

J. M. BAXI GROUP

TIDINGS

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From the Quarter Deck

Dear Friends and Colleagues, We wish you a happy, successful and peaceful 2018. If we were to look back and summarise 2017, which seems to have just whizzed by, it has been a subdued and a flat period. Commodity prices have been range-bound, and ship costs and shipping rates have been range-bound bordering on more negative than positive. Cargo volumes have been flat.

Let us begin 2018 on a brighter note, as 2018 is the 102nd year of J. M. Baxi & Co. Cargo volumes at Indian ports have shown healthy growth during 2017 of almost 6%, and in 2018, that growth is expected to continue, if not accelerate. With the type of strict overview that is now becoming the norm (better late than never), well-managed companies such as ours and several others will see a more sensible environment, and they will strengthen the maritime infrastructure and logistics landscape of India.

In this inaugural issue for 2018 of "From the Quarter Deck", we would like to change a bit from looking at the past and the present to looking to the future. Let's crystal gaze a bit! We are increasingly observing and participating in incredible developments. Today, our cars are actually computers on wheels. Today, our phones are not only phones but also devices for accessing information and for hobbies and entertainment, which is both proactive and reactive, and in many cases predictive. Today, shopping is much more online than through bricks-and-mortar stores and purchase choices are increasingly being assisted by artificial intelligence. Medical and legal consultations occur via sophisticated programs and giant databases. Data-mining and the analysis of these databases happen with precision and speed. Production systems are increasingly becoming robotised and the robots are getting artificial intelligence. Warehousing

is increasingly becoming smart and intelligent. Even more amazingly, smart cities are actually happening. Along with these dynamic developments, the major challenges facing humankind are going to be pollution control, freshwater scarcity, food conservation and food security. What does all this mean for our company, our industry and our country? Let me talk about three specific areas.

1 Autonomous electric vehicles

We will increasingly see electric vehicles that are autonomous and driverless. Such vehicles will service our terminals, whether they are inland or port-based, and they will make journeys of 50 to 100 km between the hinterland and factory premises. Journey times will be utilised to complete the entire gamut of documentation while embedded scanning equipment carries out the physical verification. The gate-in formalities will be electronic and bills of lading for delivery orders will be transmitted instantly. And wait, it is also expected that ships will increasingly become autonomous, as has been reported in the press on behalf of Rolls-Royce and Wärtsilä.

2 E-governance and e-management

Logistics and transportation are best defined as several tasks and functions happening together to produce a singular result, i.e. the delivery! Bringing all those tasks together on a single digital platform will be the key to success in any economy in the world. Embedding such a platform with the necessary intelligence, computing power and speed is a challenge as well as an opportunity. Using a single touchscreen on a smartphone or maybe even voice-assisted instructions, a shipper or consignee will be able to arrange an entire shipment with the shipping company, the customs house agent, the port, the railways, the road transporter, the banker, the custom authorities etc.



3 River and coastal transportation

The total length of our nation's coastline and rivers is almost 15,000 km. This creates a new transport corridor of almost 15,000 km. Transport by water cuts costs and pollution. This form of transport also provides new connectivity for various under-connected areas, especially India's landlocked states. Needless to mention, this applies to both cargo as well as passengers. With the development of coastal and river corridors, the opportunity for our industry will mean almost a complete replication of what we are seeing today, both in terms of infrastructure as well as opportunities.

All of you would undoubtedly join me in feeling gratified that our company is already involved in all three of these areas of future development. Increasingly, we are encouraging our terminals and transport divisions to do whatever is necessary to become autonomous and intelligent. Our digital platform PORTALL is being rapidly developed and with the enhanced data in our systems, it is also acquiring the necessary artificial intelligence. For coastal and river transportation, various of our joint teams are putting together blueprints, which may well be our map into the future. It is actually an exciting time, and especially so for 2018.

Wishing each and every one of you and your families a great 2018 ahead! ■

Krishna B. Kotak
Chairman - J M BAXI GROUP

Agency & Services

LNG Sector In INDIA

India is the 4th largest importer of LNG in the world with imports of about 22 MMT last year. Owing to continual growth in economy and rising concern on using cleaner source of energy has led to the gradual increase in share of natural gas in the energy mix of India. It is expected to increase from 8.5% now to 20% in 2025. A number of new infrastructure e.g. regasification terminals and natural gas pipeline are being developed in various parts of the country, which would strengthen the development of LNG market in India. India presently has regasification capacity of 30 mmtpa, which is expected to go up to 55 mmtpa by 2025. Similarly, India’s gas transmission pipeline of 16,200 km is also witnessing huge capacity augmentation and is expected to reach around 27,430 km by the year 2025. It is likely that India would be the third largest importer of LNG in the world in the next five years.

Demand/ Supply Dynamics

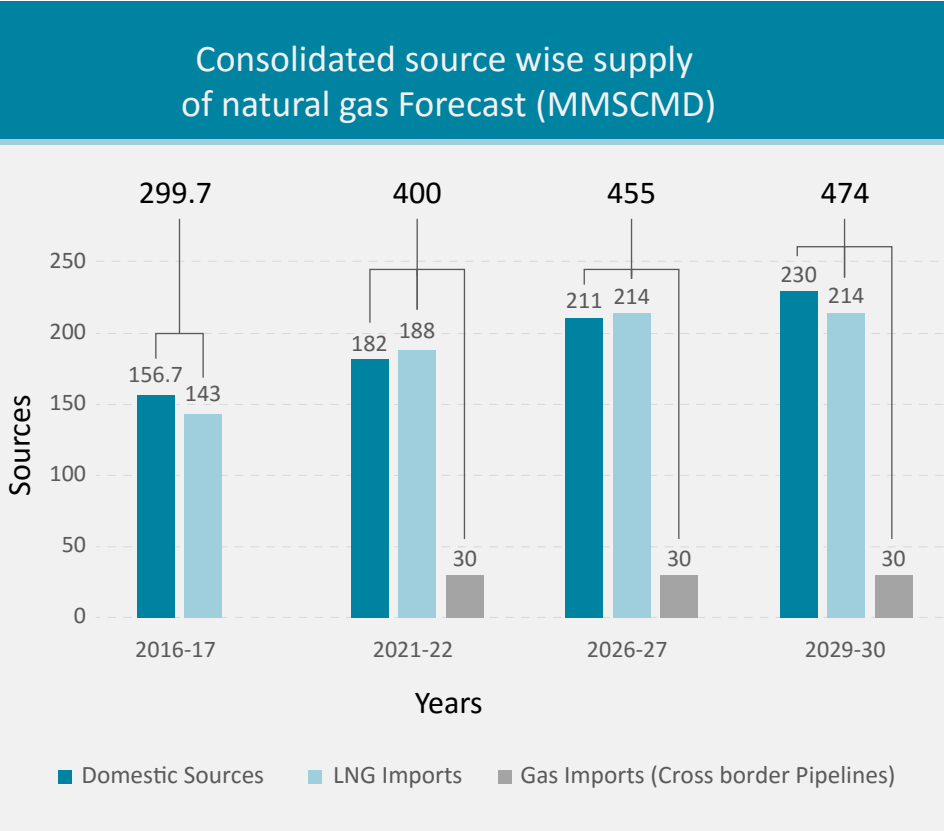
In recent years the demand for natural gas in India has increased significantly due to its higher availability, development of transmission and distribution infrastructure, the savings from the usage of natural gas in place of alternate fuels, the environment friendly characteristics of natural gas as a fuel and the overall favorable economics of supplying gas at reasonable prices to end consumers. Power and Fertilizer sector remain the two biggest contributors to natural gas demand in India and continue to account for more than 75% of gas consumption. Balance 25% is consumed by the Petrochem and other industries, and city distribution for vehicles and domestic consumption.

Supply of Gas into India is forecast to grow as under :

At present, natural gas markets remain mostly limited to the states where gas sources have been found or in states closer to pipeline infrastructure. Geographically Western and Northern India have the highest consumption due to better pipeline connectivity. There is increasing impetus in laying a national grid for gas pipelines and with increasing coverage and reach of pipelines, this regional imbalance is expected to get corrected.

Imports of LNG

Currently the natural gas demand far exceeds domestic supply in India and the situation is likely to prevailing future as well. Given that there are very few new domestic sources available, additional demand is likely to be catered through Re-Gasified Liquefied Natural Gas (R-LNG) in future. India’s increasing appetite for LNG has spawned a dozen plans for import terminals across the west and east coasts of the country. The ramp-up of existing facilities and Construction of new LNG terminals could theoretically more than triple current capacity to over 80mtpa of regasified LNG over the next 10 years. Below are the existing Operational R-LNG Terminals capacity of India.



Location	Owner	Terminals Capacity (MMTPA)
Dahej	PLL	15
Hazira	Hazira LNG	7.5
Kochi	PLL	5
Dhabol	GAIL	5
Total Existing Capacity (MMTPA)		32.5



Agency & Services

LNG Sourcing

While the Middle East, in particular Qatar, was the sole supplier of LNG to India till 2004 and remains the largest LNG supplier at present, the range of suppliers is becoming increasingly diverse. India started diversifying its supply portfolio from 2006 onwards and imported LNG from many other countries including Algeria, Nigeria, Yemen, Australia, Trinidad and Tobago, Russia, UAE, Norway, Indonesia and Oman. India is looking at diversifying its long term supply portfolio as well and Australia and US are likely to emerge as key LNG exporters.

Currently, LNG is imported in India through mix of long term, short-term and spot basis. An important factor in the future viability of planned import projects is India's ability to secure long-term LNG contracts at competitive prices. Current long-term contracted volumes fall way short of the potential growth in LNG demand forecast by numerous sources with newly-signed contracts pointing towards only an incremental increase.

Earlier the Indian market was unable to commit to short-term contacts (up to two years) and spot purchases as the country lacked adequate gas infrastructure. However, short-term and spot market accounted for most of the increased LNG supply in the two years given that only 7.5 mtpa of LNG import is through long term contracts. While India remains one of the most price



LIQUEFIED NATURAL GAS (LNG) SHIP

sensitive markets for LNG in Asia, short-term demand is not solely determined by the level of spot LNG prices. Competition from competing fuels, the price of contractual LNG and terminal constraints can play a role in tempering the level of spot imports. In an uncertain crude price environment, buyers may also favour an alternative balance between pure spot trades and structured contracts as part of the overall short-term mix in the near term.

India will remain sensitive to the price movements in the global LNG market with buyers switching to coal from gas for power generation with reasonable flexibility. Hence we can conclude that going forward, the industry is likely to see an increased trend of procuring LNG through

midterm and short-term contracts as these will be negotiated at rates cheaper than spot prices.

Way Forward

While India is emerging as major LNG market of future with all round development in LNG terminals, gas pipelines to attain desired sustainable growth, a comprehensive approach which can meet suppliers expectation on one side and meet consumers price expectation on other side needs to be firmed up. India would also need to take strategic decisions like upstream participation in integrated liquefaction projects, tax efficient structures, and a consumer friendly regulatory environment to make this dream a reality ■

Long Term Contracts

Company	Date Signed	Source	Location	Supply(MTPA)	Period	Start Date
GAIL	2011	Cheniere Energy	US	3.5	20	2017
	2013	Dominion	US	2.3	20	2018
	2012	Gazprom	Russia	2.5	20	2019
PETRONET	2009	Exxon Mobil	Australia	1.4	20	2016
	1999/2004	Rasgas	Qatar	7.5	25	2004
GSPC	2013	BG Group	BG Group	1.25-2.5	20	2015

Agency & Services

Changing Face Of Container Shipping – Sisyphus In The Making

There is no better alternative mode of transporting massive quantities of semi-finished and finished goods than container shipping across continents or within the region; even the launch of more freight train services or road network is unlikely to supplant transcontinental container shipping services.

Carriers were prone to financial pressures in 2016/2017, which proved to be a tumultuous period for the global shipping industry, with freight rates dipping to their lowest levels since 2009, there were announcements of Mergers, Acquisition, new alliances, closures and bankruptcies. Events like Brexit, new US administration policies, the blockade of Qatar which threaten to inject even more uncertainty into the future of global trade. Carriers that weather this storm will have an arduous task ahead of them, but to overpower the situation, carriers must build a business strategy with clearly defined focus on customer, route profitability, reduction in operating costs, fleet rationalization without being lost in the fast evolving technological advancement.

Ocean freight rates increased in 2017 due to consolidation, increase in bunker prices and regulated capacity growth, which also saw an increase in global container port throughput by 6.7 percent.

It has to be noted here that with the perpetual increase in operating cost, many firms are finding solace in Merger and Acquisition, whereas fleet regularization had also helped in raising industry concentration, empowering lines to better manage



deployed capacity and preventing free-falling of freight.

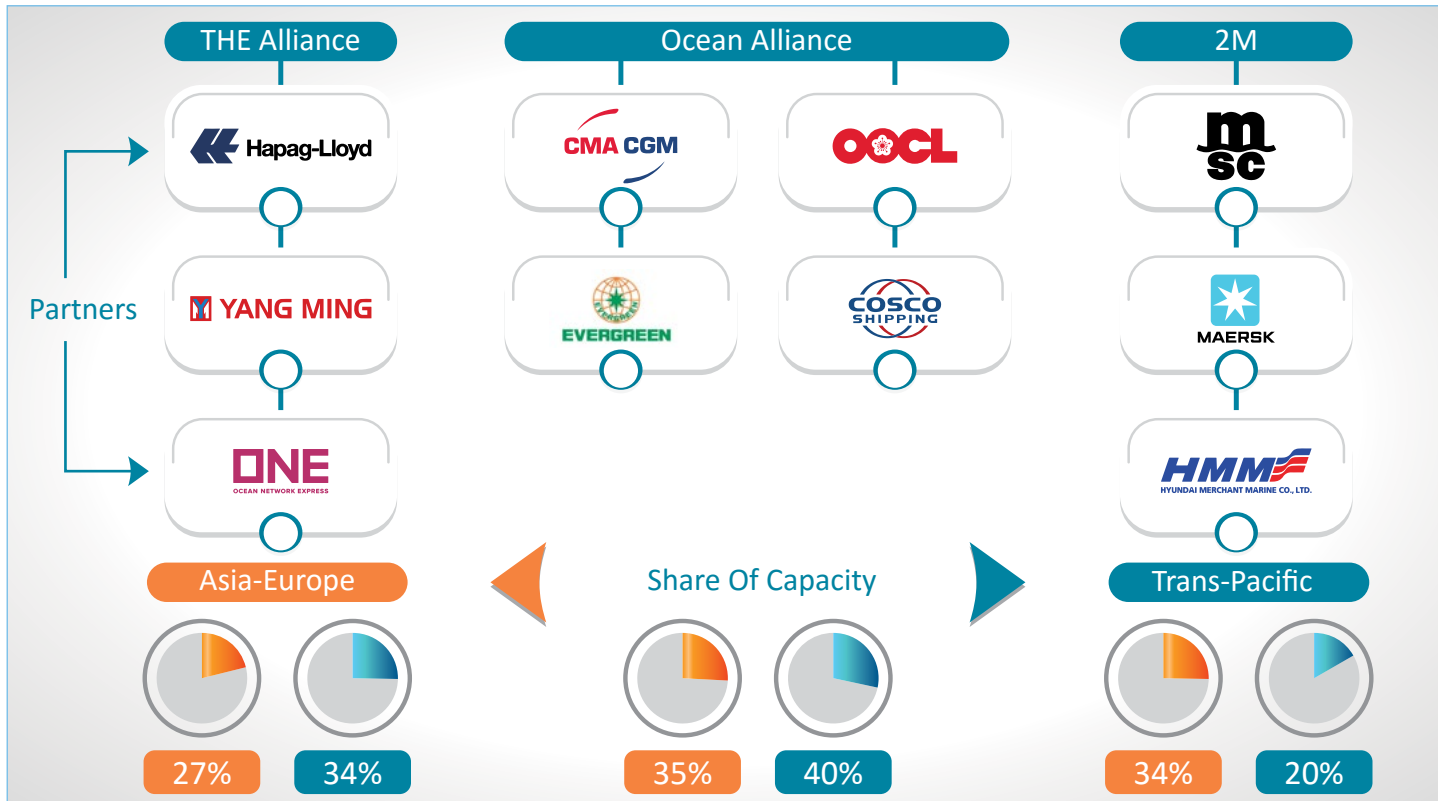
Fortunately, the pace of M&A activity accelerated at the end of 2016 through 2017, carriers that have not been involved in a merger or acquisition are persistently rumored to be the next to do a deal and these consolidation will likely continue with smaller player falling prey, until there will only be 10 carriers in 2021.

We must also remark that the recent slew of M&A activities had helped

increase the industry concentration, that will help improve the liners' ability to better manage actual deployed capacity going forward, thereby reducing the probability of free-falling freight rates and gradually driving freight rate recovery.

While, the top five liners traditionally controlled about 55% of capacity most of the capacity are now being controlled by the new alliances formed in 2017.

Agency & Services



Intra-Far East and Intra-Europe trade lanes are dominated by 1,000-1,999 TEU size vessels and Europe-North America and Oceania related trade lanes are dominated by 4,000-5,099 TEUs vessels, due to which, 27% of the global idle vessels are in the range of 3,000 to 4,000 TEUs in size which are too small for the larger trade lanes and too big for the shorter sea trades, which is especially true after widening of the Panama Canal.

The current charter rates for 4,000 TEUs vessels are 36% lower than the rates for 1,700 TEUs vessels (source: Alphaliner). If these ships cannot find employment and are scrapped earlier than their useful lives, it would help restore the industry demand and supply balance much more quickly. The smaller displaced ships are likely to cascade into the other route regions where infrastructure is not a constraint.

Meanwhile in India . . .

The Union Cabinet having approved to replace the 'Major Port Trusts Act,

1963' by the 'Major Port Authorities Bill, 2016', will empower major ports to perform with greater efficiency by having full autonomy in decision making and by modernising the institutional structure of major ports, this should also help with meeting the set target capacity of 3,130 MMT by 2020, which would be driven by participation from the private sector.

With other new development under Sagarmala Programme, wherein, the government has envisioned a total of 189 projects for modernisation of ports involving an investment of Rs 1.42 trillion (US\$ 22 billion by the year 2035) and the DPD scheme, which allows importers/consignees to take delivery of the containers directly from the port terminals which reduces the clearance time to 48 hours against an average of seven days at present, will all contribute to the improvement of infrastructure and process that will help in improving the container volume (International & Domestic) through the ports.

Trade statistics reveal that the Indian

terminals have been growing at an average of 7% Year on Year, which is in line with the global throughput increase of 6%, which combined with the increase in average vessel size calling at Indian ports increasing to 5,500 Teus (excludes feeder and coastal services), with the JNPT average vessel call size reaching 6,000 Teus and Mundra averaging ships of 6500 TEUs. There is constant pressure on the terminals in India to focus infrastructure improvement and automation.

Increasing investments and cargo traffic point towards a healthy outlook for the Indian ports sector and the upscale of existing ship capacity to bigger ones, the continuous Mergers & Acquisitions of the lines, with the expected increase in freight rates, is expected to contribute to a better shipping environment globally and in India. However, what this year holds for the Global and Indian shipping trade is yet to be seen, as the famous saying goes **"THE TRUTH IS OUT THERE"** ■

Agency & Services

GOI Initiative For Enablement Of Cruise Shipping

The Government of India (GOI) has recognized in recent times the potential of giving a substantial boost to the tourism sector by promoting cruise tourism in the country. Tourism is one of the sectors that already makes a huge contribution to the gross domestic product and foreign exchange earnings. According to GOI, India has the potential in the near future to host almost 1000 cruise ship calls per year as compared to 150–160 cruise ship calls per year at present.

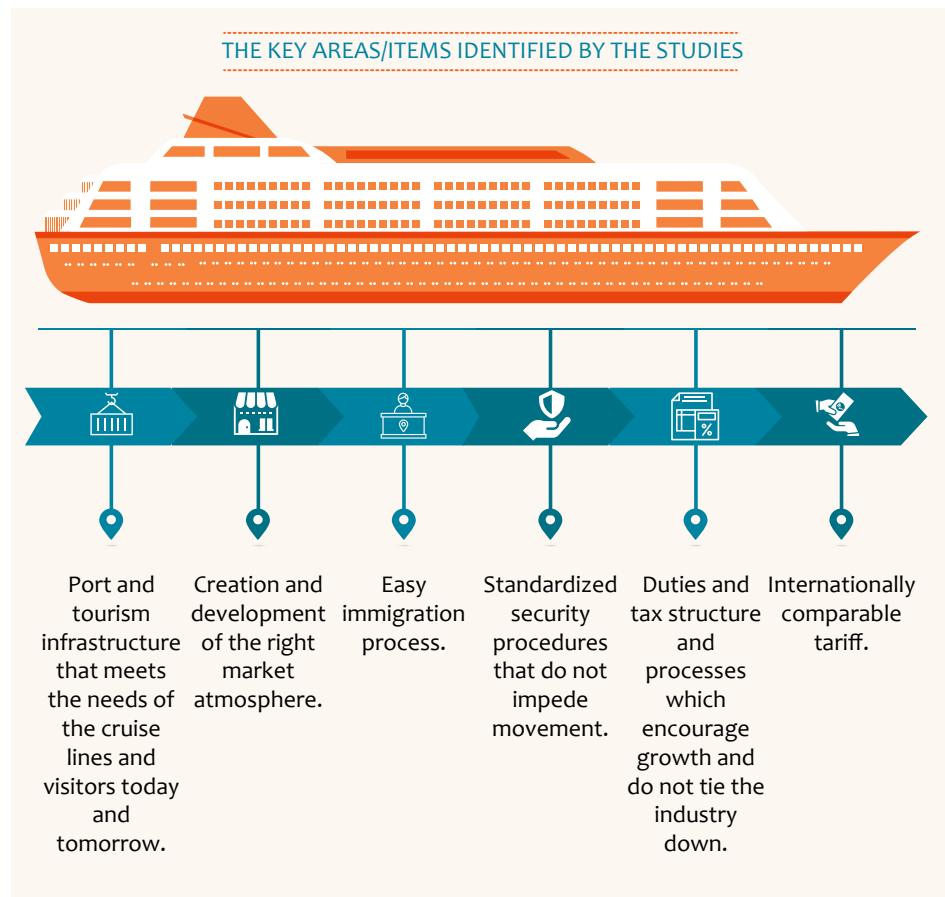
In order to achieve this, in August 2017 the GOI released three reports – “Road map for sea cruise tourism”, “Mumbai port sop for cruise operations” and “Cruise terminals in India”.

A task force was also formed in 2015 by the GOI to conduct a study involving inputs and feedback from all concerned stakeholders – carriers, port administrations, immigration, customs, port health authorities, security agencies, ship agents, travel and tourism agents, transportation providers.



New infrastructure is being created at Mumbai at a reported cost of Rs. 300 crore. There are plans to develop similar upgrading of infrastructure at the 5 ports of Mumbai, M’goa, New Mangalore, Cochin and Chennai. Similar facility creation is also planned at other port destinations.

The basic objective is to create terminal facilities comparable with international standards at all port locations dedicated to cruise ship,



so that the facilities are capable of interfacing with benchmarks of services and processes required for providing a ‘wow’ experience to passengers embarking/disembarking. They include some of the following: the isolation of the main access points (gates) of the cruise area of the port - to the cruise terminal - including the vessel - as well as the waterfront, where the cruise vessel is berthed from other cargo vessels and their work, dedicated entry/exit gate for passenger movement, dedicated approach road to cruise terminal, adequate barricades/stanchions for deployment and guidance of passengers, clear signage boards, parking space for vehicles near the terminal, availability of prepaid taxi counters, segregation/

demarcation of berthing area, computer systems with appropriate software for passenger handling, scanning facilities (x-bis), conveyor belts, baggage loading and collecting points, dfmds, hhmds and evds, barcode readers to cross-check e-landing cards, utility services like washrooms, souvenir shops, coffee shops, eateries, bank exchange counters and duty-free outlets (on a daily rental basis during the cruise season) inside the terminal for passengers and on similar lines outside the terminal for drivers/conductors/guides/agents, effective pass system for travel/tour operators, agents, guides, buses and other vehicles with clear-cut validity for the cruise season ■

(to be continued in issue XXI)

Logistics

BOXCO Deftly Handles Project Cargo

Boxco Logistics, along with its consortium partner Deugro, was selected to provide total logistics solutions for setting up Nuclear Power Corporation of India Limited (NPCIL) Kudankulam Nuclear Power Plant Unit III and IV.

The project entails ocean freight from multiple nations and ports in Asia and Europe, inland transportation and handling of Over Dimensional Cargo (ODC) heavy-lift, Overweight Cargo (OWC), general/breakbulk cargo by road and barge; handling, clearing and transporting air cargo and containerized cargo; customs clearance, warehousing and store management, inter-carting, port handling; surveying, designing, modelling, construction and maintenance of jetty, breakwater and other associated structures.

There was barely any time to celebrate, as the notification for the first shipment was received within a few days of the receipt of the purchase order from NPCIL. The preparations for the first shipment got into full swing. The supplier of the equipment, JSC Atomstroyexport (ASE) and their forwarder in the Russian Federation ensured that the cargo reached the port of St. Petersburg from various manufacturing facilities and works in time. The shipment consisted of 687 packages, included 2 girder bridges, each of 42m in length. Due to its delicate nature, the majority of the cargo for the NPP is non-stackable which requires huge vessels with multiple decks. Due to the urgency of the shipments and the costs involved it becomes quite difficult finding the appropriate vessel, keeping in mind the peculiar nature of each different shipment. The vessel selected for the

1st shipment was MV Donald which is a heavy-lift vessel bearing the Liberian flag. The vessel, a part of the United Heavy Lift (UHL) fleet, was equipped with on-board gear having a total handling capacity of 480 MT at 11m.

An administrative office was set up at Kudankulam and Tuticorin, and 53 personnel are deployed to oversee warehousing, handling, preservation, intercarting, and liaisoning with site officials. From Tuticorin Port, the cargo would be moved to the site through barges and via a road route. Equipment, including heavy-duty cranes, forklifts, hydras, hydraulic axles etc., were mobilized to the site and Tuticorin Port from multiple locations. While all this was happening in India, MV Donald had anchored in St. Petersburg to move the first shipment. According to the planned loading sequence and stowage, it took us around 7 days to finish the loading. The loading commenced on time, and then the vessel set sail for Tuticorin with an ETA of 30 days. Cruising at an average speed of around 11 nautical miles/hour the vessel reached Tuticorin on 22nd October in a record time of 30 days after passing through the Kiel Canal and the Suez Canal. After a delay of 3 days in berthing due to congestion at port, the ship finally berthed and the unloading

commenced in a systematic manner. Owing to the expert planning of our project managers, we were able to cruise smoothly without any hiccups. The discharge was also completed well within the contractual milestone. A combination of trailers consisting of highbed trailers, lowbed trailers, semi-lowbed and hydraulic axles were used to shift the cargo to site within 18 days. Boxco is also undertaking the challenging task of jetty construction at Unit 3 and 4. The jetty would be well-protected by breakwaters totalling more than 1000m, leaving the inner waters calm and easily navigable for tugs and barges. The civil work for the same is being undertaken at break-neck speed to complete the construction much before the scheduled date.

As this article is penned, the second vessel MV Xing Fu Song has reached Tuticorin with the second shipment and is in the process of discharging its cargo. The second shipment presented a different set of challenges with its unique type of voluminous cargo.

Since its inception in the early 1980s our Heavy-Lift and Project Cargo Division has contributed, one project at a time, to India's growth story and nation building ■



GIRDER BRIDGE BEING HANDLED AT ST. PETERSBURG PORT



Logistics

Pioneer In End-To-End EXIM Cold Chain Logistics In INDIA

In July 2016 the J M BAXI GROUP moved live reefer containers by Rail for the first time in North India, from Mundra to its ICD Delhi International Cargo Terminal at Sonipat, creating history in the Cold Chain Logistics.

To further improve upon the Cold Supply Chain, Boxco Logistics (the groups' Logistics vertical) erected and commissioned a state-of-the-art temperature controlled warehouse in Oct 2017, with a capacity of 8000 pallets at Sonipat next to DICT in an alliance with Coldman Logistics. Today JMB GROUP has capacity to move regular reefer rake loads from locations like Mundra, Pipavav and Nhava Sheva, providing a multi-modal end-to-end EXIM Cold Chain service.

INDUSTRY OVERVIEW

It is estimated that in India about 40% of the food produced gets wasted even before it reaches your plate. It is well articulated by the journey of rice in India: of every 10 grains, 6 never reach a home, due to poor transportation, storage and other steps in the supply chain process. Post-harvest losses are claimed to be almost one lakh crore rupees, amounting to almost 10% of the budget 2017-18 allocation to the agriculture sector! A faulty supply chain is a major factor. Similar issues are encountered in food imports and exports, where temperature control is of utmost importance. The supply chain is broken many times in the end-to-end logistics resulting into wastage and drop in quality of the products.

The solution is hi-tech, integrated end-to-end temperature controlled supply chain for domestic as well as EXIM movement and storage.



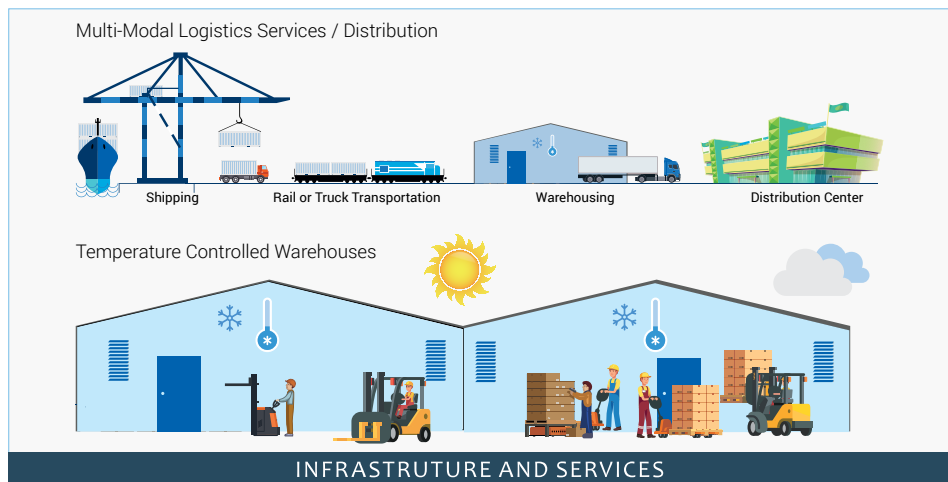
BOXCOLD TCW SONIPAT



DAIRY PRODUCTS IN STORAGE AT THE TCW



EXIM CARGO UNLOADING AT THE BAY



Logistics

Cold stores are the major revenue contributors of the Indian Cold Chain industry and are mostly used for storing potatoes. However, the market is gradually getting organised and focus towards multipurpose cold storages is rising.

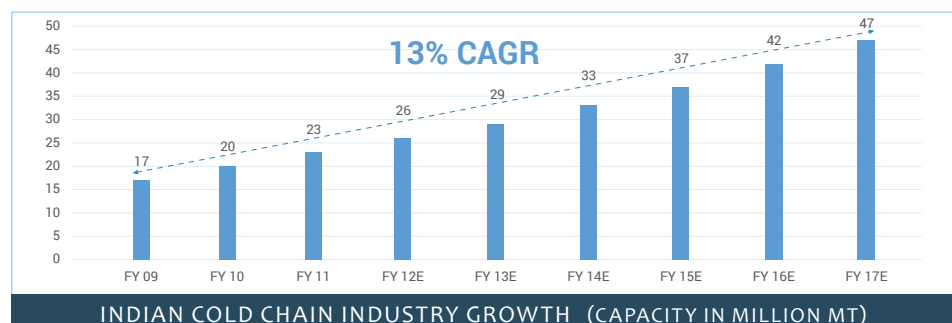
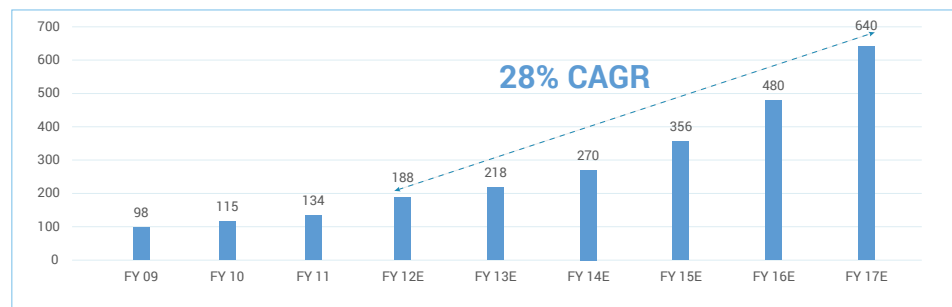
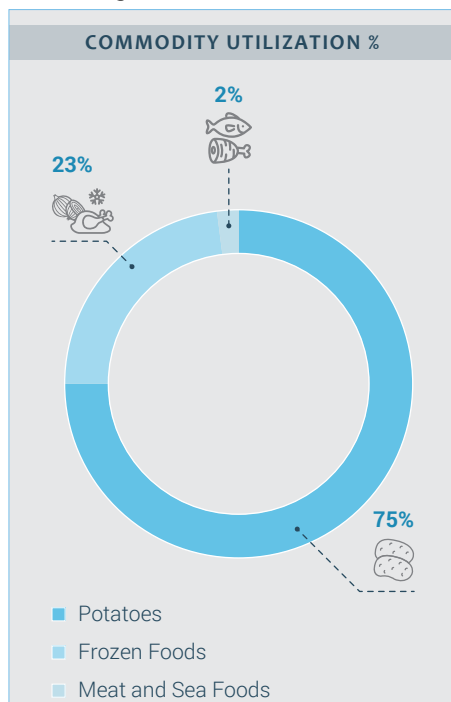
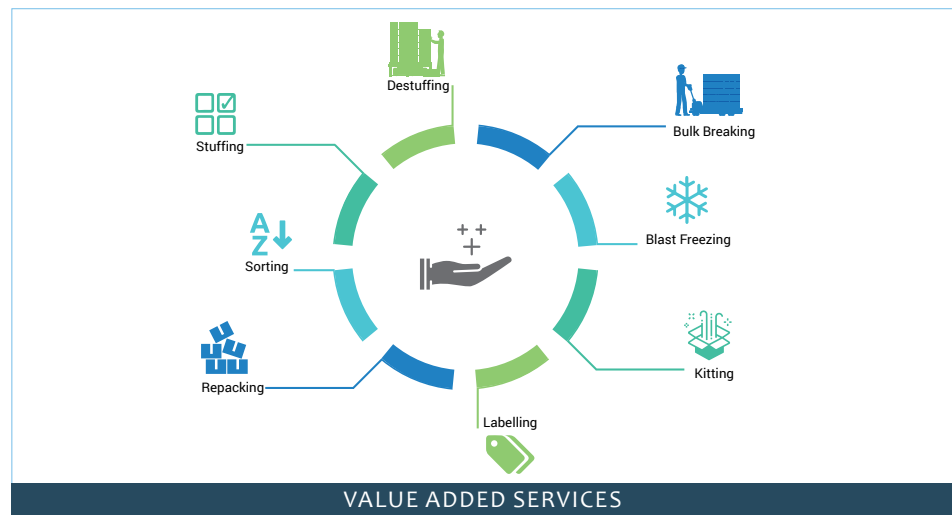
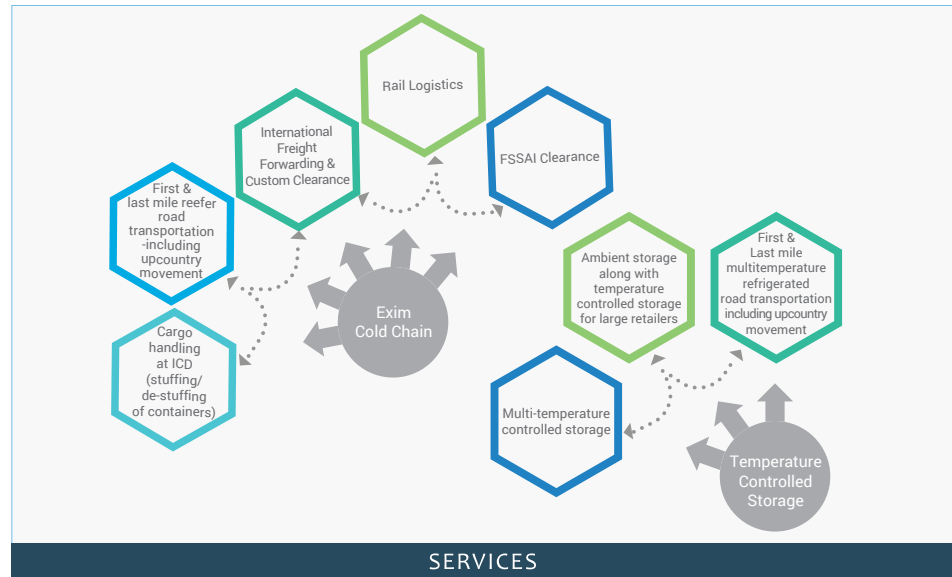
MARKET SIZE

Indian Temperature Controlled Warehousing (TCW) capacity in FY 2017 is estimated at 47 Million MT. Revenue is expected to grow at 28% CAGR & Capacity at 13% CAGR. Reefer Truck volume is close to 8000+ Trucks.

The modern Cold chain industry in India is in a nascent but high growth stage.

Though India is the second largest horticulture producer in the world, there are high level of wastages (30-40%) in the 'farm to fork' supply chain due to low level of penetration of modern Temperature Controlled Warehouse (TCW) networks.

Current penetration of TCW's in India is <10% (v/s 60%+ internationally). Industry currently dominated by the un-organized sector with small, low technology cold stores ■



Logistics

PARADIP Most Suitable To Handle Fertilisers

India imports three grades of finished fertilizers for direct application by the farmers during agriculture season viz. Kharif (April-September) and Rabi (Oct.-March). The three grades of fertilizers are Urea, Diammonium Phosphate (DAP) and Muriate of Potash (MOP).

IMPORT OF UREA

Urea for agriculture use is under Government control and therefore the import of urea is on Government account. The total requirement of urea is about 30-32 million MT per annum out of which 22-24 million MT is indigenously produced in the country (Urea covers 55% of total Fertilizer requirement). On an average the Department of Fertilizers (DOF) imports about 6 million mts from different global sources (currently from Iran, AG and China) through the State Trading Enterprises (STE) like MMTC, STC and IPL on Global Tender basis for the quantum of imports approved by the Committee of Secretaries, after assessing the requirement of the States during the agronomic season. Despatch of urea from the ports to the consuming Districts/ States is as per supply plan given by DOF.

IMPORT of DAP & MOP

DAP and MOP (P&K) fertilizers are decontrolled mineral fertilizers and are imported on private account. Fertilizer companies are importing DAP fertilizers on their own account and immediately on arrival of the shipments, the DOF gives the supply plan for distribution to the States for direct consumption and

the companies are following the supply plan for claiming subsidy under Nutrient Based Subsidy (NBS) policy. DAP is used as a Basil dose for the crops at the beginning of the agriculture season and is mostly imported from international sources. MOP is totally imported on private account as there is no commercially viable source of this product in the country. MOP is used for better yield to the crops as it provides Potash and Chloride nutrients to the soil. MOP is also covered under NBS policy as explained above. MOP is used for by the complex manufacturers extensively. Most of the complex fertilizer plants are on the coastline adjoining the ports as they are import dependent.

Presently, due to lack of adequate infrastructure the States of Odisha, West Bengal, Jharkhand, Bihar and Chhattisgarh are being served by ports at Kakinada, Krishnapatnam and Vizag ports, in terms of the supply plan resulting in huge wasteful expenditure on account of inland freight which is on the Government account.

Comparative statement of total quantity of Urea, DAP & MOP imported through Kakinada, Krishnapatnam, Vizag and Paradip ports in the last three years is as follows: Table no. 1 below

The total consumption of Urea and P&K fertilizers in the eastern and north-eastern States as projected in FAI Stat. 2015-16 is 7.73 lakh mts DAP / Complex; 4.71 lakh mts MOP and 18.54 lakh mts Urea per annum.

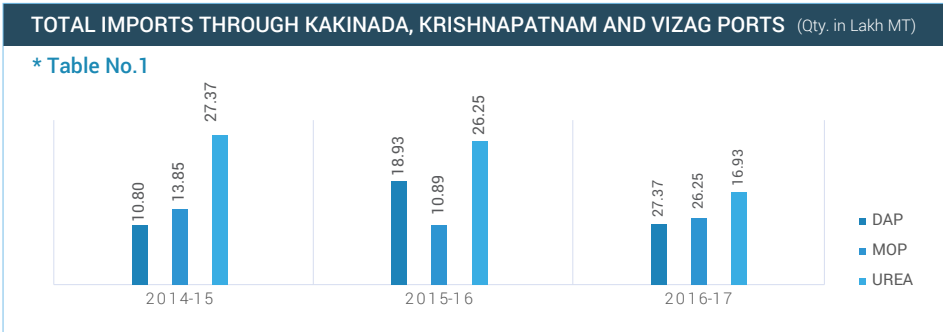
The supply plan of DOF is as follows: Table no. 2 on page no. 13

The availability of Phosphatic fertilizers is met through imports (DAP is mostly imported) and through indigenous source (Complex Fertilizer Plant) whereas MOP is entirely imported.

The above are also inputs for the two Phosphatic fertilizer plants located at Paradip namely IFFCO with a capacity of 2.0 million mts per annum and Paradip Phosphate Limited with a capacity of 720,000 mts per annum. These two plants have their own captive jetties for receiving their import cargoes.

To cater to the requirement of the fertilizer industry for the North Eastern region, the J M BAXI GROUP is building a world class facility at Paradip in the state of Odisha.

The SPV, Paradip International Cargo Terminal (PICT) has been awarded a concession agreement by the Paradip Port Trust to construct and operate a multi-purpose terminal on BOT basis



YouTube, Twitter, Facebook, and navigation icons.

Logistics

for a period of 30 years at Paradip. It is situated 210 nautical miles south of Kolkata and 260 nautical miles north of Visakhapatnam.

The multipurpose cargo berth will handle clean cargo including iron and steel products, aluminium ingots, pig iron, finished fertilizers, food grains, sugar, and containerized cargo ■

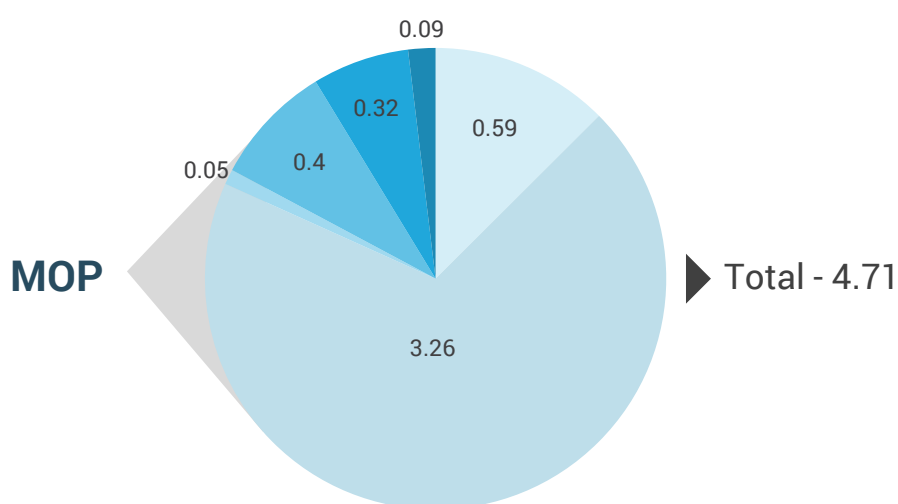
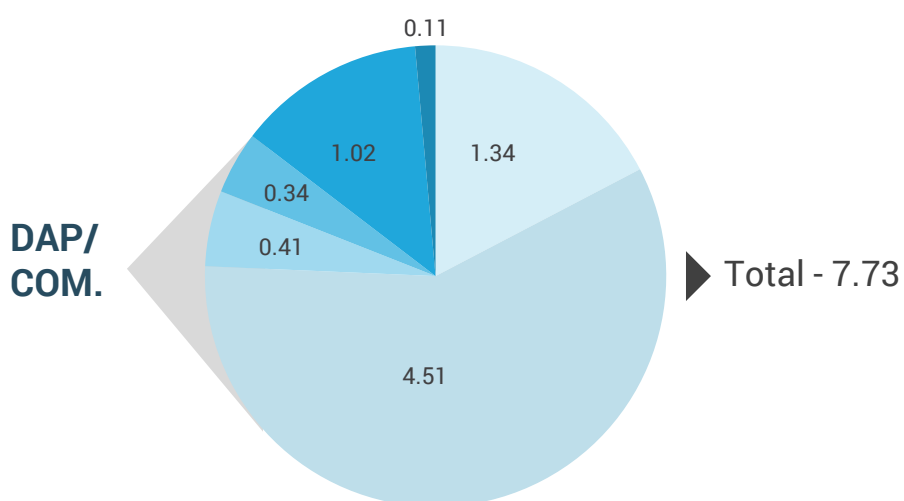
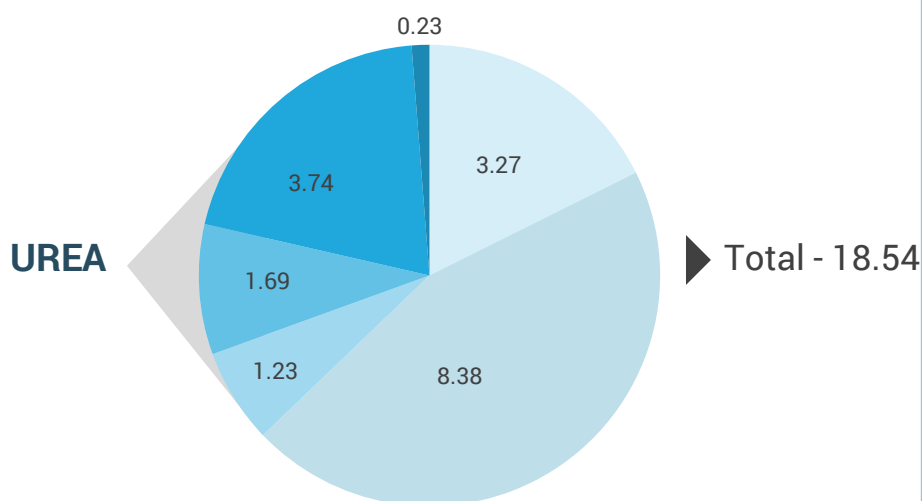
SALIENT FEATURES OF PICT

- All weather multi-purpose terminal with 3 Harbour Mobile Cranes, 2 Rubber Tyre Gantry Cranes, Pay loaders, Reach Stacker, Fork lifts and Tractor trailers
- Total quay length of 450 meters
- Depth of 17 meters capable of accommodating cape size vessels up to 125000 DWT
- Total back area of 22 hectares for covered warehousing, container yard and open stack yards
- Utilities including Firefighting system, IT & communication system, water supply, STP.
- Discharge rate for fertilisers 15000 ton PWWD
- 24000 sq. metres dedicated fertilizer warehouse with attached rail lines
- Mechanical bagging (with neem coating capacity) 8000 MT per day
- Rake loading capacity 3 rakes per day inside the terminal

* Table No.2

THE SUPPLY PLAN OF DOF

(Qty. in Lakh MT)



ODISHA WEST BENGAL JHARKHAND ASSAM BIHAR NE STATES



Infrastructure

External Affairs Minister SUSHMA SWARAJ Flags Off First Consignment Of Wheat From KANDLA To CHABAHAR PORT

The shipment is part of commitment made by the Indian government to supply 1.1 million tonnes of wheat for the people of Afghanistan on grant basis.

Six more wheat shipments will be sent to Afghanistan over the next few months. Shipment of wheat is a landmark moment as it will pave the way for operationalisation of the Chabahar port.

In some good news for Afghan-India connectivity, the 22nd flight of the Afghanistan-India Air corridor programme also left Kabul for Delhi ■



In Focus

Natural Gas A Fuel Of First Choice

Natural Gas is known to possess the lowest carbon to hydrogen ratio, making it the cleanest of fossil fuels. Natural Gas is already meeting most of the requirement for fuel in a modern day industries, being efficient, non-polluting and relatively economical. Despite periodic uncertainties and volatility, in both its price and supply, natural gas, has emerged to be major fuel of choice in the energy basket.

Liquefied Natural Gas (LNG) facilitates its transportation in large volumes in cryogenic tankers across the sea. Once offloaded from ships, it is re-gasified before being transported to consumers through gas pipelines. From the exploration stage to its liquefaction, specialized cryogenic storage, maritime transportation and regasification and distribution networks that spawns a nation-wide pipeline distribution network.

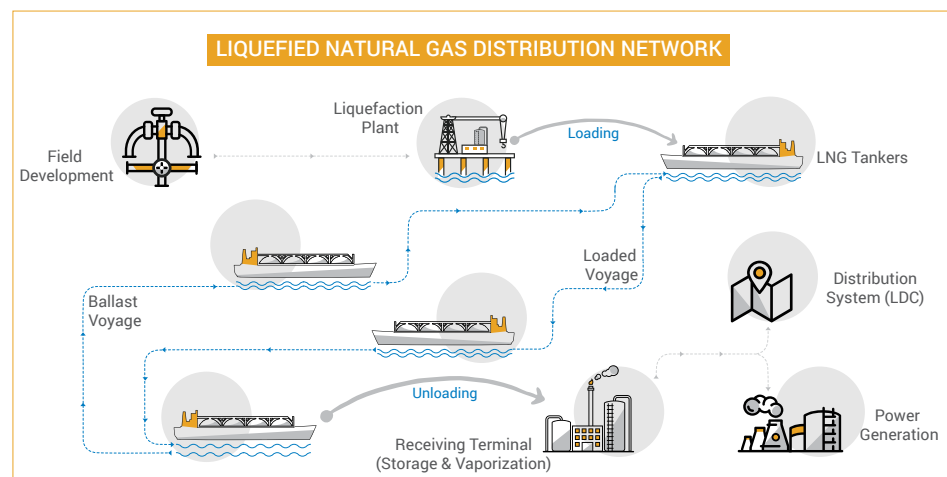
India currently is the fourth-largest Liquefied Natural Gas (LNG) importer after Japan, South Korea and China, and accounts for 5.8 per cent of the total global trade. Domestic LNG demand is expected to grow at a CAGR of 16.89 per cent to 306.54 MMSCMD by 2021 from 64 MMSCMD in 2015. Gas production will likely touch 90

Billion Cubic Metres (BCM) by 2040, subject to adjustment to the current formula that determines the price paid to domestic producers, while demand for natural gas will grow at a CAGR of 4.6 per cent to touch 149 MTOE. The demand for petro products is estimated to reach 244,960 MT by 2021-22, up from 186,209 MT in 2016, and the demand for natural gas is expected to reach 606 MMSCMD by 2021-22 as against a demand of 473 MMSCMD in 2016-17.

After discovery of South Basin fields by ONGC in 1970s, Natural Gas assumed importance and exploration activities in India were initially undertaken only by the National Oil Companies (ONGC & OIL) under nomination. Later private gas companies were allowed to enter into exploration through JV with NOCs. Subsequently, 100% foreign participation in exploration was allowed in the current New Exploration and Licensing Programme (NELP). Subsequently discoveries were made in Gujarat, KG basin, Cauvery basin, Tripura, Assam etc. In 2004, liquefied Natural Gas began to be imported from Qatar under a long-term supply contract and a first ever LNG terminal was set up at Dahej of 5 MMTA capacity.

Industrial use of natural gas as the feedstock, replacing the conventional sources like the coal and other fuel oils is undoubtedly expected to have a major effect on its natural gas consumption profile, with several coal-fired power plants and other coal dependent industries switching to use of gas. The biggest of constraints to further growth in consumption comes from the scarce domestic availability of gas and costly imports of LNG and inbuilt price uncertainties of LNG trade. A recent study by Platts however, suggests city (household) gas usage might in future actually drive the demand for natural gas in India, City gas includes piped gas delivered to homes, compressed natural gas (CNG) used in automobiles and gas delivered to industrial units. The main change (in demand) is expected to occur for city gas, which will see its share of domestic gas usage rise to 24% in 2021 from the 20% used in 2016. This is in line with the government's goal of increasing city gas availability for households and transportation. Thirteen states in India currently have city gas distribution (CGD) projects, connecting 3.3 million homes. It is expected to reach 10 million households over the next three years, but the scope for expansion is even larger. Petroleum and Natural Gas Regulatory Board forecast 60 city gas projects by 2022 and 240 networks by 2030.

Natural gas presently accounts for only 6.5% of India's energy mix, compared with almost 60% for coal. The relatively low penetration rate, compared with the global average of 24%, is a result of India's abundance of relatively cheap domestic coal availability, infrastructure bottlenecks choking gas supply, price, uncertainty over natural gas imports, and low domestic gas production. With domestic gas



In Focus

COMPOSITION NATURAL GAS USE IN INDIA

Sector	Domestic	R-LNG*	Domestic + R-LNG
Fertilizers	30.30	12.65	42.95
Gas Based LPG plants for LPG extraction	1.83	1.09	2.92
Power	27.26	2.17	29.43
City Gas demand (CGD) for CNG & Domestic PNG Purpose	7.25	8.23	15.48
TTZ	0.98	0.07	1.05
Small consumers having allocation less than 50,000 SCMD	2.45	2.58	5.03
Steel	1.32	1.82	3.14
Refineries	1.89	10.45	12.35
Petrochemicals	3.82	0.88	4.70
CGD for PNG to Industrial & Commercial	0.00	0.00	0.00
Others	1.52	1.17	2.69
Internal consumption - pipeline system	1.40	0.00	1.40
Total	80.02	41.11	121.13

* R-LNG= Re-gasified LNG

production now set to rise to 37 BCM by 2021 and consumption to hit 72 BCM over the same period, the additional demand will have to be met by LNG imports. Over the next five years, Indian LNG demand is expected to grow on average 10% annually, reaching around 30 million metric tonnes by 2020, with re-gasification capacity expanding by almost 60% to over 45 million metric tonnes by 2021. LNG imports and distribution networks would thus grow in India.

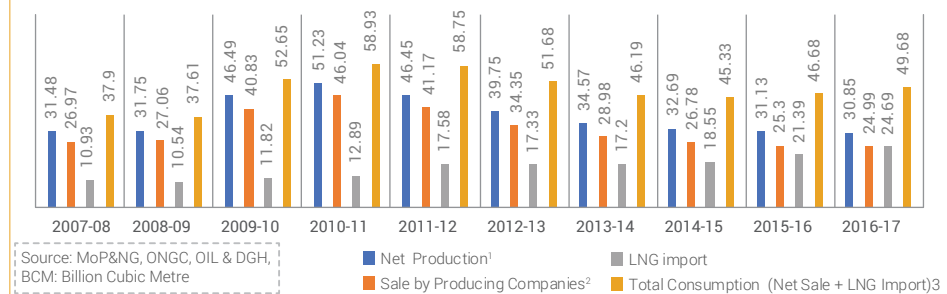
Industrial growth in consumption of gas is also expected to get a further boost. For re-gasified liquefied natural gas (LNG), the main growth sector will come from fertilizer, which is expected to consume 16 BCM of Re-gasified LNG by 2021, 38% of the total imported LNG, from its 34% in 2016. The fertilizer sector in fact, remains India's largest single largest gas demand sector, representing around one-third of demand. This included over 6 million metric tonnes of LNG imports in 2016, 20% more than the previous year. "Gas usage from the fertilizer sector is expected to grow by 8% annually, reaching over 26 BCM by 2021, driven by the government's plans to increase

domestic fertilizer production and become fully self-sufficient to meet domestic fertilizer consumption needs by 2022. The power sector, India's second largest gas user, accounts for around 25% of total gas consumed. While India has over 24 giga watt (GW) of gas-fired power generation plants, of them 14 GW is effectively stranded by a lack of gas availability,

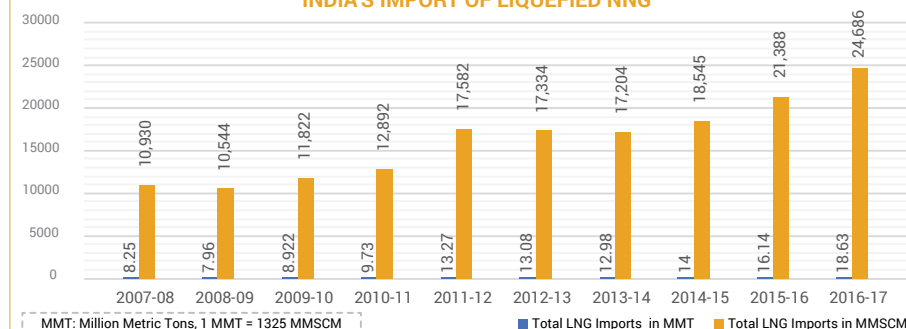
while the remaining 10 GW has also been operating well below capacity. The sector is expected to grow merely around 1% to 2021.

Further, LNG imports are plagued by certain global trade limitations and geopolitical constraints, especially Pakistan's reluctance to allow India to connect to Iran and rest of Central Asia for gas supplies. Due to a lack of international pipeline connectivity, and limited growth of domestic production, the demand for gas will have to be met by a 10% annual rise in LNG imports over the next few years. Given this pace, LNG demand should outpace the volumes supplied by Petronet LNG, Gail India, and Gujarat State Petroleum Corporation. LNG imports have proved to be the only effective means of meeting the supply to meet the country's increasing gas demand. India's dependence on gas imports grew to around 50% in 2016, when it imported over 19 million mt/year, a 50% increase from 2013 levels. LNG imports are expected to continue to grow by 10% annually over the next five years, eventually overtaking domestic production in 2019, before surpassing 30 million mt by 2020 ■

TREND OF NATURAL GAS CONSUMPTION IN INDIA



INDIA'S IMPORT OF LIQUEFIED NNG



Weights & Measures

Deciphering INDIA's Coal Demand Dynamics

(continued from issue XIX)

Future of Coal Demand

In FY'14-15, the government announced an ambitious plan to produce 1.5 billion tonnes of coal domestically by 2020, an annual growth of almost 20 per cent. The announcement came at the back of the chronic shortfall in availability of domestic of coal. However, by the end of FY'15-16, India's coal shortfall had nearly ended, with the exception of coking coal supply for which imports continue. In fact, thermal power plants - which are the largest users of coal - reported an oversupply of coal, a situation mirrored in terms of power, with plant capacity growth outstripping power demand growth. A Brookings Institute study noted.

The demand of coal is growing faster than the current level of output/supply in the country. During 2016-17, as against the total demand of 838.6 MT (provisional), the domestic supply was 647.7 MT. Due to limited availability of low ash coal in the country, this type of coal is being

imported mainly from Indonesia. Further, superior quality of non-coking coal is imported mainly by power plants that have been designed on imported coal. Production target of Coal India, which accounts for over 80 per cent of the domestic coal production, is 600 MT for the current fiscal year, i.e. 2017-18. Import of coal saw a decline of 6.37 per cent to 191.95 million tonnes (MT) in 2016-17, partly due to higher production by Coal India ushering in an era of surplus from the era of shortages.

Comparatively, in 2015-16, India's coal imports stood at 203.95 MT, against the aggregate consumption demand of 884.87 MT of coal, and total domestic production of 659.27 MT. Thermal and steam coal imports too have fallen more steeply 17.37 per cent at the top 12 major ports to 29.82 MT during April-July this fiscal, according to data compiled by Indian Ports Association (IPA).

With India's thermal power projects presently facing low capacity

utilization due to muted demand, the situation is getting critical. Low plant load factor (PLF) could cause damage to the equipment while running them below their rated capacity. As most thermal plants are not designed to operate below a plant load factor (PLF) of 55%, power producers such as NTPC are now evaluating measures such as retrofitting, requiring an investment of around Rs10 million per mega watt (MW). This in turn will increase electricity costs from those projects. A Rs 1 crore per MW investment may result in a tariff increase of around 25 paise per unit of India's installed capacity of 329,231 MW, 59% or 194,553 MW is now coal-fueled. Such a large investment plan assumes importance, as the PLF of India's thermal projects has been consistently falling decreased from 78.9% in 2007-08 to 62% in 2015-16. With thermal coal constituting the major bulk of the total coal demand in the economy, the largest of user of coal would largely determine the future trends in coal consumption and supply ■

BREAKDOWN OF THE DEMAND IN 2020 (in million tonnes)

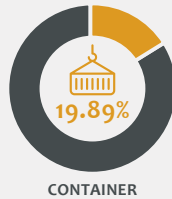
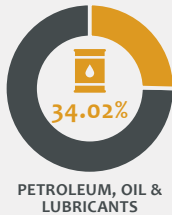
Demand Basis	Coking Coal			Non Coking Coal			Total Coal	
(MT)	Domestic	Import	Total	Domestic	Import	Total	Domestic (a)	Import (b)
Steel (+boilers)	34	67	101	1	0	1	35	67
Coking Coal				22	14	36	22	14
Sponge Iron				20	14	34	20	14
Cement				3	0	126	126	0
Fertiliser				126	0	126	126	0
Others				648	167	815	648	167
Power (Utility)				76	37	113	76	37
Power (Captive)				895	232	1128	929	299
Elec, Demand Basis	34	67	101	895	232	1128	929	299
Total							(a+b)	1,228

Port Statistics

The official data from the Indian Port Association (IPA) is out and India's top 12 major ports have witnessed 3.26 per cent rise in cargo traffic to 382.91 million tonnes (MT) during April-October period of the current fiscal. The spurt in performance was mainly owing to improvement in iron ore demand.



COMMODITY-WISE PERCENTAGE SHARE



The balance cargo comprised of other miscellaneous cargo, coking and other coal, iron ore and pellets, other liquid, finished fertilizer, etc.

IRON ORE THROUGHPUT



16.45
million tonnes
cargo handled
April - October
2016-2017

17.65 %
growth over the
corresponding
period of 2016-17

12.73 %
Containerised
cargo movement
during
April-October

319,000
TEUs
Total container
throughput
touched

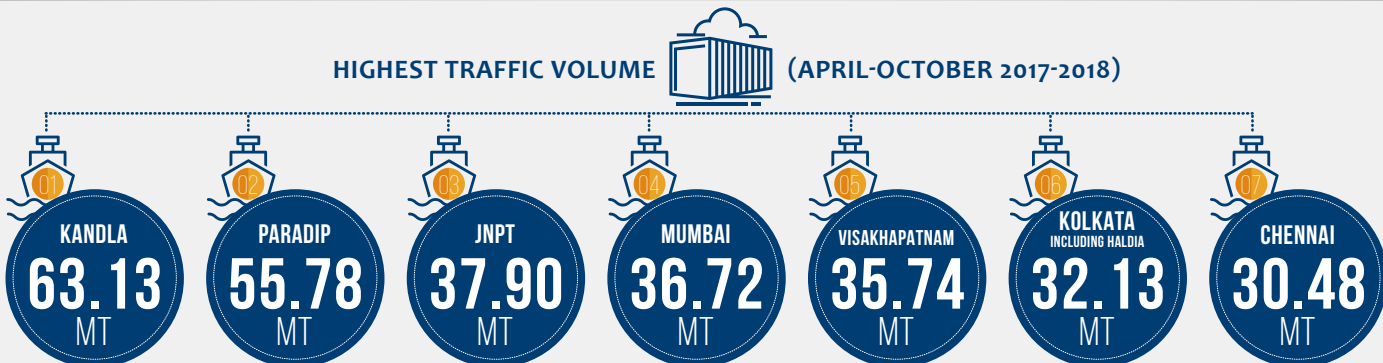
51,019
TEUs
highest throughput
for the month of
October 2017

50,842
TEUs
highest throughput
for the month of
August 2017



Overall the major ports, under the control of the Centre, had handled 370.81 MT cargo during the same period of the last fiscal. The growth in cargo traffic came from higher handling of products like iron ore and POL (petroleum, oil and lubricants) besides containers. Cumulatively basis, the ports recorded a 17.97 per cent growth in handling of iron ore traffic during the period to 25.30 MT, while both POL and containers registered a growth of over 6 per cent each.

HIGHEST TRAFFIC VOLUME (APRIL-OCTOBER 2017-2018)



Meanwhile, India secured the second highest votes and was re-elected to Category-B (states with the largest interest in international seaborne trade) of International Maritime Organisation Council. The IMO Council has presently 40 member countries.

Port Statistics

SHIPPING & CARGO PERFORMANCE

QUARTERLY UPDATES ON INDIAN MAJOR & MINOR PORTS (QTY IN MILLION TONNES)

JULY - SEPTEMBER 2017 (IInd QUARTER) 2017 - 2018 / JULY - SEPTEMBER 2016 (IInd QUARTER) 2016 - 2017 (QTY IN MT)

AGRICULTURAL PRODUCTS

	SUGAR		SOYAMEAL		WHEAT		RICE		MAIZE	
	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16
No. of Ships called	31	34	3	1	9	17	0	22	0	0
Total Cargo Handled	1.058	1.002	0.058	0.049	0.433	0.654	0.000	0.593	0.000	0.000
Import	0.790	0.625	0.000	0.000	0.433	0.654	0.000	0.000	0.000	0.000
Export	0.268	0.377	0.058	0.049	0.000	0.000	0.000	0.593	0.000	0.000

FINISHED FERTILIZERS & FERTILIZER RAW MATERIALS

	UREA		SULPHUR		ROCK PHOSPHATE		DAP		MOP	
	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16
No. of Ships called	39	42	29	20	48	46	37	44	32	32
Total Cargo Handled	1.775	2.027	0.516	0.503	1.800	2.022	1.592	2.045	0.915	0.996
Import	1.775	2.027	0.359	0.354	1.800	2.022	1.582	2.045	0.915	0.996
Export	0.000	0.000	0.157	0.149	0.000	0.000	0.010	0.000	0.000	0.000

COAL

	THERMAL COAL		COKING COAL		MET COKE		PET COKE		ANTHRACITE COAL	
	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16
No. of Ships called	160	204	211	181	45	25	32	62	10	7
Total Cargo Handled	10.574	11.072	11.872	9.985	1.094	0.692	2.487	2.876	0.273	0.170
Import	4.743	5.428	11.872	9.929	1.094	0.664	2.178	0.041	0.273	0.170
Export	5.831	5.644	0.000	0.056	0.020	0.028	0.309	2.835	0.000	0.000

STEEL & RELATED ORES

	STEEL PRODUCTS		SCRAP METAL		CHROME		MAGNESIUM ORE		IRON ORE	
	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16
No. of Ships called	346	230	6	1	1	2	43	12	250	168
Total Cargo Handled	4.667	2.988	0.182	0.028	0.010	0.068	0.879	0.219	12.171	9.676
Import	2.407	1.544	0.182	0.028	0.000	0.000	0.879	0.219	4.505	3.343
Export	2.260	1.444	0.000	0.000	0.010	0.068	0.000	0.000	7.666	6.333

INDIAN PORT PERFORMANCE - Q2 & FY 2017 - 18 THROUGHPUT (QTY IN METRIC TONNES)

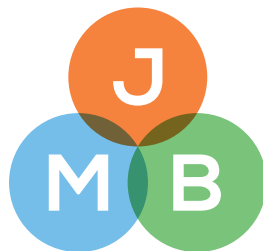
JULY - SEPTEMBER 2017 (IInd QUARTER) 2017 - 2018 / JULY - SEPTEMBER 2016 (IInd QUARTER) 2016 - 2017 (QTY IN MT)

Ports	Types of Ports	NO. OF SHIPS		LIQUID CARGO		BULK CARGO		CONTAINERS (TEUS)		TOTAL CARGO *	
		II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16	II nd Qtr'17	II nd Qtr'16
Kandla	■	488	1179	2.363	3.636	2.921	5.070	17,334	-	5.284	8.706
Mumbai	■	1982	1928	7.546	7.693	2.330	2.036	13,365	11,032	9.876	9.729
Nhava Sheva	■	280	262	1.913	1.546	0.180	0.190	1,293,572	1,117,592	2.093	1.736
Mormugao	■	165	136	0.312	0.208	4.229	4.108	-	-	4.541	4.316
Mangalore	■	445	478	6.476	7.052	3.227	1.873	28,382	26,080	9.703	8.925
Cochin	■	158	167	5.003	4.167	0.307	3.070	133,067	122,450	5.310	7.237
Tuticorin	■	261	286	1.200	0.423	4.098	5.218	172,969	164,627	5.298	5.641
Chennai	■	1024	1136	4.985	3.764	1.987	1.819	409,342	369,954	6.972	5.583
Ennore	■	254	265	1.251	1.125	4.492	5.578	-	-	5.743	6.703
Vishakhapatnam	■	312	293	3.235	3.686	6.623	4.424	89,523	101,108	9.858	8.110
Paradip	■	551	482	11.442	7.595	15.900	15.446	-	-	27.342	23.041
Haldia	■	612	538	4.235	2.860	5.522	4.497	36,930	26,348	9.757	7.357
Kolkata	■	58	60	0.220	0.007	0.001	0.007	161,164	166,040	0.221	0.014
Gangavaram	■	6	16	-	-	0.154	0.422	-	-	0.154	0.422
Pipavav	■	159	144	0.498	1.363	1.607	1.363	171,903	165,821	2.105	2.726
Mundra	■	984	987	5.468	6.383	10.420	10.548	1,042,684	844,964	15.888	16.931
Dahej	■	212	183	6.066	5.212	2.343	2.499	-	-	8.409	7.711
Hazira	■	209	253	1.492	1.784	1.741	1.708	114,625	112,361	3.233	3.492
Navlakhi	■	27	20	-	-	1.623	1.200	-	-	1.623	1.200
Kakinada	■	247	218	0.981	0.607	3.179	2.522	-	-	4.160	3.129
Total Vessel Calls at all ports		8434	9031	64.686	59.111	72.884	73.598	3,684,860	3,228,377	137.570	132.709

■ Major Port ■ Non-Major Port

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





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