs) - These stealth crafts are becoming increasingly popular, not just for war and military purposes, but also for everything from wildlife and atmospheric research to disaster relief, sports photography and in the supply chain. Drones are becoming more and more popular for weddings, giving the couple a 360 view of their big day.

Most of us have seen the movie URI and can relate to the covert operations done by the Indian army to understand the ground forces of our enemy and plan the attack accordingly.

Recently consignments of arms and ammunitions were dropped in Chandigarh, just across the Indian border by heavy lift drones sent by ISI.

Drone technologies can be useful and very disastrous at the same time hence we need to have an anti-drone technology to counter these threats. DGCA and CISF are conducting trials to procure an anti-drone technology to combat these sudden threats.

Drones have had an interesting journey with widespread applications in various sectors. Focussing on the maritime space drones are extensively being tested for their applications in-

- Maritime security and surveillance
- Maritime search and rescue
- Autonomous cargo deliveries

APPLICATIONS OF DRONES IN PORTS

» In Vietnam, drones are being used in one of their ports for aerial cargo transport

» In Norway, drones are being used to monitor and clean up the local environment in one of the ports.

» In Israel, Aerobotics drones are supporting the construction of the country's largest port project at Haifa, with daily mapping and surveying.

» In Singapore, a new maritime drone estate will be launched to provide a conducive environment to test and develop applications for the sector, said Senior Minister of State for Transport Lam Pin Min.

» In the Netherlands, home to Europe's largest port, preparations are underway to use a large, unmanned flying vehicle capable of travelling well over 10 miles from the shore to detect emissions from ships.

DRONE MARKET SIZE

In a 2016 report, Goldman Sachs estimated that drone technologies will reach a total market size of $100 billion between 2016 and 2020. Though 70% of this figure would be linked to military activities, the commercial business represents the fastest growth opportunity, projected to reach $13 billion between 2016 and 2020.

GOVERNMENT REGULATIONS AND POLICIES

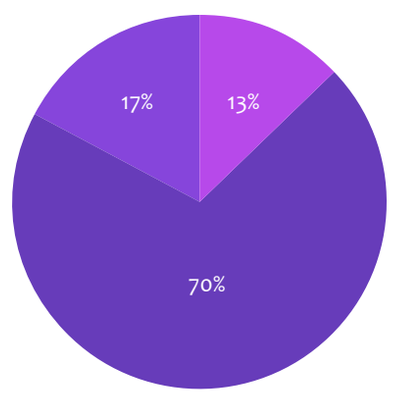
On August 27, 2018, the Ministry of Civil Aviation, Government of India, released the National Drone Policy, 1.0 and made flying drones in India legal. This landmark decision paved way for a wider application of drone technology in India.

While the new drone policy has stirred excitement in terms of new market opportunities and interesting use cases – reduction of human intervention in sectors such as aviation, gathering precise spatial data to enable city planning and administration. However, there is an altitude restriction of 400 feet in order to avoid low-flying manned aircraft and operations are limited to daytime flying only.

LOOKING AHEAD

India's Director General of Civil Aviation will soon be having a committee to start looking at opening a few restrictions on drone flying norms.

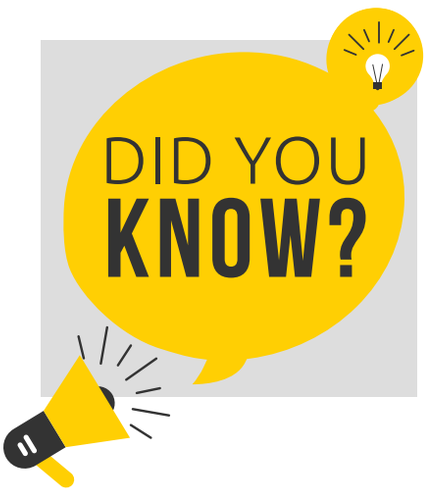
Until then, VLOS deployments should help India use drones to its advantage in the maritime sector and also provide an opportunity to identify safety and privacy elements that need due consideration in case India decides to opt for BVLOS operations in the future.



Drone Market By Sector

Technology

FUN FACTS ON DRONES



1. In May 2014, Francesso's Pizzeria in Mumbai became the first restaurant in India to have a margarita pizza delivered via a drone. Flying over the traditional delivery system made sense in a city known for its jammed roads and bustling residents.

2. Amazon is seriously considering the use of drones in its daily delivery; the Prime Air service is said to be able to deliver packages within 30 minutes via UAV's.

3. In remote areas, such as Africa, drones are used for the shipment of live-saving medical equipment and medication where human transport would be too time consuming.

4. Domino's are trialling drones for delivering the product as quickly and as hot as possible.

5. Drones are going to revolutionise the farming world. Drones will give farmers a view of their field including damaged crops and those ready to harvest ■

HISTORY OF DRONE

1849 — The Austrian Balloons

The earliest recorded use of UAV is August 22, 1849, when the Austrians attacked Venice using unmanned balloons loaded with explosives.

1915 — Battle of Neuve Chapelle

British military used aerial imagery to capture more than 1,500 sky view maps of the German trench fortifications in the region.

1916 — The First Major American UAVs

The first pilotless aircraft were built during WWI. Shortly after, small BiPlanes such as the Kettering Bug were built.

1930 — Aerial Torpedoes

The U.S. Navy began experimenting with radio controlled aircraft during the 1930s resulting in the Curtiss N2C-2 drone in 1937.

1941 — Reginald Denny and the Radioplane

In the early stage of WWII, the U.S. created the first remote controlled aircraft called the Radioplane OQ2. The first large-scale production, purpose-built drone was the product of Reginald Denny.

1973 — Mastiff UAV and IAA Scout

Israel developed the mastiff UAV and IAA Scout, both unpiloted surveillance machines.

1982 — Battlefield UAVs

The attitude towards UAVs, which were often seen as unreliable and expensive toys, changed dramatically with the Israeli Air Force's victory over the Syrian AirForce in 1982. Israel's coordinated use of UAVs alongside manned aircraft, allowed the state to quickly destroy dozens of Syrian aircraft with minimal losses.

1985 — Pioneer UAV Program

In the 1980s, U.S. military operations in Grenada, Lebanon, and Libya identified a need for an on-call, inexpensive, unmanned, over-the-horizon targeting, reconnaissance, and battle damage assessment (BDA) capability for local commanders. As a result, in July 1985, the Secretary of the Navy directed the expeditious acquisition of UAV systems for fleet operations using non developmental technology.

1986 — Reconnaissance Drone

A joint U.S. and Israeli project produced the RQ2 Pioneer a medium size reconnaissance drone.

1990 — Miniature and Micro UAVs

2000 — Predator Drone

The Predator drone was first deployed over Afghanistan to hunt for Osama Bin Laden

2014 — Drones for Delivery & Video

Amazon proposed using drones to deliver packages to customers. Real estate companies are also starting to use drones for promotional videos.

In Focus

Sea Cargo Manifest Trans-shipment Regulation 2018

To track the arrival of same-bottom cargo on ships at all Indian ports and for the safety and surveillance, Customs in India issued a notification (38/2018 Customs (NT)) dated 11 May 2018 through the Central Board of Indirect Taxation & Customs (CBIC). This stipulated norms for Sea Cargo Manifests and Trans-shipments and was to be implemented from 1 August 2018. However, implementation was deferred as it involved a major amendment to customs regulations and replacement of "Export Manifest Regulation, 1976" and "Transportation of Goods through Foreign Territory Regulation 1965". Eventually, since the Prime Minister's Office was deeply concerned about the risks to national security from the shipping trade and container shipping, another extension was not granted. The implementation date for the SCMT regulation 2018 was 1 August 2019. CBIC issued an amendment notification 54/2019 Customs (NT), calling the regulation the Sea Cargo Manifest and Trans-shipment (Amendment) Regulation 2019. As per the amendment notification of the regulations implemented on 1st August 2019, there was inclusion of the clause of transitional provision under which, first 45days trade was advised to follow the procedures as per the ice-gate 1.5 version system and in the next 45 days, new regulations system on trial parallel with 1.5 version system. The 90days time was given for completing the entity registrations, upgrading and implementing of systems software to be used for filling of arrival and departure cargo declaration compliant with the new regulations and the time line given was up to 1st November 2019, with a privileged to file IGM/EGM as per the 1.5 version of Ice gate.

It is envisaged that the SCMT regulation 2018 as amended will produce a revolutionary change to the entire maritime industry within India, as well as for business partners all over the world in terms of business processes, the interactions between importers and exporters, reporting timelines and data requirements. All stakeholders will use a common platform, which will reduce transaction times and costs for handling goods. The advance intimation of arrivals and departures, the risk assessment as per the manifest declaration and the identification of all commodities with unique identifiers will enable end-to-end tracking. Vessels will need to declare details of imports, exports, same-bottom cargo, all cargoes in the vessel, passengers, crew, the ship's store etc.

SCMT Regulations 2018

All Indian Entities representing Master of the vessel or Authorised Sea Carriers or Authorised Sea Agents, The person acting as IEC Holders, Authorised Tran shipper, Custodian & Terminal operator before transacting the business under the new regulation, shall have to be registered under the new regulations & have to be approved afresh, by the proper officer, The approval is completely on-line and faceless , The application needs to be submitted on-line through ice gate portal and upgrade their systems as per the guidelines given in the new regulations within the time frame. J. M. Baxi & Co. has already registered all their branch offices at the respective ports with the Customs and shall be SCMT compliant prior implementation.

The website for IceGate (https://www.icegate.gov.in/SeaManifestRegulation.html) has extensive information on how to register under the new regulation, on the user interface and on reporting cargo movements as well as technical guidelines and messaging guidelines

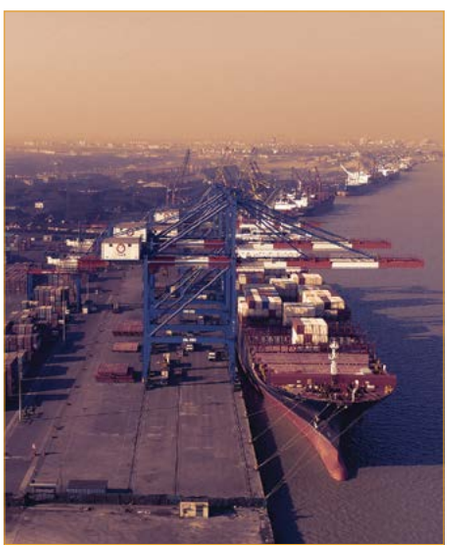
To comply with the SCMT regulations 2018, the following basic processes must be followed:

- For imports, appoint an agent well versed with the new SCMT guidelines, prior to the vessel sailing from the load port, and file an arrival manifest well in time.
- For imports, send the information listed in Table 1 to the agent prior to the vessel sailing from the load port. Ideally, this information should be in the bill of lading, which also needs to be sent.
- For exports, send the information listed in Table 1 to the shipping agent at the Indian load port to facilitate filing of the sea departure manifest (SDM) with customs.
- For transit cargo or same-bottom cargo, send the information listed in Table 1 to the agent.

In Focus

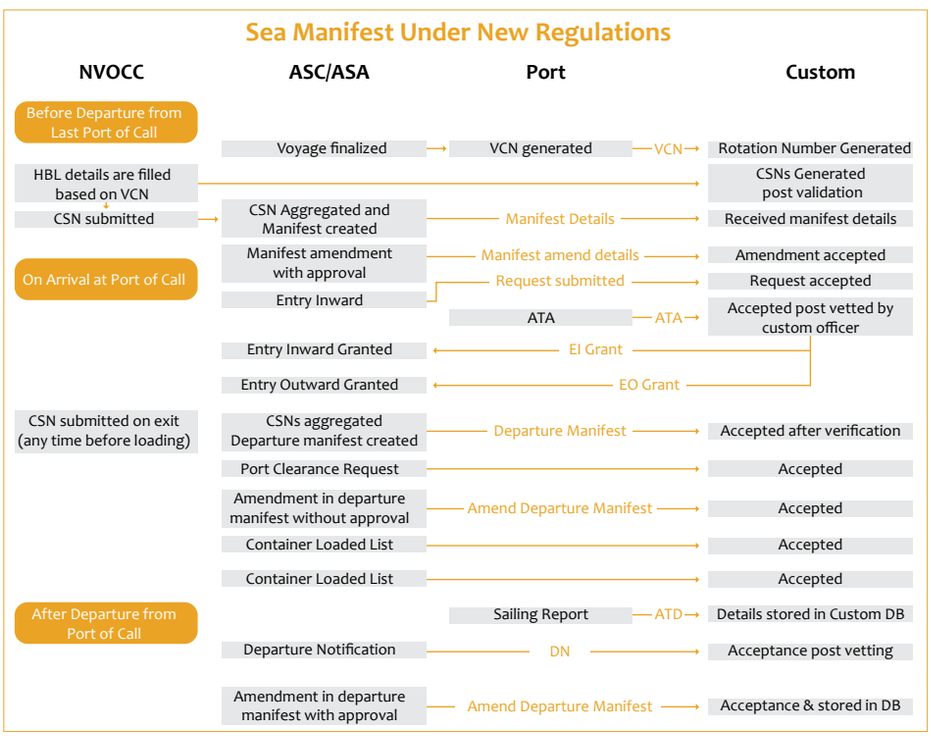
Table 1. Information required	
Information	Notes
Shipper	Name, full address and contact details
Consignee	Name, full address, Indian GST no. and Indian PAN no. If the consignee is an Indian bank or a foreign company, the GST and PAN no. are not required.
Notify party	Name, full address, contact details, Indian GST no. and Indian PAN no. The IEC code of Importer, issued by the Indian government is mandatory for Indian companies.
Cargo	Description and quantity
HS code of the cargo	Mandatory, 6 digits
UNO & IMDG Code	Mandatory for HAZ and DGR cargo
Invoice value and currency code	Mandatory for Import and Export. Matter has been taken up with concerned authorities if submission of Invoice value can be exempted.
Crew list with personal details as prescribed with codes	If there are any passengers on board
List of crew personal effects with codes	
Ships Store as prescribed with codes	
Passenger list along with visa details	

Imports: This information is required prior to the sailing of the vessel from her last port. Presently, we can amend the details until the entry inwards (i.e. prior to customs boarding). Filing the manifest beyond the stipulated deadline could incur a penalty. the manifest may be called as SAM-Sea Arrival Manifest, SAM have to be filed at customs/port location where vessel has arrived, before sailing of the vessel from last port of call.



Exports: Export documents have to be filed before sailing of the vessel from the port of arrival in India and may be referred as SDM(Sea Departure Manifest).

This implementation of SCMT 2018 by CBIC is expected to enhance the ease of doing business and facilitate trade. Going forward, as the maritime world moves towards using a single digital platform this would make trade in India comply with international norms ■



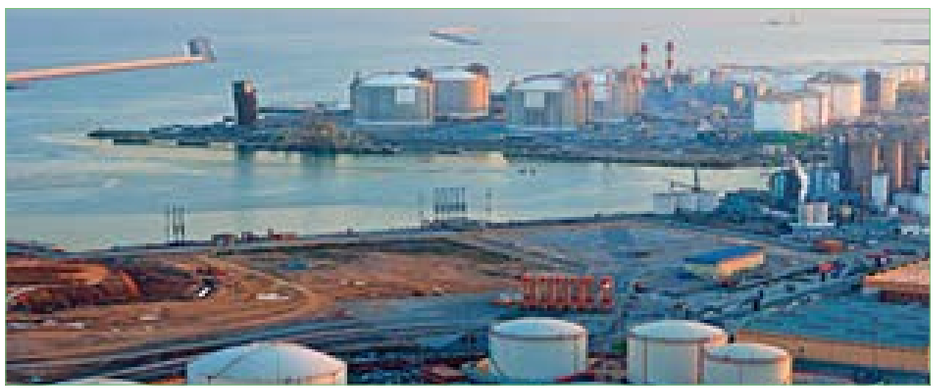
Weights & Measure

LNG Shipping Infrastructure In INDIA

India developing economy needs more Energy with every passing year and the country has seen a steady growth in overall energy production in the recent past. In terms of source of energy, India relies heavily on Fossil fuels and when it comes to Electricity, 56% of total Electricity produced comes from Coal as against an international average of 27%. India has been a late starter in using Natural Gas as a source of Energy and presently only 6.2% of its total energy is derived from Natural Gas as against an international average of 24%. High reliance on Coal has put India as one of the biggest contributors to Global warming and Environment Pollution and there is a huge pressure on the government to curb the same.

India has made a commitment in the Paris Agreement 2015 to reduce the Carbon Emissions Intensity by one-third and has agreed to achieve this by increasing the share of renewals in it's energy mix from 6.2% now to 15% by 2022 and 40% by 2030. This is a very ambitious target and Natural Gas and Solar power are going to be the biggest contributors in achieving the same.

Already we are witnessing increasing consumption of Natural gas in the country and despite increase in domestic production, imports of Liquefied Natural Gas (LNG) has been on a rise. India imported 22 mmt of LNG in 2018, making it the fourth largest importer in the world after Japan, China and South Korea. Almost 50% of total gas consumption in India is by the Power plants followed by Fertilizer plants which consume 18~20% of the Gas. Consumption by Industrial units and City Gas distribution remain very low at less than 8% each and this is the segment which is going to witness maximum increase in demand for Gas.



The Indian Government has plans to connect 10 million households with piped gas by end of 2020 from the current 4.8 million households. There have been many rounds of bidding for various geographic areas with the latest 10th round bidding happening in 2018 giving out licences to companies for setting up distribution network and supplying Natural Gas in many districts. Overall Billions of Dollars have been committed in total and once implemented almost 70% of the country would be geographically covered with Piped Gas for Domestic use.

Rise in consumption of Natural Gas would require enhancing the entire logistics chain and already the country has been witnessing lots of activity in setting up new LNG terminals and in Pipelines. India presently has five LNG terminals with a capacity of receiving 37 mmt and another one is expected to be commissioned soon. By the end of 2019, India is expected to have installed capacity to receive 42 mmt of LNG. The existing terminals and the ones under construction are as under:

Existing Terminals:

Sr No.	Port	Capacity (mmtpa)
1	Dahej	17.5
2	Hazira	5.0
3	Dabhol	5.0
4	Cochin	5.0
5	Ennore	5.0
Total		**37.5**

Dahej in Gujarat was India's first LNG terminal commissioned in the year 2004 with 5 mmt capacity. Owned by the largest LNG importing company in India, Petronet LNG Ltd, this terminal has continuously been adding capacity with the latest addition happening in 2019. Presently the terminal has capacity to handle 17.5 mmt LNG per annum. This terminal has committed volumes of 7.5 mmtpa from Qatar and gets balance cargo from spot fixtures, making it handle almost 80% of total Gas imports into India.

The Hazira terminal is operated by Royal Dutch Shell and it has always been catering to spot fixtures bringing in Gas for the industrialised regions of Gujarat ■

(To be Continued in issue XXVIII)

Port Statistics

SHIPPING & CARGO PERFORMANCE

QUARTERLY UPDATES ON INDIAN MAJOR & MINOR PORTS (QTY IN MILLION TONNES)
APRIL - JUNE 2019 (I[st] QUARTER) 2019 - 2020 / APRIL - JUNE 2018 (I[st] QUARTER) 2018 - 2019 (QTY IN MT)

AGRICULTURAL PRODUCTS

	SUGAR		SOYAMEAL		WHEAT		RICE		MAIZE	
	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18
No. of Ships called	42	15	9	7	0	0	30	30	1	3
Total Cargo Handled	1.242	0.536	0.257	0.209	0.000	0.000	0.471	0.550	0.033	0.054
Import	0.132	0.390	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Export	1.100	0.146	0.193	0.209	0.000	0.000	0.471	0.550	0.033	0.054

FINISHED FERTILIZERS & FERTILIZER RAW MATERIALS

	UREA		SULPHUR		ROCK PHOSPHATE		DAP		MOP	
	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18
No. of Ships called	37	51	6	15	40	48	47	44.00	42	36
Total Cargo Handled	1.419	2.126	0.187	0.348	1.489	2.111	2.136	2.030	1.308	1.062
Import	1.419	2.126	0.043	0.152	1.489	2.111	2.131	2.010	1.308	1.062
Export	0.000	0.000	0.144	0.152	0.000	0.000	0.005	0.020	0.000	0.000

COAL

	THERMAL COAL		COKING COAL		MET COKE		PET COKE		ANTHRACITE COAL	
	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18
No. of Ships called	208	299	240	248	31	35	75	44	13	13
Total Cargo Handled	11.667	16.309	12.882	10.917	0.829	0.765	3.649	1.752	0.528	0.281
Import	4.058	6.951	12.763	10.650	0.797	0.753	3.443	1.582	0.475	0.244
Export	7.609	9.358	0.119	0.267	0.032	0.012	0.206	0.170	0.052	0.037

STEEL & RELATED ORES

	STEEL PRODUCTS		SCRAP METAL		CHROME		MAGNESIUM ORE		IRON ORE	
	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18
No. of Ships called	269	326	4	5	0	0	30	24	395	236
Total Cargo Handled	3.176	3.39	0.142	0.204	0.000	0.000	0.621	0.650	21.317	16.508
Import	1.920	2.139	0.142	0.204	0.000	0.000	0.594	0.650	6.392	7.418
Export	1.256	1.251	0.000	0.000	0.000	0.000	0.027	0.000	14.925	9.090

INDIAN PORT PERFORMANCE - Q1 & FY 2018 - 19 THROUGHPUT (QTY IN MILLION TONNES)

APRIL - JUNE 2019 (I[st] QUARTER) 2019 - 2020 / APRIL - JUNE 2018 (I[st] QUARTER) 2018 - 2019 (QTY IN MT)

Ports	Types of Ports	NO. OF SHIPS		LIQUID CARGO		BULK CARGO		CONTAINERS (TEUS)		TOTAL CARGO *	
		I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18	I[st] Qtr'19	I[st] Qtr'18
Kandla	■	620	415	4.034	3.272	5.800	4.286	117,306.00	56,252	9.834	7.581
Mumbai	■	458	476	7.046	7.374	1.246	1.670	0.00	0.00	8.292	11.101
Nhava Sheva	■	188	189	1.826	1.812	0.281	0.284	1,290,696	1,241,118	2.108	2.070
Mormugao	■	174	150	0.251	0.238	1.495	5.330	0.00	0.00	1.745	5.568
Mangalore	■	346	329	5.135	6.197	1.929	4.005	0.00	0.00	7.064	10.135
Cochin	■	177	174	5.894	5.624	0.503	0.327	151,929.00	139,142	6.397	6.111
Tuticorin	■	177	181	0.522	0.387	0.959	4.361	200,680.00	183,252	1.480	4.748
Chennai	■	217	233	4.709	3.979	1.109	1.612	371,587.00	411,919	5.818	5.459
Ennore	■	158	232	1.081	1.304	0.162	8.847	38,659.00	0.00	1.243	8.967
Vishakhapatnam	■	536	377	4.970	4.094	6.716	9.337	126,545.00	112,026	11.686	13.067
Paradip	■	535	518	9.696	9.491	8.570	18.869	0.00	0.00	18.266	18.985
Haldia	■	561	522	3.396	3.378	2.401	6.448	43,591.00	41,590	5.797	9.799
Kolkata	■	22	22	0.024	0.007	0.001	0.015	163,203.00	157,376	0.025	0.234
Gangavaram	■	111	69	0.000	0.000	2.665	3.839	0.00	0.00	2.665	3.794
Pipavav	■	125	124	0.193	0.158	1.796	1.919	220,906.00	195,298	1.990	2.077
Mundra	■	612	678	6.965	6.891	3.072	8.368	1,188,617.00	1,152,804	10.036	15.470
Dahej	■	191	205	6.416	6.185	0.952	2.972	0.00	0.00	7.367	9.152
Hazira	■	133	146	5.595	0.638	0.713	3.096	138,466.00	130,949	6.308	3.765
Navlakhi	■	49	69	0.000	0.000	0.330	3.383	0.00	0.00	0.330	3.383
Kakinada	■	201	204	0.738	0.733	1.930	2.809	4,407.00	0.00	2.667	3.542
Total Vessel Calls at all ports		**5591**	**5313**	**68.491**	**61.762**	**42.63**	**91.777**	**4,056,592**	**3,821,726**	**111.118**	**145.008**

■ Major Port ■ Non-Major Port

* Total Cargo Includes Liquid Cargo , Bulk Cargo and Other Cargoes and Excludes Containers

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