J M BAXI GROUP

TIDINGS

ISSUE XXXVII

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TIDINGS

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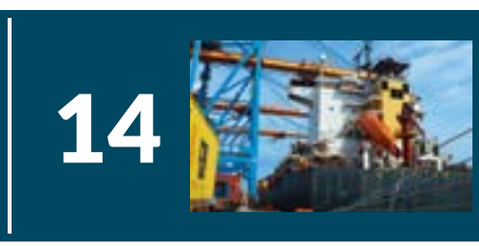
COVER PAGE:

Three vessels berthed at Visakha Container Terminal for the first time

* All maps are for representation purposes only



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From the

Quarter Deck

Dear Friends and Colleagues,

Continuing our communication (regrettably) about COVID-19, China reported a major outbreak with Shanghai and Beijing imposing hugely unpopular lockdowns. On the other hand, countries in south-east Asia are gradually opening up. India too continues to open up, although daily infections are on the rise. Local authorities are urging care, and also encouraging and enabling vaccinations. Caution and care are going to be the most important words going ahead.

In the last couple of months, the subject of inflation has taken centre stage globally. The United States of America reported inflation crossing 8.4 percent, which has been so very different to the situation of the last decade and more. Along with this, the US Fed and the US Treasury had anyway begun the process of stopping/ stalling the easy money monetary policy and curbing excess liquidity. Whilst this was happening, there began the strengthening and increase of commodity prices led by crude oil and steel, and then came the Russian-Ukraine war. This led to Russia getting severely sanctioned by the US and European countries, which further led to commodities like steel, wheat, crude oil, natural gas, fertilisers etc. getting impacted. During this period the stock market all over the world, has been negatively impacted. Currencies apart from the US dollar have been impacted. Linked to this, we have also seen the global flow of capital being impacted, with volatility being the only constant. Truly a geopolitical-economic maelstrom. Specifically in our south Asian neighbourhood, we have seen a dramatic political change in Pakistan with a continuing tottering economy. We are also witnessing the economic collapse of Sri Lanka which may be headed towards a regime change. All this uncertainty is clearly reflected in the volatility of various stock markets around the world, as also the depreciation of various currencies as compared to the US. The USA itself is challenged with unprecedented inflation, leading to enhanced interest rates. A generation of money and business managers will find the new circumstances strange and unfamiliar, as for the last 15 years USA has not seen these parameters. Continuing with the USA, the container and cargo volumes seem to be holding on and is expected to grow. The US west coast ports continue to do well, the US east coast ports are also receiving ship calls from the Far East via the Panama Canal, and also seeing a growth in the Trans-Atlantic route volumes.

As is the norm, our July-September issue will report developments around the monsoons. For now though, present indications and reports suggest that we in India should witness a normal monsoon which will enable India to continue having good crop and agriculture production. This will hopefully, not only be sufficient for India, but also enable us to continue with our export drive. Over a period of time we have seen that consistent exports of any commodity also leads to the possibility of value addition, which further assists in enhancing volumes and value of exports. Whilst we are on the subject of export and trade, India successfully negotiated, signed and created two historic Free Trade Agreements (FTA's) with the UAE and Australia. These two agreements should be the forerunners to similar

agreements with other nations. Over the last 2 years trade wars, COVID-19, the Russia Ukraine conflict, commodity prices, volatility, inflationary pressures, and increase in interest rates have been the new normal. This has led to the supply chain disruption, and also redefined the concept of globalisation. We will see that bilateral relations between nations will increasingly be the norm. More than globalisation, regionalisation will perhaps take on a greater role.

One of the consistent challenges in agriculture is the season-on- season, year-on-year production of food grains. This year due to the heatwave, the crop estimates had to be revised downwards which led to India suddenly having to take a decision to prohibit the export of wheat. The Russian- Ukraine conflict (with both countries being wheat exporters) resulted in demand for import of wheat in counties like Egypt, Turkey, Bangladesh etc.

Trade volumes in India have held steady. The cumulative cargo volume at Indian ports, have not shown any major changes with huge increases in cost. In the petroleum sector, the import of gas (both LPG and LNG) has been impacted and it is left to be seen if volumes get affected, in due course.

The heatwave in India also led to a historic high usage of electricity, which resulted in outages and load

From the
Quarter Deck

shedding in some parts of India. Some of the major power plants reported the inadequacy of coal supplies. At the time of writing this, there is a debate on the necessity to import coal for some power plants, and with coal prices being elevated, it could result in further financial stringency.

As per reports, the global container shipping lines are continuing to report record profitability and some reports seem to suggest that for the year 2022, container shipping lines are likely to sail into profits of $250 Bn. Furthermore, the present order book for new containers or ship building is almost at 26percent of the present capacity. On the other hand, major customers of container lines such as Walmart, Target etc. have declared muted profit figures, and do not seem too optimistic about the robustness of trade and crippling cost increases. This begs the question - is the US heading for stagflation? Most classes of ships have done well, tankers both clean and dirty, chemical carriers, product carriers as also VLCCs. It is the same for bulk carriers across almost all sizes. Gas carriers have been coping, despite the gas trade disruption. With crude oil and gas prices being high, the offshore oil and gas orient fleets should also start doing well, such as Offshore Support Vessels (OSV's), Platform Supply Vessels(PSVs), Anchor Handling Tugs(AHTs) and drillships.

On the container ports front, the US west coast and US east coast ports have had record-setting years. European ports have done well too, led by the big three - Rotterdam, Antwerp and Hamburg. A couple of interesting developments are the enhancements of terminal facilities; one at port Damietta, the second at the Atlantic and the other at the Panama Canal.

As regards to our group of companies, the three exciting developments have been the coming together of the top 3 heavy lift project transportation companies - Boxco Logistics, AllCargo and Lift & Shift into J M Baxi Heavy. This puts us in a very interesting position, of being able to offer a higher level of service to our customers. Our objective will be to climb up the sophisticated and specialised chain of service offering. Increasingly, we are seeing customer expectations from service companies such as ours, going higher. Customers are looking for solutions, and not just hiring people and equipment. A hearty welcome to the combined new team of J M Baxi Heavy. We wish you greater success.

The second exciting development has been the full operation of Visakha Container Terminal-2 at Vizag. Visakha Container Terminal is now almost a kilometer long facility, with the ability to handle the post-Panama class ships. In the last couple of months, some of records that we achieved at Visakha Container Terminal were:

1. Three ships berthed alongside - two main lines and one feeder

2. The productivity achieved by Visakha Container Terminal, has positioned it as a major container port and terminal, on the upper East Coast of India.

Our unparalleled level of service, competitiveness coupled with the connectedness to the hinterland, several large global leaders are starting new and large services and looking at Visakha Container Terminal as a transhipment base. A small wager – by 2030 Visakha Container Terminal-1 and 2 will achieve 2 Mn TEUs!!!

Lastly, Mumbai Port Authority and the Ministry of Shipping and Ports hosted a conference for the cruise shipping industry. With the abating of COVID-19, the cruise shipping industry is making a strong comeback. The global cruise industry is looking to making a strong come back in the Indian Market. The new terminal at Mumbai - The Ballard Pier, should be ready to open its doors by 2023, and will be operated by J M Baxi Ports and Logistics.

Dear friends and colleagues, we go into the second half of 2022 with a massive global inflationary trend. Geopolitical instability and an ongoing war in the heart of Europe, massive volatility in commodity prices, demand and supply mismatch, a disruption in the food supply chain, and food insecurity in many parts of the world, the beginning of a paradigm shift in lifestyle, consumption patterns etc. Along with climate change, global warming, pollution and economic challenges also come opportunities. India should continue pushing for growth in the manufacturing sector with initiatives like Make in India, the PLI scheme and AatmaNirbhar Bharat. India should also continue in the service and infrastructure sector development with PM Gati Shakti, Sagarmala programmes, Swachh Bharat mission and smart cities development.

Signing off with hope for a great monsoon for India, and wishing you all a safe WFO (work and welcome from office).

Krishna B. Kotak
Chairman - J M BAXI GROUP

Marine Services

RUSSIA-UKRAINE War - Impact On The Indian Steel Industry

Russia and Ukraine together, export about 40 Mn tons of steel per annum to the global market. These exports are mainly to Europe, the Middle-East and North Africa (MENA) region.

The Russia-Ukraine rift has added opportunities for the Indian steel Industry. In the preceding year, almost a third of India's steel and iron ore exports were headed for Europe. Trade data showed that India exported 20.63 Mn ton in 2021 which was mainly to Italy, Belgium, Turkey and Vietnam.

Offsetting the imbalance

Steel mills in India are stepping in to fill a supply gap created by this rift, as consumers from Europe to Africa are turning to the world's second-largest producer. It has also pushed companies from Europe, the Middle East and Africa to reach out to Indian producers, since there is a shortage of steel in these regions. This supply gap is being narrowed partly by India and partly by China. Indian steel majors are expecting sizeable orders from these nations, even as steel prices have jumped 20 percent in the last few months.

Paying the price

One of India's leading steel manufacturers expects the demand created by cuts to supply from Russia and Ukraine, to boost its exports up to 40 percent of sales from the current 25 percent, as it looks to take advantage of record high steel prices. While Indian manufacturers were exporting about 25 percent, they expect to export about 35-40 percent in few months' time, and take a share of the higher prices.

Considering the global market, current volatility and the demand for steel, it is expected that the additional export market may continue for the next 6-9 months at least. Geographically, India is in an advantageous position than China, a probable competitor in this capacity-supply trend.

Close to home

Another key factor is having iron ore supply within the country which helps subsidise high input cost of raw materials compared to competitor countries.

This additional demand in the international market has not only pushed the price up internationally, but in the domestic market as well. There has already been an incremental rise in domestic steel prices. Therefore, despite very high input cost of raw materials, steel makers are benefiting overall. Domestic consumers are finding it more convenient to buy from local mills rather than importing.

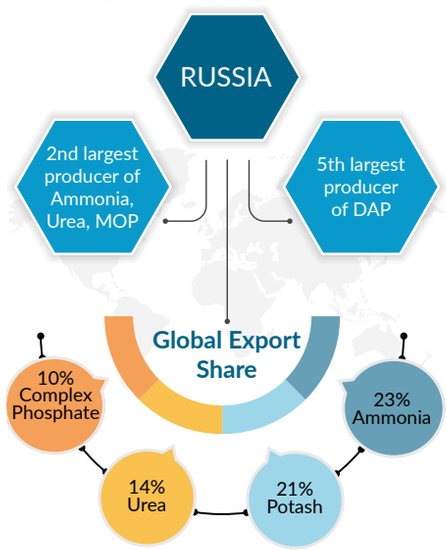
With a full order-book of international and domestic clients, Indian steel mills are going to have production pressure, and are expected to run close to 'full capacity mode' for some time, till stability is attained.

Marine Services

The Impact Of UKRAINE- RUSSIA Conflict On Fertilizer Trade

The ongoing Russia Ukraine crisis continues to have an impact around the globe. It has adversely affected prices and supplies of power, chemicals, fertilizers, food grain among many other things. Russia is the second largest producer of ammonia, urea, potash and the fifth largest producer of phosphatic fertilizers. The country accounts for 23 percent of global ammonia export, 14 percent of urea, 21 percent of potash and 10 percent of complex phosphate. Russia is also a major supplier of natural gas to Europe and many other countries as feedstock for urea plants. Moreover, the Black Sea areas as well as the Black Sea ports like Yuzhny, Odessa, Mariupol, Novorossiysk etc. being a major hub of fertilizer production and trade, are presently closed due to the ongoing war, thereby disrupting the entire global supply chain in the fertilizer sector. This situation has impacted global fertilizer supplies in a big way, with sky rocketing increase in prices.

Impact of Ukraine–Russia conflict - Global Fertilizer Trade



Ukraine- Russia war has adversely affected the fertilizer supply chain management globally.

Globally, Russia is one of the largest producers of fertilizer and major supplier of natural gas (critical feedstock for urea plants)

The Black Sea region comprising of major fertilizer trade hubs like ports of like Yuzhny, Odessa, Mariupol, Novorossiysk are non-operational.

Disruption in the global fertilizer supply chain has skyrocketed the prices.

Apart from fertilizers, Ukraine is a major food grain producer and supplier and thus has adversely affected the supply chain of wheat commodity, in addition to soaring of prices.

The fertilizer sector in India is import dependent. Finished fertilizers as well as fertilizer raw materials are imported from different global sources. Urea imports amount to 8-9 Mn Metric Ton (MT) annually, mostly from China, Iran, Oman, the Arabian Gulf, Ukraine and Egypt. With the Ukraine Russian conflict disrupting trade from Black Sea ports and restrictions on urea imports, imposed by China since October 2021, urea is presently sourced from Oman, Arabian Gulf countries, Southeast Asian countries like Indonesia, Vietnam, Malaysia, Singapore and Russian ports in the Baltic Sea. As a result of this situation, urea prices are skyrocketing. At the recent Rashtriya Chemicals & Fertilizers (RCF) tender, the L1 prices were established at $716.50/Metric Ton (MT) for the west coast of India and $721.30/Metric Ton (MT) for the east coast of India as against the price range of $284- $286/Metric Ton (MT) during 2020-21 and the subsequent increase of $300-$350/Metric Ton (MT) till October 2021.

As regards Phosphatic and Potassic (P&K) fertilizers, India imports about 5 Mn Metric Ton (MT) of Diammonium phosphate (DAP) from China, Morocco, Saudi Arabia, Russia, Jordan etc. and about 4 to 4.5 Mn Metric Ton (MT) of Muriate of Potash (MOP) imported from Canada, Russia, Belarus, Jordan, Israel and Germany. With the Ukraine-Russia conflict and restrictions imposed by China on exports since last year, availability of DAP and MOP are extremely poor in the international market. Therefore, India is forced to tap Morocco, Saudi Arabia and Jordan for sourcing DAP and NPK. In view of these critical circumstances, the Union Minister for Chemicals and Fertilizers Dr. Mansukh Mandaviya visited Jordan recently for securing long and short term supplies of P&K fertilizers. Accordingly, pacts were signed with Jordan Phosphate Mining Company (JPMC) and Indian public, cooperative and private sector companies, for the supply of 3 Mn Metric Ton (MT) Rock Phosphate, 0.25 Mn Metric Ton (MT) DAP and 0.1 Mn Metric Ton (MT) phosphoric acid for the current year. Additionally, a long-term pact was also signed for 5 years for annual supplies of 0.25 Mn Metric Ton (MT) of MOP

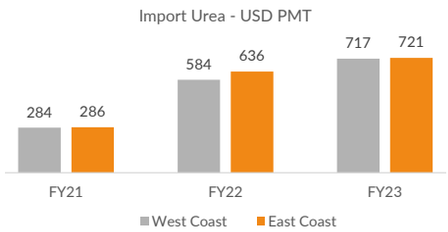
Marine Services

which will be increased every year up to 0.325 Mn Metric Ton (MT). Further, Indian Potash Limited also signed a pact with Israel Chemical Limited for the supply of 0.6 to 0.65 Mn Metric Ton (MT) MOP annually for 5 years.

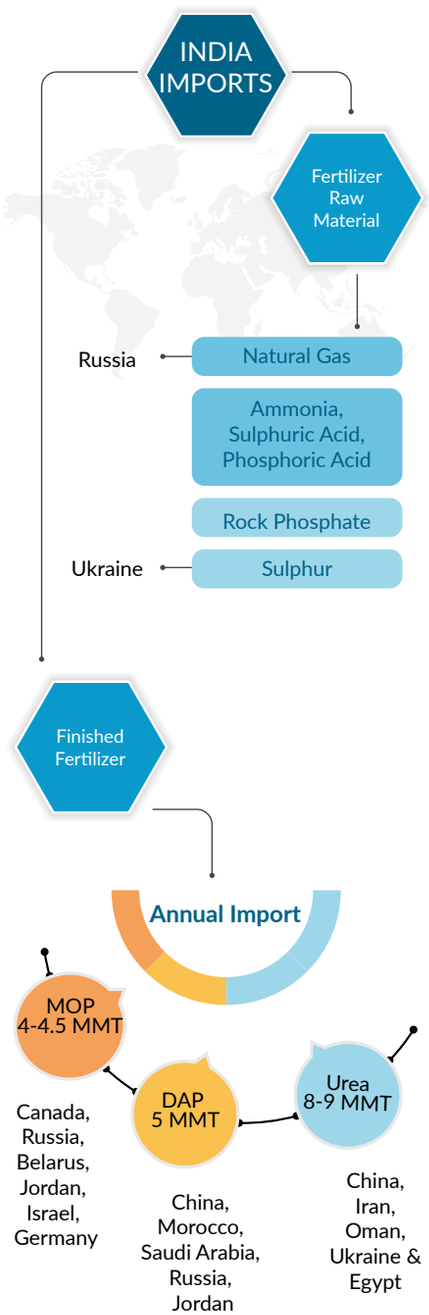
Apart from the imports of finished fertilizers, India depends heavily on the imports of fertilizer raw materials like natural gas, sulphur and rock phosphate as well as intermediates like ammonia, sulphuric acid and phosphoric acid. Prior to the Ukraine- Russia conflict, India was sourcing supplies of huge volumes of ammonia from Ukrainian ports for domestic complex fertilizer plants, which have now completely stopped. Similarly, the natural gas supplied by Russia is also restricted. As a result of these impediments, domestic fertilizer plants are functioning much below their rated capacity and are not able to achieve optimum production level to meet the growing demand in the agriculture sector. This situation is leading to an increased volume of finished fertilizer imports, in spite of high prices, since the availability of fertilizer is essential to achieve food security of the country.

With the outbreak of the Ukraine-Russian conflict disrupting trade from the Black Sea ports and restriction on urea imports, imposed by China since Oct. 2021, urea is presently sourced from Oman, Arabian Gulf countries, Southeast Asian countries like Indonesia, Vietnam, Malaysia, Singapore and Russian ports in the Baltic Sea.

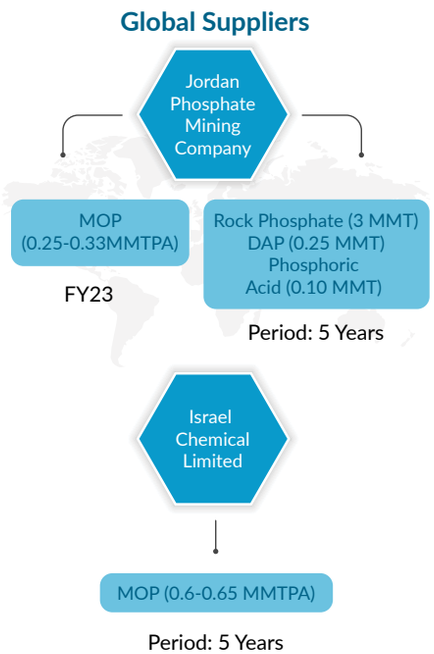
As a result of this situation, urea prices are skyrocketing, and the price is currently around $700-$800 Per Metric Ton compared to $284-$286 Per metric ton in FY21.



Impact - Indian Fertilizer Sector (1/2)



Impact - Indian Fertilizer Sector (2/2)



Similarly with Russia and Belarus severely affected by war, there is a scarcity of potash in the international market.

Challenges in the delivery of fertilizer raw materials is forcing domestic plants to function much below their rated capacity, and are not able to achieve optimum production levels to meet the growing demand in the agricultural sector. This is also adding to the pressure of sourcing fertilizer through imports.

In view of these critical circumstances, the Govt. of India is pushing for securing long and short-term supplies through signing pacts between Indian companies (public, cooperative and the private sector) and global suppliers.

Marine Services

The Effect Of The UKRAINE RUSSIA War On INDIA's Vegetable Oil Dependency

India's demand for edible oils far outweigh its production. While domestic consumption is around 25 MT, domestic production is only 11.16 MT. This leaves a demand and supply gap of about 56 percent, and therefore needs to be met through imports.

India is the largest importer of vegetable oils followed by China and USA. Of all the imported edible oils, the share of palm oil is about 60 percent at around 15 Metric Ton (MT), followed by soyabean oil with a share of 25 percent at around 3.5 Metric Ton (MT) and sunflower at 12 percent with about 2.5 Metric Ton (MT).

Due to its focus on the export market, most Ukrainian crushing plants are logistically located near Black Sea ports and are often located away from the seed-growing areas of the central and eastern parts of the country. The invasion has rendered Ukrainian crushing plants inoperable. With the suspension of trading, and the absence of sunflower seeds, most sunflower oil production plants are completely closed. Coupled with the closure of major ports, major sunflower oil importers are now worried about procuring their supplies.

Approximately 300,000 ton of Ukrainian sunflower oil was scheduled to be shipped in late February and March, but due to the ongoing crisis, destination markets will be required to replace these quantities with edible oils available from other sources. The closure of sunflower oil production plants and shipping facilities has also adversely impacted the edible oil packaging industry in Ukraine

Current situation of sunflower oil in India

The ongoing Ukraine-Russia conflict has disrupted India's edible oil market which gets more than 90 percent of its sunflower oil from these two countries. From November 2021 to February 2022, India imported 843,377 ton of sunflower oil, about 85 percent of which came from Ukraine, 14.3 percent from Russia and the rest from Argentina. India typically imports 150,000-200,000 ton of sunflower oil each month, according to industry experts. And while the conflict has impeded fresh imports, February imports were down by at least 70,000 ton.

Imported Edible Oils (Qty in MT)				
Sr No	Liquid Cargo	2018-19	2019-20	2020-21
1	Crude Palm oil	6	6.8	7.5
2	RBD Palmolein	2.8	00.43	0.85
3	Palm Oil	9.34	7.25	8.31
4	Crude soyabean oil	3.12	3.40	2.90
5	Crude sunflower	2.34	2.5	2.00
6	Crude Rapeseed	0.06	0.02	0.05
7	Crude Palm Kernel	0.07	0.01	0
8	Others	0.54	0.14	0.29

Impact on the sunflower oil industry in Ukraine

In Ukraine, sunflower seeds are sown in April and May, and harvesting usually begins in September. Tensions and military action in agricultural areas pose risks to the supply and demand of the next growing cycle. With trading routes being blocked, import-export facilities shutdown, and farmers unable to plant, the average yield per hectare of sunflower seeds will take a major blow this harvesting season.

Sunflower import via major Indian ports (2020 - 21) (000;MT)				
PORTS	ARGENTINA	BRAZIL	RUSSIA	UKRAINE
CHENNAI		21,000	17,000	292,178
HALDIA			23,639	67,215
HAZIRA			8,000	13,750
JNPT	20,300		38,055	330,944
KAKINADA	39,742			433,653
KANDLA	6,000		13,400	19,400
KRISHNAPATNAM	11,000		15,000	168,252
MANGALORE	15,000		18,461	162,059
MUNDRA				34,350
TUTICORIN	36,778		16,843	13,723
Grand Total	**128,820**	**21,000**	**150,398**	**1,516,124**

Marine Services

Price outlook for sunflower oil

After just a few days of conflict, the commodity market faltered and the price of sunflower oil Free on Board (FOB) the Black Sea Ukraine, shot up by US $ 470.50 from US $ 1480 per metic ton, finally setting at around $ 1,950.50 Per metric ton. This is the highest that sunflower oil FOB the Black Sea has reached since 2018.

Supply constraints and domestic supply

India usually imports about 175,000 -200,000 ton of sunflower oil per month. The conflict between Russia and Ukraine has disrupted sunflower oil supply. In Feb '22, about 152,000 ton arrived in India and similar quantities arrived in March'22, as vessels which left before the war, arrived at Indian ports. The continuation of the war will lead to a decline of shipments which will get exacerbated over the months. To further compound the challenge, is the announcement of Indonesia tightening global export supplies, on palm oil. These two factors have led to high volatility in edible oil prices in the international market. However, the shortfall of sunflower oil availability is being met through higher domestic availability of soybean and mustard oils.

The road ahead

India is looking to sign long-term contracts with Mercosur countries - Argentina, Brazil, Paraguay, and Uruguay, to import crude sunflower oil as Russia's invasion of Ukraine has disrupted imports from Europe's second-largest nation, leading to skyrocketing edible oil prices to Cost, Insurance and Freight (CIF) USD 2150 per metic ton. To combat this, India may need to reduce the import duty on sunflower oil originating from Mercosur countries and do away with the stringent testing requirements under the existing Preferential Tariff Agreement (PTA) with the grouping.

In Conversation

With Mr OEYVIND LINDEMAN From NAVIGATOR

Navigator Holdings Ltd. is the owner and operator of the world's largest fleet of handysize liquefied gas carriers and a global leader in the seaborne transportation services of petrochemical gases, such as ethylene and ethane, liquefied petroleum gas "LPG" and ammonia and owns a 50 percent share, through a joint venture, in an ethylene export marine terminal at Morgan's Point, Texas on the Houston Ship Channel, USA. Navigator's fleet consists of 53 semi- or fully-refrigerated liquefied gas carriers, 21 of which are ethylene and ethane capable. The company plays a vital role in the liquefied gas supply chain for energy companies, industrial consumers and commodity traders, with its sophisticated vessels providing an efficient and reliable 'floating pipeline' between the parties, connecting the world today, creating a sustainable tomorrow.

Q. Navigator has been on an aggressive growth curve over the last two years. Can you tell us a little about the plans for future expansion, profitability and perhaps more mergers and acquisitions?

2021 was a landmark year for Navigator. The merger with Ultra Gas has strengthened the fleet size to become a significant market leader in the oil and natural gas sector. Throughout 2021, fleet optimization remained at 91.4 percent. Additionally, we have achieved a throughput of 234,000 tons With these foundations, we continued our strong operational performance in Q4 2021, during which our fleet utilization remained at a high of 91.4 percent, and we achieved throughput volumes of approximately 241,500 tons at the ethylene export marine terminal at Morgan's Point. Navigator Gas shall continue to be a global leader in seaborne transportation services of petrochemical gases, such as ethylene and ethane, LPG etc.

Oeyvind Lindeman is CCO Navigator Holdings (Navigator) Oeyvind has vast experience in developing a vision of success, expanding business, boosting sales, and driving profitability. Before being appointed chief commercial officer in January 2014, Oeyvind has been heading chartering for the company since 2007. Prior to Navigator, Mr. Lindeman was employed for five years at A.P. Møller Maersk, a gas transport company as charterer. Mr. Lindeman holds a BA with honors from the University of Strathclyde and an Executive MBA with distinction from Cass Business School.

Q. What are the key industry issues that dominate your mind space at this point in time?

Crew changes remain a challenge, similar to most shipowners, although an increasing number of crew changes have successfully occurred during the quarter. Dry docking vessels too have been difficult with some yards closing on short notice. However, dry dockings have occurred at various dockyards around the world and the company has completed five drydocks during the third quarter.

In Conversation

Q. How has the ongoing COVID-19 pandemic, followed by the geopolitical de-stability affected your plans and goals?

COVID-19 was definitely an existential threat to the global economy. However, the maritime industry was significantly moving towards digitization before the outbreak. True the industry has followed intensive paper regime activities for decades, but now we are slowly adopting different methodologies to automate the industry and Electronic Bill of Lading (eBoL) is an example. What I have personally noticed is, the millennial generation has loved the new working style which is WFH and e-meets. Honestly, I believe certain changes in the working style will help the younger generation take the industry forward.

The war in Europe has of course influenced shipping routes. Forward contracts needed to be reworked, and on-demand for gas cargoes has been strong and we believe it will continue to be so in the immediate coming years.

Q. What is Navigator's stance on sustainability, diversity, and the climate change movement? How do you perceive renewable energy sources and clean ships of the future?

We believe in using environmentally accepted lubricants and low-emission gas-fueled vessels. We are also looking at ammonia fueled vessels as alternative fuels, to reduce our carbon footprint. We have to look for ways to balance the fuel consumption capacity of alternate fuels, in the newly designed vessels carrying petrochemical products, for safer deep-sea voyages causing less harm to the environment.

Q. What are the core values of Navigator that drive collaboration with partners?

As industry experts in the oil and natural gas sector, we believe in collaborating with our partners to solve major business challenges whether in

terms of executing safe commodity transportation with zero incidents at sea, finding alternate fuel options for a greener environment, or scouting for better fuel efficient vessels, automation etc. Through our 3 pillars which are safety, reliability and efficiency, we look forward to maintaining our position as a global player not only in terms of transportation of petrochemical gases but also to resolve complicated logistical issues with the expertise of our in-house team.

Q. The COVID-19 situation and also current geopolitics have led to major challenges for seafarers trapped at sea. How do you plan to handle disruptions like this?

Our seafarers are highly trained professionals who know their job at sea. In times of COVID-19 we have followed protocols and executed our tasks in an orderly fashion. In the current war scenario, we still have a significant number of Russian and Ukranian seafarers working together in a harmonious manner until the completion of the voyage. True, everyone is watching their respective local news channels and are highly opinionated about the ongoing situation, but debates or altercations do not surface at the workplace. At Navigator Gas, we have always ensured creating a safe work environment for our employees.

Q. How do India and the Indian subcontinent figure in the gas trades? Do you see changes ahead impacting this?

India has a huge reservoir of oil and natural gas. India has already witnessed steady increase in production supply of oil and natural gas, and the Reliance Group is the key market player as an explorer and producer in this segment. They are one of the best, known to us. Such key players backed by superior technology and great in-house experts will help India achieve greater achievements in production, supply and consumption. Indian companies should and could look at opportunities for storage and last-mile delivery to capitalize on the increasing demand for gas cargoes.

Technologies

This Site Can't Be Reached! Modern Day Warfare

Cybersecurity In The Shipping And Logistics Industry

There was panic all around, as authorities tried to figure out what was happening. It was just a click on a seemingly harmless, email received that might have brought the whole system to a standstill.

With brazen hacking schemes in past years, including the debilitating 2021 ransomware hack of the Colonial Pipeline in the US, cyberattacks today are part of modern warfare. In Russia's war against Ukraine, these tactics are being used to demoralize and spread misinformation. Thus, the need for a safe and secure cyberspace has become more important than ever, especially as we all grow increasingly dependent on 'digital lifelines'.

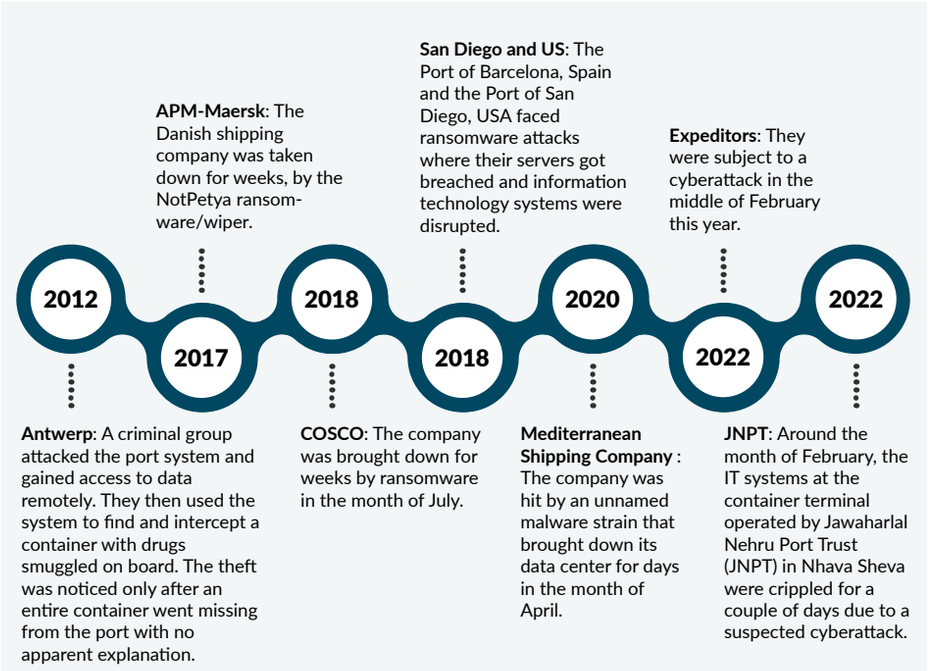
In the global supply chain, the shipping industry has also become an attractive target for cyber criminals, and politically motivated attacks. Many have been targeted over the years, be it liners, ports or 3PL's.

Cyberattacks can be in the form of changes in ship data, including its position, course, cargo information, speed and name. Creation of 'ghost ships', recognized by other ships as a real ship, in any location in the world, sending false weather information to specific vessels to force them to change course to avoid a non-existent storm. The possibility of carrying out a Denial of Service (DoS) attack on the entire system by initiating an increase in the frequency of transmission of Automatic Identification System (AIS) messages and more.

As quoted by Yvan Byeajee "**Risk and opportunity are two sides of the same coin**", with new technology, more automation and digitalization - we grow more digitally bound, connected and efficient, making cyber security increasingly important in our space.

Various regulations and laws are being introduced that require stakeholders to consider cyber risks, such as the International Maritime Organisation (IMO) guidelines on maritime cyber risk management. The guidelines provide high-level recommendations on maritime cyber risk management, to safeguard shipping from current and emerging cyber threats and vulnerabilities, and include functional elements that support effective cyber risk management. These recommendations can be incorporated into a company's existing risk management processes and are complementary to the safety and security management practices already established by IMO.

There are also others such as the guidelines on cybersecurity onboard ships issued by International Chamber of Shipping (ICS), International Union of Marine Insurance (IUMI), Baltic and International Maritime Council (BIMCO), Oil Companies International



Technologies

Marine Forum (OCIMF), International Association of Independent Tanker Owners (INTERTANKO), International Association of Dry Cargo Shipowners (INTERCARGO), World Shipping Council (WSC) and Superyacht Builders Association (SYBAss), Consolidated International Association of Classification Societies (IACS), recommendation on cyber resilience (Rec. 166), International Association of Ports and Harbors (IAPH), Port Community Cyber Security Report, ISO/IEC 27001 standard on Information technology – Security techniques – Information security management systems – requirements. Published jointly by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) and United States National Institute of Standards and Technology's Framework for Improving Critical Infrastructure Cybersecurity (the NIST Framework).

Nothing great comes without risk, so we can only manage it better - Cyber Risk Management

Companies must conduct a proper assessment of any potential maritime cybersecurity risks across people, processes and technologies. Post that, a cybersecurity policy must be incorporated across all levels of the organization, onboard and ashore. Companies must also develop a continuous process of reviews, inspections, internal cybersecurity audits and feedback mechanisms.

In cybersecurity, the more systems we secure, the more secure we are. So, be aware, beware and smarter with all the software.

6 steps of cyber risk management

- Assess risk exposure
- Develop protection and detection measures
- Identify threats
- Respond
- Security incidents
- Establish contingency plans

Did you know?

Around more than half of the world's countries now have a Computer Incident Response Team (CIRT) and almost two-thirds have some form of a national cybersecurity strategy guiding their overall cybersecurity posture.

There also is GCI, the Global Cybersecurity Index (GCI) - an initiative of the International Telecommunication Union (ITU), the UN specialized agency for ICTs, shaped and improved by the work of a diverse range of experts and contributors within countries and other international organizations.

Global scores and ranking of countries

Country Name	Score	Rank
United States of America	100	1
United Kingdom	99.54	2
Saudi Arabia	99.54	2
Estonia	99.48	3
Korea (Rep. of)	98.52	4
Singapore	98.52	4
Spain	98.52	4
Russian Federation	98.06	5
United Arab Emirates	98.06	5
Malaysia	98.06	5

Ports & Logistics

PM Gati Shakti And Key Take Aways For International Cargo Terminals

India is setting itself up to become a $5 trillion economy, and infrastructure development will play an important role in this endeavour. The Gati Shakti National Master Plan for multi-modal connectivity, is the result of the Prime Minister's constant endeavour to build the country's next-generation infrastructure which improves ease of living, as well as ease of doing business. This type of multi-modal connectivity will provide integrated and seamless connectivity for movement of people, goods and services from one mode of transport to another. It will create multiple employment opportunities and give the economy a boost. It will improve the global competitiveness of local products by cutting down logistic costs and improving supply chains, and also ensure proper linkages for local industries and consumers. Gati Shakti incorporates infrastructure schemes of various ministries and state governments like Bharatmala, Sagarmala, inland waterways, dry/ land ports, UDAN etc. Economic zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, agri zones will be covered to improve connectivity and make Indian businesses more competitive.

Gati Shakti seeks to use technologies like Geographic Information System (GIS)-based Enterprise Resource Planning (ERP) with multiple layers of evidence-based decision-making, besides tools for route planning, dashboard-based periodic monitoring

and latest satellite imagery. Expected to be ready by March end, Bhaskaracharya National Institute for Space Applications and Geoinformatics (BiSAG-N) is designing this interface. It also uses satellite imagery available from the Indian Space Research Organisation (ISRO) and base maps from the Survey of India. Visualisation of BISAG maps will be available to people at large including the private sector, thus bringing efficiency. More than 400 data layers are now available on the portal which give information on not just the existing and proposed infrastructure projects, but also on forest land and available industrial estate.

The 6 pillars of the plan are:

Comprehensiveness: Aimed to include all ministries and departments on one centralised portal, to increase visibility and provide critical data for planning and execution of projects.

Prioritisation: Different departments will be able to prioritise projects through cross–sectoral interactions.

Optimization: The National Master Plan will assist different ministries in planning projects after identification of critical gaps. It will also put strategy in place for transportation of goods from one place to another, by

Ports & Logistics

selecting the most optimum route in terms of time and cost.

Synchronisation: Eliminate siloed cultures adopted by individual ministries and departments by synchronising the activities of each department, and different layers of governance to ensure seamless coordination.

Analytical: Planning entire data at one place with the GIS based spatial planning and analytical tools having multiple layers, enabling better visibility to the executing agency.

Dynamic: All ministries and departments will now be able to dynamically visualise, review and monitor the progress of cross-sectoral projects, through the GIS platform, as the satellite imagery will give on-ground progress periodically and progress of the projects will be updated on a regular basis on the portal. It will help in identifying the vital interventions for enhancing and updating the master plan.

The Gati Shakti national master plan, spruced by seven engines of infrastructure - roads, railways, airports, ports, mass transport, waterways, and logistics infrastructure, will go a long way in developing a multi-modal network to create world-class infrastructure with full support on planning, financing, innovation and technology.

Given that ports are key engines for economic growth, Gati Shakti also includes the development of 100 PM Gati Shakti Cargo Terminals (GCT) between 2022 to 2025. Here are some key take aways for terminals:-

- All new as well as under construction / under approval cargo terminals will be covered under this policy
- Existing sidings/ terminals can also migrate to this policy
- Unlike in earlier terminal development policies, no development charges need to paid under this policy when the entire land belongs to the private entity. These were 4 percent of the cost of the rail yard planned
- No lease charges are payable for the portion of land given for rail connectivity. Earlier these were payable as per applicable rules.
- No charges recoverable from the PPP partner for infrastructure upgradations done at the station for common use. Earlier these were recovered from the PPP partner developing the terminal on their land.
- The Indian Railways can give connectivity permission to more than one entity from the same station.
- Terminals can be set-up either partially or completely on railway land. In such cases the various divisions of the Indian Railways shall identify stations where land is available to offer. Post this, concerned divisions will issue an expression of interest (EOI). Once responses are received for stations these will be tendered out to the bidders offering to share the highest revenue with the Indian Railways. The initial tenure of such terminals will be 5 years, which can be extended by further periods of 5 years up to a maximum of 35 years.

Ports & Logistics

VISAKHA CONTAINER TERMINAL With Its Growth Prospects

The expansion of Visakha Container Terminal (VCT) coupled with the berth extension, finally came to fruition earlier this year, after delays caused by the global pandemic. While the existing T1 terminal of Visakha Cargo Terminal has the capacity of 0.6 Mn TEUs, the new terminal -T2 has a capacity of 0.75 Mn TEUs, thus taking the overall annual handling capacity of the terminal to 1.35 Mn TEUs.

The berth has been extended by an additional 395 meters taking the total quay length of the terminal to 845 meters. The new T2 is equipped with three Super Post Panamax Rail Mounted Quay Cranes for handling vessel side operations with an outreach to handle 22 containers across vessels and 9 electrically operated Rubber Tyred Gantry Cranes (e-RTGCs) for yard operations. With this, Visakha Cargo Terminal has a total of 9 quay cranes and 19 RTGCs along with 7 reach stackers for catering to operational requirements. T2 also has 300 reefer plug points in addition to the earlier 350 plug points at T1, taking the total number of reefer plug points to 650.

With the 845 meters quay length available, container vessels can berth immediately on arrival thereby minimizing the waiting time to berth. Moreover, additional equipment deployed will be key for quicker evacuation of containers enabling faster turnaround time of vessels, while allowing room for new services to call Visakha Cargo Terminal. On the other hand, additional yard capacity created will allow more room, to stack containers.

Visakha Cargo Terminal now has the capability to become a container hub because of its locational advantage, deep draft of 16.5 m, weekly mainline and feeder services offering global connectivity and the requisite modern infrastructure to handle transshipment traffic.

DAILY SHIPPING TIMES 18th APRIL 2022 27

Visakha Container Terminal (VCT) increases productivity levels with the commencement of the new Terminal -T2

VISAKHAPATNAM : The newly commissioned T2 terminal at Visakha Container Terminal (VCT), operated by J M Baxi Ports & Logistics, has helped in reducing the time needed to unload/ load a vessel at VCT. On 05th April, 2022, VCT handled the first vessel M.V Celsius Nairobi of CHX service at T2. This weekly service was operated by Maersk Line with 2662 containers (2878 TEUs) handled. The terminal achieved a crane productivity of 36 gross moves per hour and ship productivity of 103 moves per hour.

On 13th April, 2022, another vessel M.V GH Pampero of the same service of Maersk Line was berthed at the new terminal - T2, with an exchange of 1746 moves (2044 TEUs). The terminal performed a crane productivity of 33 gross moves per hour and ship productivity of 93 moves per hour.

Three new Super Post Panamax Rail Mounted Quay cranes were deployed for the vessel operations while the electrified rubber-tyred gantry cranes (ERTG) played their part in making the yard operations faster and efficient. All of these helped in achieving a higher productivity level, resulting in faster turn-around times for the vessels at the terminal, and gave room for the vessel to sail earlier than the estimated time.

With the newly extended quay of 395 meters adding up to the earlier 450 meters, there is now flexibility for berthing of vessels on arrival at VCT even when arriving out of the scheduled window.

With enhanced operational efficiency due to the commission of the new terminal (T2), VCT will facilitate faster movement of shipments, thereby reducing the cost of logistics and improving effectiveness of the supply chain for the Export-Import trade.

The new terminal came into operations with the handling of the maiden vessel m.v. TRF Kaya of MDM Service operated by Bengal Tiger Line (BTL) that was berthed at T2 on 15th March 2022. Besides the handling of vessels, T2 has established connectivity to Durgapur. The maiden container rake to Inland Container Deport (ICD) Durgapur was flagged off from Vishaka Cargo Terminal on 20th February 2022 in the presence of CONCOR, Wan Hai and the Visakha Cargo Terminal team. The rake operated by CONCOR carried 90 TEUs of Wan Hai which were destined for customers near the Kolkata region. Likewise, many more containers are expected to arrive that will be connected to ICD Durgapur with the support of CONCOR rakes, making the new product a great success.

Furthermore, Visakha Container Terminal is connected by rail to ICD Birgunj, Nepal from the terminal via Container Train Operators (CTO). Visakhapatnam has become the preferred gateway port to Nepal because the container terminal is equipped with excellent infrastructure for handling containers and has a proven track record for efficiency. India is one of Nepal's largest trading partners, and Visakhapatnam handles about 60 percent of Nepal-bound rail traffic. Trade between the two countries via Visakha Cargo Terminal has been increasing since 2017.

Private CTOs in India and Nepal can now utilise the Indian railway network to carry freight containers with imports to, or exports from Nepal. This move by both governments has opened doors for the CTOs to participate in Nepal's rail traffic and will benefit merchants by reducing transportation costs. As a result, J M Baxi in collaboration with Pristine Logistics, had its maiden container rake movement on 26th November 2021 from Visakha Cargo Terminal to Birgunj ICD in Nepal. This initiative has opened new avenues for bilateral trade and transit sector. Currently an average of 25 rakes per month are being handled at the terminal. The erstwhile pendency of Nepal bound containers had increased due to various reasons. The deployment of additional rakes in the circuit, by both Pristine Logistics and J M Baxi group at the right time has ensured that the pendency of containers bound for Nepal has been reduced faster than the estimated time. With the kind of efficiency, the CTOs and the terminal has showcased, the turnaround of containers to Birgunj has become faster through Visakhapatnam.

Environmental, Social & Governance

One Step At A Time To An Energy-efficient Future

The world is at a crossroad. Industries and companies across, acknowledge that our environmental issues have progressed from a state of 'climate crisis' to 'climate emergency'. International organizations such as the United Nations through the Principles of Responsible Investment (PRI) too are pressing for change and strongly promoting the incorporation of Environmental, Social and Corporate Governance factors (ESG) into investment decision-making. The deeper question and conflict arising amongst many companies is, can traditional business practices be tied to sustainable business making? Major companies are taking the lead by experimenting with new technologies that can aid in sustainability, while also moving with sure-footedness, as they adopt proven technologies and metrics. One of the key areas that is seeing a lot of work and success is the move away from fossil fuels. Electrification is widely considered a winning solution to reduce oil dependency and decelerate the environmental impact caused by using fossil fuels through the years. The shipping and ports industry is one such example.

Shipping is the most efficient way to transport cargo across the world. However, the shipping industry is also responsible for a sizeable chunk of global greenhouse gas emissions. 2021 industry estimates point out that the global shipping industry produces nearly 4 percent of all the CO2 emissions, an estimated 15 percent of global Nitrous Oxides (NOx) emissions, and 4-6 percent of global Sulphur Oxide (SOx) emissions. While the shipping industry is an essential aspect of any country's economic engine, its role in being a significant source of air pollutants is undeniable. This is mainly due to diesel emissions from both landsides, waterside transportation and cargo handling equipment. Vessel operators, port operators and port owning governments, are now cognisant of this fact.

Cargo handling at ports is performed by cranes such as Rubber Tyred Gantry Cranes (RTGC), Rail-Mounted Gantry Cranes (RMGC), reach stackers, and vehicles that transport them. The number of container movements and the efficiency of each movement has a direct impact on the energy consumption of the equipment and the overall carbon footprint of a port. This is an aspect to focus on, alongside the throughput capacity and earnings of the port. A diesel engine crane will keep adding to the carbon footprint, and remain inefficient due to energy loss when the crane is not in use. This aspect can be remedied through the electrification of the engine by increasing efficiency through reduced energy consumption while decreasing greenhouse emissions. All of this being a critical step for the future, has judiciously been taken up by the J M Baxi group.

J M Baxi Port and Logistics Pvt. Ltd. have plans to electrify its terminals across the country as part of its sustainability agenda for the future. This strong-willed initiative for electrification is to ensure lower carbon emissions, cleaner fuel usage, and a safer environment for an energy-efficient India.

Environmental, Social & Governance

To ensure the fruition of that future, Paradip Multipurpose Clean Cargo Terminal, Kandla Container Terminal, Visakha Container Terminal. will undergo modifications to their Rubber Tyred Gantry Cranes (RTGCs) enabling them to be electrically powered.

This significant move of electrifying 13 Rail Mounted Gantry Crane (RMGC's) - 7 at Visakha Container Terminal, 2 at Paradip Multipurpose Clean Cargo Terminal and 4 at Kandla Container Terminal is estimated to bring in a total EBITDA saving of Rs. 250 Mn within the next 3 years. It will also help save 568 Metric Ton (MT) of CO2 in 3 years, with an average payback period of 2.5 years. Moreover, modifications performed on the Rail Mounted Gantry Crane (RMGC's) will ensure the relieving of reach stackers from usage at these terminals. Reach stackers utilize a significant amount of fossil fuel, such as diesel. In total 6 RMGC's will be electrically powered - 2 at Visakha Container Terminal, 2 at Delhi Inland Container Terminal, and 2 at Paradip Multipurpose Clean Cargo Terminal. This, in effect, would help save close to 519 Metric Ton (MT) of CO2 within 3 years, saving another Rs. 320 Mn as EBITDA.

Furthermore, another area of modification will be RTGC at the Container Freight Stations (CFS) and Inland Container Depots (ICD) of the company. The RTGC's, 2 at Mumbai Container Freight Station, 2 at Vishaka Container Freight Station, and 2 at Delhi Inland Container Terminal will undergo electrification. This will help save an estimated 590 Metric Ton (MT) of CO2, accompanied by a total EBITDA saving of Rs. 340 Mn in 3 years, with an average payback period of 3.2 years.

This initiative by JM Baxi Port and Logistics Pvt. Ltd. for all its terminals is a great start to building a solid runway for an energy-efficient, carbon-free, and sustainable future.

Weights And Measures

INDIA'S Roadmap For Biofuels

India is one of the fastest growing economies and the third largest consumer of primary energy in the world after the US and China. India's share in global energy consumption is estimated to double by 2050. Rising energy demand and high reliance on import, poses significant energy security challenges. It also leads to massive foreign currency outflow. Further, excessive use of fossil fuels leads to higher carbon emissions and associated health concerns. India's fuel energy security will remain vulnerable until alternative fuels are developed, based on renewable feedstocks. The government of India targets reducing the country's carbon footprint by 30-35 percent by 2030. These targets will be achieved by adopting biofuels and renewables.

The government aims to provide 24x7 access to different forms of energy to end consumers, and bioenergy can play an instrumental role in this endeavour. The government has planned to electrify all the willing households in the country at 450 GW of renewable energy capacity by 2030.

India is endowed with abundant indigenous, non-polluting, and virtually inexhaustible renewable energy resources. According to the National Biofuel Policy 2018, the government of India has proposed a target of 20 percent blending of ethanol in petrol and 5 percent blending of biodiesel in diesel by 2025.

The above targets will be met through,

1. Growth in domestic biofuel production
2. Use of multiple feedstocks
3. Encouraging biofuel blending to supplement gasoline and diesel

There was shift in the government policy from the 2018 National Biofuel Policy, where the focus was on second-generation sources, to the 2021 NITI Aayog Roadmap for Ethanol Blending where the focus was back to the first-generation crops for biofuels. In the 2021 roadmap, the ethanol blending targets were also fast-tracked from 2030 to 2025. The new programme aims for 20 percent ethanol blending by 2025, and 5 percent biodiesel blending by 2025. While ethanol production is mainly derived from sugar crops and agricultural waste, biodiesel is driven from oil-based seeds and plants.

The Indian government recently announced that 11 states/union territories have achieved the target of 10 percent blending. According to the data these states are - Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Punjab, Telangana, Uttar Pradesh and Daman and Diu and Nagar Haveli. With an overall average of 9.45 percent ethanol blending with petrol, India is likely to reach a target of 10 percent ethanol blending by November 2022.

Existing and Proposed Advanced Biofuels Plants

Company	Year	Status	Scale/Technology	Annual Production Capacity (Million Liters)
Indian Glycols Kashipur	2016	Operational	Demo/Cellulosic ethanol	0.75
Praj Biofuels	2017	Operational	Demo/Cellulosic ethanol	1
Shell Bengaluru	2018	Operational	Demo/Drop-in Fuels	0.6
Numaligarh Refinery Limited	2018	Planned	Commercial/Cellulosic ethanol	60
IOCL Panipat	2019	Planned	Commercial/Cellulosic ethanol	30
BPCL Bargarh	2018	Planned	Commercial/Cellulosic ethanol	30
HPCL Bhatindia	2017	Planned	Commercial/Cellulosic ethanol	30
IOPCL Panipat	2019	Planned	Demo/Cellulosic ethanol	0.75
HOP Dehradun	2018	Operational	Pilot/HEFA Biojet	0.01
IOCL Panipat	2019	Planned	Commercial/3G ethanol	3.3

ETHANOL

Ethanol is derived either from feedstock such as sugarcane juice or molasses, considered first-generation sources, or through paddy straws, bagasse, forest residues, and others. The Ethanol Blending Programme (EBP) in India started in 2003, with the target of 5 percent blending of ethanol in petrol in selected districts which was later expanded to more states in 2006. Ethanol is used for blending with petrol due to its characteristics, which lead to benefits such as an increase in engine

Weights And Measures

efficiency, better fuel quality due to its higher octane number, and other environmental benefits. Due to its complete combustion quality, ethanol leads to lesser emissions of carbon monoxide, and other Particulate Matter (PM).

India: Ethanol Scenario (Million Litres)					
Calendar Year	2017	2018	2019	2020	2021(E)
Production	1,671	2,692	2,552	2,981	3,178
Imports	722	607	704	722	750
Exports	141	129	50	133	140
Consumption	2,230	3,020	3,360	3,300	4,120
No of Refineries	161	166	170	220	231+
Nameplate Capacity	2,215	2,300	3000	3,500	4,200
Capacity Use (%)	75	117	85	85	76
Molasses	2019	Planned	Demo/ Cellulosic ethanol	0.75	
(Feedstock use for fuel)	2,813	6,250	7,000	6,407	9,643
Fuel Ethanol	675	1,500	1,890	1,730	2,700
Gasoline	35,701	38,896	42,266	34,930	36,000
Blend Rate (%)	1.9	3.9	4.5	5.0	7.5

Trade

Despite increased domestic production, India remains a net ethanol importer. In 2020, Indian ethanol imports increased 3 percent to 722 Mn litres, valued at $300 Mn. For the eighth consecutive year, the United States remained the largest ethanol supplier to India at 96 percent of India's total ethanol imports. Strong local demand for industrial and medical-grade ethanol continues to drive U.S. exports. Other suppliers to India in the period included Singapore, Sri Lanka, Pakistan, China and Brazil.

BIODIESEL

Since 2000, the share of biodiesel in total biofuel production has increased nearly ten-fold, from 3.3 percent in 2000 to nearly 32 percent in 2020, but bioethanol still accounts for two thirds of total production. The biodiesel market remains informal, dispersed with minimal domestic production. As many countries operate at a minimum of B5, and several including Brazil, Thailand, Argentina, Malaysia, Indonesia running at B10 or higher, India's biodiesel market has tremendous growth potential. However, India must retain a viable strategy that builds a financially sustainable domestic industry that contains sufficient feedstock availability coupled with market access for imports.

Jatropha and Biodiesel

In the West, biodiesel is produced mostly from field crops like rapeseed and sunflower in Europe and soyabean in the US. Malaysia utilises palm oil while Nicaragua uses Jatropha. In India, there is a vast potential to produce biodiesel from Jatropha.

In December 2009, the Union government launched the National Biodiesel Mission (NBM) identifying Jatropha as the most suitable tree-borne oilseed for biodiesel production to help achieve a proposed biodiesel blend of 20 percent with conventional diesel by 2017. Biodiesel procurement started in 2014 and a pilot programme was started in August 2015 and was extended to six states. However, due to an acute shortage of Jatropha seeds, the government's

Current Scenario

In 2021, India produced 180 Mn litres of biodiesel, 10 percent below 2020 levels. India has more than six plants with an installed annual biodiesel production capacity (maximum possible) of one Bn litres. However, the operating capacity remains at 500-550 Mn litres, as majority of the plants remain closed due to the lockdown and high feedstock prices (imported palm oil, palm stearin and domestically available animal tallows) that have reduced their operating margins. The production capacity ranges from 11 Mn to 225 Mn litres for existing plants. India's annual biodiesel consumption grew by 6 percent till 2019, however due to the pandemic demand dropped by almost 24 percent and remained flat at 140 Mn liters in 2021. Muted demand for Biodiesel is because its applications are limited to certain OMC retail outlets, Indian railways, certain state road transport corporations, road transport fleet companies and port authorities. India's 2021 biodiesel exports were 50 Mn litres down by 26 percent, nearly all biodiesel is exported to Europe (primarily the Netherlands, Spain and Belgium)

MARINE BIOFUEL

Marine biofuel has the potential to become an environmentally friendly alternative fuel. It will be able to reduce CO2 by about 80-90 percent in the well-to-wake (from fuel generation to consumption) process without changing current engine specifications. Marine biofuel uses renewable organic resources such as biomass which are not utilized as foodstuff and feed crop. Biofuels are made from renewable organic resources like biomass.

Furthermore, for its production, waste and residues that need to be disposed of, can be reused. Some examples are used cooking oil collected from

Weights And Measures

India: Biodiesel Scenario (Million Litres)					
Calendar Year	2017	2018	2019	2020	2021
Production	170	185	230	200	180
Imports	7.1	25.2	7.0	1	1
Exports	7.6	23.1	54.0	68	50
Consumption	165	180	185	140	140
No of Biorefineries	6	6	6	6	6
Nameplate Capacity	600	650	670	580	520
Capacity Use (%)	28.3	28.5	34.3	34.5	34.6
(Feedstock use for fuel) (1,000 MT)					
Non- Edible Industrial	100	110	140	145	90
Used Cooking Oil	55	60	65	50	55
Animal Fats/Tallows	6	8	10	9	9
Total	**161**	**178**	**215**	**204**	**154**
Market Penetration (Million liters)					
Biodiesel, on – road use	72	83	100	50	50
Diesel, on -road use	56,715	59,220	60,145	44,400	52,927
Blend Rate (%)	0.13	0.14	0.17	0.11	0.09
Diesel, total use	94,524	98,700	100,241	74,000	75,000
Source: Trade Data Monitor (TDM) and Industry Sources.					

Proposed Biodiesel Plants				
Applicants	Offered Capacity (TPD)	Plant Location	State	Status of Application
Adnoc Chem Pvt.Ltd.	30	Indore	Madhya Pradesh	LOI Issued
Pyarelal Enterprises	10	Kanpur nagar	Uttar Pradesh	LOI Issued
Pyarelal Enterprises	10	Allahabad	Uttar Pradesh	LOI Issued
Pyarelal Enterprises	10	Varanasi	Uttar Pradesh	LOI Issued
Endri Poly Plast	9	Farehpur	Uttar Pradesh	LOI Issued
BioD Energy India Pvt.Ltd.	11	Barwad	Haryana	Evaluation Completed
Greenhance Soplutions Pvt.Ltd.	13.2	Bhubaneshwar	Odisha	TCQ Pending
Bengal Bioiesel	50	24 South Parganas	West Bengal	TCQ Pending
Excel Technologies	12.22	Ghaziabad	Uttar Pradesh	Evaluation Completed
Excel Technologies	4.52	Meerur	Uttar Pradesh	Evaluation Completed
Sunshine Industries	11	Ahmedabad	Gujarat	Evaluation Completed
R N Fuels Pvt.Ltd.	10	Faridabad	Haryana	Evaluation Completed
RNS Automation	3.57	North Delhi	Delhi	TCQ Pending
RNS Automation	2.18	Muzaffarnagar	Uttar Pradesh	TCQ Pending
RNS Automation	1.82	Saharanpur	Uttar Pradesh	TCQ Pending
RNS Automation	2.23	Dehradun	Utrakhand	TCQ Pending
Vajrakaya Real Estate Pvt.Ltd.	20	Azamgarh	Uttar Pradesh	TCQ Pending
Vajrakaya Real Estate Pvt.Ltd.	20	Ghazipur	Uttar Pradesh	TCQ Pending
Vajrakaya Real Estate Pvt.Ltd.	20	Jaunpur	Uttar Pradesh	TCQ Pending
TOTAL	**682.03**			

restaurants and residential households and animal fats. This will avoid the use of raw materials that compete with food or feed market.

In 2021, Kawasaki Kisen Kaisha Ltd. (K LINE) signed a deal for marine biofuel supply with global integrated energy company BP and have conducted a trial use of marine biofuel on car carrier 'POLARIS HIGHWAY'. In the K LINE Environmental Vision 2050 - Blue Seas for the Future, they have set the 2030 interim target of improving CO2 emission efficiency by 50 percent over 2008, surpassing the IMO target of 40 percent improvement.

Challenges

While the government is confident of achieving 20 percent blending, there are some challenges along the way. For instance,

1. The transition from 10 percent ethanol blending to 20 percent would lead to other investments, and additional burdens on several sectors, ranging from its effect on farms to automobile users.

2. Existing vehicles are compatible with 5 percent-10 percent ethanol-blended petrol, so an increase in blending beyond that would mean replacing the existing stock or investing in retrofitting and calibrations.

3. In 2021, out of total ethanol produced in the country, 91 percent came from sugarcane alone. The sugar industry, claims that sugarcane and paddy (the feedstock source of ethanol) use 70 percent of India's irrigation water, leading to a lack of water availability for other crops.

Port Statistics

SHIPPING AND CARGO PERFORMANCE

QUARTERLY UPDATES ON INDIAN MAJOR AND MINOR PORTS (QTY IN MILLION TON)
JAN - MAR 2021-22 V/S JAN - MAR 2020-21

	LIQUID COMMODITIES & GASES									
	CRUDE OIL & OIL		CHEMICALS & LUBES		EDIBLE OIL & MOLASSES		ACIDS		LIQUIFIED GASES	
	Jan-Mar, 2021-22	Jan-Mar, 2020-21	Jan-Mar, 2021-22	Jan-Mar, 2020-21	Jan-Mar, 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21
No of Ships Called	1323	1395	226	704	318	0	174	178	373	409
Total Cargo handled	82.037	85.390	2.055	6.381	3.830	0.000	1.864	1.883	9.418	11.229
Import	62.247	65.235	1.192	4.066	3.434	0.000	1.740	1.799	9.021	11.114
Export	19.790	20.155	0.864	2.315	0.396	0.000	0.124	0.084	0.397	0.115

	FINISHED FERTILIZERS & FERTILIZER RAW MATERIALS									
	UREA		SULPHUR		ROCK PHOSPHATE		DAP		MOP	
	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21
No of Ships Called	29	27	4	15	24	50	32	7	17	26
Total Cargo handled	1.274	1.119	0.092	0.417	1.080	1.996	1.452	0.265	0.58	0.849
Import	1.274	1.119	0.092	0.312	1.080	1.996	1.452	0.265	0.588	0.849
Export	0	0.000	0	0.105	0	0.000	0	0.000	0	0.000

	COAL AND COKE									
	NON COKING COAL		COKING COAL		MET COKE		PET COKE		OTR GRADES OF COKE	
	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21
No of Ships Called	694	664	259	323	20	14	42	23	24	17
Total Cargo handled	49.921	50.532	13.762	18.509	0.633	0.395	1.913	1.109	0.427	0.364
Import	39.829	43.481	13.621	18.436	0.530	0.306	1.627	1.109	0.327	0.347
Export	10.092	7.050	0.141	0.073	0.103	0.089	0.286	0.000	0.100	0.017

	OTHER BULK & BREAK BULK CARGO									
	CEMENT		MINERALS		IRON ORE		STEEL PRODUCTS & PROJECT CARGO		GRANITE	
	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21
No of Ships Called	131	169	442	379	285	546	481	433	47	49
Total Cargo handled	1.784	2.646	17.322	15.013	18.932	31.713	4.918	4.416	1.094	0.886
Import	0.872	1.410	12.329	11.424	6.691	6.753	1.951	1.659	0.000	0.000
Export	0.912	1.236	4.993	3.589	12.241	24.960	2.967	2.757	1.094	0.886

	AGRICULTURAL PRODUCTS & EXTRACTIONS									
	SUGAR		RICE		SOYA BEAN MEAL		RAPE SEED MEAL		COPRA EXPELLER CAKE	
	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21	Jan-Mar 2021-22	Jan-Mar 2020-21
No of Ships Called	89	60	79	111	8	22	2	5	6	11
Total Cargo handled	2.701	1.760	2.280	1.796	0.160	0.468	0.063	0.062	0.055	0.069
Import	0.256	0.176	0.007	0.040	0.073	0.000	0.000	0.000	0.055	0.069
Export	2.445	1.584	2.274	1.756	0.087	0.468	0.063	0.062	0.000	0.000

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

Port Statistics

INDIAN PORT PERFORMANCE											
JAN-MAR 2021-22 V/S JAN-MAR 2020-21 CARGO THROUGHPUT (QTY IN MILLION TON)											
Ports	Types of Ports	NO. OF SHIPS		LIQUID CARGO		BULK CARGO		CONTAINERS (TEUS)		TOTAL CARGO *	
		JAN-MAR 2022	JAN-MAR 2021	JAN-MAR 2022	JAN-MAR 2021	JAN-MAR 2022	JAN-MAR 2021	JAN-MAR 2022	JAN-MAR 2021	JAN-MAR 2022	JAN-MAR 2021
KANDLA	PUBLIC	648	631	3.71	3.27	8.13	6.79	127,896	137,352	11.84	10.50
MUMBAI	PUBLIC	501	459	7.79	7.45	2.08	1.43	0	0	9.87	9.22
JNPT	PUBLIC	170	207	1.47	1.84	0.41	0.40	1,507,353	1,393,525	1.88	1.87
MORMUGAO	PUBLIC	114	141	0.14	0.21	3.92	6.63	0	0	4.06	6.77
MANGALORE	PUBLIC	368	364	7.59	7.07	3.00	2.83	0	0	10.58	10.42
COCHIN	PUBLIC	307	189	5.65	6.19	0.43	0.50	180,321	211,725	6.08	6.15
TUTICORIN	PUBLIC	207	262	0.38	0.33	3.51	3.14	190,223	227,763	3.89	3.52
CHENNAI	PUBLIC	206	202	4.04	3.35	1.18	1.32	395,252	427,460	5.22	5.35
ENNORE	PUBLIC	193	187	1.16	1.33	6.46	5.37	126,545	78,515	7.62	6.53
VISAKHAPATNAM	PUBLIC	459	506	3.97	4.14	10.88	12.67	128,377	117,464	14.85	16.64
PARADIP	PUBLIC	536	543	9.79	9.86	21.38	21.76	2,833	4,740	31.17	31.55
HALDIA	PUBLIC	429	477	3.69	3.57	4.58	5.80	39,099	48,769	8.27	9.49
KOLKATA	PUBLIC	17	20	0.01	0.00	0.03	0.08	138,262	140,027	0.05	0.09
GANGAVARAM	PRIVATE	72	132	0.00	0.00	4.87	9.25	0	0	4.87	9.25
PIPAVAV	PRIVATE	112	121	0.24	0.17	2.12	1.86	163,490	225,236	2.36	2.10
MUNDRA	PRIVATE	805	846	5.89	5.41	7.10	8.72	1,619,028	1,657,982	12.99	14.61
BEDI	PUBLIC	15	15	0.00	0.00	0.70	0.74	0	0	0.70	0.74
DAHEJ	PRIVATE	162	149	4.66	5.76	2.36	1.50	0	0	7.03	6.17
HAZIRA	PUBLIC	227	261	0.91	1.17	7.06	6.34	140,223	194,394	7.97	7.26
NAVLAKHI	PUBLIC	36	25	0.00	0.00	1.73	1.72	0	0	1.73	1.72
KAKINADA	PRIVATE	182	202	0.68	0.80	3.41	2.60	1,096	2,680	4.09	3.28
SIKKA	PRIVATE	381	352	32.34	31.32	0.05	0.00	0	0	32.39	32.34
VADINAR	PRIVATE	41	126	7.363	13.02	0.00	0.00	0	0	7.36	7.36
KRISHNAPATNAM	PRIVATE	182	202	0.27	0.32	8.45	8.08	10,421	77,282	8.71	8.35
KATTUPALLI	PRIVATE	18	11	0.00	0.05	0.13	0.04	142,731	155,171	0.13	0.04
BHOGAT	PRIVATE	7	7	0.54	0.50	0.00	0.00	0	0	0.54	0.54

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COLD CHAIN LOGISTICS

BULK LOGISTICS

RAIL LOGISTICS

KANDLA CONTAINER TERMINAL

HALDIA CONTAINER TERMINAL

VISAKHA CONTAINER TERMINAL I

VISAKHA CONTAINER TERMINAL II

VISAKHA CONTAINER FREIGHT STATION

MUMBAI CONTAINER FREIGHT STATION

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