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March 2023



International Women's Day
SPECIAL EDITION

Monthly Magazine of The Institute of Marine Engineers (India)



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From the Editor's Desk

Dear Valued Readers,

Welcome to the March issue of iMélange, your go-to source for the latest news and updates from the maritime industry.

As we celebrate **International Women's Day** this month, we want to take a moment to acknowledge the contributions of women in the maritime industry. We are proud to announce that we have recently inducted **Ms. Suneeti Bala** as a member of our editorial board. Ms. Bala brings a wealth of knowledge and experience to our team, and we are thrilled to have her on board.

In this issue, we are excited to feature an article from the **International Women's Shipping Federation (IWSF)**, highlighting the achievements of women in the maritime industry and the challenges they continue to face. It is inspiring to see how women are breaking down barriers in this male-dominated industry and paving the way for future generations.

We also have the pleasure of featuring an interview with **Dr. Malini Shankar**, Vice-Chancellor of the Indian Maritime University (IMU), on the importance of gender diversity in the maritime industry. Dr. Shankar shares her insights on the progress made towards creating a more inclusive industry and the need for continued efforts in this direction. She emphasises that women have a significant role to play in the maritime industry, and their contributions are essential for its growth and development.


Furthermore, we are proud to highlight the article contribution from **Ms. Sanjam Sahi Gupta**, Founder of **Maritime SheEO**. Ms. Gupta has shared her insights on the challenges and opportunities for women in the maritime industry and the need to promote gender diversity in this field.

In other news, we are pleased to report that the Indian government has launched several initiatives to promote sustainable shipping practices, including the development of a vision for the country's maritime sector and goals for reducing carbon emissions. We applaud these efforts and hope to see more such initiatives in the future.

To end on a motivating note, we leave you with a quote from the iconic **Michelle Obama**: **"There is no limit to what we, as women, can accomplish."** Let us continue to support and empower women in the maritime industry and work towards creating a more equitable and inclusive world.

Finally, we invite our esteemed members and their loved ones to share their interesting anecdotes, travelogues, memoirs, enriching articles, coverage of noteworthy events & conferences, photography, artwork, cartoons, poetries, and more. Please send your inputs to editornewsletter@imare.in by 7th April 2023 for them to be included in our April issue.

Thank you for your continued support, and we hope you enjoy this month's issue.



“ iMélange would like to extend warm wishes to all female readers, seafarers, and professionals on the occasion of International Women's Day (8th March 2023). May this day inspire and empower you to strive towards achieving your goals and dreams, and to break down any barriers that may stand in your way. ”



SUNIL KUMAR
Honorary Editor - iMélange



Dr. Malini Shankar is indeed a familiar face amongst the maritime community. She has made significant contributions to the industry and is well-respected for her expertise, leadership, and vision. Her accomplishments have earned her a prominent place among the most influential figures in the maritime sector.

iMélange: Ma'am can you tell us about your background and how you became interested in the maritime industry?

Malini Shankar: As a career bureaucrat I wished to work with Government of India in an economic sector, and I was given the opportunity in the Shipping Ministry. The DG Shipping assignment was a 'dream job' for me.

iMélange: What are some of the biggest challenges being faced by women in the maritime industry today, and how can they be addressed?

Malini Shankar: Gender bias, long absence from family, and challenging work conditions are some of the reasons that impede the participation of women in maritime industry. The scenario is changing, and yet we have a long way to go. Two aspects would help in improving the situation – Firstly, having gender agnostic, open minded personnel in HR of companies, and then of course, having more women join the industry to gain negotiating strength.

iMélange: Kindly brief us about the steps being taken by IMU to promote gender diversity and inclusion within the university and the maritime industry as a whole?

Malini Shankar: IMU has the largest number of women cadets amongst maritime institutions. The number is growing; in fact we have had to plan for an increase in accommodation for female cadets in the campuses. The transparent, unbiased selection process facilitates more women joining the university and entering the industry.

iMélange: Ma'am, how do you see the role of women in the maritime industry evolving in the coming years?

Malini Shankar: If I gaze far into the future, automation of ships, and shifting of key responsibilities to the shore would facilitate more women joining ships. After all, haven't we seen the revolution in Indian IT sector where women's participation has been robust?

iMélange: What initiatives or programs would you like to see implemented to promote women's empowerment and gender equality in the maritime industry?

Malini Shankar: Sensitize the men! Recruiting offices need more women; and more men who are sensitive to the benefits of diversity!

Exclusive Interview

iMélange: How can universities and academic institutions better prepare students for careers in the maritime industry?

Malini Shankar: Faculty need to keep themselves updated on the developments in the sector. They should be able to stimulate the young minds rather than encourage rote-learning. As for students, a quest for knowledge and awareness regarding the entire ecosystem (rather than mere classroom learning and excessive orientation towards examinations and marks) would go a long way in making them bright and competitive.

iMélange: How is the sponsoring of the IME(I) Chair in IMU benefitting the Industry?

Malini Shankar: To put it very briefly - to achieve the much needed connect between (academia) IMU & Industry, in many aspects - meeting industry expectations in revision of curriculum, updating faculty knowledge regarding developments in Maritime sector, facilitating internships and projects, raising awareness regarding IMU and its goals, and ultimately to build capability in research (including policy studies).

More specifically, filling gaps - for instance in niche areas such as Marine Insurance, Arbitration, etc.

The faculty have gained immensely on understanding the commercial aspects of shipping thanks to the Chair Shri Jagmeet Makkar whose interactions with students have enabled them to gain invaluable insights into industry.

iMélange: What advice do you have for young women who are interested in pursuing a career in the maritime industry?

iMélange: How can the maritime industry as a whole work to become more sustainable and environmentally conscious?

Malini Shankar: I was reading recently how some of the glorious Indian shipping companies became laggards because they did not prepare themselves for the future. It is important to see the writing on the wall, and take proactive action, be it in technology or social and environmental commitments.

iMélange: What role do you see technology playing in the future of the maritime industry, and how can we ensure that women have equal opportunities to participate in these technological advancements?

Malini Shankar: The future of the universe has veered towards technology and there is no escaping this. Technology is an equal opportunity 'employer' - if women do not shy away from STEM and men do not discourage them, there is no reason why women will not be equal partners in the progress of the sector.

iMélange: What are your hopes and goals for the future of the maritime industry, particularly in terms of gender equality and women's empowerment?

Malini Shankar: This depends on each one of us - do we pay lip service, or do we encourage meritorious selection irrespective of the gender?

iMélange: Lastly, what message would you like to give to our readers, especially women who are aspiring to break barriers and make a difference in their careers?

Malini Shankar: Don't give up! Follow your passion.

~~~~~  
“ **Don't give up!  
Follow your passion** ”  
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Malini Shankar: It is a very exciting profession; there will be multifarious challenges, but keep your passion high and success is yours. Above all, enjoy every single day that you are part of it!

iMélange: What are some of your proudest accomplishments in your career thus far?

Malini Shankar: There are several accomplishments along the way, but in the context in which we are talking, I feel very proud when I am told that I have been a role model for women officers. Or when I was given feedback that I am a popular boss and both men and women are happy working with me.

In terms of the shipping sector, it was highly a rewarding experience to establish the e-governance protocols in DGS for the benefit of thousands of seafarers.



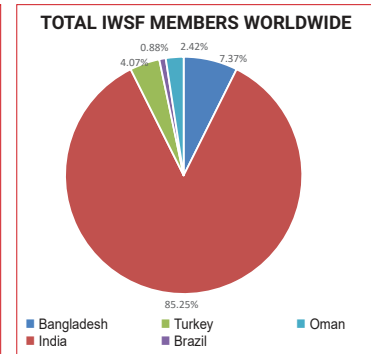
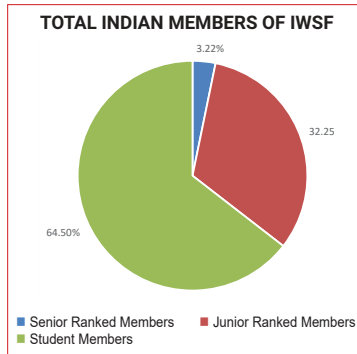


The International Women Seafarers Foundation

Our story began on a winter evening in 2016, when a small WhatsApp group of a few participating women seafarers suddenly expanded to an overwhelming 100 participants overnight. This social networking opened our eyes to the many issues that our industry faced with respect to bringing gender equality into this coveted profession.

As a result, the International Women Seafarers Foundation was established in 2017 by **Capt. Radhika Menon, Ch. Engg. Suneeti Bala, and Ms. Sharvani Mishra**, together with the support of several women achievers who are an integral part of our committee today. The foundation is a professional body, registered as a section 8 company under the Companies Act (2013). Our main objective is to sustainably increase the participation of women seafarers in the shipping industry. We offer support to women and the industry in a variety of pursuits.

What has changed for women seafarers in the past five years?



Over the past five years, our existence has acted as a catalyst for maritime organisations to actively work on bridging the gender gap in seafaring professions. The number of women seafarers finding employment has grown tremendously, from single-digit to double-digit percentages. Our active engagement with the top management of shipping companies has helped us to understand and align their policies and procedures to sustainably improve the count of women seafarers in their organisations.

Our teams' continuous effort to mentor and guide fellow members on the social challenges while sailing has helped many women to efficiently adapt to their on-board environment, leading to improved productivity.

The last five years has also seen an improvement in the count of girl cadets embracing shipping as a career path in India, thanks to the efforts of the DG and the shipping companies that have shown their social and financial commitment to sustain this intake level. As IWSF, we engage with primary level schools through our Adopt A Ship program, to raise general awareness about shipping and women in shipping.

Since the DGS Notice 7 of 2019, many companies have embraced women-friendly policies and have embedded gender neutrality goals in their long-term plans. Beginning in 2023, the DGS has released guidelines for gender sensitisation, which will further improve the sustenance of women in this industry. While there is still much to do, we are confident that our steps are on the right track to make the shipping industry exemplary in incorporating gender neutrality.



Courtesy:
Ms. Sharvani Mishra (Managing Director, IWSF)
Ms. Rishika Sinha (Manager, IWSF)

Courtesy: IWSF

From Dreams to Reality: My Journey in the Maritime Industry

International Women's Day is celebrated across the world to pay honour to the great women of the society. Empowering women is very necessary for bringing gender equality. Those societies flourish well where women are given equal respect and are not taken for granted. Most of the conventional people still feel that women should be confined to household chores and should not step out for work, etc as that's not their area of work; which shouldn't be practiced in today's society.

Women today have got equal potential provided they are been trusted and valued. Today's women realize their strengths and abilities and step out in order to contribute to the society and the world consequently.

Being a woman myself, it really feels nice to have a special day for women too when they can be appreciated and honoured. But I feel that woman should be respected not just because they are women, but also because they are individuals with their own identity. They contribute equally to the betterment of the society. If I can be little biased then I would say, if there is no woman on the earth then mankind would cease to exist because it's a woman who brings life to this earth. Every woman is special whether she is working at home or office or doing both. She plays an important role in the upbringing of children and managing their home efficiently.

That is why I said, this single 24 hour day is way too short for appreciating or recognizing the deeds that woman do. This day is specified as the day that celebrates the social, economic, cultural, political and personal achievements of a woman. Each one of us is so confident to know our weaknesses and work with the best of the efforts to overcome them. This day is dedicated to the parity discussion as well.

We should continue putting in all our efforts. There is no stance in which we women are less in comparison to men. It is just our mindset, changing our mindset and our actions is the first thing we should focus on. Our actions and thoughts will make us lead the great height of our dreams and further let the world believe us and our deeds. Women's day for me, is just a halt that makes me realise the efforts we have put in throughout the 365 days for ourselves and all other people linked to us.

Each women should understand their importance and should have the courage to built in their efforts for their own progress. I'd like share some stories from my personal journey.

My father is a Master Mariner, and while I was growing up he always spoke about his work, and his travels and I was captivated by the tales of his sailing days. It sounds very cliched but when I was around 5 or 6 years old I told

my parents that I was going to grow up and go to the office to work with Daddy.

As silly as that sounds now, I think I am extremely lucky to come from a progressive family who put emphasis on education and truly gave me wings-making me believe I could do anything I wanted to. I think the credit for where I am today goes to my parents who have supported me no questions asked.

We are two daughters and typically in an Indian scenario people used to say - what two daughters? no sons? You poor man, don't worry one day your daughters will marry and their husbands will take over the business.

When I was growing up I would see my mother also attending office. Clients on seeing her in the office 30 years back would comment and say oh bhabhi ji dabba lekar aaye hai. They couldn't imagine that she would be working/ ladies would work in the office.

Like any other family businesses, it is assumed that the woman plays a passive role. Luckily so many years later we never had the same problem but getting into the family business was tougher than most people think it is. We had to work in each department as the "dogsbody"

A few male managers were hostile and would give us a hard time. Had we been sons it would have been easier to accept.

Shipping is a cyclical industry, and that time, unfortunately, we also were also going through litigation with our NRI partners. So my internship involved going to court hearings and working with limited resources. People in the industry thinking the company was in trouble were quite nasty, I had a lot of doors "figuratively" slammed in my face. My father told us we have to learn to swim or then sink – he didn't hold our hand the whole time. My mom did a lot of that but I also learnt to take decisions – and while I did take a lot of wrong decisions, I think it helped me understand work and today no situation really fazes me.

I saw so many things that needed to be changed so I asked my father one day-there are so many powerful women in shipping which great resources to their

disposal - why aren't they doing something to help other women. I will always remember what he said - he said the buck stops here-if you feel strongly about something you must do it yourself.

I wanted to create a support group, a platform for women in shipping hence I set up the India Chapter of WISTA which stands for womens international shipping and trading association which is there in over 50 countries. We have completed 10 years of WISTA in India and I am thankful that we are the voice of women and have created a safe place where women can share their issues and mentor each other.

I have also been on the board of WISTA International and set up WISTA Associations in Sri Lanka, Bangladesh, Malaysia and other countries.

Lina, a 3rd engineer, approached me several years back, to help her get placed on a ship. A few months later I got a call from her. She was home recovering from surgery – an oblique fracture in her right humerus. A lifeboat seat broke on-board and she fell from a height. When she complained of pain, the Captain asked her not to be 'such a girl about it' and instead massaged her arm which made the pain worse. A week earlier she had been invited by the Captain for a drink in his cabin and had refused. She completed her duties until the pain became unbearable. By the time she got medical attention and was rushed to surgery, the doctor said that any further delay would have meant her losing power in her arm. Prior to her coming ashore they recorded a video of her with her stating that she was treated fairly and had no complaints against anyone. In that situation she was so desperate for help she would have done anything. I think that was the turning point for me to step up, and say not on my watch.

As part of the Diversity Committee at International Chamber of Shipping I handle cases of harassment and unfair treatment towards women and its always satisfying to see justice being given to women.

People say I am successful. But success in any industry, let alone shipping is very subjective. I would rather refer to "navigating" one's shipping career in a male-dominated industry. Remember that the biggest hurdles are usually hurdles that we place ourselves.

I think for me the best advice I got was, "Stop seeing yourself as an outsider!" Quite importantly though, imposter syndrome and feeling inadequate is something that has been unfortunately ingrained in the female professional mentality in male-dominated industries.

We are so used to being questioned that we end up questioning ourselves.

Self-doubt is one thing but self-sabotage is another. The first can help us improve, the second can only hinder us.

For many years, we have been told that we must be better than our male counterparts. Forget about being better than your male counterparts. Be better than who you were yesterday.

6 years ago I was offered the prestigious position of Board member at the World Maritime University - the first Indian professional from the private sector. My first reaction was that why are they offering it to me? I am not good enough.

That incident taught me to trust myself, be brave and always remember that you are as good as you want to be.

I think the best ambition for young people is to find something that they want to change in the world. I mean that for me it's always been about identifying gaps that I see that don't work properly where there is room for improvement and then go in and actively offering myself as a resource to fill the gaps. I think that finding those areas where you really feel that you are purpose driven, set your footprint, and create a different future, that is what has been the motivation that has pulled me through a lot of hard work, a lot of obstacles and a lot of challenges.

As long as I wake up every day and I know that I have a mission then it's okay, then I can cope with anything. **So, I would say that I haven't had the big ambitions of becoming someone or whatever, but I have had the big ambitions of changing things. I found my calling. Today I am in the unique position where people listen and I can make a difference and I feel that puts a huge responsibility on me.**

And I think that was also the background for me to be part of the high level panel initiative by Norwegian Prime Minister, Ms. Erna Solberg for a Sustainable Ocean Economy, comprising a group of world leaders from coastal states committed to ocean action in support of the Sustainable Development Goals. I think it's important to do a lot of "pay it forward" initiatives. I see myself more as a tool for creating a driving change in the maritime industry.

My key motivation comes from being useful and help making a difference towards a better society and improving the maritime industry. My key mentors has been shipowner Ms. Karin Orsel who is the first female vice chair of the ICS among others. My friend Ms. Brgit Liudden always inspires me to do more.

I was so lucky that I had some key heavy profile professionals offering to become my mentors. So, I have had both male and female mentors on the more senior level and then in the last, past few years I have also recruited younger mentors for myself to mentor me on digital developments.

For the past 8 years I have been offering myself as a mentor for young women in the industry. And I would say that mentoring is really the best way of bridging the gap between generations. I think if we all work together we can lift each other up.



Written by:
Sanjam Sahi Gupta
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Career Progression for Technical Women in the Maritime Sector

The recent years have seen a boom in the number of women joining the maritime sector. Achieving this feat is attributable to the commitment of the IMO, the organisations holding consultative status to IMO and the various Flag States, the ICS, etc., for driving the vision and the commitment to achieving the Gender Balance in the Maritime sector (UN SDG no 5 - Gender equality).

Whilst we see the women participation increasing in Maritime sector, in verticals like the Administration, HR, IT & Business Development but the numbers in the Technical roles have been rather limited. It has been observed that in the Technical verticals of the Maritime profession, the percentage of women opting for field job/ hands on job, are much less, as compared to women opting for typical office jobs/ white collared jobs. Such jobs would comprise of Marine Engineers, Technical Superintendents/ Fleet Managers/ Naval Architects, Shipyards and Repair facilities, Research and similar profiles.

As an industry which is continuously evolving, having a strong focus on gender diversity, sustainability, digitalisation and decarbonisation, we need to have a road map ahead for the gender diverse work force in Technical role. It's Technology, which is going to be the driving force of the Maritime Industry in the times to come, and it becomes very imperative that we are able to attract the best talent, nurture and retain them to cope up with the changing technological dynamics in the Maritime world.

One of the major benefits of a gender equal work place is a cohesive and more productive workforce. Men and women having been wired differently, are able to bring different perspectives to the table. Hence if everyone looks the same way and has the same

background, then they would all have the same blind spots.

Sponsors to guide women into the Technical work force: One of the primary instrument would be having "Sponsors." Within the organisation, they can identify senior colleagues, who can be sponsors to women in these technical roles. As sponsors, they would take ahead the belief of gender diversity and propagate the same within the organisation and the maritime industry. They would use their experience and actively include them as part of their professional network to achieve the business objective by advancing the protégé's career.

Organisations should also encourage the senior male mentors to support their mentees and openly advocate for them. The industry should try to create role models for the industry, such that the new entrants can look up to them and draw inspiration.

Within the Indian context, though we get to see women in high leadership and authoritative roles, but very few in roles like Technical heads/ Fleet Managers/ Heads of Classification societies/ Shipyards, etc. As an industry which believes in inclusivity, there should be roadmaps ahead to make leadership and management for all genders and not men only.

The maritime industry needs to have a vision and action plan, to see that the current women in these Technical roles rise to their full potential and are able to contribute to the marine fraternity.

The industry has come a long way to achieve a Gender Neutral workplace, have provided for equal access to training, resources and opportunity for all Genders. In my personal capacity, I would like to thank the whole maritime fraternity for embracing diversity and inclusiveness, to make a better cohabitating work place.



Written by:-
Sonali Banerjee
Member IME(I)



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Whenever I am asked what I do for a living, and I say I'm a marine engineer on a ship, it just leaves people aghast. A woman working on a ship is as rare to find as a needle in a stack of hay. Everyone wants to know if it's difficult? Do I feel lonely? Does the weather or the ship rolling have an effect on me?

So here is my insight on my journey. I am the proud daughter of a Chief engineer who is now a member of the Governing Council of IME(I). So I would say that being a sailor runs in my blood.

I did my engineering from Tolani Maritime Institute, which was a great stepping stone for the journey ahead. At that time I didn't know myself if I really wanted to be a sailor. I thought I was happy just doing the bare minimum. That is getting a degree, helping dad with his business and then settling down.

The first time that I went on ship, I went from a much protected college environment directly into professional environment. At that time there were only a handful of girls in the company, not many people were aware of how they had to treat girls or behave with them, but they were trying their best.

The first job I was given was to take soundings and mop the floor, though at that time I didn't know the reason why I was doing these jobs. I realised that they bring a sense of dignity of labour in you that a lot of us don't have due to the affluent backgrounds we come from. That was one of the first learnings of ship life that I had got, that no job is big or small.

A lot of people have underestimated me, thought that because I was a girl, training me would be a waste of time, there were some that even told me that I should quit or I might spoil my dad's reputation, that even though it was in my blood it wasn't enough for me to go ahead. At that time, these words stung worse than a bee. I was double guessing myself wondering if they were right. I wondered if it was even worth it. I came to the point of quitting.



Given another chance to live my life I would still do it all over again. Because just looking at a great working beautiful ship.

My parents have always taught me that if you don't like something it's ok to quit, but it's NOT OK to quit because you are scared. Then, I thought to myself why not give yourself another chance? Naysayers aren't God that they have to be right all the time, so I decided to continue. I continued sailing and I found people who ensured that I learnt all the jobs the right way. They motivated me to keep going ahead and never look back, they spent their time and energy to train me, and with this I fell in love with my job. I realized my passion, and have never looked back ever since.

My parents have been the biggest supporters throughout my journey.

Today, I am sailing (with Teekay Tankers) as a first assistant engineer and have just cleared my Class 1 Certificate of Competency exams. I'm not going to lie, it hasn't been easy, more than it being physically difficult, it has been mentally challenging. It still is a male dominated field, and a lot of people think it is beneath them to take orders from a young woman. But that's the challenge and unless the job is a challenge you wouldn't feel enough excitement about it, right? It gets lonely, you have bad days, but you have good days too and the good days make it all feel worthwhile.

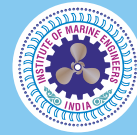
Given another chance to live my life I would still do it all over again because just looking at a great, working, and beautiful ship that you took care of makes you smile and want to do more.



**Written by:-
Bhagyashree Ogale**
1st Assistant Engineer
TK Tankers

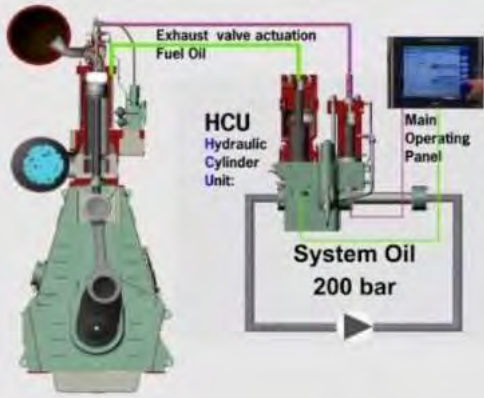


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Chennai**



**The Institute of
Marine Engineers (India)**

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This 3 days course is designed for all Ship's Engineer Officers and Electro Technical Officers responsible for the operation of ME Engine. This course consists of technical lessons and practical instructions on the design, principles, operating procedures and maintenance activities for the safe, efficient and optimal performance of the engine system.

Course Aims and Objectives:

The course aims to provide practical understanding of the principles, design, operation and maintenance of the ME Engine System, enabling participants to safely and efficiently operate the engine and perform fault-finding in the control system.

Coverage / Program Focus:

This course deals with the following training areas:

- Introduction to ME Engine
- Hydraulic Power Supply (HPS)
- Hydraulic Cylinder Unit (HCU)
- Engine Control System (ECS)
- Main Operating Panel (MOP)
- Standard Operation

Entry Requirement / Target Group:

Entry is open to all Ship's Engineers and Electro Technical Officers with basic knowledge of diesel engines.

- DATE & TIMING** : 28th, 29th, 30th March 2023/ 18th, 19th, 20th April 2023/ 23rd, 24th, 25th May 2023/
20th, 21st, 22nd June 2023 8:00 am - 4:00 pm IST
- VENUE** : Web Platform / Zoom. **APPLICATION LINK:** <https://forms.gle/e4As7kCucR5xoJBm9>
- REGISTRATION & PAYMENT** : Rs. 15,000/- /- per participant – inclusive of taxes.
For IME(I) Members 13,500/- per participant - inclusive of taxes.
Payment to be made to: <https://imare.in/buy-online.aspx>
(Under Category - Value added Courses) 10% discount available for IME(I) members
- FOR MORE INFORMATION** : @IME(I) - email: training@imare.in, Ms. Anukampa
(M). 9819325273, (T) 022 27701664 / 27711663 / 2771 1664.
@ MASSA Maritime Academy Chennai - email: mmachennai@massa.in.net
Ms. Saraswathi, (T) 8807025336 / 7200055336 .

After registration and payment, please email the details of the receipt to: training@imare.in

YES!..... Life Too Has an Instruction Manual



“सर्वोपनिषदो गावो दोग्धा गोपाल नन्दनः ।
पार्थो वत्सः सुधीर्भोक्ता दुग्धं गीतामृतं महत् ॥ ४ ॥

“Sarvaopanishado gaavo dogdhaa Gopala
Nandanaha, Partho vatsah sudheer bhokta,
dugdham Geetamritam mahat.”

The meaning of this shloka which is mentioned in Shrimad Bhagavad Geeta Dhyanam and also in Shree Geeta Mahatmyam is as follows,

All the Upanishads (scriptures) are like cows and their milker is the son of the cowherd Vasudeva, i.e. Bhagawan Krishna. The son of Prutha i.e. Arjuna, is the calf, and the men of pure intellect are the drinkers of this milk and this supreme nectar of Shrimad Bhagavad Geeta is the highest knowledge that liberates us from the worldly sorrows. The Vedas are the breath of the Lord and the Upanishads are the very essence of the Vedas and hence are compared to cows here and the milk is compared to the divine knowledge of Shrimad Bhagavad Geeta. The implied meaning is that the knowledge that one attains through a devoted and thorough study of Shrimad Bhagavad Geeta equals the study of all our Vedas. This highest wisdom narrated by Bhagwan Krishna is not only to enlighten Arjuna but to illuminate the entire mankind.

Let's understand this with a modern day example. Whenever we purchase a new mobile, we get a small booklet along with it, which contains all the information about the device, it's structure, functions, do's and don'ts of our mobile and we know that experts say that it is important to study this manual

for efficient use of the mobile phone. But usually we operate the mobile without even looking at the manual and it works well too, so we continue as it is. We hardly realise that by ignoring the manual, we remain ignorant to the various important features or advanced settings of our mobile. As the phone gets old, there starts coming some or the other functional glitch in our mobile and we take it to some mobile expert. There we realise that we were completely unaware of many of the most important features of the device. But by then the mobile is already old and we are ready to abandon it, thus wasting throughout many of its important functions.

Similarly Shrimad Bhagavad Geeta is the manual of living the human life completely, efficiently and understanding the ultimate truth or goal of human birth. It is a guide that helps us live our life in totality. We can say, it is like a map or a modern day GPS that gives us a systematic overview of the territory of our life, guiding us through the varied roads, their benefits and pitfalls, offering recommendations, enabling us to decide which path to follow and which path to overlook, thus helping us to complete this journey of human life smoothly and blissfully, but we choose to remain ignorant to this immense wisdom and literally waste our precious human life.

When we study Shrimad Bhagavad Geeta, which has 700 shlokas (verses), the first verse itself begins with the word 'Dharma,' (Dharma here does not mean religion, caste or creed), but rather it's appropriate meaning is 'Duties or Responsibilities'. So the beginning is to understand our duties and responsibilities.

The last shloka (700th verse) of Shrimad Bhagavad Geeta ends with word, 'Mama', which means 'My'. Hence, when put together, the literal meaning of the first and the last word of Shrimad Bhagavad Gita is 'Duty My(Mine)'. But then, we never say 'Duty My(Mine)', here our Geeta teaches us the first important lesson of our life and that is, when it is a question of 'Duty and Me', its 'Duty', which has to come first and I am supposed to be last.

Thus, when we delve deeper, we understand that the very essence of Shrimad Bhagavad Gita in just two words is "My responsibilities(My duties)."

And so begins the first chapter of Shrimad Bhagavad Geeta, which is named as 'Arjuna Vishaad Yoga'. Vishaad means sorrow or profound grief. Even though Arjuna is a kshatriya, a warrior, a great archer and the knower of many Astra and shastras, still after realising that he has to fight his own relatives, teachers, friends, his mind becomes agitated, due to which he experiences extreme agony leading to forgetting his duties and responsibilities.

As we contemplate further, we realise that Shrimad Bhagavad Geeta is not just for Arjuna but also for all of us, as we too have to face many such tough situations in life, where we experience a lot of stress and agitation due to our ignorance and our false identification of the situation. It's our negative approach, that clouds our vision towards a strategic outlook and diverts us to a more tactical one.

It is at this point, that we need a guru, a counselor, a mentor and a friend, who can gradually remove our ignorance and enlighten us with the true knowledge of our responsibilities, thereby bringing a 180 degree change in our thought process and enabling us to view the beautiful, vibrant butterfly, beyond the cocoon of our ignorance.

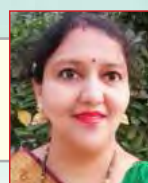


This Jagatguru, who removes Arjuna and all of us from the grief of ignorance is none other than our Beloved Bhagwan Shree Krishna. The study of Shrimad Bhagavad Geeta is a new beginning that brings about a complete transformation in our mundane life, it's like a sturdy lighthouse standing tall amidst the roaring waves of the oceans and guiding the boats of our life towards the calm and peaceful shore. This divine wisdom was applicable thousands of years ago and is applicable even today in this modern era of computerisation.

And hence, let us all offer our gratitude and salutations at the Lotus Feet of our Supreme Creator and pledge to imbibe the values of Shrimad Bhagavad Geeta and follow the path of Dharma (Duties) as directed by Him.

Sarvam Shrikrishnaarpanam Astu
(Everything is offered to Shri Krishna)

Hari Om Namah



Written by:-
Dr. Sunita Vivek Upadhyay
W/o Vivek D. Prasad, Fellow IME(I)



राह पिता की

हाँथों को पकड़कर आपने चलने की राह दिखाई थी
हाँथों को पकड़कर आपने चलने की राह दिखाई थी,
बाबा कैसे भूलूँ उन बातों को जो आपने मुझे सिखाई थी
माँ ने जन्म दिया तो अपने कर्तव्य पालन की बात बताई थी
सम्भलों, उठो, आगे बढ़ो, आपके इन बातों में सही में बहुत गहरायी थी।

सपनों को आकार देना आपने बताया था
सपनों को आकार देना आपने बताया था
कभी हारी नहीं मंज़िल को पाने में क्योंकि मेरे सर पे आपका साया था
अक्सर आपकी यादें आँखों से आंसू बह निकलती है
अक्सर आपकी यादें आँखों से आंसू बह निकलती है
समझाया कितना इन्हें पर ये कहाँ समझती हैं।

आज जब पीछे मुड़कर देखती हूँ
तो बचपन की वो सारी यादें टटोलती हूँ
कुछ खट्टी, कुछ मीठी कहानियाँ याद करती हूँ
परिभाषा आपकी हमेशा रहेगी साथ
आपकी बेटी हूँ, जीऊँगी गर्व के साथ।



Written by:
Rashmi Tiwari
Sub-editor, iMelange



WOMEN'S WELFARE COMMITTEE IME(I) – 2022 - 24

- Solving women related issues and complaints.
- Creating awareness about women's welfare.
- Handle case works and counseling.
- Improving interpersonal skill
- Conducting women's day program.
- To prevent sexual harassment and to promote general wellbeing of Women Seafarers and students of the institute.
- To form a vibrant Women's Cell.

Today with the NEW INDIA in the 21st century the value and responsibility of women has taken a leap with women allowed to join the Army, Navy and Air Force and be the fighting units. Really they have taken up the mantle of DURGA.

When we are looking at the values of women to the family, they bring joy, happiness, love and security to the family.

To help and nurture women force we, the Institute of Marine Engineers (India) look to empower the Lady Seafarers in

1) Social Empowerment

Social empowerment is to have the right to have access to opportunities and resources, have the power to control their own lives, both within and outside the home. The ability to act individually and collectively to change social relationships.

2) Economic Empowerment

Economic empowerment of women is ensuring provision of training, employment and income generation activities for them with both forward and backward linkages with the ultimate objective of making all women economically independent and self-reliant.

3) Gender Justice

Gender justice for women means elimination of all forms of gender discrimination and thus enable women to enjoy not only de-jure but also de-facto rights and fundamental freedom on par with men in all spheres.

Women Welfare Committee - Objectives

- Women's empowerment through education.
- Organizing health awareness program.

- Create awareness and encourage more women to take up the marine profession
- Motivate and make aware the girl students of their strengths.
- Take steps to alleviate the difficulties faced by lady members in our profession.

As a Chairman of the Women's Welfare Committee it's really a pleasure to write and connect with you all. This committee has been formed under the leadership of our Hon. President Shri V K Jain.

Being father of a women seafarer (my daughter Bhagyashree Ogale is presently sailing as a First Engineer with TK Tankers), I do understand the difficulties and the hardships women face when they are in a Marine Institute and while sailing out at sea. Hence being a Chairman of the Committee is something that is close to my heart.

How to make things more adaptable to the girls in the marine college and also on the ship is the objective of this Committee. The Institute can be the guiding force for all girls and women to help achieve their goals. There are distinct advantages of being a member of IME(I) and it has helped a lot of girls while appearing for Exams from Class 4 to Class 1.

1. You get recognized as an IME(I) Member, an Organization which has proved itself to be the flag bearer of the Shipping Industry.
2. IME(I) has hostel facilities for Women Members appearing for Exams and Classes in IME(I) Nerul.
3. IME(I) has Library facilities for all its members without any Fees.
4. Scholarship is provided to Engineering Cadets of Various Maritime Training Institutes approved by DG Shipping.

5. Knowledge Sharing Sessions are conducted by very Senior and Experienced Chief Engineers.
6. IME(I) Training Centre at Nerul is the most sought after for the Excellent Teaching faculty and for guidance received from faculty.
7. The Technical Journal that each member receives as a soft copy is very useful to all the Student members and Sailing Staff.
8. IME(I) Girl Student Members are mentored free of Cost for any technical issues and help that is required by them.
9. Guidance is provided to IME(I) Women Members to be Entrepreneurs in the Marine Technical fields at no cost to the Women Members.
10. A Technical forum has been formed for networking with senior IME(I) members for any guidance required while out at Sea.

We now solicit feedback of IME(I) members on:

1. How should the Institute work towards reaching out to all the Women Seafarers who are presently sailing or working ashore?
2. What are the Technical problems faced by the Women Seafarers and what is expected from the Institute. (The Institute is limited with the objectives

set out by our rules but definitely would like to know what changes do you expect so as to make the Institute attract Women Seafarers to join the Institute as members).

3. Do you feel you could suggest other Women Seafarers to join the Institute or if you do feel that we need to reach out to them can you with their consent give their names or contact details to us, so we could reach out to them.

We look forward to your active participation in this to help us to be at your service. We also are forming a WhatsApp group for only those who are members of the IME(I) and also who have been members earlier and those who intend to be members in the near future. Hence request your consent on forming the group.

Personally I, as father of Bhagyashree, would like to extend any help that is required by any Women Seafarer. Hence, would eagerly wait for your email.

Kindly email me your willingness and suggestions to: WWC@imare.in



Written by: Sanjeev Ogale
Chairman of Pune Branch
Chairman of Women's Welfare Committee



Institute of Marine Engineers (India)

Kochi Branch

1st floor, Kamalam Towers 48/200(B1), Narayananasan Road,
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❖ **TRAINING : Our Institute with Grade A1 (Outstanding) Certification offers the following DGS Approved courses**

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 - course scheduled based on demand
- **MEO Class II Preparatory Course : 4 Months Duration**
 - Admissions every month
- **Refresher and Updating Training course for all Engineers**
 - course scheduled based on demand

❖ **OTHER ACTIVITIES :**

- Organises Technical Meetings & Seminars for Mariner Engineers & seafarers.
- Facilitates joining the Institute as a Member of The Institute of Marine Engineers (India).
- **Benefits of membership:** Free access to campus library facilities and IMarEST UK Student membership, Fee discount for the courses conducted by us, Eligibility for scholarships, aid and research funding, publishing opportunities for original technical articles/research work & sponsors members for national & international seminars.
- Free advice on technical matters and opportunity to attend any specific session

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- | | |
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| 3. Advanced Marine Electrical course Module 4 - Electronics for Marine Engineers | 02-03, 16-17, 30-31 |
| 4. Advanced Marine Electrical Course Module 5 & 6, Instrumentation, Process Control & Programmable Logic Controllers | 06-11, 20-25 |
| 5. Bridge Manoeuvring & Engine Control - Operational Level | 02-03, 16-17 |
| 6. Bridge Manoeuvring & Engine Control - Management Level | 08-10 |
| 7. Engine Room Emergency Management | 16-17, 30-31 |
| 8. Hydraulics for Engineers - Basic | 13-15 |
| 9. Hydraulics for Engineers - Advance | 27-31 |
| 10. Machinery Breakdown Safety Campaign - 2 | 17, 13 |
| 11. Maritime Crew Resource Management (MCRM) | 06-10, 20-24 |
| 12. Maritime Safety Management - Module 1 (Occupational and Behaviour Based Safety) | 13-15, 27-29 |
| 13. Maritime Safety Management - Module 2 (Risk Assessment) | 06, 20 |
| 14. Maritime Safety Management - Module 3 (Shipboard Safety Officers) | 08-21 |
| 15. Maritime Safety Management - Module 4 (Accident Investigation-2) | 09-23 |
| 16. Port State Control (Online) | 20-21 |
| 17. SIRE 2.0 Training for Crew (Online) | 13-27 |



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IME(I)'s Governing Council Meeting



Kochi



The 95th GC meeting of the Institute of Marine Engineers (India) was successfully hosted by the Kochi Branch on the 25th and 26th of February 2023. The venue for the event was Hotel Le Méridien, Kochi.

The Kochi Branch of IME(I) played a crucial role in ensuring the success of the event. The branch members worked tirelessly to plan and organize every aspect of the meeting, from the venue and accommodations to the program and logistics. Their dedication and hard work were evident in the seamless execution of the event, which was well-received by all attendees.

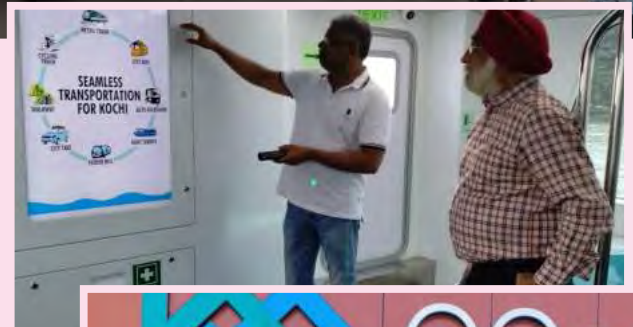
Overall, the 95th GC meeting of the Institution of Marine Engineers (India) was a resounding success, thanks to the efforts of the Kochi Branch and the enthusiastic participation of all attendees.

At the end of the GC meeting, on 25th February, a dinner was held on a boat that sailed around the backwaters, providing guests with a tour of Vallarpadam Container Terminal, Bolgatty Island, and other notable landmarks.

After the conclusion of the GC meeting on 26th February, the attendees got a firsthand feel of Kochi Water Metro Boat Ride. The modern boat with electric propulsion, was built by Cochin Shipyard and owned and operated by Kochi Water Metro Ltd. This unique experience was made possible by the kind courtesy of Mr. Sajan John, Chief Operating Officer of KWML, who is a Fellow of IME(I). During the ride, Mr. John provided the details of the project and the boat to the guests.

The Kochi Water Metro Project has implemented a new and modern approach to water transportation by introducing energy-efficient, eco-friendly, and safe boats. These boats have been designed with low wake and draft characteristics. This marks the first time that mass water transportation has been offered in the region.

Glimpses of Kochi Water Metro Visit





Technical Session on EEXI, SEEMP and CII

Goa

A knowledge sharing session was organised by IME(I), Goa Branch on **Amendments to MARPOL Annex VI** on **18th February, 2023**.

Mr. Kunal Sharma, Sr. Surveyor from **Indian Register of Shipping** gave a presentation on the recent amendments.

The session was attended by Goan maritime fraternity comprising of 66 attendees along with the students of IMS, Goa.

The topics discussed were EEXI, EEDI, SEEMP and CII.

The session also covered background of the Regulations, Initial IMO GHG strategy, concept and calculation methodology of EEXI, CII and rating mechanism, and some thoughts on probable mid-term and long-term measures.



Paper Presentation on Situations and Risks faced by Marine Engineers

A paper presentation was organised at the lecture hall of the Institute's Kolkata Branch on 30th January 2023 on the topic '**Marine Engineers - multiple losses, gains and risks encountered throughout their entire life**'. The presentation was made by Shri. Subrata Mukherjee (Senior Member).

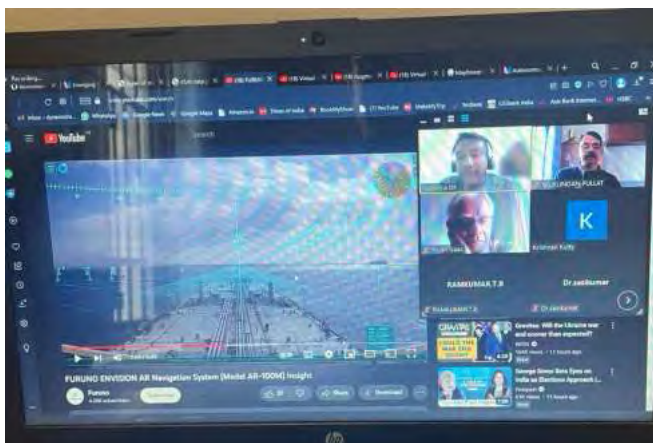
Shri. Mukherjee discussed the various situations and risks faced by marine engineers at sea, and enlightened the audience on the various rights a mariner has which can be demanded from the seafarer's employer. He also suggested that IME(I) and ex-cadets' associations should keep on their panel legal advisors, tax consultants, financial advisors and investment consultants to benefit the marine engineering community.

The presentation was followed by a lively question and answer session. The session was well attended by members and IMU cadets.

Shri. Mukherjee and Shri. Alok Kumar Sarkar, Vice Chairman and Guest of Honour, were felicitated by the Chairman Shri. Gautam Sen, and the meet was thus concluded.



Webinar on Revolutionizing Maritime Industry with Emerging Technologies



A webinar was conducted on 18th February, the latest on a series as part of "Azadi Ka Amrit Mahotsav". The presentation was made by Mr. Ravindra Devtha on "Revolutionizing Maritime Industry with Emerging Technologies". He explained the impact made by emerging technologies like Artificial Intelligence, Block Chain etc. A lively discussion followed the presentation which was well attended by the fraternity.

A Session on Preparing Existing Ships for Compliance of CII Requirements



A session on the theme ‘**Preparing Existing Ships for Compliance of CII Requirements**’ was hosted on **13 February 2023** at Sir R.N. Mookerjee Hall of the Institution of Engineers (India) West Bengal State Centre by IME(I) Kolkata Branch, jointly with the Marine Engineering Division, West Bengal State Centre, the Institution of Engineers (India).

Chairman IEI WB State Centre, Dr Nirmal Das, welcomed the audience.

Chairman IEI Marine Engineering Division Board, Cdr. Dr B.M. Bhandarkar, addressed the gathering.

The speakers for the day were introduced by Shri Gautam Sen, who is both Chairman IME(I) Kolkata Branch and Chairman Marine Engineering Divisional Sub-Committee, WB State Centre, IEI.

The first speaker, Shri Alok Kumar Mitra, Marine Faculty, spoke on the topic ‘Energy Efficiency in Ship

Construction and Operation’. He first talked about EEDI and EEOI, then presented a list of country-wise release of greenhouse gases, and discussed details of step by step reduction of EEDI. He described various modern ship building techniques like modular

ship construction, sandwich plates, corrugated bulkheads, etc. for reduction of ship weight, thereby resulting in reduction of fuel consumption. Shri Mitra further elaborated on methods of fuel reduction through hull design, modified types of propellers, trim optimisation, etc. He concluded by stating that efficiency was higher in case of electrical propulsion as compared to mechanical propulsion, and opined that electrically propelled ships will be used more and more in the future.

The second speaker, Shri. Sadhan Kumar Sarkar, ex-Director (i/c) MERI / IMU Kolkata Campus, speaking on ‘Preparing Ships for CII Compliance’, stated that IMO has set ambitious decarbonisation targets for the shipping industry. By 2030, IMO aims to reduce vessels’ carbon emissions per transport work by at least 40 percent, and is targeting 70 percent reduction by 2050 across the sector. He informed MEPC has put forward two new concepts - Energy Efficiency Existing Ship Index and Carbon Intensity Indicator. To achieve EEXI compliance, vessels can undergo a preliminary assessment, then gain approval for preliminary technical files and earn a statement of compliance.

“ By 2030, IMO aims to reduce vessels’ carbon emissions per transport work by at least 40 percent, and is targeting 70 percent reduction by 2050 across the sector ”

Shri. Sarkar then elaborated on the steps required for preparing existing ships for CII compliance.

Prof. Dr Raju Basak, Hon. Secretary, WBSC, IEI, proposed a vote of thanks to conclude the day’s proceedings.

Farewell



Shri Amitabh Kumar, IRS, has been repatriated to his parent cadre in IT department from 1st March, 2023. During his long innings as Director General of Shipping, Shri Amitabh Kumar took some very prudent decisions particularly during the Covid Pandemic, ensuring Indian Ships & Supply Chains are not affected and Seafarers are not inconvenienced. The industry recalls his receptiveness and ever willingness to meet, discuss, deliberate and provide help to the industry.

The IME(I) is also indebted to him for the advice and assistance rendered over the years and particularly in joining hands with the IME(I) Mumbai Branch in holding the INMARCO 2022 at Mumbai. Shri Amitabh Kumar has been a great supporter of Gender Diversity and Digitalisation.

His initiatives for the Virtual Training during the pandemic and welfare of seafarers, their mental health and wellness have been widely appreciated. IME(I) would always cherish his association with the industry.

We wish him all the best in his future assignments and endeavours.

Welcome



We extend a warm welcome to Shri Rajiv Jalota, IAS, present Chairman of Mumbai Ports Authority (MbPA) and Chairman of Indian Ports Association (IPA) who has been given additional charge of The Director General of Shipping, on transfer of Shri Amitabh Kumar to his parent department.

Shri. Jalota is an accomplished professional with a distinguished career spanning over three decades, including serving as District Collector in Mumbai and Pune, Commissioner of Sales Tax in Maharashtra, and Secretary to the Government of Maharashtra in the Departments of Energy, Finance, and Home.

Under his leadership, the MbPA has achieved significant milestones, including the modernization of port facilities, completion of several infrastructural projects, and expansion of port capacity.

His vision for the port is focused on creating a world-class, customer-centric, and sustainable facility that will serve as a catalyst for the economic development of Mumbai and the region.

As Chairman of IPA, Shri. Jalota is also contributing significantly to the growth and development of India's ports sector. His extensive knowledge and administrative acumen have been instrumental in driving innovation, enhancing efficiency, and ensuring safety and security in maritime operations.

We are looking forward to benefit from his valuable insights and extensive experience.



Revolutionizing Maritime Training: GlobalMET's Conference on Future of Digitalization and Communications

The Global Maritime Education & Training Association (GlobalMET) held a conference and exhibition on the future of digitalization and communications at the Novotel in Juhu on February 25th, 2023.

activities and research in the field of maritime training and education. GlobalMET's conference featured speakers from all over the world, with sessions focusing on digitalization challenges, future communications, and training and crewing challenges.

The Inaugural Session featured a welcome address by Capt. Kersi Deboo, Chairman of IndiaMET and an inaugural address by Chief Guest Capt. R.K. Muduli, Deputy Nautical Advisor and DDG to Govt of India. Capt. Pradeep Chawla,

Chairperson of GlobalMET spoke on **The Future of Digitalisation and Challenges Today**.

GlobalMET is a Hong Kong-based association with consultative status at the International Maritime Organization (IMO) that conducts

The conference opened with the lighting of the lamp and a Saraswati Vandana performance. The conference had four sessions, with speakers from various sectors of the maritime industry.





During Session I, Mr. Daniel Sheehan, an Independent Consultant of National & International Maritime Safety, Security & Environment Protection Issues, chaired the session. The speakers for this session were Rear Admiral Wayne Arguin, Assistant Commandant for Prevention Policy, USCG, who spoke about **The USCG Response to Emerging Technology**, and Mr. Laurie Eve, Director Retail, INMARSAT Maritime, who talked about the **Future of Communications**.

Session II was chaired by Mr. Ramji Krishnan, GlobalMET Secretariat, and featured two speakers. Mr. Stuart Edmonston, Director of Loss Prevention, UK P&I Club, spoke about **Future of Digitalisation, A P&I Perspective**. Mr. Joy Basu, CEO & Founder of Smart Ship Hub Digital Pvt. Ltd., discussed **Connected Ships for New Age Maritime Economy**.

Session III comprised of two panel discussions moderated by Mr. David Birwadkar, Advisor at Great Eastern Shipping Co. Ltd. Panel I, focused on **Training Challenges for Digitalisation** and had four panelists, namely, Capt. Vinayak Mohla, Head of Cadet Recruitment and Competency Management at Anglo-Eastern, Mr. Pankaj Nayak, Head of Global Training at d'Amico Shipping Group, Mr. Sanjeev Vakil, CEO, Hindustan Institute of Maritime Training, and Mr. Abhinav Narayan, CEO of OneLearn Global. Panel II discussed **Crewing Challenges for**



Digitalisation and was moderated by Capt. Anil Tejpal, Director, Crewing Strategy, Synergy Marine Group. The panelists for this session were Mr. Vishal Breja, Director, Seaarland Ship Management, Capt. Sankalp Shukla, Managing Director,

Bernhard Schulte Shipmanagement, and Capt. Pradeep Correa, COO, Seven Islands Shipping Ltd.

During the event, Mr. Deepak Shetty, I.R.S.(Retd.), Former Director General of Shipping, Government of India, and currently India Head of Maritime Anti-Corruption Network (MACN), talked about the **Significant Progress Made by MACN in Rooting out Corruption in the Maritime Industry in India**.

The event also had an exhibition that showcased the innovations and ideas of various organisations. The exhibition featured companies such as Applied Research International Pvt. Ltd., INMARSAT, E-Dot Solutions, and Karishma Marine Solutions Pvt. Ltd.

The conference included a prestigious awards ceremony. The ceremony was truly magnificent, filled with warmth and joy as eight exceptional individuals in the maritime industry were honored with well-deserved accolades. Each awardee was presented with a stunning trophy, a scroll, and a thoughtful gift. The esteemed recipients of this distinguished award were Mr. Hoshang Dastur, Capt. Jairaj Nakhwa, Capt. Keith Miranda, Capt. Krishnamurthy Iyer, Capt. Rajiv Kumar Sharma,





Dr. Surender Kumar, Capt. N. S. Mainkar, and Capt. Murali Vepa (posthumously). Their contributions and achievements have greatly impacted the maritime industry and have set an outstanding example for future generations.

The conference was successful in discussing the future of digitalisation and communications in the maritime industry and provided insights into data usage trends, crew welfare, and decarbonisation. It also created a

GlobalMET honoured eight Maritime Trainers with a Lifetime Achievement Award for long service dedicated to the improvement of maritime education and training in India.

platform for members to exchange views through panel sessions on challenges concerning the future of digitalisation in the maritime industry.

With digitalisation being the future of ship management, the conference set the bar in formulating a common stand on issues of interest related to Maritime education, training, research, and development. The event successfully highlighted the need to evaluate the present skills and demands of future skills requirements, bridging gaps with suggestions on solutions for government and private bodies to take up in their schemes of things. Overall, the conference fostered, developed, and maintained close cooperation among its members, promoting a sustainable future for shipping.

The event was concluded with Capt. Manoj Hirkane, Vice Principal, Nautical at Tolani Maritime Institute, proposing the **Vote of Thanks**.





INSTITUTE OF MARINE ENGINEERS (INDIA) GOA BRANCH

IMEI HOUSE in Goa has a well - furnished guest house specially built for the members of IMEI who are visiting Goa for official work, for attending seminars or classes and for leisure.

The guest house has following salient features:

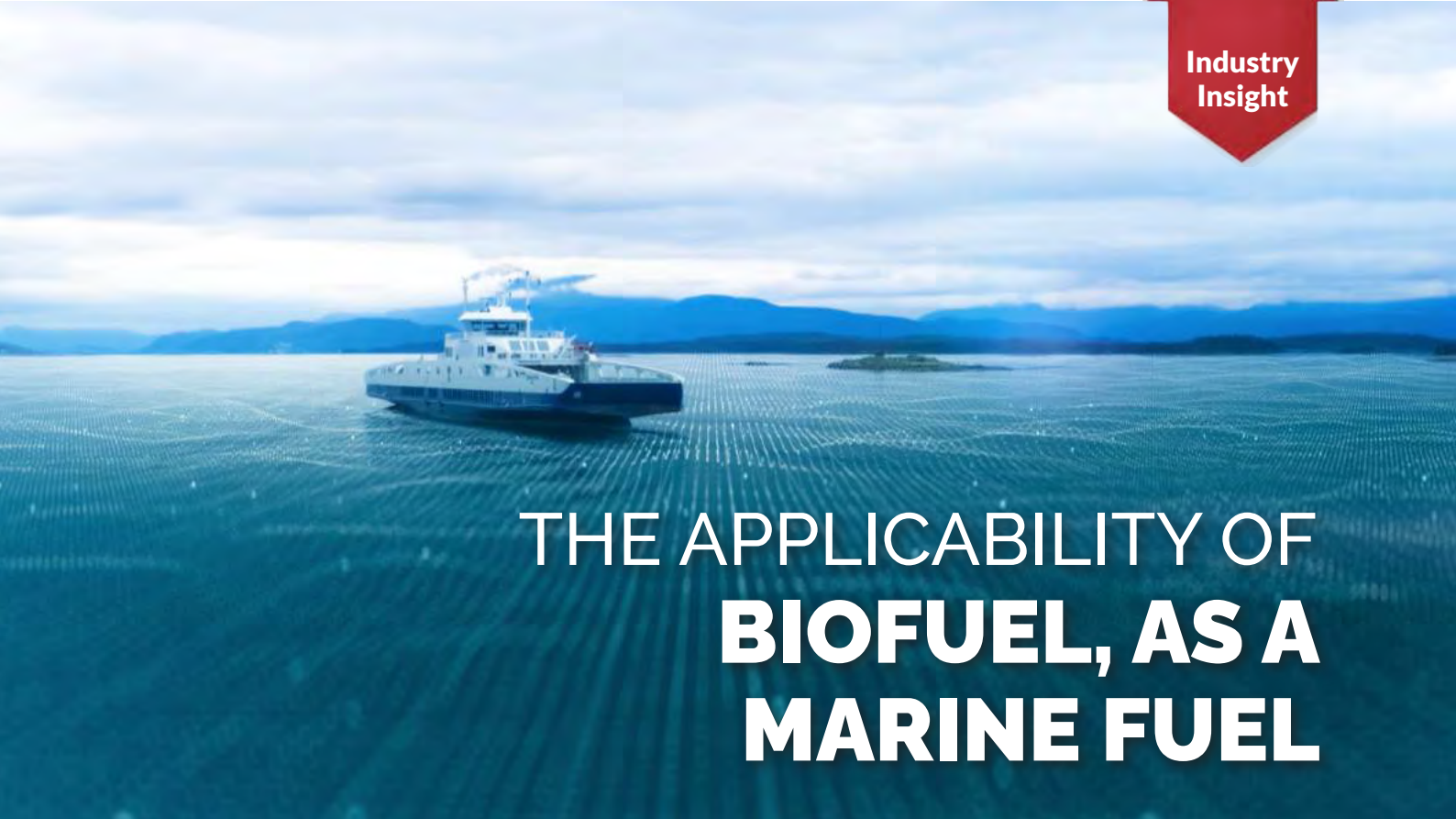
- ◆ Spacious hall for seminars and training
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- ◆ Room tariffs are highly economical for members as compared to prohibitive hotel rates in Goa

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Contact Number: 7972529309



THE APPLICABILITY OF BIOFUEL, AS A MARINE FUEL

INTRODUCTION

International shipping conveys the transportation of majority of the world's goods, which is facilitated by large marine vessels, running primarily on heavy fuel oil, accounting for 2~3% of the global GHG emissions, while being the largest sources of anthropogenic sulphur emissions. The negative effects of these emissions extend to both terrestrial and aquatic life, including human health. In response to this, IMO has established targets to reduce emissions and biofuel has the potential to fully supply the marine sector for both reducing carbon emissions and meeting sulphur regulations.

WHAT IS BIOFUEL?

Biofuel, either in liquid, gas or solid form, is a general term used for fuels derived from biomass—that is, plant or algae material or animal waste. Bio-derived fuels and blends of bio-derived fuels with petroleum products are therefore a potential alternative energy source being considered by marine industry since they are renewable with low sulphur content and importantly can result in reduced greenhouse gas (GHG) emissions, when considering their full life cycle analysis.

First generation biofuels are produced directly from food crop feedstocks such as starch, sugar, animal fats and vegetable oils. Second generation biofuels are produced from waste and residue non-food crop

“

For the most part the marine industry has been sourcing second generation products being very much governed by their availability and cost

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feedstocks (ex. Used cooking oil etc). Third generation biofuel are produced from algae which can be converted into a wide range of fuel products. For the most part the marine industry has been sourcing second generation products being very much governed by their availability and cost.

Figures 1 and 2 illustrate the variety of the feedstocks and the different processes involved. Unlike the conventional petroleum fuels in use today consideration needs to be given to the sustainability of the biofuel feedstocks and processes used.

For the most part over mainly the past 3 years the marine industry has been running sea trials on blends of

fatty acid methyl esters (FAME) and FAME like biofuels normally in the range of 20 – 50 % but in some cases up to 100%. The other biofuel of interest is that of the hydrogenated vegetable oils (HVO) which are grade bio fuel product meeting ISO 8217 DMA specification, in fact considered by many as the preferred biofuel for the marine industry, however its high cost and limited availability over FAME makes it less attractive. .

The use of FAME and HVO provide a useful option for conventional diesel ships to reduce their carbon footprint following sea trials thus undertaken have confirmed their suitability as a ‘drop-in fuel’. This can provide an advantage to ship owners, operators and managers as follows:

- a. Use on existing engines without major engine modifications
- b. Meets IMO Sulphurr requirements.
- c. Reduces CO₂emissions depending on FAME content and providing the full life cycle analysis (LFC) is considered, without which there is little value
- d. Will support in the short to medium the ship-owners with ship's currently in service to work towards the IMO 2050 targets.

Below are the Challenges and guidance for use of FAME.

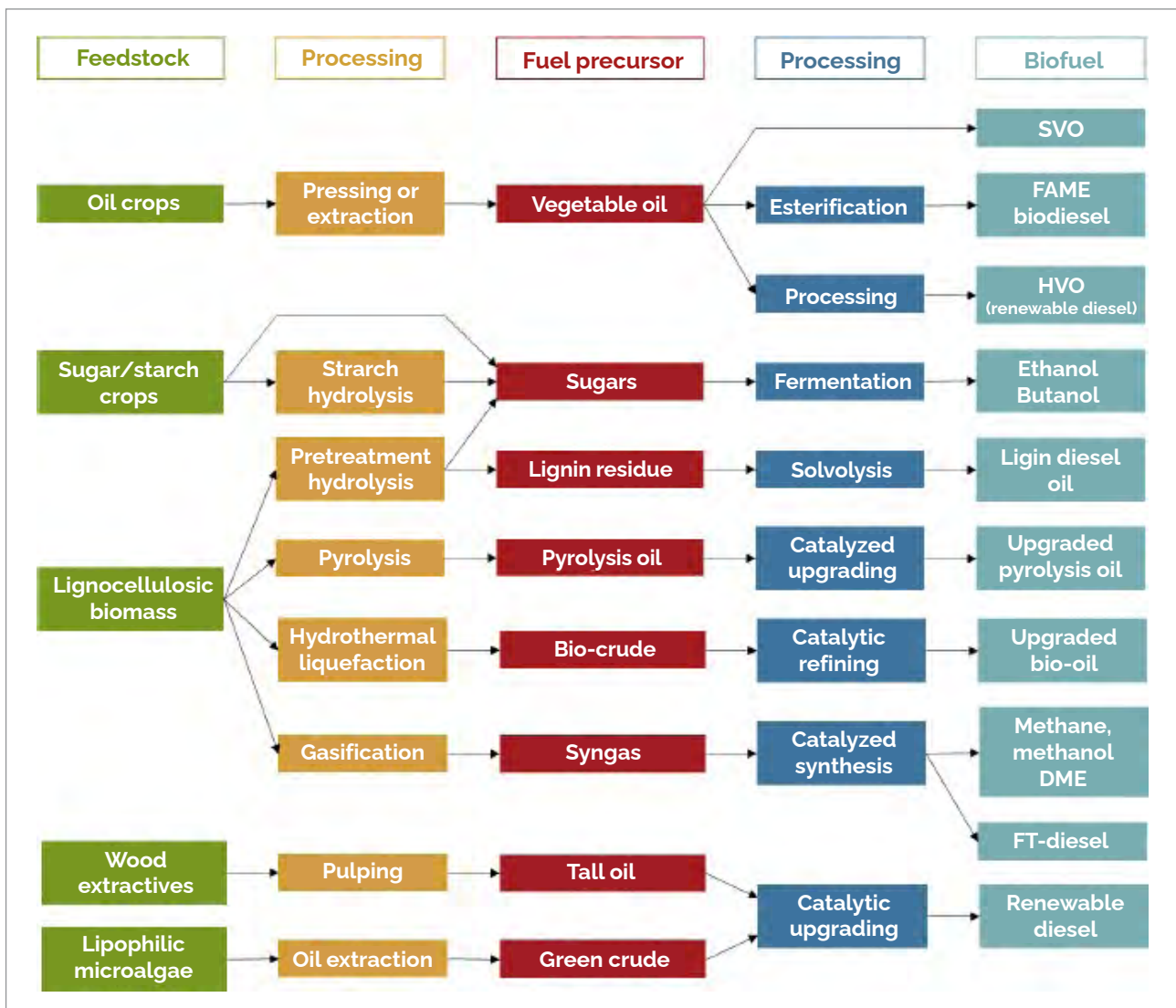


Figure. 1

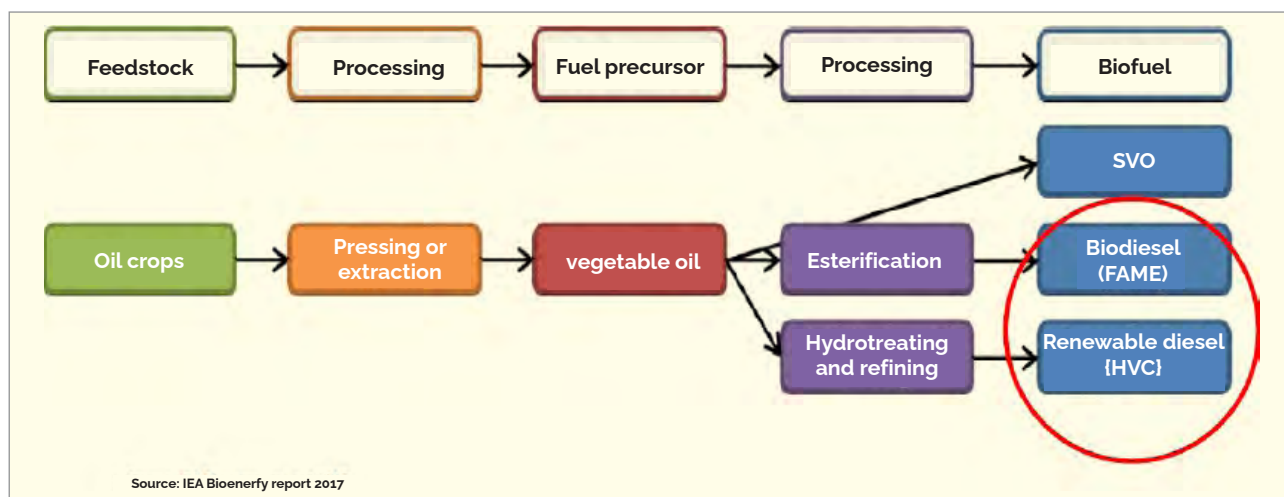


Figure. 2

STORAGE & USE

As with any change in fuel blend the significant of FAME requires additional fuel management focus on the characterises of FAME in a marine fuel.

- Tends to retain water which may proliferate microbial contamination,
- Microbial activity, if unchecked, form acids leading to potential corrosion in the fuel system components and increased levels sludge (which can block filters/purifiers). More of a concern in distillates than in residual blends, in view of the higher temperatures used of the residuals.
- Oxidation stability of FAME itself needs to be checked before blending and hence is required to meet the FAME standards of EN 14214 and ASTM D6751 as defined in ISO 8217:2017. Noting that off specification oxidised FAME is likely to form acids, which then in turn if unchecked can lead to corrosion in the fuel system and excessive sludge (which can block filters/purifiers).

To minimise the above stated risks, we recommend the below guidance, for suitability of storage and handling of this fuel. Following the additional focus on the use of VLSFO at the start of 2020 and onwards, the same best practices should be applied:

- long term storage should be avoided
- excessive heating on storage tank to be avoided.
- In view of the solvent like nature of FAME use of such a blend may result in the cleaning effect on the piping system. Filters and purifier performance should be closely monitored for possible increase in sludge deposition.
- settling and service tanks should be regularly drained of water.
- tank and fuel system materials (any tank coatings used that may not be compatible to such as FAME?) should be assessed
- the tanks to be loaded should be empty, and cleaned of any excess sludge,

- cold flow properties of FAME / blend should be evaluated with pre- use - analysis to ensure that the flow of the product is maintained
- For a ship's first-time use of a FAME blended fuel, whether with residual or distillate fuels, we recommend that a risk assessment review is carried out before, during and after the first use of such a fuel, for each specific ship and for the benefit engineers unfamiliar with such a product.

ANALYSIS

We recommend the below tests on the Biofuel, before using the fuel.

In the first instance the supplier should provide a certificate of quality of the FAME to be blended and that should meet the EN 14214 or the ASTM D6751 FAM standard. There is no international standard for FAME at this time so other standards may be offered and in so doing, we recommend that FOBAS is approached for advice on suitability of the product on offer.

- Full routine test as per ISO8217:2017 standard against the respective grade delivered: Test the usual technical and operational parameters which are widely accepted by all parties, including buyer, seller, charterer etc.
- % FAME content of the fuel – by that prescribed in ISO8217:2017 ASTMD7963 (or FOBAS Fame Scan as an initial indicator)
- Calorific Value by determination D240 for GCV and NCV: This is required, as ISO standard calculations for calorific values are not applicable to such fuels

The following additional analysis may be carried out to build a more in depth understanding of the composition of the fuel in the initial stages of using such a blend (Note additional sample quantity may be needed should you wish to add these tests):

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- GCMS by ASTM D7845: It is used to quantify chemical species and looks at a library of 29 components, including Styrene, Indene, DCPD and phenolic related compounds.
- ASTM D5291 for C,H,N,O content (carbon, hydrogen, nitrogen, oxygen): Use for emission control calculations in the event that the ship is asked to measure the NOx Emissions. Conversion factor (Cf) of the fuel for the calculation of the CO2 emissions – can be assessed by the measurement of the Carbon content of the blend
- Copper strip corrosion AASTM D130 : Test is to gauge the corrosiveness of the fuel with copper
- Steel strip corrosion ASTM D665a: Test is to gauge the corrosiveness of the fuel with steel
- Sediment Wax Precipitation Point (in-house method): Biofuel tend to have an increased paraffinic (wax) content which may have higher melting temperatures. When operating the purifier, these fuels may precipitate wax and sediment at the normal prescribed purifier operating temperature for the viscosity of the fuel, thus choking the purifier. The purpose of this test is to provide operational information to help set an optimum purifier fuel through put temperature

PRIOR TO AND DURING USE

- When first put into use the purifiers and filters are monitored as to any degree if initial sludge deposits from the cleaning effect of the fuel.
- Material compatibility (see section below) should be checked with the OEM equipment such as:
- OWS (oil water separator), overboard discharge monitors
- ICU if applicable on engines
- SCR's (if so fitted) catalyst.
- Monitor condition of sensitive materials and assess fuel system to be monitored during use.

FUEL CONSUMPTION

Calorific value will be noticeably lower, deepening on percentage blend, when compared to conventional petroleum fuels. This is likely to result in a slight increase in specific fuel consumption.

NOx EMISSION: *Application of regulation 18.3 for Biofuels.(MEPC .1/Circ.795/Rev.6 - 10 June 2022)*

A fuel oil which is a blend of not more than 30% by volume of biofuel should meet the requirements of regulation 18.3.1 of MARPOL Annex VI. It is therefore considered to be fuel oil of blends of hydrocarbons derived from petroleum refining and verification of the NOx impacts is not required.

A fuel oil which is a blend of more than 30% by volume of biofuel should meet the requirements of regulation 18.3.2 of MARPOL Annex VI. It may also be used without verification of the NOx impacts where the engine is already certified to Annex VI regulation 13 on a DM or RM grade fuel, and biofuels can be burnt without changes to the NOx critical components or settings/operating values outside those as given by that engine's approved NOx Technical File.

MATERIALS

The following provides a list of materials more incompatible with certain materials, in tanks & piping over

The purpose of this test is to provide operational information to help set an optimum purifier fuel throughput temperature



longer-term storage and use. This is based on 100% FAME blend for extended periods – Ships should be aware of the fuel system component material that may degrade over time and have suitable spares to replace. Seek OEM guidance.

Table 1

Material	Recommended	Not recommended
Metals	Carbon Steel Stainless Steel Aluminium	Brass Bronze Copper Lead Tin Zinc
Elastomers	Fluorocarbon Nylon Teflon Viton	Nitrile rubber Neoprene Chloroprene Natural rubber Hypalon Styrene-Butadiene rubber Butadine rubber
Polymers	Carbon filled acetal	Polyethylene Polypropylene Polyurethane Polyvinchloride
Others	Fibreglass	

CRANKCASE LUBE OIL:

OEM should be consulted with regards to the selection of crankcase and cylinder lubricating when using a known blend of FAME or any other biofuel.

CONCLUSION

Considering global warming, active involvement of maritime industry is required to reduce CO2 emission. Biofuel is one of the readily available options for reduction of CO₂ in the short term, with availability in quantities required to be a challenge with growing demand. Ship trials have so far showed good operating results. Forth coming ISO8217 is expected in 1Q 2024, will have the further guidance on the test requirements of ISO8217.



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- Ship Security Officer Course

Simulator Courses

- Diesel Engine Combustion Gas Monitor Simulator, ERS (Mgmt) & ERS (Ops) level
- Radar Observer, ARPA, & RANSCO Courses
- Ship Maneuvering Simulator and Bridge Teamwork
- Liquid Cargo Handling Simulator Course (Oil)

Value-Added Courses

Course	Duration	DNV Certificated Courses	Duration
ME Engines Advanced / Familiarization– (online)	5/3 days	Internal Auditor for QMS/EMS/OHSMS/EnMS	3 days
ME-GI Dual Fuel Engines Operations – (online)	5 days	Internal Auditor for ISM/ISPS/MLC	2 days
BTM/BRM/ERRM physical or online	3 days	Incident Investigation & Root Cause Analysis	2 days
Marine Electrical Workshop	6 days	Maritime Risk Assessment	2 days
Soft Skills for induction into Merchant Marine	2 days	Emergency preparedness	1 day
Demystifying Human Factors & integration in Mgmt. Systems	2 days	SIRE 2.0	2 days
Be-spoke training	As desired	Navigational Audits	1 day



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MAERSK

Carbon Neutrality and Whale Strike

ABSTRACT

Carbon neutrality refers to the balancing of the amount of carbon in the atmosphere by balancing the carbon emission and absorption, with the atmosphere as a carbon sink. We all know the Carnot engine is considered to be the most efficient heat engine, but as we all know it's not 100% efficient. Creating a heat engine with a hundred percent efficiency is impossible. But achieving carbon neutrality is not a herculean task. But creating an alternate way, instead of focusing on the carbon-emitting substances to tackle decarbonization is much easier. We are banking on whales for carbon neutrality or net zero emission as a carbon offset method. Through this paper, we are presenting the most adoptable and viable measures to avoid whale strikes to save the declining number of whale communities and thereby acquiring the goal of carbon neutrality. It is also important not to harm any other living being for human needs beyond an extent. Since whales are large and have no competent opponents, it's hard to study their character and reactions. But the progressive and innovative human minds will always seek new ways and solutions- from fire to quantum computer humans is unstoppable. Likewise in the marine field also scientists are in a way to find solutions for the whale hit. We aim to contribute an innovative idea to deal with carbon neutrality by minimizing the whale strike.

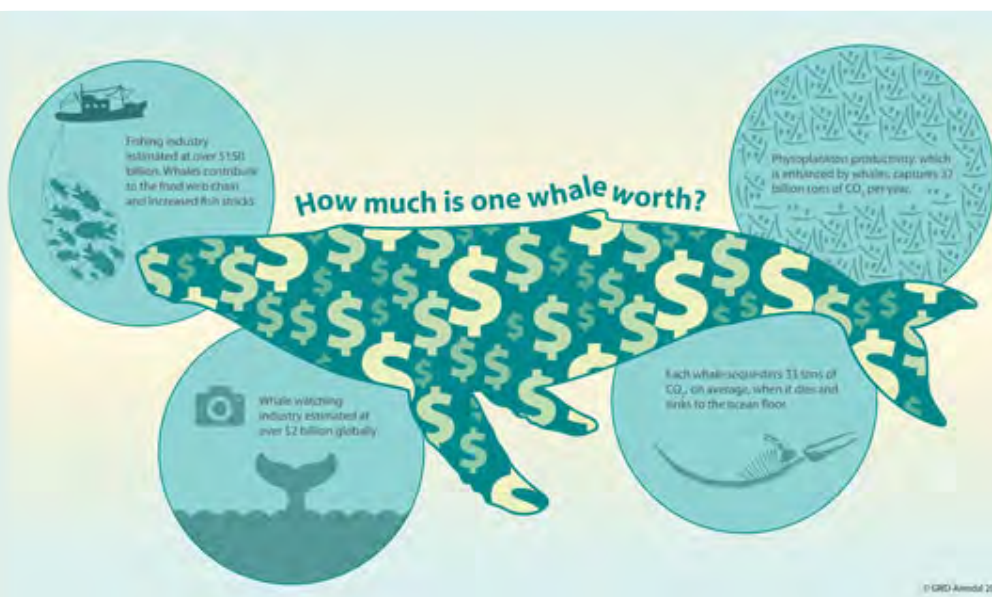
INTRODUCTION

As we know carbon neutrality or net zero emission refers to the balancing of carbon content in the atmosphere by absorption, adsorption, carbon capturing, or using any other method, with carbon as one of the sinks. Human existence from the early 19th century was questioned by the increase of carbon content in the atmosphere by acid rains, climate changes, and all. Mathematically the capacity of natural sinks stands between 9.5-11 GT, which is nearly one

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We are banking on whales for carbon neutrality or net zero emission as a carbon offset method. Through this paper, we are presenting the most adoptable and viable measures to avoid whale strikes to save the declining number of whale communities and thereby acquiring the goal of carbon neutrality

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by a fourth of the carbon emitted. Carbon neutrality is often called climate neutrality as greenhouse gases increases and causes global warming. The importance and significance of this topic stand big. As per the Paris agreement we have to achieve carbon neutrality by 2050, but according to scientists, things are going in a worse condition and we have cut the use of fossil fuels by at least 6%.

Methods like carbon capturing, planting trees, and alternate fuels are been used to decrease carbon emissions but cost of manufacturing, maintenance, and technical aspects stand at a higher level and cannot be normalized among all industries or countries. Our idea comes under **carbon offsetting**. Carbon offsetting refers to the process of neutralizing carbon amounts in a process by reducing them in another process. Our innovative project not only finds a way for carbon neutrality but also finds a solution for whale strikes, an alarming issue in the maritime sector. Through the project, we can strengthen the maritime sector and environment together.

WHALE STRIKE

Whale strike is often referred to as a collision between a whale and a vessel. Often most of these collisions by big ships are unreported or unnoticed but, in some cases, these collisions can lead to fatal injuries or even the death of the animal. Ship strikes thus are largely contributing to the extinction of whales. As the reproduction rate of whales, is a calf in two or three years, ship hit is a major threat to the whale population. Most of the ships, on an average scale, are about 300 to 400m long and about 50 to 60 m in width. So even if the bridge personnel see a whale near a ship, one cannot easily divert the course

of the large vessel. The whales are not able to sense the upcoming ships as they don't sense it as a danger so it is fully up to humans to avoid whale hits.

RELATION BETWEEN "WHALE STRIKE" AND "NET ZERO EMISSION"

Whales a significant role in carbon neutrality. We can explain the role of whales in two points, they are as follows,

1) Whales As Carbon-Capturing Element

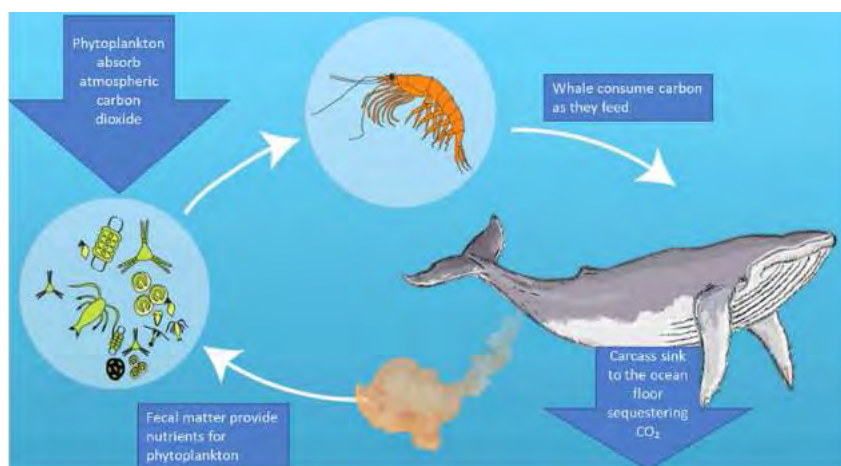
The **carbon capture** capacity of whales is truly extraordinary. Whales accumulate carbon in their bodies during their lifetime and on average it's about 33 tons. If we consider a tree with the same lifespan as a whale, what a tree capture is only 3% of what a whale capture. So, if the whale population increases, we can gradually achieve the goal of zero-emission.

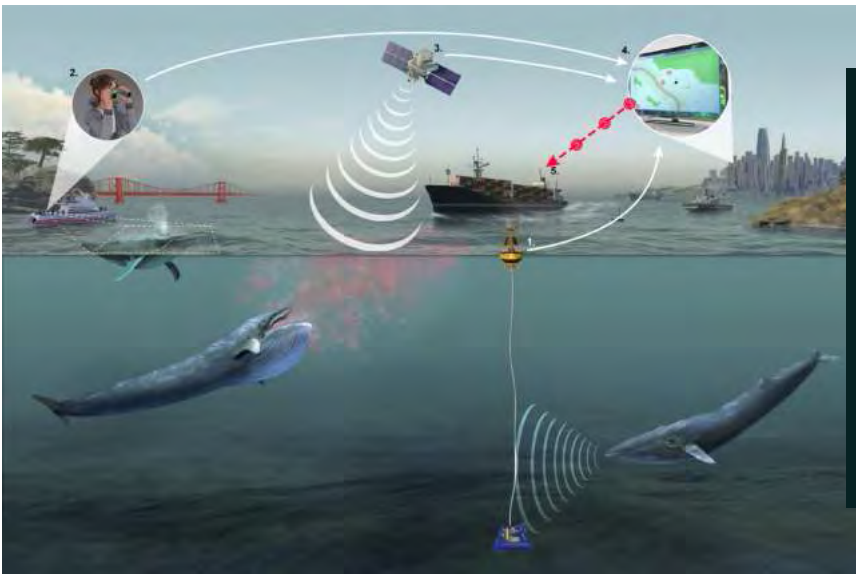
2) Whales And Phytoplanktons

The **phytoplankton** produces more than 50% of the oxygen in our atmosphere. They do so by absorbing 37 billion metric tons of carbon dioxide, which is equal to the amount of carbon dioxide absorbed by 1.7 trillion trees. Scientists have found out that whales have a multiplier effect on increasing phytoplankton production. The waste produced by whales provides an excellent growing condition for the growth of phytoplankton due to the presence of iron and nitrogen. So, if the number of whales increases the count of phytoplankton increases, and thereby, we can achieve the goal of net zero emission with an exponential speed.

DEVISING ELUCIDATION

Increasing the number of whales is not an easy task but not a herculean job. Whales breed seasonally, usually in warm tropical waters and females have one calf every 1-3 years; which means the reproduction rate per year is very low. So, we need to conserve the existing number of whales. The main cause of decreasing whale count is whale strike or whale hit. If





With the help of a frequency generator mounted on a drone, we can produce clicks when whales come close to the ship

we decrease the whale strike, we can achieve carbon neutrality.

Since whales have very poor eyesight it will be hard to find a solution that way. If we take the smell, whales don't have a good ability to smell. The only way left with us is the sound, the "CLICKS". Like all animals and human beings, whales also communicate with each other. They produce sounds that can travel kilometres. They used to produce these sounds to communicate, find obstacles, and search for prey.

FREQUENCY OF WHALE CLICK

Their sounds are known as "clicks". clicks are of different types. A single click is used to identify the obstacles as well as to find prey whereas multiple clicks are used for communication. Scientists were able to record the single click as well as multiple clicks. We can also produce a click, with the same frequency. So, if we produce a click the whales will detect that frequency and understands that there is an obstacle or prey. With the help of a frequency generator mounted on a drone, we can produce clicks when whales come close to the ship. we can sense the presence of a whale with the help of the WHALE SAFE app which is used on ships nowadays. If the whales are nearby, we can use our drone and will produce the frequency of whale clicks. We can place the drone in between the ship and the whale so that even if the whale comes closer it will move toward the drone assuming it is prey. But it

will be in a manner in which the frequency of whales, will be generated at a phase angle of 180 degrees, like how the frequency of whales' click is reflected. Whales recognize the frequency and either come close to the drone or go away from the drone.

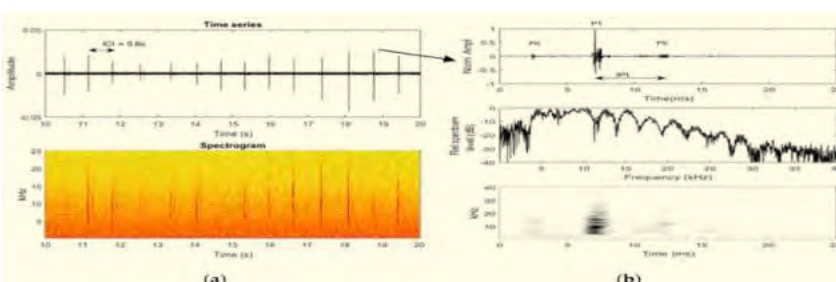
WORKING OF A WHALE SAFE APP

Drones are built in such a way that they can be operated by a person from the ship. When the whale comes closer to the drone, the time ship can move a lot and can avoid the whale's strike. By this time, we can make sure that the ship passes the whale and thereby avoiding the whale strike. We can control the drone easily and there is no operating risk involved and no environmental issues.

The concept of click, whale strike and its, feasible solution is not a new subject in the marine industry. The idea of clicks was first introduced by **Michael Andre** and a French bioacoustics scientist. He created the world's first whale anti-collision system which made him deserve, The ROLEX Award. But it could only send the position of the whale to the ship's captain in real-time so they know that in two or three or ten miles they might encounter a whale and have enough time to change their course and prevent a collision.

CONCLUSION

Our technical paper not only specifies the importance of this topic but also finds a feasible solution for both carbon neutrality and whale strike. As world trade is growing day by day, industries grow day by day at a multiplying speed hence carbon coming out of industries increases on an exponential scale. The solution remains undiscovered even though many inventions are taking place day



by day. Our project connects two major problems which exist unsolved in front of a human being the **CARBON NEUTRALITY** and **WHALE STRIKE**. The relation between whales, phytoplankton and carbon neutrality is evident from the paper and we are sure we can bring down the number of whale strikes thereby increasing the number of whales as well as phytoplankton. If the number of whales and phytoplankton increases decarbonization increases thereby we can achieve carbon neutrality but well before 2050. Other methods help us to decrease the carbon content in the atmosphere but our idea

not only decreases the carbon content but also increases the amount of oxygen in the atmosphere. There are no environmental issues with our project but it creates an effect of environmental protection by protecting whales and thereby protecting many marine microorganisms.



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Poem

संभावना

स्वाती की वह बूँद नखत से,
जो गिरकर सीपी में,
अनुपम मोती बन जाता |

कोयले का वह चक-मक टुकड़ा,
जो, झेल मार छेनी की,
आँखों को चौधियाता |

नन्हा सा वह बीज, जो लड़कर,
तिमिर और आतप से,
बरगद विशाल हो जाता!!

हरव्यक्ति यहाँ वह महाशक्ति, जो,
तप से घोर गुजर कर,
बुद्धों की श्रेणी पाता!!

– संतोषनंद

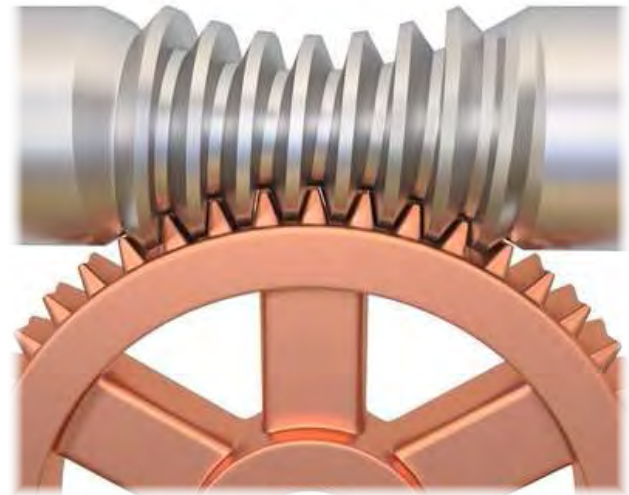
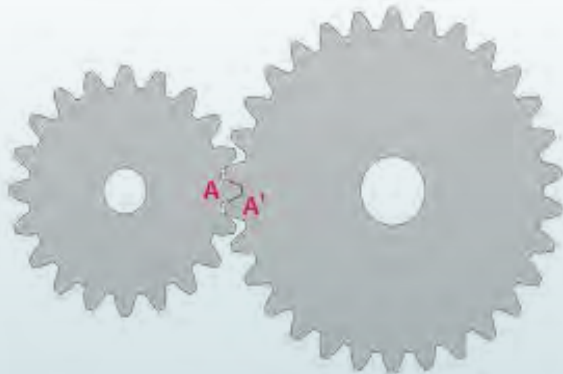
Mr. Santosh Gupta,
Marine Engineer

Hunting Tooth in Gear Trains

What is a "hunting tooth" in a gear train?

In a gear train, if the number of teeth on the pinion is a factor of the number of teeth on the gear, meshing of any 2 particular teeth will occur frequently.

For example if the pinion has 50 teeth (N_p) and the Gear has 250 teeth (N_g) the reduction is 5:1 once every 5 revolutions the same set of teeth (A-A') will mesh. However if one additional tooth known as the "hunting tooth" is added to the Gear wheel there is a phenomenal change



The "hunting tooth" having been added, the gear wheel has 251 teeth. Insofar as the reduction ratio is concerned there is a minuscule change to 5.02:1 which is easily acceptable. However the frequency of meshing of teeth A-A' will decrease dramatically to once in every 12550 revolutions!

$50 = 2 \times 5 \times 5$ and $251 = 1 \times 251 \Rightarrow \text{LCM} = 2 \times 5 \times 5 \times 251 = 12550$.

The same principle is graphically explained in the illustrations below, however the teeth ratio selected are different.

A = GEAR REVOLUTION		RATIO 10 X 30																													
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
B	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	
C	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	
B = PINION REVOLUTIONS																															
C = REPETITION OF PINION REVOLUTIONS																															

Figure 1: 10 is a Factor of 30 hence every 3rd revolution the same set of teeth will engage

Referring to Figure 1, in the case of an integer ratio for example 10×30 , there will be three pinion revolutions and one ring gear revolution until the cycle repeats. This scenario is graphically shown in the matrix in Figure 1. One gear revolution is shown in the top row in blue,

labelled "A." The pinion revolutions are shown in row "B" and "C." The first pinion revolution is shown in green, the second revolution in maroon and the third in yellow. After this sequence, the colours repeat. For example, pinion tooth 1 will mesh strictly with the slots 1, 11 and 21 of the gear. The second sequence of pinion revolutions in row "C" is merely a repetition of the first three pinion revolutions in row "B." The pinion rotation blocks do not shift because of the integer ratio.

Imagine the three scenarios if the pinion is attached to an engine that is operating at 600 rpm. In case 1 (10X30) the contact between a particular set of teeth (A-A') will occur 200tpm. In case 2 (12X30) meshing of A-A' will happen 125tpm

A = GEAR REVOLUTION		RATIO 12 X 30																													
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
B	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	
C	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
D	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	

B = PINION REVOLUTIONS
D = REPETITION OF PINION REVOLUTIONS

Figure 2: LCM of 12 and 30 is 60. i.e. on the 5th revolution of the pinion and the 2nd revolution of the gear, the same pair of teeth will mesh

Referring to Figure 2, in the case of a ratio 12x30, which has a common denominator of 2 but is not an integer ratio, pinion tooth 1 rolls with the gear slots 1, 13, 25, 7 and 19. It takes two pinion revolutions until the cycle repeats. In both cases, the pinion teeth mesh in groups of gear slots. In Figure 1 these are three groups and in Figure 2 these are five groups. Only meshing between the groups is possible for the defined ratios.

and in case 3 (11 X 30) meshing of A-A' will happen 18.18 tpm. In case teeth profile of A and A' were to be damaged, the vibration created will be heavy in case 1 and 2 but vastly reduced in case of 3. Moreover in case 3, due to the meshing with many other teeth, the wearing of the teeth is more uniform

A hunting tooth relationship in gear pairs means that there is **no common denominator** between the number of pinion and gear teeth. As a result, every tooth of the pinion will mesh with every slot of the gear. After all teeth and slots have been rolling with each other, the cycle repeats. **The cycle repetition happens after the gear performs a number of revolutions, equal to the number of pinion teeth.**

To conclude, the purpose of the hunting tooth is to equalise the tooth wear and prevent problems

A = GEAR REVOLUTIONS		RATIO 11 X 30																													
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
B	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	
C	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	
D	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	
E	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	
F	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	
G	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	
H	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2
I	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	
J	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	
K	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	
L	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	
M	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	

B = PINION REVOLUTIONS
M = REPETITION OF PINION REVOLUTIONS

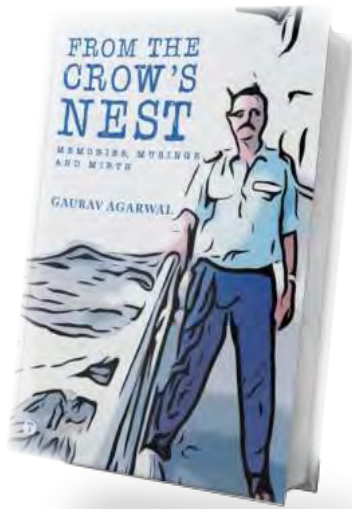
Figure 3: LCM of 11 and 30 = 330. i.e. on the 33rd revolution of the pinion and the 11th revolution of the gear the same pair of teeth will mesh

In Figure 3 it is graphically demonstrated how revolution by revolution of the pinion the green, maroon and yellow blocks shift from row to row. It requires the pinion revolutions in rows "B" to "L" until one hunting tooth sequence is finished. Row "M" has the identical phase relationship as row "B" and therefore presents the first repetition. The shifting of the pinion revolution blocks from row to row in Figure 3 allows, in each pinion revolution, each pinion tooth to mesh with a different gear slot. However, in one revolution each pinion tooth can only mesh with one gear slot. In order to cover all gear slots, the pinion has to rotate for each gear slot once which is then called the hunting tooth number of rotations.

that might arise if increased wear occurs in local areas. Also providing hunting teeth in gear systems will considerably extend the gear life.

Written by:
Ramesh Vantaram
Fellow, IME(I)

REVIEWS OF THE BOOK



It is said that variety is the spice of life - and going by this axiom, I must say that the anthology you hold in your hands is an expression of a life varied in its experience, exuberant in its content and humorous in its essence. Without doubt every reader would find some anecdote or the other which they would be able to totally relate to or determine analogues which have similarly spiced up their lives. It is the simplicity of flow and honest story-telling that will ensnare the reader's imagination.

Every Mariner spouse is a sheet anchor and Gaurav has attempted to highlight the inescapably huge influence that his spouse has had in his life. Such is the life and role of a Mariner wife, that it is nigh impossible to do adequate justice to the 'woman behind her man', but Gaurav, with his witty pen, has adroitly done just that in the book.

This book is a keeper - read, revisit and preserve; for it is the concentrated extract of a life well lived, brimming with inimitable humour, great courage of conviction and genuine humility.

Vice Admiral **G Srinivasan**
Indian Navy

"A collection of the Author's life experiences, generally seen funny side up. School shenanigans, admission adventures, college mischief, marriage musings, posting problems, stock market mishaps, colony calamities - all have been included and witticised.

Extremely humorous and sharply observant, Gaurav takes us along on a roller coaster ride of his life's adventures as a seaman, while sharing behind-the-scene stories of a fauji's life. All of us who have been part of a community, whether hostel or colonies, will find shades of our lives reflected here!"

Apurva Purohit

Co-Founder Aazol Ventures, Best Selling Author and Speaker

Gaurav has a natural flair for weaving interesting stories around simple incidents that readers immediately connect with. The hilarious incidents create a vivid imagery in the minds of readers, making the book unputdownable. A refreshing and must read book!

A captivating and mirthful travelogue about the journey of life seen through the irreverent eyes of a wannabe author, who was a Fauji and Mariner.

Arun K Gupta

Ex CMD, Shipping Corporation of India

From the Author



When I retired from MDL on 09 February 2021 (after an exhilarating tenure of more than 10 years), I thought I would finally be able to complete my book. I therefore set a target of six months, choosing 16 August 2021 as D-DAY.

Forget 16 August 2021, 16 August 2022 also whizzed past, and I was still struggling to complete my book, what with my daughter's marriage, investing, consulting, Alumni Association work, IMO Mock Sessions, INMARCOs and of course, the biggest and real culprit of them all, general lethargy. *Haathi nikal gaya tha, bas poonch rahe gayee thee!*

At times, I could feel over the telephone, my Publisher, Amit Suri of Twagaa (a Marine Engineer), wanting to strangle me or give me a hard shake up. But he patiently bore with me, once in a while applying his bull whip at strategic places. Another Marine Engineer, Mr Anil Rao, did some of the art work.

Finally after all my excuses were exhausted, I had no choice but to sit down, gingerly, and complete the last few pending parts.

Well, my dream has finally come true. I am the author of a published book. Yesssss !!!!!

Gaurav Agarwal

Fellow, IME(I)

The Book is available with publisher Twagaa, also on Amazon and e-Book on Kindle.

Link : <https://books.twagaa.com/product/from-the-crows-nest/>

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IME (I) GOVERNING COUNCIL, BRANCH AND CHAPTER COMMITTEE ELECTIONS 2023-25



With elections for The Institute of Marine Engineers (India) approaching, we would wish to notify all Corporate Members of the following procedures:

SCHEDULE

- Notice of the entire process of election shall be intimated through electronic media ONLY
- Soft copy of the Nomination forms will be sent through mass e-Mail and can also be downloaded from the IME(I) website and returned to the Election Officer.
- Soft copy of the Nomination papers for Council elections will be mailed by 15th May 2023 to the Members email id which is registered in the records of the IME(I).
- Nomination papers for the Council are to be received in the Institute's office by 15th June 2023 to the email id: electionofficer@imare.in
- Last date for withdrawing nomination is 30th June 2023.
- The scrutiny of nomination papers for the Council to be completed by the Election Committee by the 5th July 2023.
- Election Officer after scrutiny will publish the CVs of the eligible candidates on IME(I) website.
- The election window for eVoting will remain open from 15th July to 1st September 2023.

E-VOTING

As a corporate member you can exercise your franchise at the forthcoming elections at IME(I), using the standard Ballot **through e-Voting ONLY**.

Two options would be available for both the elections i.e. for Head Office (HO) as well as the Branch Level (if the election takes place for the Branch level). Overseas Members will get Option only for elections at HO level.

Members will get the e-Voting Link **ONLY** on their e-Mail registered in the records of IME(I) as on 15th May 2023. Members may update their e-Mail ID / contact details by writing to the HGS at membership@imare.in latest by 15th May 2023.

USE OF WORKPLACE / OFFICIAL MAIL IDS

- Given that we have, in the past, had mass emails blocked at certain receiving (Organization) mail domain(s), treated as spam and, in some cases the blacklisting of the IME(I) domain, we would strongly recommend the use of personal email ids ONLY.
- The use of your personal mail would ensure that you do not miss any important communication relative to the election process.

Election officer
electionofficer@imare.in



The Institute of Marine Engineers (India)

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Training Programmes:

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Send your Articles to:

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