

J M BAXI GROUP

TIDINGS

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From the Quarter Deck

Dear Friends and Colleagues, if the first 3 months were an early sign for the rest of the year then it's going to be an action packed 2022. The last three months have left us all breathless (but not due to Covid). However, one does not know how to start this column as there is so much to cover. The start of the year saw the onset of the third wave of COVID-19, the invasion of Ukraine by Russia. We have also seen rises in basic commodity prices for things such as metals, coal, agricultural produce, crude oil and gas. The rises have been greatly accelerated due to the war. Crude oil and Brent prices went as high as US\$ 125 per barrel. With the lethal combination of the past year's disruptions to supply chains and higher prices, we are seeing inflationary pressures in varying degrees across the world. As inflation is becoming an increasing concern for economists and central banks across the world the US Federal Reserve is beginning to increase interest rates.

THE FRONT-LINE HEADLINES OF INDIA HAVE BEEN:

- The introduction of the PM Gati Shakti programme.
- The introduction and enhancement of the Production Linked Incentives (PLI) scheme for various manufacturing sectors.
- GOI's push to set up manufacturing facilities for semiconductors and chips.
- A major thrust towards clean energy and clean fuel, specifically hydrogen. Solar energy is gaining a major role as a source of clean renewable energy.

The other news was India's financial budget for the fiscal year 2022/2023 and an analysis of the agriculture output in India for the year 2021/2022.

The third wave of COVID-19 has abated, and at the time of writing, India has begun to unlock. Experts seem to opine that the world will have to live with COVID-19, just as we do with flu, and treat it as the new normal. Hygiene and concern for others will be the

desired behaviour patterns. Be safe, be healthy and be careful.

A brief background of the PM Gati Shakti programme will provide a perspective. Over the last few years, the GOI has been focused on turning India into a competitive and efficient economy. Logistics has a large role to play in the GOI's plans. The availability and creation of infrastructure therefore, is an important aspect of policy and planning. This can be seen with the rapid addition and expansion of ports, roads, warehouses, multi-modal logistics parks, inland waterways, etc. In our maritime landscape, we have the Maritime Vision 2030 document, which lays out the pathway ahead. We have seen the creation of the Sagar Mala Development Corporation, an implementation arm of the Sagar Mala programme. However, in the very recent past, supply chain disruptions have had catastrophic impacts on the economies of almost all countries. One of the main causes has been the ongoing trade tensions between the USA and China. Whilst China's status as the factory of the world may not change in a hurry, global stakeholders would like to see a China +1+2+3 model of doing business. India would obviously like to be a stronger participant in this development. Achieving this ambition will require several steps, such as developing more technology, establishing modern manufacturing processes and increasing government support, both at the central level and also at the state level. We have seen the Atmanirbhar programme, the Make in India programme and the Skill India programme, and now we are seeing the introduction of the PLI programme. Along with this, it is also expected that India will be a \$5 trillion economy by 2025 and a US\$ 8 trillion economy by 2030.

With this background, the PM Gati Shakti programme is a logical 'unified theory of development'. The PM Gati Shakti, as defined by our Prime Minister Narendra Modi, is based on seven engines of growth: roads, railways, airports, ports, public transportation, waterways and logistics. These forms of infrastructure must



all work harmoniously together, and also with platforms like the Unified Logistics Integrated Platform, the National Master Plan Portal, the Asset Monetisation Pipeline, etc. To achieve its goals, India has to go up the value chain in the manufacturing sector, especially technology-based manufacturing such as engineering goods, electronic goods, high-end chemicals, pharmaceuticals, textiles, food processing, etc.

In 2021/2022, agricultural production has been steady, with visible growth in a few crops. Wheat, rice, oil seeds, pulses, soya, maize, cotton, coffee, tea, sugarcane, dairy and horticulture have all shown robustness. This year, therefore, we should see a continuation of our healthy exports of agriculture products. Some impact on India's exports of tea and rice to Russia may be felt due to the Russia-Ukraine war.

The main highlight of the Union Budget of India for 2022/2023 is clearly the focus on public investment in the development and creation of various forms of infrastructure, especially roads, railways and urban development. The logistics and the maritime sector is also likely to see greater investment through public-private partnerships (PPPs). The GOI has also introduced a new act, the Major Port Authorities Act, which supersedes the earlier Major Port Trust Act. On a basic level, our major ports, which were operated as trusts, will become authorities. A detailed assessment of the implications of this new act is available from our commercial, legal and research team, if you are interested in learning more.

The unabated rise of commodity prices is certainly leading to inflationary pressure. The rise of crude oil prices will lead to higher fuel costs,



From the Quarter Deck

resulting in increased transportation costs. This is happening at a time when the global container shipping market is still experiencing the lethal disruption. Several ports, especially in the US, Europe and the East, have been congested for weeks. There are shortages of space, slots and containers, and freight rates are at astronomical levels and any return to normalcy is not yet visible. In parallel, we understand that the major container lines have a collective cash surplus of approximately US\$ 130 to US\$ 150 billion for the calendar year 2021. In comparison, in 2021, Amazon had a net income of US\$ 33 billion and Walmart of US\$ 13.70 billion. It is heartening to see that new orders for 600 ships have been placed with shipyards. Let's hope that the shipping companies do use this cash bonanza to order more ships and containers to bring the demand-supply dynamics back to manageable levels. At these high freight levels, there is a major risk that volumes of international trade will fall. Moreover, it will be interesting to see the emergence of a clean fuel solution for ships. Shipping companies, engine makers and other stakeholders are working on solutions ranging from e-methanol, e-ammonia, e-hydrogen etc.

One point that bears repetition is that during this supply chain disruption, when port congestion and berthing delays almost everywhere caused large economic losses with almost 20% of shipping capacity idle awaiting berths, Indian ports did not present these problems to shipping companies or the trade. In fact, Indian trade suffered due to inadequate sailings and slots. Once again, this proves to the shipping companies that it pays to do business with India. We expect that Indian ports will see a much larger allocation of services, sailings and slots for a wider range of ship sizes by the shipping companies.

The volumes of cargo at Indian ports have grown steadily (2-3%). One area that has seen consistent growth has

been the gas sector, especially the LPG sector. Once again, with the rising price of petroleum products, the increase in prices for LPG and LNG could prove to be a dampner for volumes.

Our organisation is seeing consistent growth in the capital goods sector with visible capital expenditure across various industries. In this issue, you will find an interesting article describing how J M Baxi Heavy moved multiple heavy packages for various clients. New projects, including expansion projects, present many exciting opportunities for J M Baxi Heavy, the project logistics specialist.

Our terminals, both at ports and inland, have shown credible growth, mainly due to our close relationships with our clients. Our rail division has provided good connectivity between our inland terminals and our port terminals. With a lot of satisfaction, we saw our VCT-2 (Vizag Container Terminal 2) come on stream in February as per our commitment to the port. It is a state-of-the-art facility with one of the deepest drafts in India. It has the most modern and advanced equipment, including post-Panamax twin-lift RMQCs etc. I hope you have an opportunity to visit us at Vizag.

Kudos to our shipping agency division, both containers and non-containers, for demonstrating resilience in their efforts and achievements. Despite all the challenges with space and container shortages, they have maintained our relationships with our principals and customers.

Similarly, please join me in congratulating our logistics division for having shown innovation and perseverance in enabling us to handle new types of commodities for new clients and also in expanding our footprint across India. I hope you enjoy the various articles in this issue, which covers several important and exciting happenings.

It seems that 2022 will be an exciting year with several opportunities for growth, for partnerships, for expansion and for exploring new horizons. It goes without saying that this will be a year of tremendous effort, dedication, focus and concentration. The next two to three years will see us grow as much as we grew in the last decade. Therefore, friends and colleagues, on your mark, get set, go!

Krishna B. Kotak
Chairman - J M BAXI GROUP



Marine Services

Breaking Bad – How The Logistics Industry Dealt With Current Day Challenges

The onset of the COVID-19 in 2020 brought the entire shipping industry to a standstill. The sudden worldwide disruption impacted the global supply chain, throwing trade out of gear. While the world is now becoming accustomed to dealing with the pandemic, the rollercoaster of challenges remains, characterized by a shortfall of vessels, container shortages and increasing freight rates.

SHORING THE PROBLEM

Considering the fact that the current container demand levels are here for the long term, there are yet no signs of tapering off. Thus, cargoes would continue to be 'decontainerized' into breakbulk modes and the trade explores to charter Multi-Purpose Vessels when they can find them, to meet their container obligations.

When countries began to accept that COVID-19 was a worldwide challenge, consumer demand slumped, leading shipping lines to cancel many of their routes between Asia and North America. This left ships mid-way between consignment pick-ups and deliveries, leading to a chaotic build-up of containers in places where they were not supposed to be. To make matters worse in March of 2021, a 20,000 TEU container vessel, Ever Given, ran aground in the Suez Canal. The six day blockage, further effected the circulation of containers and exacerbated the shortage. Additionally, to tide over the crisis of container shortages and the volatile freight regimes, traders gradually started exploring shipments in break bulk mode instead of the existing

containerised shipments. Break bulk cargo is transported in bags or boxes and takes less space in ships, thereby allowing more cargo to be transported, aiding faster exports. Various commerce departments started seeking information from the industry on the type of packaging being used for their cargo and shipment weight, to finalise the list of goods that can be exported as break bulk cargo. The idea was to create a database of all commodities that can be exported via priority berthing as break bulk cargo in order to facilitate faster export of suitable commodities.

The container shipping sector continues to push cargo to breakbulk and Multi-Purpose Vessels (MPV) carriers as distressed shippers and their forwarders cope with port congestion, skyrocketing container rates, and severe equipment shortages.

Today, even more cargo is transported in jumbo bags, which are made in many sizes, for contents usually between 500 and 3,000 KG. The outer layers of such bags are woven with polypropylene

for strength and an inner layer of polyethylene. Transportation is usually done by lifting the bags from their loops. These bags come with one, two or four loops at the top, depending on whether they are to be lifted by, crane or forklift. For easy handling by forklifts, the bags may also be transported on pallets. The jumbo bags are filled from the top, and some are arranged so they can be emptied from the bottom or are just cut open, if not re-usable. They are usually very handy for transportation of cargo in powder, pellet or granulated form, but may also be used for nodule types of products, like potatoes, onions etc. A lot of raw materials for the chemical industry are transported in jumbo bags, and they are commonly used for products like cement, fertiliser, salt etc. Jumbo bags are gaining popularity so fast that there are now international conferences for producers and users.

The import of bagged cargo especially Purified Terephthalic Acid (PTA) is majorly taking place around the West Coast of India. J M Baxi as shipping agents have been proactively involved



Marine Services



with the imports and are servicing clients with ship agency activity along with stevedoring. The cargo is being loaded from the Far East Ports of China, Taiwan and Thailand which are subsequently discharged at the ports of Dahej, Hazira, Nhava Sheva (JNPT) and Mumbai. In less than a year J M Baxi has handled 0.2 MMT of PTA at these ports.

The De-Containerization process is finding its way in the reefer business too. Charterers are seeking substitute options to use conventional reefer vessels for cargo movement. They are fixing cargo/commodities that have not been fixed in breakbulk for over a decade, from places like Chile, South Korea, Japan, Norway and Brazil. Even though reefer fleets are small, with more tonne miles and a surge in demand, the engagement of fleet has gone up from an average of 60-70% utilisation to almost fully utilised. This shift has been due to lack of reefer container capacity or congestion/ delays on container services that would result in the loss of product or market opportunity.

The J M Baxi group as a shipping support service provider has been in

talks with a few charterers to import fruits, in palletised form carried through reefer ships, though the Indian port infrastructure is not sufficiently equipped to handle refrigerated cargoes due to the lack of cold storage arrangements and reefer points inside the port. J M Baxi as an alternate arrangement will be providing, multi fold activities under one umbrella and will support the operation with their century old ship agency expertise along with stevedoring. This shall include offloading of palletised fruits from the vessel on to the quay, in cages to avoid damage to the external packaging and engage electrically driven forklifts inside the reefer compartments of the vessel. The pallets upon discharge shall be subsequently stuffed in local reefer containers. The containers thereafter shall be evacuated from the port within the minimum possible time to its own cold storage space, where the pallets will be destuffed and stored till the receivers take on final delivery.

The pilot project is planned to carry 4000 MT of fruits in boxes weighing 18 KGS. These boxes will then be palletised with 49 numbers in each pallet. There will be two such shipments of fruit imports from

Brazil and if the industry finds this economically viable this could turn into a new business opportunity.

VESSEL CONVERSIONS

The industry started contemplating the conversion of bulk carriers to container vessels, as bulkers have sufficient space in the form of cargo holds, which can be utilised for the carriage of containers by exercising due diligence on the stability of the vessel. A container vessel due to the uneven distribution of weight undergoes adverse forces acting on the vessel whilst at sea. Also, the localised weight of the unitised cargo requires the tank tops to be strengthened. The carriage would therefore require erection of cell guides and necessary posting of securing pads. The changeover would have to be done under the strict supervision of the class, which shall ensure that the vessel remains seaworthy post conversion. The ship owners, thereafter, will have to adequately man the vessel and operate it sufficiently to reap benefits of such conversions and adhere to the Carriage of Goods by Sea Act (COGSA) as different jurisdictions may implement different carriage laws mandatorily by statute, which may impose a different standard of seaworthiness.

The cost of conversion and renewed certification has become viable, as the vessels purchased as bulk carrier cost around USD 10 million, and is being converted and sold at around USD 20 million. In spite of adjusting the conversion cost, it can reap a dividend up to 45%. Turkey is amongst the few countries, spearheading this changeover.

CONCLUSION

The current container demand levels are here for the long term and show no signs of tapering off. Thus, cargoes would continue to be decontainerized into breakbulk modes and the industry will continue to charter Multi-Purpose Vessels when they can find them, to meet their container obligations.



Marine Services

LPG - High Prices And Bulk Imports

With improving demographic profiles of Indian consumers, demand for Liquefied Petroleum Gas in India has been rising continuously over the years and the country consumed 27.6 million metric tonnes of LPG in the financial year 2020-21 (April 2020 to March 2021). Consumption figures for the past decade is shown below.

the primary medium of cooking. Distribution channels in rural areas have thus been strengthened and now almost all districts in India have availability of LPG. Further for domestic LPG consumers the government distributed subsidies directly to consumers bank accounts, which enthused rural homes to switch over to this cleaner fuel. Presently LPG has become a necessity for most Indian homes and over 95% of homes have access to LPG supply as against 55% homes in 2015.

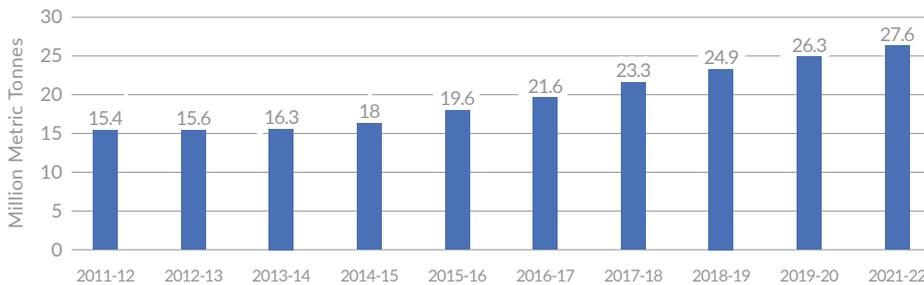
big supplier but imports from Iran have slowed down due to economic sanctions. Meanwhile imports from the US have been on a rise in the past 5-6 years.

India imports roughly between 1-1.5 MMT of LPG every month with supplies being low in summer months and high in winters. Imports in summer are lower by 20-30% and demand picks up during the Diwali festival which falls annually in October-November.

The three government owned oil companies viz. Indian Oil Corporation, Hindustan Petroleum and Bharat Petroleum are the main importers and suppliers of LPG in the domestic market. These regularly charter LPG carriers in the mid-size range and the Very Large Gas Carrier (VLGC) range through a mix of long-term time charter and spot fixtures.

India has 14 ports handling LPG imports. Owing to the surge in imports in the past decade, lots of capacity addition has taken place at the port as well as hinterland locations where pipelines and bottling plants have been set up. LPG pipeline infrastructure however remains inadequate and evacuation of imports from the ports remains a challenge many times. This causes ullage availability issues quite frequently and berthing delays for LPG ships at Indian ports, which is higher

INDIA LPG CONSUMPTION



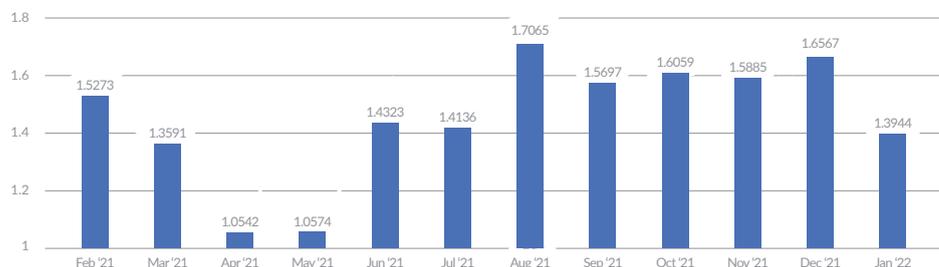
LPG IN INDIA IS PRIMARILY CONSUMED IN THREE SECTORS:

- Residential sector for domestic cooking purposes (in 14.2 KG cylinders)
- Industrial use as fuel (in 5 KG, 19 KG and 47.5 KG cylinders)
- Transport sector as fuel for vehicles

Consumption of LPG witnessed a major spurt between 2014 to 2018, when growth rates were almost in double digits. This was primarily due to increased focus on supply of LPG to the rural areas as fuel for domestic cooking. Indian homes in the villages have been using wood, coal, kerosene, etc as the primary fuel for cooking. These forms of fuel are readily available and also cheaper than LPG. However, these fuels cause serious environmental pollution, and the government has been pursuing for a switch over to LPG as

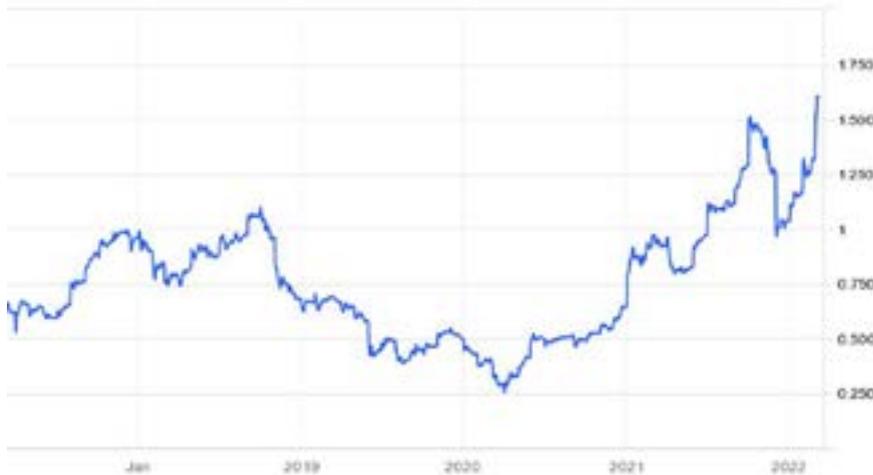
India produces almost 12 MMT of LPG. There are 22 oil refineries which produced 10.1 MMT and the 10 Gas Fractionators produced 2.1 MMT of LPG last year. The balance was met through imports which reached a high of 15 MMT last year. Growing domestic demand means increasing imports year on year as domestic production has not been rising at similar rates as demand. India relies on Saudi Arabia, Kuwait and Qatar as major suppliers of LPG for its imports. Iran used to be another

MONTHLY IMPORTS OVER THE LAST 12 MONTHS ('000 TONNES)



Marine Services

CHANGES IN LPG PRICES (US\$ / GALLON) IN THE INTERNATIONAL MARKET OVER THE PAST FIVE YEARS



was at its lowest point in many years. Prices have risen again over the past 2 years and have been the highest in March '22 due to the war in North Europe.

Crude oil prices have skyrocketed since the outbreak of the war and LPG prices in the international markets have seen a spurt too. Also, there has been a huge rise in bunker fuel prices for ships leading to a rise in transportation costs for LPG into India. Hence Indian consumers are going to be hit by the huge spurt in domestic LPG prices soon.

than most other ship categories. India's huge dependence on imports for its total energy needs, makes it quite vulnerable to the price rise of crude oil in the international market, and the valuation of its currency, the India Rupee. Almost 85% of India's crude

oil is imported and the recent rise in international crude prices has had a direct impact on prices of LPG cylinders in the country.

International prices have been rising continually since March 2020, when it

How much of this would lead to a slowdown in consumption of LPG is yet to be seen, but this will affect the monthly budget of the average Indian household. It would be worrisome should some of the poorer households move back to the traditional methods of domestic fuels.

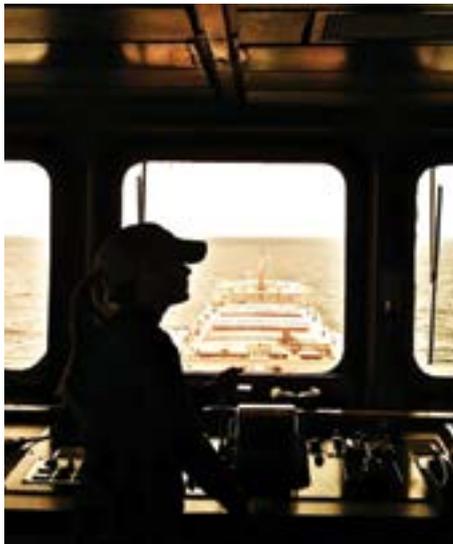


In Focus

Empowering Women As A Goal For Sustainable Development: Wista's Role In Achieving This Goal

Ever since the IMO announced that 'Empowering Women in the Maritime Community' had been selected as the theme for World Maritime Day in 2019, the industry globally has awakened to this cause. The IMO's objective is to raise awareness of the importance of gender equality, in line with the United Nations Sustainable Development Goals, which also aligns perfectly with WISTA India's goals and aspirations.

WISTA is an agent of change for women in the maritime sector. It encourages them to realise their potential by taking on leadership roles in the industry and to reach higher levels of responsibility in their profession, while contributing to the progress and prosperity of their families and communities. Just before the pandemic set in, WISTA India, in collaboration with the Maritime Union of India (Women's Wing), hosted a seminar titled 'Managing Unconscious Bias'. Many thought-provoking questions were asked. What support do women need from the industry?



Will the maritime industry continue to be programmed towards gender bias? Are there enough female voices in the maritime sector?

While gender bias does exist in the industry, I personally believe bias is not always based on gender, as it is also about whether you are good at your job. Performance is key for career growth, and it determines which people – men and women – are chosen for leadership positions.

My predecessor, Ms Sanjam Sahi Gupta of Sitara Shipping Ltd, is my role model. As the winner of the Sandvik India Gender Awards 2018, she is an inspiration, having established WISTA India as a superb networking platform. When I took the baton of presidentship from her, my aim was to increase the footprint of WISTA India through two key elements (aside from business networking):

1. Learning and development and
2. Social outreach and wellbeing.

We are working towards this goal by collaborating with like-minded organisations that share the need to enhance the welfare and prosperity of women.

Over the last 2 years, I think we have made some progress. As a result, it has been very rewarding to stay connected with our members through virtual events based around knowledge sharing, mental and physical health, and business networking.

Following IMO's theme, WISTA India has taken multiple initiatives to increase gender diversity in the maritime sector. One such step was implemented by Ms Sanjam Gupta.

With the support of the Sandvik Group and the United Nations Global Compact Network India, she conducted a survey of women in the maritime industry. It addressed gender gaps and working conditions in the Indian maritime industry. I think this was a brilliant idea and much needed to bring about a change in the industry. One of the main aims of WISTA India is to increase women's participation in the maritime sector by 25% by 2030.

WISTA India recently gave e-presentation at industry events where WISTA members met and interacted with industry leaders. We spoke about our vision to increase diversity, and at one such event, we asked industry stakeholders to sign a diversity pledge. It was heart-warming to see the industry supporting the cause and being onboard with gender equality. Education is also a key priority for WISTA, and we will soon announce our plans, which are in addition to the scholarships rolled out by the ICS.

In keeping with my vision to support mental health, we have organised several events with doctors and health experts on women's health. We also run regular yoga programmes for our members with fitness as an objective. Our association with the online therapy platform I-Will by the E-pSt Clinic is one such positive initiative. All in all, I think we are moving in the right direction as far as bridging the gender gap in the maritime sector is concerned. With the right attitude, knowledge and spirit, there is nothing that the women's taskforce in shipping cannot achieve.

Summiit Cheema,
Sitara Shipping Ltd.



In Conversation

With Mr Subodh Vardhan from MOTOROLA SOLUTIONS

Arya Communications and Motorola share a relationship that goes back 30 plus years.

In conversations with Tidings, Subodh Vardhan, MSSSI Vice President - Motorola Solutions shares the developments and challenges in the Indian market and why the partnership with Arya Communications continues to remain solid.

Q. What is your view about the Indian market for Motorola products, services and solutions?

The Motorola brand in India is synonymous with high quality products and great customer service, thanks to the dedication of long term partners like Arya Communications.

We have a strong presence with all major verticals like the police, paramilitary, defence, railways, metros, airports and oil and gas etc. which continues to grow.

There is definitely a threat from lower cost competitors but our discerning customers value our products, services and solutions and understand that we offer better lifetime value than all our low cost competitors.

Of course, as sellers, we have to encourage our customers to evaluate us on our lifetime value rather than L1 price, and this can be a challenge especially in government procurement.

Over the last few years we have completely transformed our



Subodh Vardhan is MSSSI Vice President & Managing Director South & South East Asia.

Prior to this appointment, Subodh was Senior Director and Head of Motorola Solutions' business in Emerging Asian countries, including India.

Subodh started with Motorola in 1994 and was part of a CEO sponsored Leadership Development Program called Cadre 2000 Plus. He spent two years in the US (1994-95), rotating through various Motorola businesses and was posted in India in 1996, in the Cellular Networks business. He worked in various capacities in the Cellular Networks business and by 2006 he was running the entire private cellular operators' business for Motorola.

Subodh is an Electrical Engineer (1985-89) and an MBA (1991-93) and has also worked as a Computer Engineer in International Data Management (IDM) (1990-91) and as an Area Sales Manager in Unilever (1993-94).

offerings and now, besides radio communications, we offer a comprehensive suite of video solutions and analytics as well as software solutions for control rooms.

I believe we will continue to be very relevant for the Indian market, as India needs to make major investments in upgrading technologies around public safety, military and transportation, which are all highly relevant markets for us. Besides, the outlook for the economy is strongly positive, which will drive growth in commercial markets like airports, seaports, manufacturing, logistics, retail etc.

We have a strong local team in India, committed partners like Arya Communications, as well as a number of local facilities like local product development and service, which no other company in our domain can boast of.

Q. What are the technological changes that will impact safety & security business requirements?

The growing threat of cyber security poses real challenges for all organizations, reinforcing the need for highly secure and proven technologies to maintain organisational resilience and security.

The need to upgrade legacy systems without compromising private data.

Greater need for inter-operability between radios systems and 4G/5G based systems, as well as video.

More intelligent systems, which will reduce dependence on human intervention e.g. AI enabled cameras remove the burden of watching LIVE security feeds and can help detect

In Conversation

security breaches proactively and help respond in the most effective manner.

Migration to cloud based systems, making them more flexible, scalable and reliable.

Q. Please tell us about the latest trends in technologies and Motorola's plan & offerings to address the need.

We recently undertook a major global research study in partnership with Goldsmiths University of London that examined the impacts of the global pandemic on public safety and enterprise organisations across 12 countries. This uncovered many examples of how technology is being used in innovative and unimagined ways to combat new threats to safety and security.

The research also identified 4 major technology trends that were seen commonly across all global markets.

Growing demand for video security solutions:

Many new use cases including body-worn video cameras is supporting supermarket retailers and ensuring safety and accountability in interactions between shoppers and staff.

Broader use of cloud based solutions:

With COVID-19 stimulating a greater need for decentralized and remote operations, multiple interviewees discussed how their increasing investment in cloud services is helping boost their organizational responsiveness, resilience and flexibility.

Greater need for interoperability and data sharing:

Many organisations remain constrained through a lack of interoperable technology - in other words, technology that does not allow them to communicate or share data with other agencies,

as well as incompatible systems which don't communicate with each other.

There are two key aspects to interoperability:

- Enabling greater communication and data-sharing between different agencies.
- Breaking down the silos within an organization's existing systems to enable greater access and maximize the value of data.

Reliance on resilient communication

Our research interviews found that organizations globally continue to depend on mission-critical voice communication as their foundation for operation-wide collaboration and resilience. Unlike cellular networks, the infrastructure is hardened for resiliency and reliability, and organizations control their radio networks and can scale them to provide additional capacity for secure, team-based communication. Communication systems are also evolving through integration with other technologies, such as mobile broadband.

Q. Your partnership with our Arya Communications & Services Pvt. Ltd. Spans over 30 years. How has Arya helped Motorola set up their business in the Indian market?

Arya communications has been a very valuable long term partner for Motorola. From helping us set up shop in India in the early years, to helping us build close customer relationships, helping us with regulatory guidance and remaining a strongly ethical and professional organisation in all our dealings.

Q. Can you please list three concepts or solutions which can potentially transform the operations in the port/ logistic sector?

A solution we can propose that could redefine and improve the operational efficiency of ports is our automated

container code recognition solution that combines our industry-leading Optical Character Recognition (OCR) with advanced data management and analytics software to enable automated, 'hands-free' identification and locating of assets. The OCR algorithm can either be deployed on an existing camera system or through the installation of our purpose-built cameras. Beyond providing visibility of equipment at key points of work, our solution can also initiate processes or workflows to ensure a more seamless flow of goods.

We would be happy to engage with customers to develop some concepts and then undertake proof of concept trials.

Q. What is the impact of 5G and WiFi 6 technology in the communication domain with respect to Motorola's offerings?

Communications technologies will continue to evolve and it is important that our customers evolve with them. While private radio systems offer unparalleled range, reliability and redundancy, they are narrowband. So the use of broadband technologies like 5G etc. is critical as a supplement to the radio system. Spectrum is scarce, so it will also be important to share spectrum and make the best use of this scarce resource.

Q. Is there anything else you would like to share with us?

To be successful in India, we need to think out of the box. Instead of trying to sell products at the lowest price, we have to develop solutions that provide the greatest value to our customers. With the increased focus on Make in India, we have to also seriously explore building more of our solutions in India, with strong partners like Arya Communications.

We have to also start thinking outside of radio. We have a much broader portfolio now, with video solutions and analytics, control room software, cyber security and managed services.



Technologies

5G technology - Fuelling India's future

5G is all the buzz and is expected to be launched later this year. Here is a ready reckoner of all you need to know about this next gen technology

Where does 5G get its name from?

5G is so named because it's the fifth generation of wireless networking technology. It can provide higher speed, lower latency and greater capacity than the 4G LTE network.

Why was 5G made?

5G is designed to not only deliver faster, better mobile broadband services compared to 4G LTE, but can also expand into new service areas such as mission-critical communications and connecting the massive Internet of Things (IoT).

What new technology does 5G use?

5G is based on OFDM (Orthogonal frequency-division multiplexing), a method of modulating a digital signal across several different channels to reduce interference. 5G uses 5G New Radio (NR) air interface alongside

Orthogonal Frequency Division Multiplexing (OFDM) principles. 5G also uses wider bandwidth technologies such as sub-6 GHz and Millimeter Wave (MM Wave)

Developed by
3rd Generation Partnership Project (3GPP) is an umbrella term for a number of standards organizations which develop protocols for mobile Telecommunications
Introduced
July 2016
Industry
Telecommunications

What spectrum does 5G use?

One of the more confusing aspects of 5G is that it's not broadcast on a single frequency. Instead, there are several frequencies used by 5G networks for different applications.

To get that speed, 5G networks rely on much higher operating frequencies than existing cellular networks, reaching into what is called the MM Wave band.

Low-band 5G operates between 600-850 MHz. This is similar to what 4G networks currently use and is only moderately faster than 4G, between 50-250 Mbps offering similar coverage areas for each cell tower.

Mid-band 5G operates in the 2.5-3.7 GHz range and delivers speeds between 100-900 Mbps. While offering less range per cell tower, this type of 5G is going to be the most common implementation of 5G networks for many years to come.

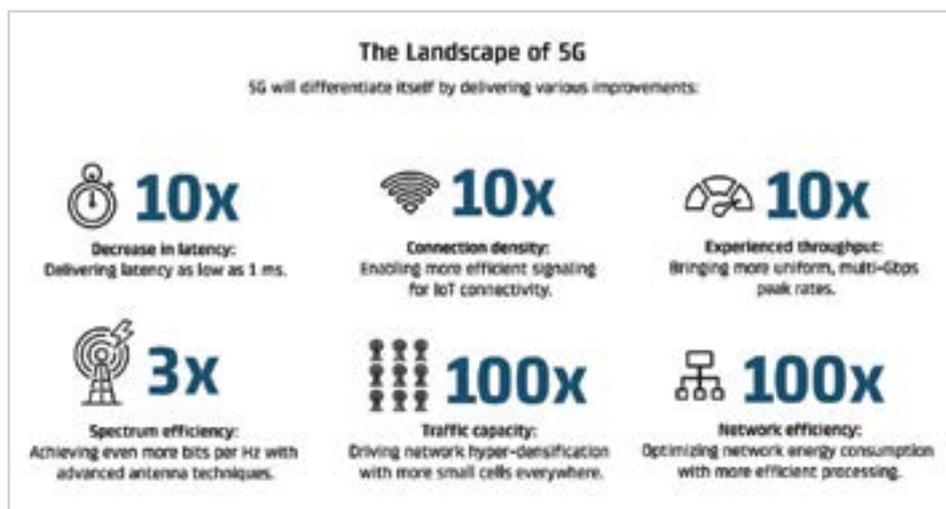
High-band 5G is the band that is most commonly associated with 5G. Operating at 25-39 GHz, this is known as MM Wave spectrum and delivers gigabit speeds currently tested as high as 1.8 Gbps. The trade-off is that MM Wave transmitters have a very limited range and require the deployment of many small transmitters, so it's only viable in urban areas where transmitters can be near closely spaced homes and buildings.

How many countries have 5G so far?

According to the Ookla® 5G Map™, there were 5G deployments in **112 countries** as of November 30, 2021. That's up from 99 countries on the same date a year ago.

What is difference between 4G and 5G?

The key difference between 4G and 5G is speed – 4G can currently reach top speeds of up to 100 Mbps, though real-world performance is generally no more than 35 Mbps. 5G has the potential to be 100 times faster than 4G, with a theoretical top speed around 20 Gbps and current, real-world speeds from 50 Mbps to 3 Gbps.



Technologies

What are the disadvantages of 5G?

The main disadvantage of 5G is that it has limited global coverage and is available only in specific locations. Only cities can benefit a lot from 5G networks and remote areas may not get this coverage for some years. Moreover, the expenses for setting tower stations are high when compared to other networks.

How far should you be from a 5G tower?

5G Range. The trade-off for speed at MM Wave frequencies is limited range. Testing of 5G service range in MM Wave has produced results approximately 500 meters from the tower, meaning a huge propagation of Multiple-Input Multiple-Output (MIMO)-enabled antenna arrays would be required for pure standalone 5G deployment. MIMO is a wireless technology that uses multiple transmitters and receivers to transfer more data at the same time.

Which sectors will benefit the most from the realisation of 5G?

- Manufacturing.
- Agriculture
- Healthcare
- Transport
- Education

5G is set to enable large scale 'machine to machine' communications, allowing for a reduction in human error and an increase in automated processes

How will 5G affect cybersecurity?

5G's dynamic software-based systems have far more traffic routing points than the current hardware-based, centralized hub-and-spoke designs that 4G has. Multiple unregulated entry points to the network can allow hackers access to location tracking and even cellular reception for logged-in users

Do airplanes use 5G?

Carriers are using **C-band spectrum** to provide 5G service at full speed, 10 times the speed of 4G networks. The C-band spectrum is close to the frequencies used by key electronics that aircraft rely on, to land safely.

How is the 5G scenario in India

Airtel said it conducted India's first rural 5G trial with Swedish telecom equipment maker Ericsson, on the outskirts of Delhi. Bharti Airtel has said that the first 5G network will be launched within two-quarters of the spectrum auction and can cover a large part of the country after one year.

Department Of Telecommunications (DOT) confirmed in a press release that 5G services will be available in up to 13 cities across the country in 2022, including Delhi, Gurugram, Bengaluru, Kolkata, Chandigarh, Jamnagar, Ahmedabad, Chennai, Hyderabad, Lucknow, Pune and Gandhi Nagar. The three largest telecommunications providers Jio, Airtel, and Vodafone Idea (Vi) have already set up 5G test sites in these cities.

Prime Minister Narendra Modi could launch a 5G network on India's 75th Independence Day, according to a news report.



COMPARING 4G TO 5G		
	4G	5G
Latency	200 milliseconds	1 millisecond
Data Rate		100x Improvement
Millimeter Wave Spectra	Supports 4000 devices/ sq. km	Supports 1 million devices/ sq. km
Speed	100 Mbps	Up to 10 Gbps
IoT device Performance		Battery life of low-power devices will increase up to 10 yrs.



Technologies

IT'S SUPER L.I.T! Logistics Investment & Technology

You may be any organisation, any professional, anywhere in the world – you have and possibly just before reading this article looked at your stock investment or read about your neighbour be on Shark Tank taking investments or maybe a former colleague in operations launched his logi-tech start-up and has gone public with an IPO possibly the new kid on the block right out of college building an app that has got its series E funding!! Nowadays our conversations include more about investments in technology and the funding boom in logistics.

From traditional marketing to digital marketing, traditional paper to digital forms and much more has happened especially over the last 5 years. Around the same time investors found this space more interesting. Well, especially if you are in logistics and maritime – it is no longer the same way you or your non-logistics friends look at you anymore – You are trending as much as the subject! We all knew that Covid reset the entire way we look at

the world – An Ayn Rand novel like... Today, our industry has gained more attraction from freshers to experienced professionals wanting to find innovative, efficient and simple ways of doing the same complex tasks.

Across the world, 2021 was a great year for venture-backed supply chain management companies, with almost \$11.3 billion in funding – Well, that represented almost a twofold increase from 2020! It preceded the previous all-time high in 2019 which saw \$9.1 billion go to start-ups that keep the supply chain moving. 2019 was a record-breaking year for venture funding in the shipping industry with \$1.14bn raised by start-ups and scaleups building technology aimed at the maritime sector. The year-on-year growth of investments and start-ups making it to the unicorn and soonicorn clubs are on an upward trend.

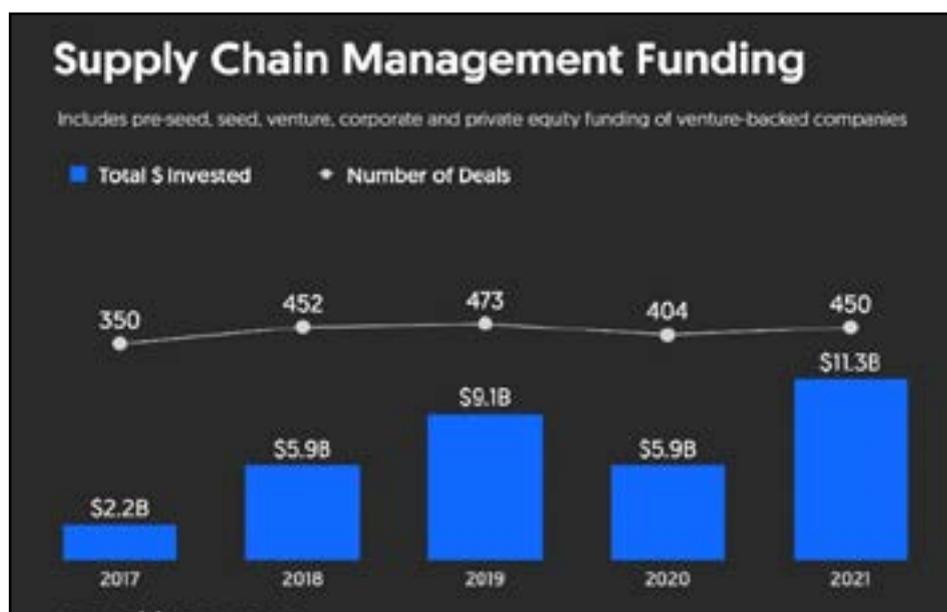
Last year also saw a record number of Indian start-ups make their debut on the public exchanges, with some eight start-ups having raised a total of \$2.5

billion from public investors. According to a PwC report, over 50 Indian start-ups have the potential to enter the unicorn club - start-ups valued at over \$1 billion each - in 2022.

We believe that digital freight forwarding and truck aggregation being one of the most invested segments in our industry. Mostly as their objective is to enhance transparency, professionalize, and digitize the often informally handled information exchange and leverage data as a means to address inefficiencies. They contribute significantly to improving the sustainability a trend that is becoming more prevalent.

LET US SEE SOME REASONS FOR THIS SUPER L.I.T FUNDING BOOM

The industry had been previously slow in adoption of technologies and change in comparison to others and is seeing the reverberation due to COVID positively especially in order to cater to the raising customer demands in the ecommerce and retail section



The dependency on digital ecommerce – one day delivery models have made way for more ideation and implementation of solutions to be better by the day for last mile delivery apps

The adoption of 'open source' technology which has increased the technical collaboration in the shipping industry such as public APIs which are released by companies with an intent that developers will use them to build platforms. The rise of application programming interfaces (APIs) in shipping gave way to securely

Technologies

integrate systems and services with clients, suppliers, and partners to our stakeholders while other interesting technologies have started to gain more perspective such as blockchain, AI, IOT and more...

Global associations from UN to IMO, DCSA, ICC, BIMCO all are finding ways to contribute and bring trade facilitation through systems and applications, legal rulings to build an ecosystem that supports recent technologies.

With institutes such as the IMO committing to a 50% greenhouse gas reduction target has given rise to more funding in green tech, luring investments that contribute to decarbonisation and the sustainable future.

The need to reset and relook at the industry that makes it all go round especially on sea, to be one of the most critical areas to curb and build solutions that refashion global supply chains to reprioritize their impact on the environment - climate change, people, and profits.

The logistics and shipping industry is one of the biggest markets and the fact is that most processes in the sector are still manual - only construction has a bigger GDP (oh and we do have our infrastructure too!).

Seeing an enormous market that is growing and is poised for disruption given few inefficiencies, the venture capital industry has seen an exceptionally good opportunity with start-ups in the logistics industry.

Investors find it more sensible due to the simple fact: Trade is through Logistics, and both are as essential - supply chains are being



fully digitized for almost the first time in history.

Investment in digital logistics and its reinvention brings out an entirely new value to the industry, contributes to economic growth, acts as a catalyst for job creation, new sustainable revenue streams and so much more

Most funding has been in the asset-light freight platforms and last-mile delivery companies, but investors seem to increasingly turn back to good old asset-based models revamped with tech capabilities. Probable reason for cause is for building a lasting start-up or even a digital initiative within a large conglomerate. You need to know the industry, the pain points, the nuances so deeply to be able to actually be effective and gain an edge.

Many entities once adamant in the maritime-logistics space have started to look inward and outward for being able to match the business change. While they aspire to take up recent technologies and get on with the trend to stay relevant, an underlying reason which has always put this industry

one step behind is the investment needed to go digital vs. maintaining the margins. This makes it much evident for newer smaller entities looking to solve complex problems with ease while they focus on resolving pain points and not provide actual logistics service but a tool to facilitate it.

Therefore, we see that these entities today are riding the digital wave and supporting start-ups through strategies such as buying the rising start-ups, and investing in them. Some mentor and expand with them, some simply become customers and some just add a digital arm.

While India gears up as a nation with budding start-ups, especially in the first quarter of 2022 with logistics companies becoming unicorns and taking in millions in investment, we are excited to see our industry flourish with new outlooks and ideas! It has become evident that start-ups are becoming the economic backbone and have dedicated policies, schemes, funding and also dedicated a National Start-up Day to grow further. There is a lot more to come this year and beyond.

A vertical sidebar on the right side of the page containing social media icons: Facebook (f), YouTube (You Tube), Twitter (bird icon), Instagram (camera icon), LinkedIn (in), a hamburger menu icon (three horizontal lines), a right-pointing arrow icon, and a left-pointing arrow icon.

Technologies



Synergy Brings Speed And Power

Sixteen ministries, multiple departments, various roles, and numerous projects – all interconnected and updated into a single platform for visibility for information and decision making by relevant stakeholders. Holistically building the nation and its infrastructure to provide growth, speed, and power. Gati Shakti, is the National Master Plan for multi-modal connectivity.

While India is successfully implementing multiple projects that are monitored via multiple systems, there have been however some delays, cost over-run and slow progress at times. It boiled down to a simple cause: asymmetry in information due to working in silos. This led to bringing a paradigm shift in infrastructure planning and administration. Gati Shakti is a true master plan with both physical and digital ecosystem integration forming its base foundation. Physical infrastructure across the nation will have its entire information on a single platform shared across

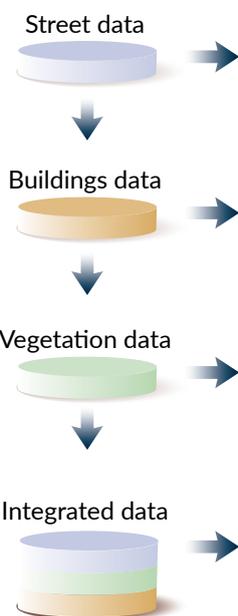
various participating stakeholders for visibility into project milestones. The digital portal of Gati Shakti is empowered by various modern technologies and tools. For example the usage of GIS with over 200 layers of evidence-based decision making, ISRO enabled satellite imagery for monitoring, API based platform making it open source, dashboards with analytics and much more to plan and coordinate the Indian infrastructure to provide visibility. The digital portal will warrant timely clearances, seamless flow of information, any flagging of potential issues for integrated planning as well as coordinated implementation of infra connectivity projects for industrial cluster and economic nodes from the past, present and future.

Infrastructure projects will include the combination of all modes – railways, roadways, waterways, and airways. Instead of planning and designing in silos, it will institutionalize holistic planning and execution through technology, cross-sectoral interactions, identification of critical gaps, better visibility to the executing agency, synchronizing and coordination between various departments (inter & intra ministries) powered by analytics.

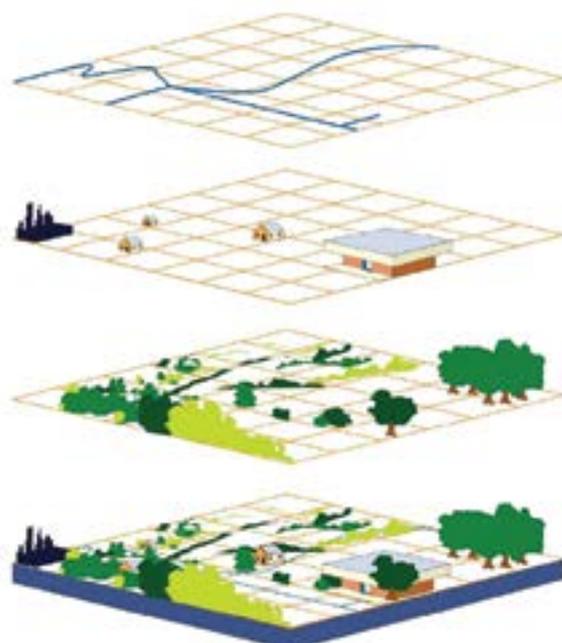
For example, the road laying authorities prior to closure of the construction of a new road, will have the intervention of the telecom ministry to establish the networks and from the designated gas distribution authority to lay the gas pipeline to serve the related area. This will lead to reduced costs, reduction in any delays and on-time readiness of the required infrastructure. There would be data taken for planning this project, plotted onto GIS layers

ABOUT GIS: Geographic Information System creates, manages, analyses and maps all types of data. It is a powerful decision-making tool as it allows the analysis of environmental, demographic and topographic data.

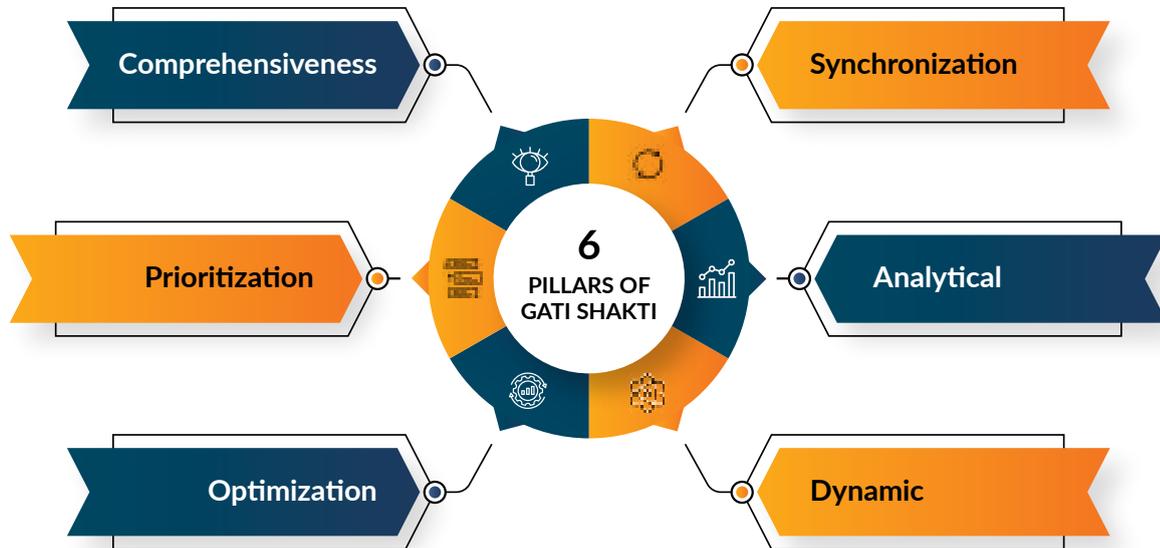
Data Source



Data layers



Technologies



and current status and images will be available through the satellite imagery. Stakeholders can identify the project details, connectivity and take an informed decision while investing in the project. The scope of the project expands to all projects in the past, present and the future to be part of this plan.

Another example is a new port project that will be assisted through roadways and railways that interconnect thus reducing much of the current infrastructure issues around a port such as the road congestions, higher logistics costs and much more.

Gati Shakti will give more speed and power not only to the said infrastructure projects but also other initiatives such as the Bharatmala and Sagarmala. With the outlook of further bringing new policies and ways of implementing the Gati Shakti initiative we may observe a much more

connected approach between the public and private sector. Reports such as the LEADS reports, details in the Pragati platform will also become more seamless and robust. Synergy between different ministries and different modes makes it a truly integrated approach.

Earlier, logistics was considered a cost center while we can say through this it will be taking steps towards being a profit center especially when we look at MSMEs or even larger organisations. They have better reach, a more efficient supply chain and more visibility. This will be possible through the implementation of this plan.

Like any digital portal, it is important for it to be well designed and developed but most importantly its users are made aware. While the core of the system and the technologies are in place, for the right outcome, there

must be adoption from the top to the bottom of the infrastructure chain. The input of information is as crucial for the expected outcomes, as are the results we can envisage from this plan.

A vast master plan as it sounds, has started to be implemented from the center and through regional conferences will be discussed from concept to execution to the state down to the local governments and be accessible to stakeholders working on these projects, citizens and investors within the next few months. The foundation of the concept is strength while its execution and adoption with feeding of the right information real time will bring out its promising benefits.

More to come in the near future is the setup, implementation, and execution of the master plan with the ruffles of risks, resilience, maintenance, resource planning, monetisation, and adoption.



Ports & Logistics

J M BAXI Partners With IG International for End-To End Cold Chain Logistics

J M Baxi Ports & Logistics has entered into a strategic alliance with IG International, one of India's largest fruit trading houses, to create an end-to-end cold chain service across India.

The venture with J M Baxi's strong customer engagement at multiple levels and infrastructure capabilities, along with IG International's expertise, aims to leverage the combined maritime trade management experiences and move forward in the direction of domestic transportation with the

ultimate goal of being a key service provider to the last mile - i.e. retail stores. This alliance with the trading house, will further establish J M Baxi as a trade enabler that offers a single stop solution for customer's reefer (refrigerated) cargo movements from various parts of the world to India.

The J M Baxi and IG International alliance commenced with the building of a cold store at Mumbai Warehousing And Logistics Park located in Nhava Sheva, and then expanded to another similar facility at Delhi Inland Container Terminal in Sonapat. With a capacity of 3,000 pallets, Mumbai Warehousing And Logistics Park is one of the very few cold storage facilities, that offers customers the option of bonded

cold storage. While the cold store at Mumbai Warehousing And Logistics Park is a chilled cold store where one can store products starting from 0 degrees celsius and upwards, the cold store at Delhi Inland Container Terminal, Sonapat with a capacity of 7,000 pallets has a mix of frozen and chilled depending upon the customer's needs. A frozen chamber can store products at temperatures as low as minus 30 degree celsius.

There are several developments underway, as the alliance looks to ramp up its cold storage footprint across the country within the next 18 months. One of them is a state-of-the-art cold store at the Special Economic Zone (SEZ) at Nhava Sheva which will have a storage capacity of 10,000 pallets. This new cold store is expected to be commissioned in the second half of 2022. The alliance also has an existing cold storage footprint in Jaipur (Rajasthan), Theog (Himachal Pradesh) and Krishnapattam (Andhra Pradesh) with a cumulative pallet capacity of 6,000 pallets.

What sets these facilities apart is the net cargo storage height which is 2250 mm per pallet, as compared to a standard storage height of 1500 mm per pallet. This advantage ensures ease of operation especially from an EXIM standpoint. Additionally, the pallets at most of these facilities, have a weight capacity up to 1 tonne which is significantly higher than the general average, across other cold storage facilities.



Ports & Logistics

As part of the planned expansion, construction of a cold store at Visakhapatnam will commence very soon. The cold store will be in proximity to the J.M Baxi Ports & Logistics operated Visakha Container Terminal and Visakha Container Freight Station. The facility is envisaged to be of 3,000 pallets capacity with several class-leading facilities such as storage of chiller, frozen products, bonded facility, packaging, knitting etc. and will be focused on harnessing the import demand of Eastern India for fresh produce and pharmaceutical commodities. Similarly, on the export front, seafood products will find logistical advantages by using this facility.

Additionally, various options are being explored in Chennai & Kolkata as well, to provide warehousing facilities for onward distribution. The goal is to develop a volume capacity of 80,000 pallets and 700 reefer containers by the end of 2022. These are to be developed as facilities for general use and will be available for trading other commodity segments like pharma, meats, seafood, confectionaries etc.

Given the eco-friendly and eco-sensitive heritage of J M Baxi Ports & Logistics and IG International, the alliance is extremely committed towards a 'Zero Carbon Emissions' model. To this effect, it is investing heavily in solar power for cold storage facilities. Delhi Inland Container Terminal, Sonapat is already running on solar power and Mumbai Warehousing And Logistics Park is in the process of securing the necessary permissions to use solar power as the main source of energy to run the cold store.

The main purpose of building a cold storage business that lives up to the highest standards is to simply ensure



access to healthy, fresh and nutrient-rich fruits, vegetables and all related food at large. Different foods have unique storage requirements that need to be adhered to, in order to enhance it's quality and life. Lots of efforts are being made to train manpower and create awareness of the various products we store and what really is required as a cold chain solution company to ensure that food is offered to the consumer in its healthiest and freshest form.

In its endeavour to render a full spectrum of services, the JV is also looking at acquiring custom clearance service expertise. As freight forwarders, the group has for some time been firmly entrenched in developing businesses at various ports in India. IG International also operates over 150 reefer trailers ensuring that the venture can offer end-to-end cold

chain solutions to its customers like quality checks, co-ordination with FSSAI, plant and quarantine services etc.

J M Baxi Ports & Logistics is also offering clearing services, cargo bonding, container Pre Trip Inspection (PTI), logistics, rail transportation at all infra facilities, ports and terminals making it one of the biggest players in providing integrated services in the country.

This alliance is a well thought out partnership of two business houses, both of which have carved out a place for themselves in their respective industries and will compliment each other in building an extremely successful end-to-end cold chain solutions business, adding real value to their customer and the consumers at large.



Ports & Logistics

Indian Steel Industry

AN OVERVIEW

India is the second largest producer of steel in the world after China. In the year 2021 India's steel production stood at 104.91 MMT out of which finished steel production was 96.20 MMT and consumption was 93.057 MMT. Expected crude steel output for the year 2022 is 125 MMT. The per capita steel consumption in the country is at around 72.3 KG at present, while the present production capacity is at 143.9 MMT.

The liberalization of industrial policy and other initiatives taken by the Government have given a definite impetus for entry, participation and growth of the private sector in the steel industry. While the existing units are being modernized/expanded, a large number of new steel plants have also come up in different parts of the country based on modern, cost effective, state-of-the-art technologies. Over the last few years, the rapid and stable growth of the demand side has also prompted domestic entrepreneurs to set up fresh greenfield projects in different states of the country.

OPPORTUNITIES FOR THE GROWTH OF IRON AND STEEL IN THE PRIVATE SECTOR:

The New Industrial policy opened up the Indian iron and steel industry for private investment by (a) removing it from the list of industries reserved for the public sector and (b) exempting it from compulsory licensing. Imports of foreign technology as well as foreign direct investment are now freely permitted up to certain limits under an automatic route. The Ministry of Steel plays the role of a facilitator, providing broad directions and assistance to new and existing steel plants, in the liberalized scenario.

ROBUST DEMAND:

The National Steel Policy envisages production of 300 MT steel by 2030. According to Vision 2030, the

development of downstream units in the metal sector envisages to achieve more than 50 per cent value addition to the primary metal produced in the

TOTAL FINISHED STEEL PRODUCTION

Year	Production (MMT)	Export (MMT)	Import (MMT)
2016-17	91.54	8.24	7.22
2017-18	95.01	9.62	7.48
2018-19	101.29	6.36	7.83
2019-20	102.62	8.36	6.77
2020-21	96.20	10.78	4.75
2021-22 (till Sept)	66.91	7.75	2.37

TOP TEN STEEL COMPANIES IN INDIA

Company	Location	Capacity	Total Capacity
JSW Steel	Dolvi	10	29.1
	Kalmeshwar	1.8	
	Vijayanagar	12	
	Salem	1	
JSW Ispat	Raigarh	1.5	20.8
JSW BPSL	Lapanga	2.8	
SAIL	Rourkela	4.5	
	Bhilai	7.5	
	Bokaro	3.5	
	Burnpur	2.8	
Tata Steel	Durgapur	2.5	18.6
	Jamshedpur	10	
	Meeramundali	5.6	
JSPL	Kalinganagar	3	10.6
	Angul	6	
	Raigarh	3	
AMNS	Hazira	10	10
RINL	Vizag	7.3	4.57
Shyam Metaliks	Sambalpur	2.9	
	JSL	Kolkata	1.67
Rashmi Metaliks		Kalinganagar	1.6
	Hisar	0.8	
Rashmi Metaliks	Kolkata	1.5	1.5
ESL Steel	Bokaro	1.5	1.5
			99.07

Ports & Logistics



In FY 2020-21 total East region has produced 40.3 MMT of steel, whereas Odisha alone stands for almost half of the total production with 19.44 MMT followed by Jharkhand with 14.1 MMT.

state. The government also announced production based incentive scheme, PLI for incremental sales for the products manufactured in domestic units.

A GLANCE AT STEEL INDUSTRIES – EASTERN REGION OF INDIA:

The eastern part of India viz., Odisha, Jharkhand, West Bengal and Chhattisgarh are mineral rich states suitable for the location of the Iron and Steel Industry where Odisha with

its rich natural resources and raw material security has aspired to be the manufacturing hub for steel. Odisha has a target to produce 100 million tonnes of the metal by 2030. 47 steel plants with a total installed capacity of 32.45 MMT have been set up in Odisha so far and many more steel industries are in the process of setting up a manufacturing base here. Out of the 47 steel plants, Rourkela Steel Plant (SAIL) is the only unit in the public

sector, whereas the remaining steel plants are established by private sector entities. The Union Ministry of Steel has initiated the formation of 'Purvodaya' as an integrated steel hub encompassing Odisha, Jharkhand, Chhattisgarh, West Bengal and Northern Andhra Pradesh.

JHARKHAND

In the state of Jharkhand major steel producers are Tata steel, Bokaro Steel Plant (SAIL) and ESL Steel Ltd. Other steel products (finished) producers are Metalsa India (P) Ltd, CTC (India) (P) Ltd, JMT Auto Ltd, Timken India Ltd, Metaldyne Industries Ltd, Omni Auto Ltd.

The total capacity of Tata Steel, Bokaro Steel Plant (SAIL) and ESL is 17 MTPA and the production also nearly 100%.

CHHATTISGARH

There are ten major steel manufacturing industries in the state of Chhattisgarh. Among them Bhilai Steel Plant (SAIL), Jindal Steel & Power are the larger ones. The capacity of these two units together is 10.5 MTPA and the current production is also equal to the capacity.

Apart from the above big names there are industries like Vandana Global - 223000 TPA, Bhilai (Ancillary Units) - 100000 TPA, Bajrang Power & Ispat - 129600 TPA, Godavari Power & Ispat - 52200 TPA,

EXISTING MAJOR STEEL INDUSTRIES IN ODISHA

Company	Location	Installed Capacity (MMTPA)	Capacity Expansion (MMT)	Proposed Capacity after expansion (MMTPA)	Expected by the year
Steel Authority of India Ltd	Rourkela	4.5	4.3	8.8	2030
Jindal Steel & Power Ltd	Angul	6	19.2	25.2	2030
Tata Steel Ltd - TSM	Meramundali	5.63			
Tata Steel Ltd - KPO	Kalinganagar	3	5	8	2025/26
JSW BPSL Ltd	Lapanga	2.8			
Jindal Stainless Ltd	Kalinganagar	1.6			
Nilachal Ispat Nigam Ltd	Kalinganagar	1.1			
Visa Steel Ltd	Kalinganagar	1			
Others	Various	6.82			
Total		32.45	28.5	60.95	



Ports & Logistics

MAJOR NEW PROJECTS APPROVED / ADVANCED STAGE (ODISHA)

Company	Location	Capacity (MMTPA)	Commission Expected By The Year	Investment (Rs. In Crores)
Arcelor Mittal Nippon Steel India	Kendrapara	24	2030 in phases	1,02,000
JSW Utkal Steel Ltd	Jagatsinghpur	13.2	2030	65,000
Dhenkanal Steel Ltd (Rungta)	Dhenkanal	7.5	2030	11000
Total		44.7		

Bhagawati Power and steel - 117600 TPA, Sarda Energy & Minerals - 75000 TPA, Hira Power & Steel - 95000 TPA. The current production of all these companies is 602320 TPA.

HANDLING OF STEEL AT A GLANCE:

Paradip Multi Purpose Terminal as a gateway port to the steel industry

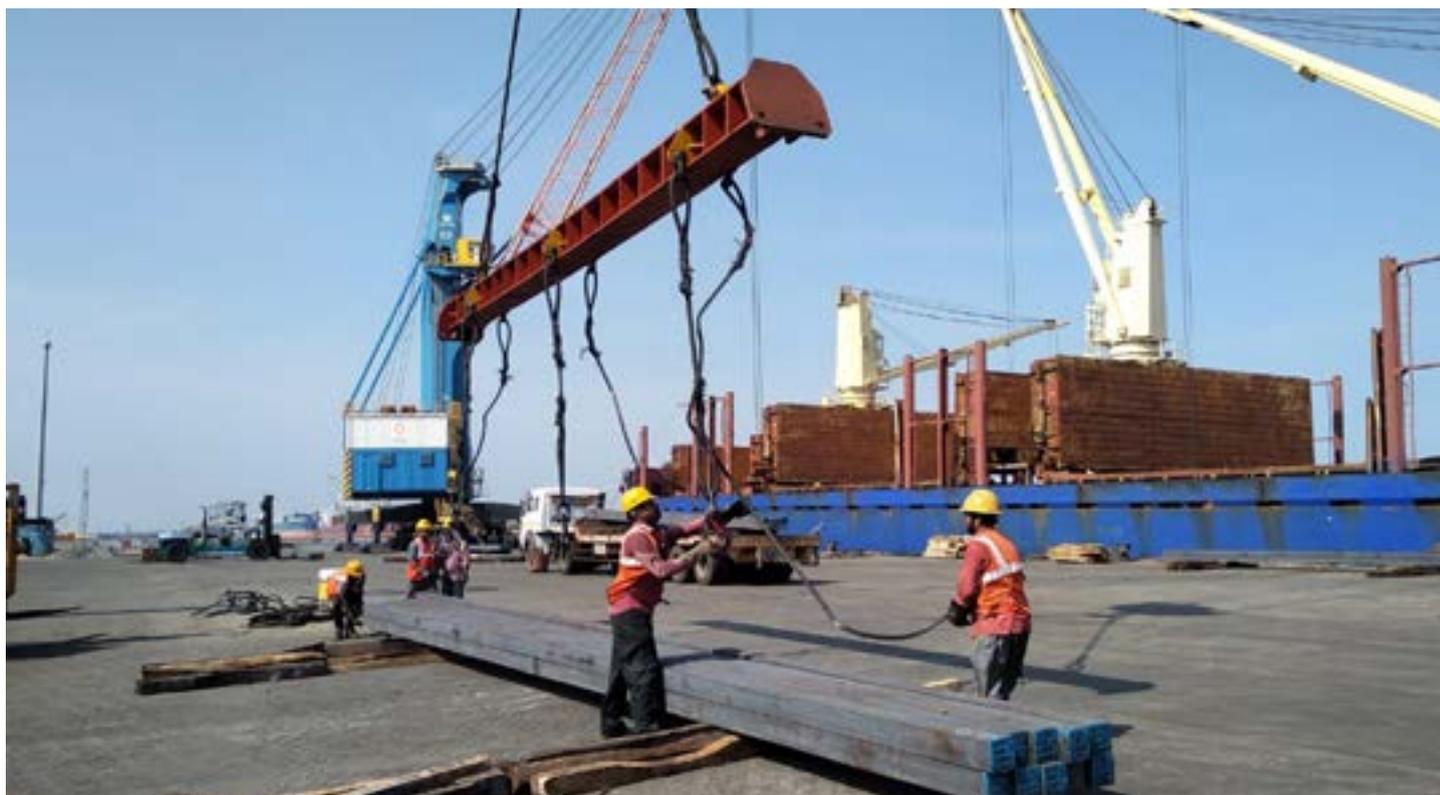
Paradip Multi Purpose Terminal is a clean cargo terminal at Paradip Port Authority. It is developed under a Build Own Transfer (BOT) project for 30 years. Paradip Multi Purpose Terminal became partially operational on March 2018 with a single berth and subsequently fully operational in April 2018 with the second berth

coming into operation. It has a Quay length of 450 meters with a capacity to handle a 125000 DWT vessel. The draft alongside is 17.1 meter. Paradip Multi Purpose Terminal is equipped with 3 MHCs (100 tonne each) and 2 RTGs (41 tonne each) along with fleet of various yard cranes and equipment to support yard and vessel operations. Paradip Multi Purpose Terminal is also designated as a Private Freight Terminal (PFT) by East Coast Railway. Two full length dedicated rail siding is directly connected to ECoR network. The sidings operate on EOL scheme thus making the rake loading /unloading faster. Paradip Multi Purpose Terminal is better known for its operational efficiency and higher productivity in handling steel commodities.

The following steel companies are currently patronising Paradip Multi Purpose Terminal:

1. Steel Authority of India Limited
2. Tata Steel Limited
3. Jindal Steel and Power Limited
4. JSW BPSL Limited
5. Orissa Metaliks Pvt Limited
6. ESL Steel Limited
7. Jindal Stainless Limited
8. JSW Steel Limited

Due to excellent operational efficiency along with ancillary support services, the steel exporters are enthusiastically increasing their volumes through Paradip Multi Purpose Terminal and also adding on commodity profile.



Ports & Logistics

OPPORTUNITY FOR PARADIP MULTI PURPOSE TERMINAL:

With the capacity expansion (in phases) of plants like SAIL - Rourkela, Tata Steel Kalinganagar, JSPL – Angul and upcoming steel plants in the vicinity of Paradip by JSW Steel and Arcelor Mittal Nippon Steel India, it is foreseen that there will be a surge in finished steel products in the near future, where Paradip Multi Purpose Terminal will play a vital role to cater to their demands.



Company	Location	Installed Capacity / Annum (MMT)	Capacity Addition (MMT)	Proposed Capacity After Expansion (MMT)	Expected By The Year	Production (MMT)		Domestic Sales (MMT)		Exports		Ex - Paradip Multi Purpose Terminal	
						2020-21	2021-22 (up to Q3)	2020-21	2021-22 (up to Q3)	2020-21	2021-22 (up to Q3)	2020-21	2021-22 (up to Q3)
Steel Authority of India Ltd	Rourkela	4.5	4.3	8.8	2030	3.6	3	9.07	6.94	0.83	0.76	0.53	0.4
Steel Authority of India Ltd	Bokaro	3.5				3.5	2.6						
Steel Authority of India Ltd	Burnpur	2.8				2.8	2.1						
Jindal Steel & Power Ltd	Angul	6	19.2	25.2	2030	7.1	5.56	4.6	3.84	2.5	1.72	0.87	0.5
Tata Steel Ltd - TSM	Meramundali	5.63				4.8	3.8	13	9.99	2.2	1.61	1.33	0.6
Tata Steel Ltd - KPO	Kalinganagar	3	5	8	2025-26	2.4	1.8						
Tata Steel - JSD	Jamshedpur	10				8	6						
JSW BPSL Ltd	Lapanga	2.8				1.96	1.95	1.85	1.49	0.11	0.46	0.06	0.23
Orissa Metaliks Pvt Ltd	Kolkata	1.5				1.2	1.4	1.15	1.09	0.05	0.31	0.06	0.26
ESL Steel Ltd	Bokaro	1.5				1.1	1.3	1.02	1.23	0.08	0.07	0.05	0.07
JSW Steel Ltd	Raipur	0.25				0.25	0.25	0.2	0.2	0.05	0.05	0.02	0.01
Jindal Stainless Ltd	Kalinganagar	1.6				Containers							
Nilachal Ispat Nigam Ltd	Kalinganagar	1.1				Plant shut down							
Visa Steel Ltd	Kalinganagar	1				Containers							
Others	Various	6.82				Intermediary Industries							
Total		52	28.5	80.5		36.71	29.8	30.89	24.8	5.82	4.98	2.92	2.07

Ports & Logistics

J M BAXI HEAVY consolidates cargo meant for 3 projects on a single barge trip

J M Baxi Heavy displays innovative mindset and execution resilience to take on challenge that sets it apart from the rest of the project logistics fraternity

Bharat Pradakshina – from a Logistics perspective

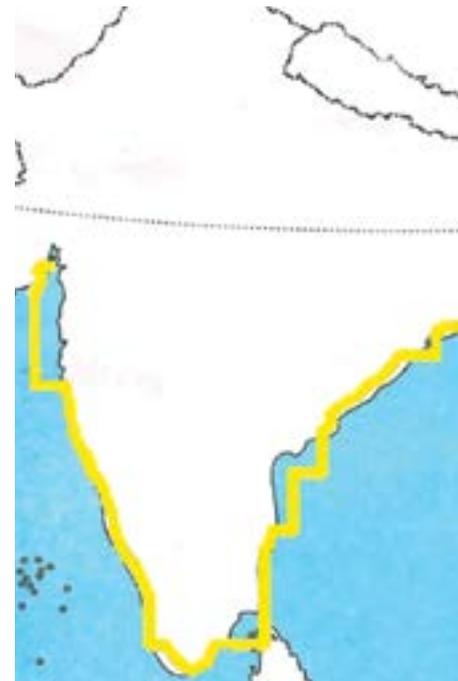
J M Baxi Heavy, the project logistics arm of the J M Baxi Group developed, planned and implemented a complex coastal voyage on a barge, Alacity from the West of India to the East Coast. The team were in touch with three different companies to help execute their individual projects. Faced with the challenges of high prices and few containers, the team convinced the customers to aggregate their individual projects on a single barge. They persuaded them of an on-time, safe, efficient delivery and attention to each package. As the common logistic engineering company between all parties, the J M Baxi Heavy team offered both commercial and technical expertise. They played the role of a multimodal partner by charting routes for ocean waters, inland waterways and using our own axles, transfers and roll-offs on to smaller barges thereby ensuring both first mile and last mile connectivity.

These packages were meant for the following projects

- L&T Hydrocarbon Engineering Ltd – HPCL Vizag RUF Project
- L&T Power Ltd – Stator movement for Buxar Thermal Power Plant

- Wuahan Engineering Ltd – Talcher Fertilizers Ltd Project.

The consignment consisting of five packages were heavy lifts and Odd Dimensional Cargo (ODC) weighing between 300 – 650 MT each. This therefore demanded meticulous execution along the entire route and beyond. All the packages were transferred to Dahej and Hazira port, via road with the assistance of Self Propelled Modular Trailers (SPMT) and Hydraulic axles. Two packages were discharged at Lova Garden jetty at Vishakapartnam in Andhra Pradesh. From there, the barge sailed further to Luna Jetty in Paradip, constructed by J M Baxi Heavy and the packages were rolled-off on hydraulic axles to be transported by road to Talcher fertilizers. The Alacity barge then took off for the last leg of its journey to Budge Budge Jetty near Kolkatta. Here the jetty was constructed and made ready to assist with the roll-on-roll-off operation. The last package was then rolled off from the Alaacrity barge and rolled on to a much smaller barge. This was done to manage navigation along a low draft channel of the National Waterway 1 (NW-1). The smaller barge then took the NW-1 up to Buxar in



Bihar where a temporary jetty was constructed by J M Baxi Heavy Ltd.

The execution of these three logistics contracts by JM Baxi Heavy is a case study for the industry. The team were imaginative in finding a solution in a market challenged by high containers costs and low availability. Moreover, the stellar execution of the voyage has established the company as not only a thinking partner but one that can deliver to the last mile with excellence.

Package Description	L(MM)	W(MM)	H(MM)	Weight (KGs)
Ammonia Converter	39580	6500	5600	629000
Ammonia Unitized Chiller	28506	4779.5	5185	310000
Generator	11050	5100	5000	379000
Stator - Unit 1	11050	5100	5000	379000
LC Max- Top Section	34945	10486	10619	450533
LC Max- Bottom Section	28458	10590	11158	347510

Environmental, Social & Governance

Clean And Green Business

Businesses traditionally have focussed on their financial performances, and the key metric for growth was on the increased year-on-year financial gains. The importance of financial gains overshadowed several other key business operations.

Fast forward to 2021, millennials expect businesses to focus on non-financial parameters, and question sustainable ways of working. They have a reputation for being values-driven and are concerned about climate change, social responsibility and control over ways of working (governance). Millennials couldn't have been more correct. We have major climate change issues requiring immediate attention, which if delayed, can lead to devastating consequences.

In line with this recent conscientiousness, industries across sectors and geographies have zeroed in on three key indicators to measure a firm's non-financial performance i.e. Environment, Social and Governance (ESG) and a structured disclosure of performance. For the J M Baxi Group, ESG is just

another day in the office. Throughout its operating years, there has always been high priority given to the environment we operate in; the employees, communities involved in our day-to-day working and ensuring that works are carried out within statutory and legal boundaries. We have constantly valued our business ecosystem and have worked towards a sustainable future.

We have formed an ESG Sustainability committee chaired by Krishna Kotak, Chairman of J M Baxi group. The ESG committee consists of team Leaders and committee members who work on various ESG related projects as follows:

- Electrification of mobile equipment
- Tree plantation
- Solar and wind energy
- Bio fuel
- Stakeholder engagement and community outreach
- Employee engagement and wellness
- Diversity and inclusion
- Composting and waste management
- Water management

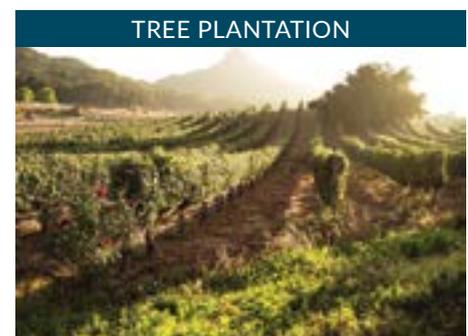
However, it is now time to announce to the world about the good work we have been doing under the ESG umbrella. To help us in this journey to disclose our ESG performance we have appointed a team of multidisciplinary professionals passionate about sustainable ways of doing business.

As part of this initiative, we will have

4 ESG MODULES
Module 1
Materiality Assessment and Maturity diagnostics. ESG Framework and Roadmap
Module 2
GHG inventorisation
Module 3
ESG report 2020-21
Module 4
ESG performance rating advisory

The goal is to become the leader in ESG in the logistics and port sector, and constantly challenge ourselves to deliver and improve our sustainable ways of working. Let's together work towards a better and cleaner future.

 Health & Safety	 Electricity Consumption	 Diesel Consumption	 Equipment Electrification	 Tree Plantation	 Water Analysis	 Gender Diversity	 Waste Composting	 Initiatives & trainings
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Port Statistics

SHIPPING & CARGO PERFORMANCE

QUARTERLY UPDATES ON INDIAN MAJOR & MINOR PORTS (QTY IN MILLION TONNES)
JULY- DEC 2021-22 V/S JULY - DEC 2020-21

LIQUID COMMODITIES & GASES										
	CRUDE OIL & OIL		CHEMICALS & LUBES		EDIBLE OIL		ACIDS		LIQUIFIED GASES	
	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21
No of Ships Called	2626	2509	1234	1072	697	683	342	370	827	867
Total Cargo handled	168.682	153.032	13.167	11.318	8.232	8.828	4.121	4.329	22.049	24.949
Import	82.931	71.691	6.098	5.067	4.154	4.476	2.006	2.358	11.408	12.851
Export	85.751	81.341	7.069	6.251	4.078	4.352	2.115	1.971	10.641	12.098
FINISHED FERTILIZERS & FERTILIZER RAW MATERIALS										
	UREA		SULPHUR		ROCK PHOSPHATE		DAP		MOP	
	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21
No of Ships Called	94	164	28	31	122	111	65	90	39	104
Total Cargo handled	4.524	7.311	1.041	0.910	5.194	3.865	3.022	3.907	1.271	3.258
Import	2.685	2.793	0.380	0.369	2.709	1.867	1.307	2.475	0.675	1.749
Export	1.839	4.518	0.661	0.541	2.485	1.998	1.715	1.432	0.596	1.509
COAL AND COKE										
	NON COKING COAL		COKING COAL		MET COKE		PET COKE		OTR GRADES OF COKE	
	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21
No of Ships Called	1177	1386	531	567	52	29	62	96	73	42
Total Cargo handled	86.718	100.084	30.346	30.311	1.348	0.900	2.530	4.168	2.583	1.116
Import	42.951	44.256	14.179	13.217	0.667	0.365	0.807	2.206	2.041	0.661
Export	43.768	55.828	16.167	17.094	0.681	0.535	1.723	1.962	0.542	0.455
OTHER BULK & BREAK BULK CARGO										
	CEMENT		MINERALS		IRON ORE		STEEL PRODUCTS & PROJECT CARGO		GRANITE	
	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21
No of Ships Called	210	334	774	773	543	928	1091	767	88	137
Total Cargo handled	2.975	4.912	32.900	29.212	30.270	47.552	11.888	8.979	2.103	2.811
Import	1.266	2.336	16.075	12.559	12.818	23.511	5.733	2.843	1.102	1.389
Export	1.709	2.575	16.825	16.653	17.452	24.040	6.155	6.137	1.001	1.422
AGRICULTURAL PRODUCTS & EXTRACTIONS										
	SUGAR		RICE		SOYA BEAN MEAL		RAPE SEED MEAL		COPRA EXPELLER CAKE	
	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21	Jul- Dec, 2021-22	Jul - Dec, 2020-21
No of Ships Called	86	86	174	103	20	5	2	9	12	20
Total Cargo handled	2.131	2.761	4.148	1.329	0.551	0.169	0.061	0.286	0.096	0.148
Import	1.121	0.933	2.117	0.829	0.274	0.169	0.000	0.135	0.052	0.071
Export	1.010	1.828	2.030	0.500	0.277	0.000	0.061	0.151	0.045	0.077

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

Port Statistics

INDIAN PORT PERFORMANCE

JULY- DEC 2021-22 V/S JULY - DEC 2020-21
CARGO THROUGHPUT (QTY IN MILLION TONNES)

Ports	Types of Ports	NO. OF SHIPS		LIQUID CARGO		BULK CARGO		CONTAINERS (TEUS)		TOTAL CARGO *	
		July-Dec' 21-22	July-Dec' 20-21	July-Dec' 21-22	July-Dec' 20-21	July-Dec' 21-22	July-Dec' 20-21	July-Dec' 21-22	July-Dec' 20-21	July-Dec' 21-22	July-Dec' 20-21
BHOGAT	PRIVATE	7	8	0.547	0.655	0.000	0.000	0	0	0.547	0.655
KANDLA	PUBLIC	1255	1351	8.199	8.116	16.439	16.913	238258	277339	24.639	25.029
MUMBAI	PUBLIC	972	777	16.210	12.628	4.502	1.959	0	0	20.712	14.587
JNPT	PUBLIC	364	393	3.071	3.153	0.363	0.432	2812296	2456718	3.434	3.585
MORMUGAO	PUBLIC	190	207	0.265	0.253	6.940	8.080	0	0	7.205	8.334
MANGALORE	PUBLIC	661	684	12.884	10.385	3.589	4.866	0	0	16.474	15.251
COCHIN	PUBLIC	522	395	10.394	9.386	0.713	0.933	396137	362065	11.107	10.319
TUTICORIN	PUBLIC	491	671	0.761	0.692	8.471	7.392	389568	385167	9.232	8.084
CHENNAI	PUBLIC	379	375	5.834	5.423	2.339	2.864	799108	764062	8.173	8.288
ENNORE	PUBLIC	364	312	2.439	2.245	10.707	7.372	240193	90112	13.147	9.617
VISAKHAPATNAM	PUBLIC	977	1122	7.374	9.166	20.818	23.058	257051	249899	28.192	32.224
PARADIP	PUBLIC	920	945	17.354	14.739	34.895	33.542	4334	0	52.249	48.281
HALDIA	PUBLIC	843	993	7.633	7.396	8.391	12.563	78440	77672	16.023	19.959
KOLKATA	PUBLIC	29	31	0.031	0.154	0.059	0.052	283499	302313	0.090	0.206
GANGAVARAM	PRIVATE	194	256	0.353	0.000	12.627	16.983	0	0	12.980	16.983
PIPAVAV	PRIVATE	183	238	0.429	0.325	2.292	4.353	316029	381889	2.722	4.679
MUNDRA	PRIVATE	1597	1567	13.521	14.199	11.696	22.003	3120156	2907128	25.217	36.201
BEDI	PRIVATE	36	32	0.000	0.000	1.454	1.620	0	0	1.454	1.620
DAHEJ	PRIVATE	343	328	11.756	12.203	4.670	4.370	0	0	16.426	16.574
HAZIRA	PUBLIC	444	527	1.739	3.410	13.778	13.161	314353	336317	15.518	16.571
NAVLAKHI	PUBLIC	52	83	0.000	0.000	3.181	4.749	0	0	3.181	4.749
KAKINADA	PRIVATE	374	412	1.300	1.523	6.235	5.926	928	10964	7.536	7.449
SIKKA	PRIVATE	759	722	63.931	59.636	0.010	0.000	0	0	63.941	59.636
VADINAR	PRIVATE	280	213	27.884	24.256	0.000	0.000	0	0	27.884	24.256
KRISHNAPATNAM	PRIVATE	367	403	0.758	0.928	15.573	14.400	49761	183806	16.331	15.328
KATTUPALLI	PRIVATE	37	25	0.132	0.015	0.157	0.150	185908	302529	0.289	0.165



MARINE SERVICES

J. M. BAXI & CO.
BOXCO SHIPPING SERVICES
UNITED LINER SHIPPING SERVICES
ARYA OFFSHORE SERVICES
CONTAINER MOVEMENT
(BOMBAY) TRANSPORT
"K" STEAMSHIP AGENCIES

PORTS & LOGISTICS

PROJECT HEAVY LOGISTICS
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
MUMBAI WAREHOUSING AND LOGISTICS PARK
DELHI INLAND CONTAINER TERMINAL
PARADIP MULTI PURPOSE TERMINAL
ROZI BULK TERMINAL
THE BALLARD PIER

TECHNOLOGIES

DIABOS
PORTALL
ARYA WATER
ARYA INFOSYSTEMS
ARYA COMMUNICATIONS &
ELECTRONICS SERVICES

