Insight!

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What are Rare Earths?

OGG

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Introduction

Renewable energies and the related sophistication of distributing power from whimsical natural forces, the fast-growing electric car market, the ubiquitous distribution of mobile devices like smart phones, and associated data centers have exacerbated the use and need of a group of metals known as "rare earths", which, ironically, are not renewable, except through recycling some products like TV screens and rechargeable batteries.

Oil, gas, uranium are no longer the strategic resources they once were, as they are now more or less evenly distributed among the various super-powers' zones of influence and/or dimming in use. In contrast, rare earths are the strategic materials of today and are most unevenly distributed worldwide. China holds, produces, and processes more than half of these rate earth resources, with Myanmar ranking third, after the United States and before Australia.

- What are rare earths?
- What are rare earths used for?
- Where are rare earths found?
- How worth are rare earths?

This note is a factual overview written by a seasoned, inquisitive geo-nutter, while unaware of his depth of ignorance in the matter. Rare earths are already very strategic now, and were qualified by the United States of America's Geological Survey (USGS) as "vital to modern technologies and lifestyles" as early as 2014.

Much of this information is milked and assembled from Wikipedia, as well as from quite a few geological websites, such as USGS, along and personal data.

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Meet the New Guy:
The Visionary with a Strategic Plan to Turn Things Around

Hnin Wynt Zaw

Brimming with enthusiasm and a bold plan, Nigel Tay eagerly accepted the job offer in late October 2023. Currently serving as Finance Team Leader at MPRL E&P, Nigel Tay's vision for the Finance Department is nothing short of revolutionary. With a focus on transforming traditional finance practices into a strategic powerhouse, he aims to position the Finance Team as a crucial driver of the organization's long-term success.

A Path Paved with Achievements

Tay's professional journey began in the fast-paced world of finance and accounting by working in the advisory arm of a Big Four firm in Singapore. It was here that he honed his skills across various finance and accounting engagements, gaining invaluable experience in mergers and acquisitions, financial and internal audits, IPO preparation, and corporate governance. His work spanned multiple industries, including real estate, mining, oil and gas, and banking, with projects taking him to developing markets like China and India.

Reflecting on this period, Tay recalls, "The diversity of industry experience was incredible. I was able to work on projects for large listed companies in Australia, China, India, and beyond. It was a great learning ground, and the opportunity to work in developing markets was particularly enriching."

After his tenure at the Big Four firm, Tay transitioned to a large publicly listed telecom operator in Singapore. Here, he took on roles in corporate strategy, mergers and acquisitions, and enterprise risk management. Tay's progressive work caught international attention, earning him features in several magazines.

Among his significant achievements were defining the company's five-year strategic vision, spearheading a "merger of equals" between two of the largest telecom operators in Singapore, and setting up an R&D Center of Excellence Lab in Israel. He also led investments in cutting-edge technology companies, such as cybersecurity firms, media companies like movie and animation production houses, and PayTV, diversifying the company's interests into non-telecom assets.

Tay fondly notes, "It was an exciting time. We were not just thinking about telecom but also how we could diversify and bring in new technologies and media to strengthen our position. The merger we spearheaded is still talked about today as a landmark achievement."

Tay's next career move was a significant leap. In 2018, he was headhunted by Sumitomo Corporation to join as a General Manager to oversee investments in the Telecom, Media, and Technology (TMT) sector. During his time with Sumitomo, he managed investments in major telecom operators across Mongolia, Ethiopia, and Myanmar.

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From the Desk of the Editor

Dear Readers,

Welcome to the mid-year edition of our company newsletter, where we bring you notable insights and stories from our talented contributors across various departments within MPRL E&P Group of Companies. I am incredibly proud to be part of a team that keeps on winning and moving forward, despite the many unprecedented experiences we encounter throughout the year, and their unwavering dedication, commitment, and hard work are evident in fulfilling their duties and roles. Despite their busy schedules, they contribute to our newsletter to enhance readership through knowledge-sharing, sharing their professional journeys as a note of encouragement and motivation for others, and highlighting the various community initiatives that empower the communities where we operate. A heartfelt thank you to each and every contributor for making our newsletter vibrant and engaging.

In every issue, as the editor, I try to feature a one-on-one Q&A session with a staff member. We discuss general topics related to various departments or industry trends that are easy to comprehend for general readers who may not be technical experts. I hope it helps demystify the complex processes involved in our industry, making it accessible to a wider audience. Secondly, by bridging the knowledge gap, we foster great appreciation and understanding of the work we do, which can lead to increased support and encouragement from the community. Lastly, simplifying technical concepts encourages curiosity and learning, empowering readers to feel more connected and informed about our industry's impact on their daily lives.

In this edition, on page 9, I shared an insightful discussion I had with our highly seasoned Technical Manager. Coming from a professional creative background rather than a technical one, I found this conversation particularly interesting and educational. I encourage you not to skip our 'Break Time Chat with the Editor' series, and I hope you gain valuable insights from the topics discussed.

Additionally, this issue covers several noteworthy events and programs conducted during the summer season, from Summer Art Classes to the opening of a new mini-library at M&AOSB project site, to celebrating the World Environment Day with the active participation of MPRL E&P, Environmental Conservation Department (Magway) and Mann Field Communities. These impactful actions are truly impressive. They not only bind all community members together in the mission to better the livelihoods of these smaller communities but also set a great example of our company's responsibility and substantial contributions as responsible citizens.

As I conclude my note, I want to remind you to hold steadfast to your one big mission, whether it be personal or company-wide, especially during challenging times. I know we all have different goals in life, but at work, it's not just about meeting targets; it's about maintaining the focus, determination, and strong bond that unites us as a team. As a leader in the energy sector in Myanmar, we are committed to providing stable and reliable energy for the country, and our dedication to this goal ensures that we move toward self-sufficiency, even amidst hurdles. Let's draw inspiration from Albert Einstein's words: "In the middle of difficulty lies opportunity." Remember, our efforts today are the stepping stones to a brighter and more self-sufficient future.

Thank you for reading, and I look forward to continuing our journey of learning and growth together. ■

Cheers,
Hnin Wynt Zaw

One Day
Surf Class
at Ngwe Saung Yacht Club & Resort

To join the class, please call +959 400 901 967 and +959 766 164 961.





Your Opinion: A Generalist or a Specialist: Which Career Path Fits You Best?



Thazin Aye
Secretary
Government & Public Affairs Department

In the ever-evolving landscape of professions and expertise, choosing between becoming a generalist or a specialist is a crucial decision that can shape one's entire career trajectory. Understanding the roles of a generalist and a specialist is essential for individuals seeking to navigate their professional paths effectively.

A generalist is like a versatile problem-solver, capable of adapting to various tasks and challenges. Conversely, a specialist is someone who possesses deep expertise in a specific area, which can have significant implications in various fields.

When considering whether to pursue a career as a generalist or a specialist, start by evaluating interests, strengths, and long-term goals. Think about whether you prefer a broad range of skills and roles or deep expertise in a specific area. Research job opportunities and industry trends in the field of interest, and assess which path aligns better with aspirations. Consider seeking advice from mentors or professionals in desired field to gain insights.

Personally, my preference leans towards being a generalist. I enjoy the variety of tasks and challenges that come with being versatile. As a secretary, I have found that being a generalist suits my career aspirations and personal strengths. Secretarial work involves handling a wide range of tasks, from administrative duties to communication and organization. Being a generalist allows me to excel in these diverse responsibilities and adapt to the changing needs of the office environment. Moreover, industry trends show a growing demand for versatile administrative professionals who can manage diverse tasks and support various departments within an organization.

In conclusion, the decision should align with your individual aspirations, the demands of your chosen industry, and the opportunities available. My recommendation is to carefully assess your skills and interests, seek advice from professionals in the field, and choose the path that best fits your career objectives, as well as your personal preferences.

Whether you choose to be a generalist or a specialist, both paths have their advantages. Remember that continuous learning and adaptation are key to success in today's dynamic job market. ■



Zaw Zaw Aung
Assistant Engineer
Field Operations Team

A specialist is someone who focuses on one subject and is an expert in that particular area. Specialists are outstanding individuals who emphasize creating or developing new technology. Focusing on one area of study allows specialists to understand their subject in detail and quickly grasp developments in the field. A generalist, on the other hand, possesses knowledge and skills in many areas and has the ability to perform multiple tests. Based on their knowledge, generalists can participate in discussions with other departments and perform managerial roles within an organization.

Generalists are adaptable to new challenges with good leadership and problem-solving skills. They have a good understanding of many subjects and are very flexible in communicating with others. Specialists are highly skilled in their field of expertise and often receive high salaries based on their specializing skills. However, they may find it challenging to handle new problems outside their specialized area.

For me, I prefer to be a generalist because I need to communicate and work with many departments in our organization. This requires a broad knowledge base to participate effectively in organizational meetings and facilitate flexible communication.

Deciding to be a generalist in the oil and gas industry depends on a combination of personal preferences and industry trends. Many professionals need to work together and use advanced technologies in the oil and gas industry. As a petroleum engineer, I enjoy working with a team and learning new technology, and so, I prefer to be generalist.

My recommendation is to carefully assess what you want to be in your life, your interests, skills, strengths, and career goals. Based on these considerations, you should choose whether to be a generalist or a specialist.

Both paths, generalist and specialist, have advantages and challenges. When making this decision, conduct a self-assessment and consider industry trends. If you would like to work as a professional, you should choose the specialist path, and if you prefer to work with a team, the generalist path may be more suitable. ■

MPRL E&P's HSE Department Conducts Heatstroke Prevention Training

Dr. Zay Yan Paing Thu



MPRL E&P's Health, Safety, and Environment (HSE) Department has initiated comprehensive health education sessions across all operational sites to combat the dangers of heatstroke.

Heatstroke, a severe condition caused by the body overheating due to prolonged exposure to high temperatures or intense physical exertion in hot weather, can lead to organ damage and death if not promptly treated. Recognizing the urgency of this issue, the HSE Team began their educational outreach on 31 March 2024, emphasizing critical preventive measures.

The health education sessions covered several key points to safeguard workers during hot weather:

Stay Indoors or Seek Shade: Whenever possible, workers are advised to remain indoors or find shaded areas to avoid direct sunlight.

Wear Appropriate Clothing: Loose-fitting, lightweight clothing can help the body stay cool in high temperatures.

Hydration: It is essential to stay hydrated by drinking plenty of fluids, such as water and oral rehydration solutions (ORS).

Rest and Work Alternation: Adequate rest and alternating work schedules can prevent overheating.

Health Precautions: Individuals with heart or lung diseases, hypertension, and diabetes mellitus should be extra cautious in hot weather.

In addition to preventive advice, the HSE Team explained the severe complications of untreated heatstroke, including multiple organ failure and death. They emphasized the importance of immediate treatment, involving rapid cooling, moving to shaded or air-conditioned areas, using cooling measures like cool showers, hydration, removing excess clothing, and seeking immediate medical assistance.

To ensure crew satefy, MPRL E&P conducted knowledge-sharing sessions, provided rehydration resources, and offered practical health education on-site.

"Our annual training sessions on first aid and heatstroke prevention are crucial," said HSE Manager from the HSE Department. "They play a vital role in keeping our crews safe and minimizing heat-related illnesses and injuries."

As summer temperatures persist, MPRL E&P remains committed to proactive measures, ensuring that all workers have the knowledge and resources necessary to stay safe and healthy. ■

MPRL E&P Empowers Future Engineers Through Comprehensive Internship Program

Moe Thu Zar Soe



In late 2023, MPRL E&P welcomed nine final-year petroleum engineering students from Yangon Technological University, to participate in an extensive internship program from 04 December 2023 to 29 March 2024. The interns, comprising seven females and two males, were divided into two groups and alternated weeks at the office for hands-on industrial training, thesis support, and exposure to technical departments aligned with their interests.

Upon completing their internship, Senior Executive Management held a session to review their overall experience and enhance their understanding of the Production Sharing Contract (PSC) in the oil and gas sector. A workshop held on 22 March 2024, was attended by Interns, Junior Engineers, and Heads of Departments at MPRL E&P. During the workshop, our CEO shared invaluable insights into the oil and gas industry, alongside his vision and comprehensive plans for grooming the next generation of engineers, and highlighted key aspects of the PSC based on real-life experiences. U Thu Nyo, Technical Manager, further elaborated on the PSC specifics, company's commitments, and performance. The workshop concluded with a Q&A session.





As part of their internship program, the interns presented their insights into technical aspects and industry practices to MPRL E&P on 28 March, showcasing the knowledge and skills acquired during their four-month tenure. Reflecting on her internship experience, intern Shwe Sin Win Htet remarked, "Interning here has provided invaluable experience and knowledge about the oil fields and cutting-edge industry technology. I feel confident about my future in this field."

MPRL E&P's internship programs are designed to nurture promising individuals capable of making significant contributions to the company's future success, in alignment with its vision and values. By upholding rigorous academic standards set by partner universities, MPRL E&P aims to empower young talents for a promising future in the energy sector. Through investments in education and talent development, the company strives to cultivate future energy leaders and contribute to societal enrichment. ■









Safety Integration Boosts Productivity in Business Operations

Thaw Zin Tun

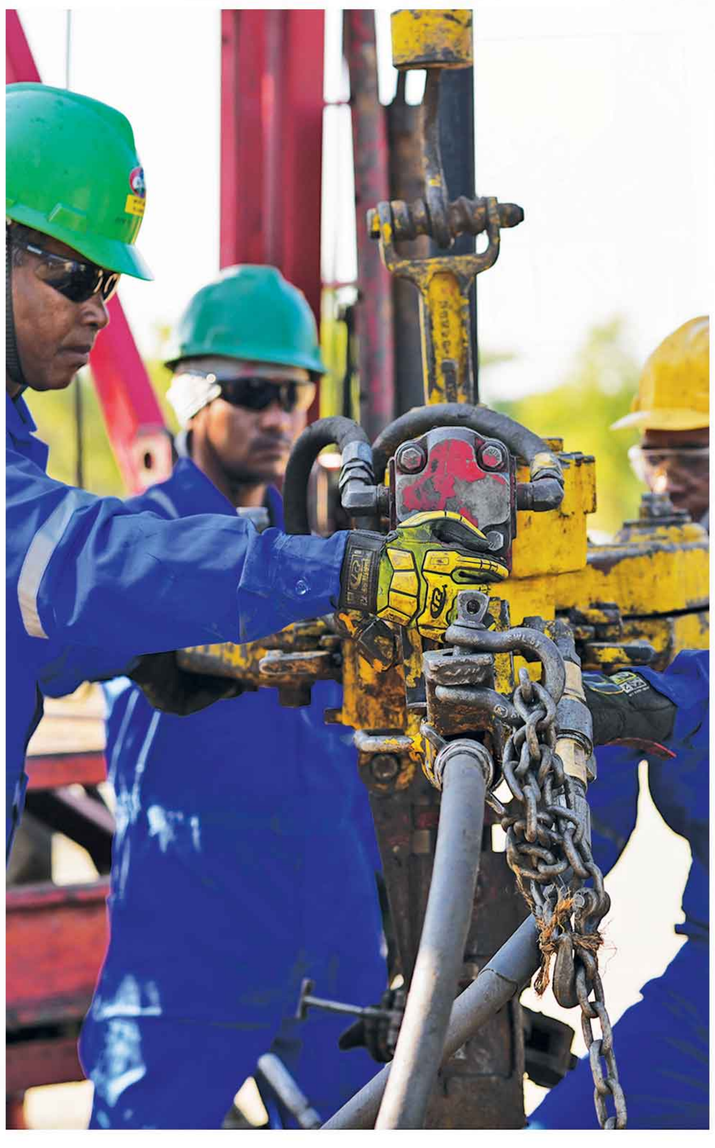
The primary goal of any business is profitability and sustainability. Achieving these objectives hinges significantly on productivity, which must be maintained at a high level to ensure consistent profits.

A Strategic Imperative

In today's fast-paced business environment, the pursuit of productivity and efficiency may appear to conflict with the stringent safety measures required to protect employees. However, this perceived conflict is misguided. In reality, safety and productivity are not mutually exclusive; they are complementary pillars that support sustainable business success.

The Misconception

Many organizations operate under the misconception that adhering to safety protocols and standard operating procedures (SOPs) impedes productivity. The perceived negative impact often leads to shortcuts that temporarily boost output but significantly increase the risk of accidents. Unsafe work practices can result in equipment damage, employee injuries, legal issues, and higher insurance premiums, all of which disrupt production.



The Reality

Operating in an unsafe environment is inherently counterproductive. Accidents lead to machine downtime, employee absenteeism, and costly remedial actions. Moreover, a lack of safety can demoralize workers, reducing their efficiency and engagement. Therefore, while safety measures may require an initial investment of time and resources, they ultimately foster a more stable and productive work environment.

Real-World Example

Toyota integrates safety into its "Lean Manufacturing" processes, emphasizing efficiency without compromising worker safety. This approach has resulted in fewer workplace injuries and higher productivity levels, proving that safety can enhance operational efficiency.

The Synergy Between Safety and Productivity

A safe workplace is fundamental to sustained productivity. When employees feel valued and protected, they are more motivated and efficient. Safety protocols minimize disruptions from accidents and health issues, ensuring smooth operations. Additionally, companies prioritizing safety often experience lower turnover rates, as employees prefer work environments where they feel valued and protected.

Implementing a Safety Culture

Achieving a balance between safety and productivity requires fostering a strong safety culture. This includes leadership commitment to integrate safety into core values and operational strategies, encouraging employee involvement in safety training and voicing concerns about potential hazards, and continuous improvement through regular audits and feedback.

Conclusion

Safety and productivity are not contradictions but interdependent components of successful business operations. By embedding safety into the organizational culture, companies create work environments where safety measures and productivity mutually support each other, leading to enhanced employee morale, sustained efficiency, and long-term profitability. Investing in safety is not just a regulatory or ethical obligation; it is a strategic imperative that drives overall business success.■



Navigating Uncertainties: The Importance of Corporate Sustainability Reporting and the Path Forward

Thal Sandy Tun



Responsible private sector investment is essential for promoting inclusive economic development, equitable human capital advancement, sustainable use of natural resources, effective institutional strengthening, and the establishment of the rule of law. These elements are fundamental to fostering peace and stability and are crucial for unlocking the full potential of the private sector to create value for all stakeholders, including shareholders, local communities, employees, and society as a whole. While businesses cannot achieve these objectives in isolation, their commitment to upholding human rights throughout their operations is vital for realizing these goals.

In today's ever-changing landscape, navigating through a multitude of risks and potential opportunities is our reality. The conflict in Ukraine is just one of many ongoing conflicts across various continents – from South Sudan to Yemen to Israel to North Korea – impacting individuals and businesses alike. While companies are typically not directly involved in these conflicts, they can still face significant challenges and uncertainties. To effectively operate under unpredictable circumstances, it's crucial for companies to prioritize continuous, transparent stakeholder engagement and conduct enhanced due diligence. This involves collaborating with appropriate partners, including civil society and government entities, to learn and adapt together through practical experience.

Throughout the recent reporting season, we remain steadfast in our commitment to provide stakeholders with structured, timely, and relevant information concerning our efforts to support employee and community well-being, prevent corruption, uphold ethical standards, and preserve the environment and our corporate reputation. Since our return to office following the initial challenges of the COVID-19 pandemic, we have continued to prioritize corporate sustainability reporting by:

- Understanding stakeholder expectations.
- Conducting materiality assessments to focus sustainability reporting content.
- Aligning reporting practices with global frameworks.
- Investing in robust non-financial data management.
- Recognizing the implications of environmental and emerging social issues, such as climate change, on our business operations.

These measures reflect our unwavering commitment to transparency, accountability, and responsible corporate citizenship. There is, as expected, an increased focus on certain areas as follows:

Enhanced Due Diligence:

The responsibility for due diligence extends beyond local community engagement and grievance mechanisms to encompass environmental and economic considerations, as outlined in the United Nations Guiding Principles on Business and Human Rights (UNGPs) and OECD Guidelines for Multinational Enterprises. Given the evolving nature of risks, we must continually assess not only the risks and impacts associated with our activities but also those affecting local communities and stakeholders. This ongoing assessment requires regular communication and engagement with stakeholders, including employees, local communities, and business partners.

In our operational context, we prioritize engagement not only with familiar stakeholders but also with new local participants who may not yet have a voice. Sustainability reporting serves as a vital tool, prompting us to ask challenging questions to move forward. Effective reporting fosters dialogue, essential for navigating evolving operating environments. To mitigate risks and minimize negative impacts during periods of uncertainty, maintaining open communication and fostering collaboration among multiple stakeholders are crucial actions.

The United Nations Sustainable Development Goals (SDGs):

The prevalence of fragile situations globally is on the rise, with projections indicating that by 2030, about two-thirds of the global extreme poor may reside in such circumstances. Individuals in these contexts often face simultaneous deprivations in income, education, and infrastructure, exacerbating challenges in human capital development. Fragile economies lag behind in key indicators of human capital, including health, education, and skills, with conflict and institutional fragility further hindering economic progress.

Building trust, security, and robust institutions is paramount to fostering advancement and stability in these nations, with the private sector increasingly recognized as playing a vital role in the development process. Private sector can generate employment opportunities, provide essential services, and contribute to societal needs, thereby fostering trust and stability through integrity-driven operations and practices. Moreover, they often engage directly in local social initiatives and collaborate with governments to improve the investment climate.

With the deadline for achieving the SDGs set for 2030, structured and harmonized information is essential for monitoring progress and guiding decision-making on capital allocation by governments, companies, and investors. Despite challenges such as limited infrastructure, financial constraints, insecurity, and weak governance, strategic investments that promote the attitudes, institutions, and structures conducive to peaceful societies can drive both business success and human rights protection. Corporate sustainability reporting serves as a tool to illustrate our role in advancing the SDGs and highlight the relevance of specific goals to our business model.

In conclusion, as a responsible business, we continue to actively engage with communities, collaborating with other stakeholders to bolster preventive measures and resilience-building initiatives. Our focus remains on safeguarding institutional capacity and human capital, recognizing their pivotal role in facilitating the country's future recovery efforts. Moving forward, despite significant strides made in understanding the appropriate roles for private investment in fragile contexts, there remain several areas where concerted efforts by development institutions and other stakeholders could enhance outcomes. These include deepening our understanding of the private sector's contributions and exploring avenues to better support the sector in addressing the needs of affected populations and sustainable development of the nation. ■

The Evolution of Corporate Sustainability Reporting at MPRL E&P by Fiscal Year



MPRL E&P Conducts Year-end Reflection Workshop for Fiscal Year 2023-2024

Noble Nay Win





In keeping with our company's best practice of reflection upon the conclusion of any business function, it was time to convene the Year-end Reflection Workshop, marking the end of the Fiscal Year 2023-2024.

As the new Fiscal Year commences, our company establishes its corporate goals and sets departmental goals within the organization. Midway through the year, we conduct the Mid-year Reflection Workshop to evaluate our progress and develop any necessary guidelines for our strategies. At the end of the Fiscal Year, we convene the Year-end Reflection Workshop to assess our progress and accomplishments against the goals set for the entire year.

On 30 April 2024, the Year-end Reflection Workshop took place, led by the Country Manager and Executive Vice President, with the participation of Heads of Departments, Deputy Managers, and Assistant Managers of MPRL E&P. This involves reflecting on achievements, key highlights, challenges faced, and lessons learned. Additionally, it includes outlining procedures to address any areas needing improvement. The comprehensive process is thoroughly discussed and presented during the workshop. This session spanned the entire day. The Reflection Workshop plays a crucial role in achieving corporate goals by enabling each department to meet its own objectives.■





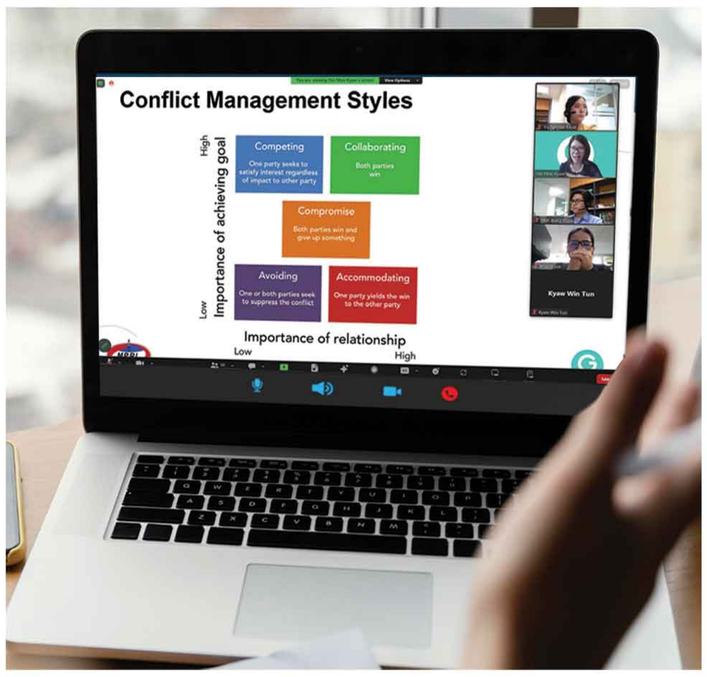
MPRL E&P's Learning Club Empowers Third Batch with Dynamic Training Sessions

Yu Nandar Myat

MPRL E&P's Learning Club continues to drive personal and professional development, celebrating the achievements of its third batch established in February 2024. Demonstrating swift progress, this cohort has embarked on a transformative journey marked by two impactful training sessions.

The series commenced with the "Conflict Resolution Mastery" session on 22 March 2024. Led by Daw Yee Mon Kyaw, CEO of GIFT-Ed, the event surpassed expectations. Despite limited seating, demand was high, with all 50 spots claimed within 24 hours of registration. A significant waitlist further affirmed the session's appeal.

With a 100% attendance rate, the session included participants from 16 out of 24 departments, enriching discussions with diverse perspectives. Conducted via Zoom, the training included pre-session Personality Assessment forms, laying the groundwork for engaging breakout sessions led by Daw Yee Mon Kyaw. These sessions focused on effective communication, negotiation, and conflict resolution, garnering overwhelmingly positive feedback.



Attendees noted key takeaways, such as heightened self-awareness, improved communication, effective conflict resolution techniques, and stronger team relationships. Following this success, the "Communication Mastery" session took place on 23 May 2024. Exclusively tailored for Learning Club members, this full-day, in-person workshop covered self-introduction techniques, the GROW coaching model, and navigating difficult conversations. Participants left with newfound confidence to apply these skills professionally and personally.

These accomplishments underscore the Learning Club's dedication to fostering growth. With gratitude for enthusiastic participation, the team looks forward to future successes, continuing to empower members and employees alike.■



From Cover Page

In 2019, Tay was seconded to Myanmar to lead Myanma Posts & Telecommunications (MPT) as the General Manager of the CFO Office and later, the CEO Office. His role was pivotal, especially during challenging times, including the COVID-19 pandemic and the political situation in February 2021.

"Implementing financial practices in line with international standards and automating outdated processes in a government organization was not easy," Tay explains. "But creating a progressive Finance Department and ensuring continuous telecommunication services during crises were some of the most fulfilling achievements of my career."

A Generalist at Heart with a Warm Smile

Despite his extensive expertise in finance and accounting, Tay identifies as a generalist. "I enjoy the variety of tasks and challenges that come with being versatile. My role often involves working with multiple departments, and having a broad knowledge base is crucial," he says. His ability to adapt and communicate effectively across different functions has been a cornerstone of his career success.

Tay is a different kind of finance guy. A jolly young man who is always thinking about positive change, he strives to drive progress and streamline processes to make things easier. As a proactive leader, Tay enjoys working in a collaborative environment where success is shared. With a dynamic character, his vision is clear for MPRL E&P's Finance Department – to transform it into a strategic powerhouse.

His Vision: A Paradigm Shift in Finance

Tay's vision for the Finance Department is a comprehensive plan that focuses on strategic transformation, process optimization, automation, strong corporate governance, data-driven insights, and talent development. His forward-thinking approach aims to position the finance team as a critical driver of organizational success, ensuring that the department not only meets its objectives but also contributes significantly to the overall growth and development of the company.

Tay advocates for a significant shift away from the traditional "bean counting" and administrative tasks that have long defined the finance function. Instead, he envisions a strategic finance approach that emphasizes providing management with critical insights and analysis to support informed decision-making.

"Our goal is to make the Finance Department a strategic partner to other departments and senior management," Tay explains. "By flattening the organization and tearing down hierarchies, we can encourage open communication and collaboration across all levels."

Optimizing Processes and Encouraging Collaboration

Tay is a strong proponent of continuous improvement methodologies to optimize workflows. He believes that encouraging cross-functional collaboration can streamline interdepartmental processes and enhance overall organizational efficiency.

"We need to streamline administrative processes to eliminate duplication and unnecessary paperwork," he says. "Maintaining robust internal controls while reducing bureaucratic overhead is crucial. Implementing efficient workflows will ensure compliance with reporting requirements without excessive manual effort, freeing up time and resources for value-added work.

Automating Operational Procedures

Automation is at the heart of Tay's vision for the Finance Department. By identifying opportunities for automation in finance operations, he aims to reduce errors and increase efficiency.

"We're focusing on fully implementing technology solutions for tasks such as invoicing, expense management, and payroll processing," Tay notes. "End-to-end automation of financial processes will minimize manual intervention and accelerate decision-making."

Strengthening Corporate Governance

Tay understands the importance of robust corporate governance. By establishing enterprise risk management and internal control processes in the future, he believes the Finance Department can strengthen corporate governance and present the organization positively to potential strategic partners.

Leveraging Data-Driven Insights

Building basic data analytics capabilities is another cornerstone of Tay's vision. By leveraging insights for informed decision-making, the Finance Department can establish key performance indicators (KPIs) and metrics to track financial and operational performance.

"Empowering decision-makers with timely, accurate, and actionable insights derived from data analysis is key," he says. "This allows us to stay ahead of the curve and make strategic decisions that drive growth."

Focusing on Talent Development and Career Progression

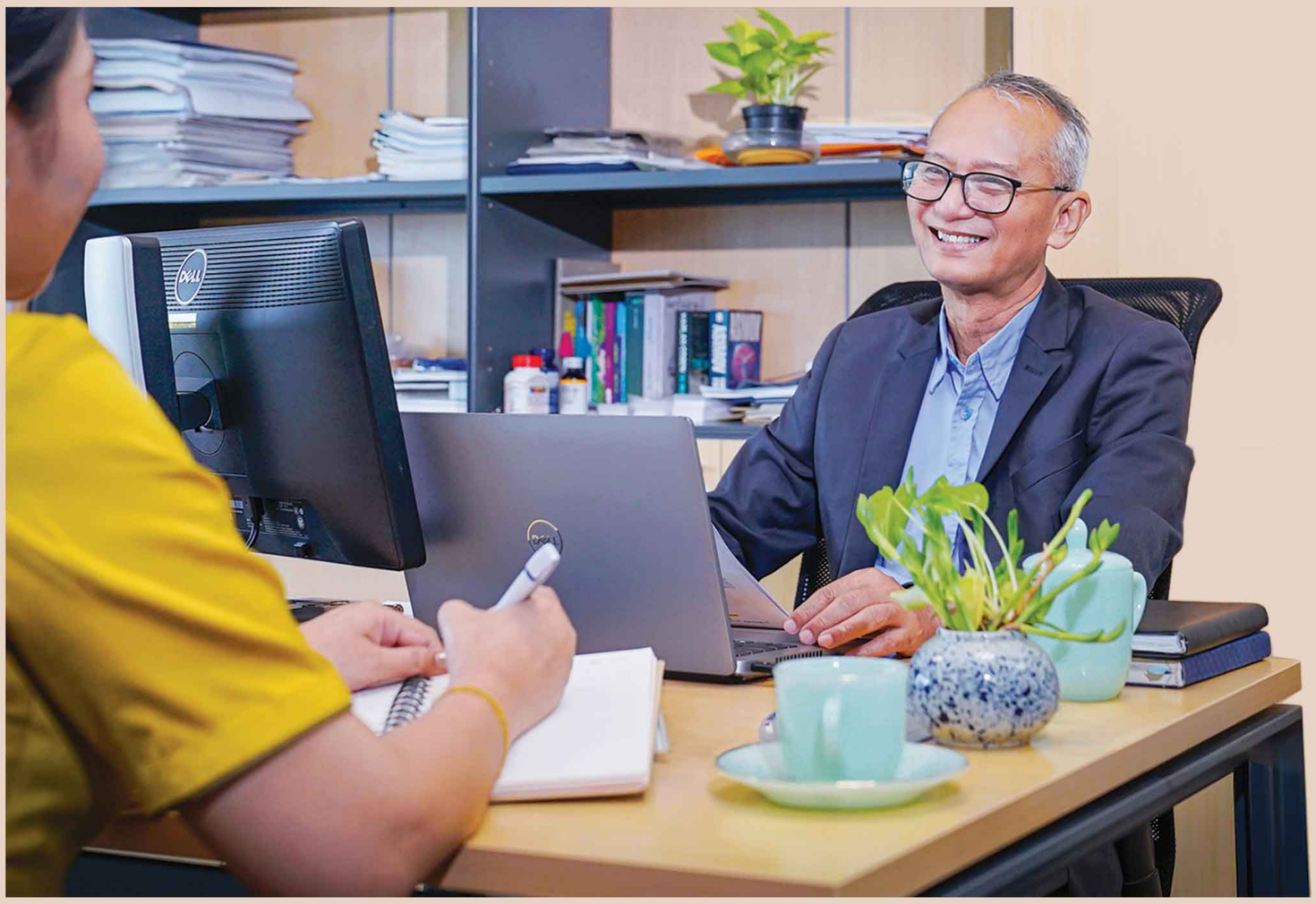
For Tay, the most important aspect of his vision is talent development and career progression within the Finance Department. He believes in proper alignment and matching of skills, experience, and roles.

"We need to prioritize talent development initiatives to nurture a skilled and adaptable Finance Team," Tay emphasizes. "Offering training programs, mentorship opportunities, and professional development resources is crucial for supporting career growth.

Implementing succession planning strategies will help us identify and groom future leaders within the Finance Department."■

> ***"Empowering decision-makers with timely, accurate, and actionable insights derived from data analysis is key. This allows us to stay ahead of the curve and make strategic decisions that drive growth."***





Break Time

Chat with the Editor

Hnin Wynt Zaw

As I walked past Sayar Nyo's office, I recalled reading about depleted oil fields out of curiosity. A larger question came to mind: How do we maximize recoverable reserves to extend a field's life? These burning questions lingered, so I eagerly stopped by his office for a quick Q&A. Our Technical Manager, U Thu Nyo, also known as Sayar Nyo, has come a long way, working in the Technical Department for 26 years now, overcoming many hurdles and achieving significant milestones. Our conversation was so enlightening that I had to share it with our readers.

Hello Sayar Nyo! As an Editor, I am not very technical, and lately, I have been reading about oil reserves, marginal wells, and maximizing recoverable reserves. Can you shed some light on these?

An oil well can become dry, requiring immediate temporary shut-in once it stops production. However, because the hydrocarbon reservoir is never completely empty, we have the opportunity to explore ways to continue production. Hydrocarbons (oil and gas) migrated and accumulated, along with formation water, over millions of years, making it more complex to extract them from the reservoir. Hydrocarbons are trapped beneath the earth's surface, particularly in Mann Field, at depths ranging from 1,000 feet to over 10,000 feet in the faulty trap. As the field has been in development for over 50 years, extending its producing life has become increasingly challenging. The average crude oil recovery rate from mature fields worldwide, such as Mann Field, is only 35 to 37 percent, meaning that around 65 percent of the reserves remain in the reservoir. Despite the increasing popularity of renewable energy, the world still relies on fossil fuels and cannot completely phase them out in the near future. According to many research sources, including Stanford University's the Millennium Alliance for Humanity & the Biosphere (MAHB) website, the timeline for eliminating fossil fuels is still uncertain. According to British Petroleum (BP), the earth has 53 years of oil reserves left at the current rate of consumption. As technologies continue to improve, a 1 to 5 percent increase out of the remaining 65 percent of reserves becomes possible, potentially yielding a significant volume of crude oil depending on the original oil in place.

So, this means that even in depleted oil and gas fields, there's still a theoretical possibility of extracting more crude oil? And can they be used as storage?

Yes, this means we're not giving up anytime soon! And to answer your second question, technically, yes, but not in significant volume. For instance, in a well that is 10,000 feet deep and 5 inches in diameter, you can store less than 250 barrels. If you want to store gas, it would require the use of high-end compressors, which would be an expensive process. Additionally, the aging casing string of the well may not be safe enough for storage purposes for the gas.

And to further expand on this, when it comes to safety protocols, as long as we adhere to standard operating procedures to store the gas or oil without leaks, both into the reservoir and into the environment (atmosphere), it should be fine.

What replaces oil when it is pumped out of the ground?

Let me explain this first. Primary Depletion refers to the natural decrease in reservoir pressure that occurs as oil and gas are produced from a reservoir. As oil and gas are extracted, the pressure within the reservoir decreases, which can affect the flow rate of the fluids to the surface over time. This depletion of pressure is a natural part of the production process and is typically the first stage of production from a reservoir.

Then, we enter Secondary Depletion. It refers to the methods used to maintain or increase reservoir pressure after primary depletion has occurred. This can include techniques such as water injection, gas injection (such as natural gas or carbon dioxide). These methods help to maintain reservoir pressure, improve sweep efficiency, and ultimately increase oil or gas recovery from the reservoir. So, if we come back to your question, yes, we can replace oil with produced water that we are now conducting waterflood program in order to mitigate the production decline of the field. But another problem is that we don't have enough volume of produced water when we develop larger scale to cover most of the part of the field. Subsequently, we have to consider the freshwater option, but it is definitely more expensive due to processes such as sedimentation, purification, filtration, and treatment. The reason why the injection fluid must be compatible is that untreated freshwater can damage the reservoir. This damage occurs when the untreated water meets the sand grains in the formation, causing it to plug the microchannels inside the reservoir. These microchannels are essential for allowing oil to flow from the sand into the wellbore. Blocking these channels can impede the flow of oil, reducing the overall efficiency of the reservoir.

This is so informative! This leads to the question of how to destroy an oil well. And shutting down oil wells, is it risky and expensive? Do companies usually avoid remediation work due to cost?

We don't need to destroy an oil well. If we don't have any further plans, such as reactivation or injection or storage options etc., we have to properly shut in the well to minimize environmental impact, following the plug and abandonment procedure (for instance, referring to the American Petroleum Institute (API) standard). Yes, it will be somewhat expensive, and it needs to be done systematically. In other words, it must be implemented regardless of cost, either cheap or expensive, if required by local law.

Can you tell me more about marginal wells and marginal fields?

A marginal well in an oil field is one that produces oil or gas at a relatively low rate, often close to the point where it is no longer economically viable to operate. For the Mann Field, we (not only MPRL E&P but also MOGE retired professionals) agreed and stated if the well is producing 3-barrel oil per day or less, it is a marginal well or an uneconomic well. So, we can say that marginal wells typically have higher operating costs or lower production rates compared to other wells in the field. These wells may require additional investment or specialized techniques to maintain or increase production, and they may be at risk of being shut down if they become unprofitable.

Again, if it becomes economically challenging to operate the field, it can be called a marginal field. The number of years we can continue production depends on the original oil in place, the volume already produced, and the remaining recoverable reserve. For example, in the case of the Mann Field, the original oil in place is 500 million barrels, the cumulative production is 123 million barrels, and the recovery factor is nearly 25%. Therefore, we

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Charting New Horizons: The Journey of a Passionate Exploration Geologist

Hnin Wynt Zaw

In the realm of petroleum geology, exploration marks the beginning, the seed of discovery. As an Exploration Geologist, U Zaw Win Aung possesses not only a profound understanding of geological landscapes but also a keen instinct for discovery. With 11 years of experience at MPRL E&P, currently working in the Exploration and Joint Venture (EJV) Department, U Zaw Win Aung thrives on everyday challenges, tackling them using his expertise in balancing scientific knowledge with practical problem-solving skills.



Can you please tell us a little bit about yourself?

Hello everyone, I am Zaw Win Aung, and I am currently serving as an Assistant Exploration Manager in oil and gas exploration of MPRL E&P's and MPEP's assets. I actively contribute to the Exploration and Joint Venture Department. Born and raised in Bago, my native town holds a special place in my heart until I passed my matriculation examination. It was an opportune moment when I got a chance to relocate from Bago to Yangon for my higher education pursuits.

I earned my Bachelor of Science (Hons.) in Geology from the University of West Yangon, followed by a Master of Science in Petroleum Geology from Yangon University. My academic journey has equipped me with a solid foundation in geological sciences, particularly geared towards the journey of petroleum exploration.

Growing up, I experienced the warmth and support of a close-knit family. As the eldest among three brothers, I embraced the responsibility that came with it. My father's tenure as a former officer in the Ministry of Environmental Conservation and Forestry paved the way for me to develop a deep understanding of nature and environmental conservation. My mother dedicated her time to nurturing and supporting her sons, fostering an environment of care and encouragement.

We would like to know more about your professional career path. How did you end up at MPRL E&P?

Before joining MPRL E&P, just after completing my Master Program, I worked as a Technical Sales Executive at a local survey company. During this time, I was actively seeking opportunities that aligned with my academic skills and aspirations. Nearly a year into my search, I got a call from one of my close friends who had previously worked at MPRL E&P, informing me about junior geoscientist positions that had opened up in late 2012.

I vividly recall the day of my interview at the Hlaing Myint Moh office which was the former location of MPRL E&P. Walking into the room, I found myself facing Sayar U Than Htut (Senior Consultant Geologist with about 40 years of experience at Myanma Oil and Gas Enterprise (MOGE), ending as the Director of the Laboratories before joining MPRL E&P), U Ko Ko (Geoscience Manager), and U Kyaw Soe Win (Assistant Geoscience Manager). They were gathered around a table with a few rock samples on it. It was the moment that my journey with MPRL E&P began.

What initially sparked your interest in Geology, and what made you pursue a Master's in Petroleum Geology?

Frankly speaking, Geology wasn't my first priority when considering my future career. However, it seemed that I was destined to be a geologist, though I initially intended to apply to Technology University but I couldn't make it on time. Additionally, my 10th grade teacher fully supported me in applying for Geology, highlighting its uniqueness among other fields.

Unlike many other academic majors, learning through class-based science lectures is not enough for Geology. The real beauty of Geology is learning through the nature of the Earth and the characteristics of rock outcrops and strata, especially in mountainous areas during a month-long yearly field trip.

Before undergoing a series of unique entrance tests to gain acceptance as a Geology student at the university, my enthusiasm for the subject was somewhat limited. As part of the compulsory test program, I was required to run 20 miles alongside other prospective students. Subsequently, I successfully completed additional tests, including a health screening, visual assessment, and interpretation of aerial photos. Since then, my admiration for Geology has grown significantly.

What would you tell a future student who wants to become a geologist?

We, geologists, are familiar with one famous motto: "The present is the key to the past." It is also my favorite motto in my professional journey. Geologists deal with the history of the Earth, its physical structure and substance, and the processes of its formation and evolution over millions or even billions of years. The point is, I always imagine and illustrate geological processes of the past based on present-day topography, such as the evolution of river courses, and how valleys and mountains developed.

For instance, consider how a river develops in different landscapes, starting from its upstream in mountainous areas, through its course, and finally ending in the subsea at its mouth. In a nutshell, the geology that we practice is the art and science of reconstructing old landscapes (see figures 1.1 and 1.2).

In short, for those who want to become geologists, it's essential to nurture a curiosity for exploring the geological processes shaping the landscape around us. Moreover, they must have the imagination to construct their own models, effectively illustrating and expressing their understanding of past geological events.

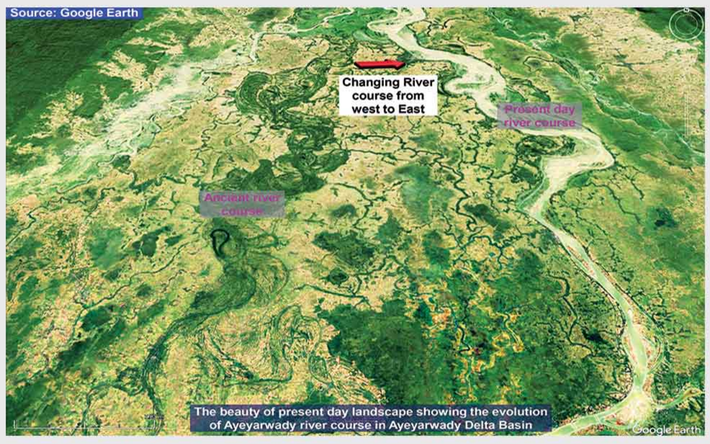


Figure 1.1: The beauty of present-day landscape showing the evolution of Ayeyarwady river course in Ayeyarwady Delta Basin

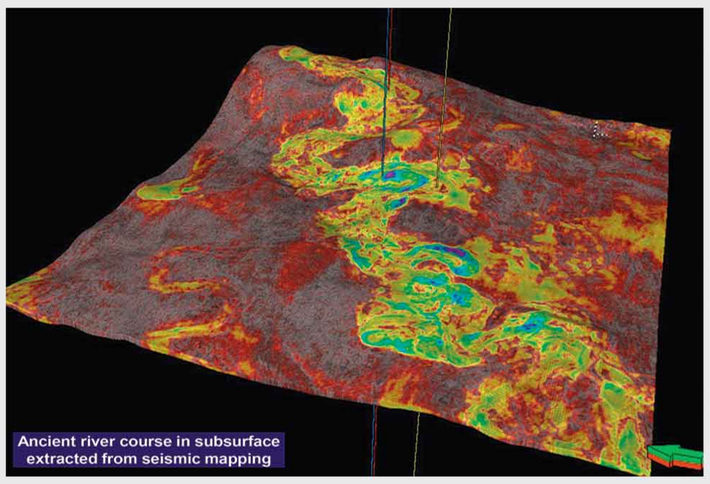


Figure 1.2: Ancient river course in subsurface extracted from seismic mapping

What is your current role at MPRL E&P, and what are your main responsibilities?

Before my current role, I started as a Wellsite Geologist in Mann Field in early 2013. This experience provided invaluable exposure to field operations and was a pivotal moment in my technical journey.

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Breaking Barriers: Ma Khin May Toe's Journey as a Trailblazing Junior Engineer

Hnin Wynt Zaw



At MPRL E&P, we take pride in highlighting the stories of our dedicated employees who contribute to our success. This month, we're excited to feature Ma Khin May Toe, a dynamic and inspiring Junior Engineer who joined us straight out of university. Ma Khin May Toe is currently working in Mann Field, where she navigates the challenges and opportunities of being a female petroleum engineer in a traditionally male-dominated industry. Her journey and insights offer a glimpse into her dedication, passion, and the importance of hands-on experience in shaping a successful career. Let's dive into her story and learn more about her experiences and aspirations.

I am always excited to talk to female engineers and learn their experiences. Before we dive in, can you tell us a little bit about yourself?

Of course! I grew up in Yangon with my parents and brother. I went to No. (1) Basic Education High School, Dagon, and then studied at Yangon Technological University (YTU). I earned my Bachelor Degree in Petroleum Engineering (B.E) after six years. After graduation, I joined MPRL E&P in 2023.

It's amazing to see you started your professional journey right out of university! What led you to become part of MPRL E&P's family?

I was eager to join MPRL E&P because I knew I'd become a well-rounded individual here and develop a successful career in petroleum engineering. The experiences I gained during my internship at Mann Field, along with the hands-on learning, made me excited to become a full-time employee.

Can you briefly tell me about your professional journey? What are your current responsibilities?

I was hired as a Junior Engineer and I'm currently in the Measurement Team. Since I'm still quite new and need more operational experience, I'm going through on-the-job training at the Downhole Workshop and Pumping Unit Maintenance Team. My main responsibility is to maintain a safety culture and develop a toolbox talk for daily operations. I also handle various tasks like measuring and recording the daily production rate and providing service on downhole equipment and tools. Safety is a top priority for every on-site supervisor.

Since you work in Mann Field, are you in the Field Operations Department? How much teamwork is required in your current work environment?

Yes, I'm in the Field Operations Department. My work environment is all about teamwork, and it's wonderful to work with team members who share similar interests and goals. The best part is that we can communicate for better operational results while sharing experiences and knowledge to improve ourselves.

As a female Junior Petroleum Engineer in Mann Field, what's it like working on the project site?

In my opinion, there's not much difference between male and female engineers in Mann Field. Everyone works as a team and is treated equally with respect. Additionally, my seniors help me adapt to this new environment and camp life. The biggest challenge is adapting to the extreme weather and lifestyle in the field. Despite the gender ratio gap, it doesn't affect my motivation. The real-life, hands-on experiences here are quite different from what you learn during studies.

Since you work in Mann Field, away from the bustling city, what motivates you to work every day?

Every day is different. We encounter various operational conditions, and this excitement motivates me to be present and work harder. I look forward to acquiring real-world experiences every day!

What do you think are the most important qualities of a successful petroleum engineer working in the field?

Technical knowledge, problem-solving skills, effective communication, the ability to adapt quickly, and identifying and preventing unsafe conditions are the top qualities needed in the field.

How would you motivate other female engineers? Do you think we need more female engineers?

If you're passionate about working with a team, field operations are the best fit for you, and you'll gain real-world experiences to sharpen your skills. Don't feel discouraged or anxious because you're a woman. Don't be shy to ask questions and communicate openly with male colleagues. We face challenges in a new environment, but we can overcome them with patience and determination. If your dream is to become an engineer, don't hesitate to work in the field because the experience is worthwhile. And yes, we definitely need more female engineers. I'm always proud to see motivated, strong, and focused female engineers working alongside male colleagues.

Our cultural norms where we as women are trained to listen and not challenge or "ask too many questions" can lead to us staying quiet and timid. Any thoughts on this as a female engineer?

Yes, our culture and traditions have taught us to listen, throughout our upbringing and during our school years, but I believe it is very important to be open-minded, challenge yourself, and ask questions. I think we as females need to open up more and not be shy when asking questions. As someone who is still quite new in the Operations Team, I try to be more open and inquisitive, I ask questions when I don't understand, to my coworkers and senior colleagues. We have to be brave and determined to get the clarification and answers we need so that we can better ourselves and our team. It is a win-win situation. ■

> ***"If your dream is to become an engineer, don't hesitate to work in the field because the experience is worthwhile. And yes, we definitely need more female engineers. I'm always proud to see motivated, strong, and focused female engineers working alongside male colleagues."***

From Cover Page

What are rare earths?

Definition

Rare earths are a group of 17 metals all stuck on the same line of the Mendeleev table of chemical elements forming the lanthanoid group, and comprising:

- the light (by atomic numbers) rare earths: lanthanum, cerium, praseodymium, neodymium, promethium

- the heavy rare earths: samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium

As an old teacher once said about obscure battlefield names, "Retain these names thoroughly as they will never come back". A European mnemonic for the names of this Mendeleev table's sixth-row elements in order reads, "Lately college parties never produce sexy European girls that drink heavily even though you look".

Scandium and yttrium are found in most rare earth element deposits within the same geological environments and are sometimes classified as rare earths.



Figure 1: Some of the most common oxides of rare earths ready for sale: *clockwise from top centre (the black heap) praseodymium, cerium, lanthanum, neodymium, samarium, and gadolinium (Source: Rare Earth Oxides | U.S. Geological Survey (usgs.gov))*

Geological Environment

These rare earths are most commonly found in two minerals: bastnaesite and monazite. It is worth noting that what makes rare earths “rare” is not their actual rarity but because of the rare areas in the world where their concentrations are high enough to be economically minable.

Bastnaesite is a family of three main minerals made of carbonate (the same class of minerals as limestone) with fluorine, with either/or variable amounts of cerium (the most common rare earth element), lanthanum, and yttrium. A cousin of bastnaesite, the pariste, is also richer in neodymium. Other rare earths are found in more minute concentrations. For instance, a concentration of 2 grams (say a teaspoon) of europium per kilogram of bastnaesite is considered high.



Figure 2: Bastnaesite *(Source: Bastnaesite I Rare Earth Element, Yttrium, Fluorine | Britannica)*

Where is bastnaesite found?

It is commonly found in a rare group of rocks known as carbonatites (not to be confused with carbonates), a type of volcanic rock rich in carbonates and usually erupting in ancient rifts of the Earth. Currently, the one active carbonatite volcano in the world is the Ol Doinyo Lengai volcano in Tanzania, which has lava as fluid as water. This gives you an idea of how relatively rare these deposits are in minable amounts.

How are rare earths extracted from bastnaesite? Favorable deposits of ore contain about 7% bastnaesite on average. Extracting rare earths from this ore involves crushing, flotation to separate the gangue (the crystal’s envelope), dissolution by hydrochloric acid, followed by various stages of reduction, solvents, reacidification by nitrous acid, and again dissolution and precipitation by oxidation to extract the various rare earths. It’s a rather dirty affair if not conducted under the most stringent standards.

Monazite is a family of five phosphates, each containing varying amounts of dominant rare earths such as cerium, lanthanum, neodymium, samarium, and praseodymium. Each type of monazite also contains minor amounts of other rarer rare earths, as well as small quantities of radio-active uranium and thorium, whose decay sometimes enriches the mineral with helium.



Figure 3: Monazite *(Source: Monazite - Encyclopedia (le-comptoir-geologique.com)*

Where is monazite found?

Monazite is found in rocks called pegmatites, which originate from magmas—lavas before they emerge from volcanoes. Pegmatites have large crystals and usually form during the last stages of crystallization of more water-rich, highly acidic magmas, with earlier stages producing granites. Monazite is a heavy crystal and is also found in placers—deposits of heavy metals and minerals left by rivers where the speed of current slows enough to deposit heavy sands.

How are rare earths extracted from monazite?

Similar to bastnaesite, monazite ore must be crushed before being allowed to digest in highly concentrated sulfuric acid at high temperatures, typically 200-300°C. After dissolution, the undissolved product is filtered out, and the remaining solution is diluted, neutralized in various stages, filtrated, and precipitated.

The processing of the various metals from ores containing bastnaesite or monazite is complex, requiting significant energy and the use of dangerous, highly concentrated acids. While much of these acids is recycled, the potential for pollution in the rare earth extraction industry is substantial.

What are rare earths used for?

Everyone around the world who owns a mobile phone carries a fraction of an ounce of rare earth elements in their pocket or bag. An iPhone is said to contain no fewer than 12 rare earth elements, used in super small and powerful magnets, the screen, and the battery. Everybody driving an electric or hybrid car owns several pounds of rare earth elements in their rechargeable batteries, which are also common in electronic readers, laptops, and cameras.

From the 1950s to the 2000s, cerium oxide was a fairly cheap and very efficient polishing agent for the glass and jewelry industries. Europium became highly sought after with the advent of color TV sets in the late ‘60s, used as the red pigment and to increase image brightness.

The defence industry is very greedy in rare earths, using lanthanum for night-vision goggles, neodymium for its very powerful magnetic properties in laser rangefinders, guidance systems, communications. Europium is used for fluorescents and the red layer in lamps and monitors, erbium in amplifiers for fibre-optic data transmission, and samarium in permanent magnets stable at high temperatures, precision-guided weapons, and "white noise" production in stealth technology.

Some large wind turbines generators require two tons (the weight of about two medium-sized cars) of rare earth magnets. The generators used permanent magnets, which are very strong and make the turbines highly efficient in converting mechanical energy into electrical power.

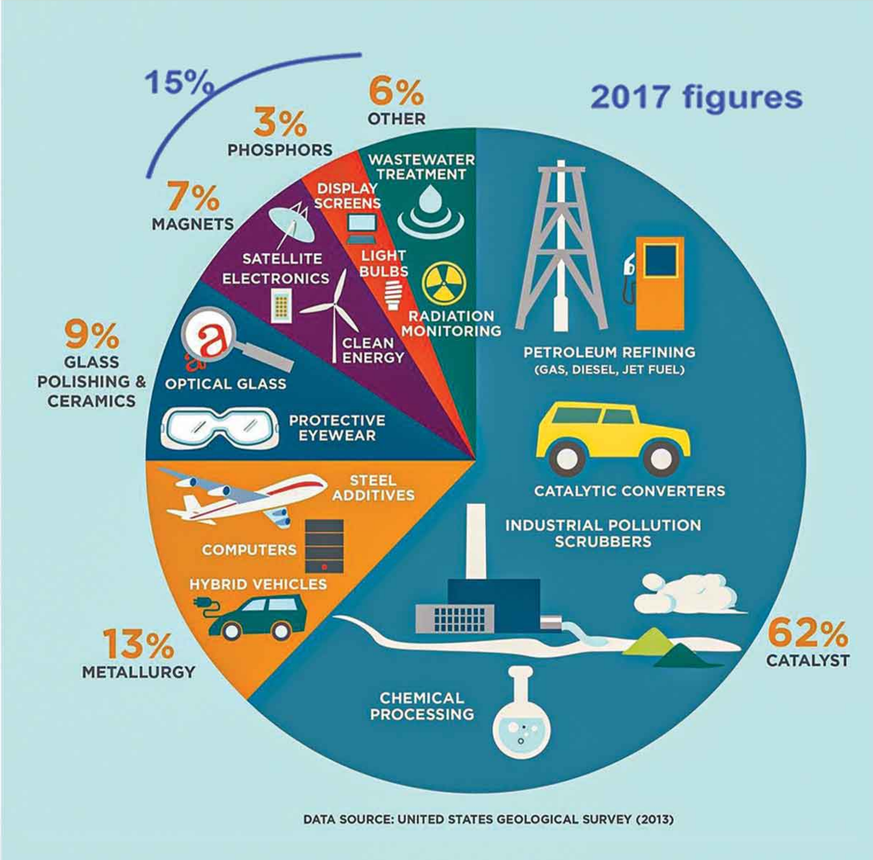


Figure 4: Usage of rare earths elements: *left = USGS 2013 vs 2017 (So Sciences (tennessee.edu) 2017 figures compiled from USGS); right = whe Critical Metals in a Smartphone (visualcapitalist.com))*

Neodymium is an example of the versatile use of rare earth elements. The most important use for neodymium is in an alloy with iron and boron to make very strong permanent magnets. These magnets are widely used in products such as microphones, professional loudspeakers, in-ear headphones, high-performance electric motors, and computer hard disks, where very small magnets and/or strong magnetic fields are required. Larger neodymium magnets are used in high-power-versus-weight electric motors, such as those in hybrid cars, and generators, such as aircraft and wind turbine electric generators. Neodymium is also a component, along with praseodymium, of didymium glass, a special glass in goggles for glassblowing and welding, as it is highly efficient in filtering noxious light.

Where are rare earths found?

Location

Figure 5 shows the worldwide distribution of present and future mining locations for rare earths. Most sites are in China, with a few in Australia, in South and Southeast Asia, the Americas, and southern Africa. Notables are the future developments, markedly in southern Africa, Australia, and North America. Even more striking is the almost complete absence of resources in probably the largest consumer, the European peninsula at the western end of Asia, except some resources in development in Finland, Sweden, and Spain. These rare earths are present in Myanmar in the form of clays, as the western extension of the Chinese province of deposition. These clays result from the weathering of volcanic or magmatic rocks under tropical conditions.

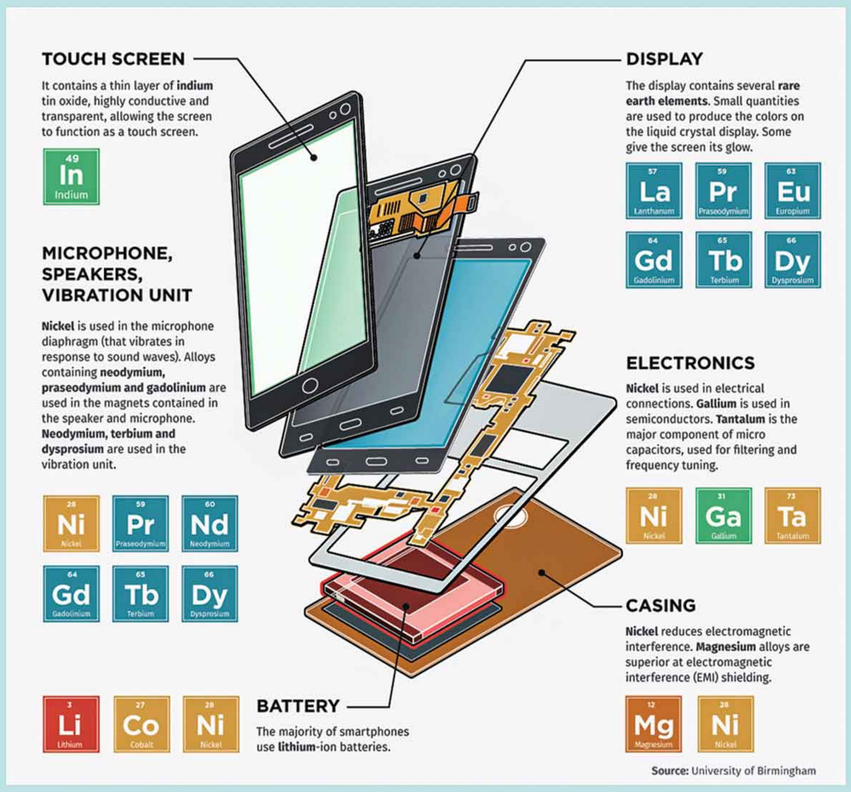


Figure 5: Distribution of worldwide rare earths mining projects as of 2023; *Source: "Global rare earth elements projects: New developments and supply chains" by Shuang-Liang Liu, Hong-Rui Fan, Xuan Liu, Jianyin Meng, Alan R. Butcher, Yann Lahaye, Kui-Feng Yang, Xiao-Chun Li; in "Ore Geology Reviews" 157 (2023) https://doi.org/10.1016/j.oregeorev-.2023.105428*

Production

Figure 6 shows a long-term historical perspective since 1955 with four distinct periods: Until 1965: The main use of rare earths was as catalysts in refineries as well as polishing powders for glass and jewellery.

- From 1965 to 1995: Production increases as the use of color TV sets spreads around the world. The U.S. enters the market with its huge deposit of Mountain Pass in California. Meanwhile starting in the early to mid-1980s, China feeds its surge in industrialization boom by becoming the factory of mankind, in turn creating a strong local demand. China starts its own production, initially in inner Mongolia, followed by Sichuan in the early 1990s. China also cuts prices drastically, forcing the Mountain Pass mine to cut production in 1997 and close in 2002.



urce: Researcher Question and Answer | Joint Institute for Computational re are rare earths in our handphone (Source Infographic: Visualizing the

- From 1995 to 2010: a combination of cheap prices, abundant resources, and the advent of mobile phones and personal computers feed a strong demand fully covered by China, establishing a near monopoly.

- From 2010: China uses its monopoly to cut exports against growing domestic demand, and prices drastically increase, prompting an awakening in U.S. with the reopening of the Mountain Pass mine in 2017 and in other ountries about their own potential resources of rare earths. At the same time, the ubiquitous multiplication of smartphones, the requirements of materials for renewable energies, and the common advent of electric vehicles worldwide feed an explosion in demand for rare earths starting towards 2017.

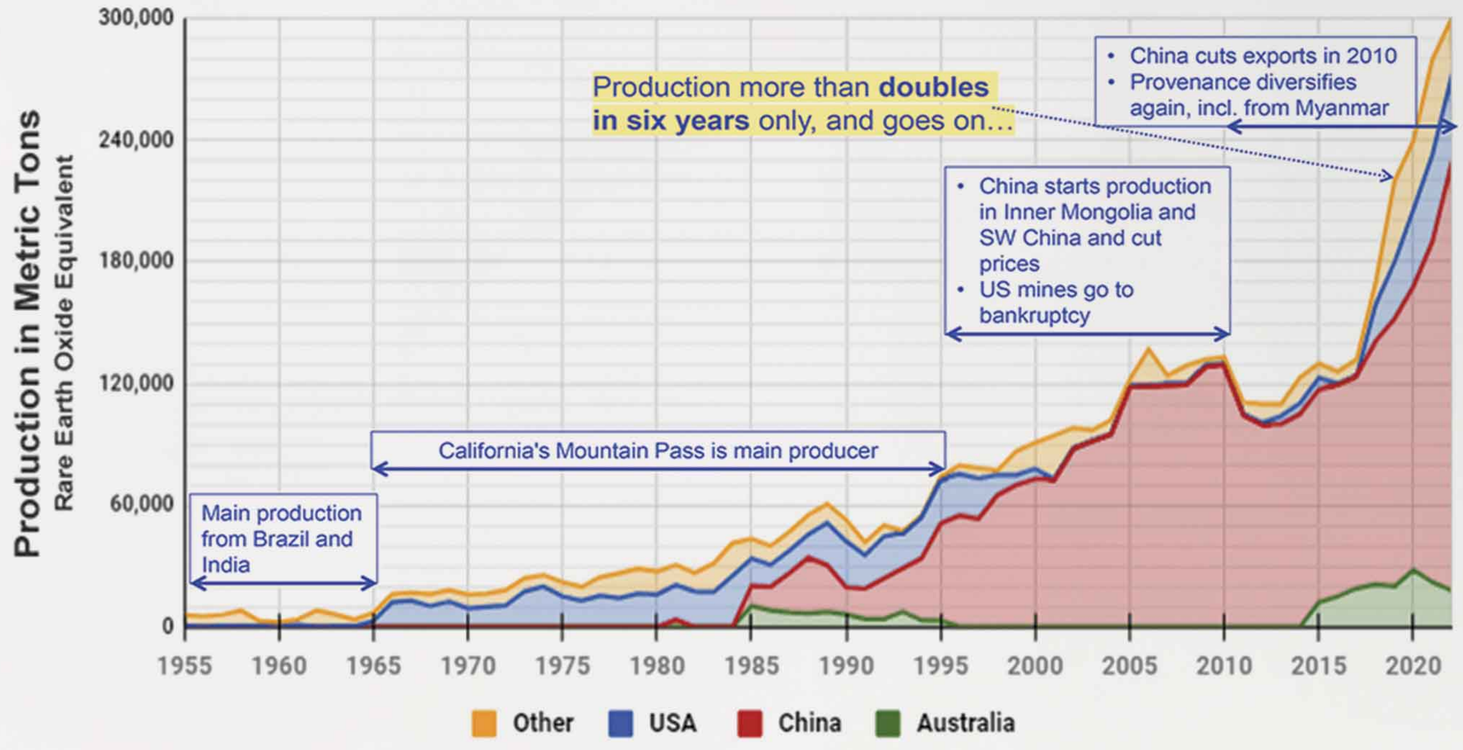


Figure 6: World production since 1955; *modified from referenc https://geology.com/articles/rare-earth-elements/*

Figure 7 shows in more detail where the production comes from since 1995. China and the U.S. were the two main producers until 2002, with marginal production from India and Russia. The years 2003 to 2011 saw a state of monopoly by China. This situation let to a price hike in 2011 when China cut production to protect its own resources. Such a sudden cut prompted a reassessment of the danger in supply chains from the monopoly of one country on such a strategic resource. The impact was a prompt return to more reasonable prices after a year, followed by a strong comeback in production, initially by Australia, followed by the U.S., and joined by Myanmar in 2018. The production of Myanmar, known since 2018, ranks this country third in the world's narrow league of producers.

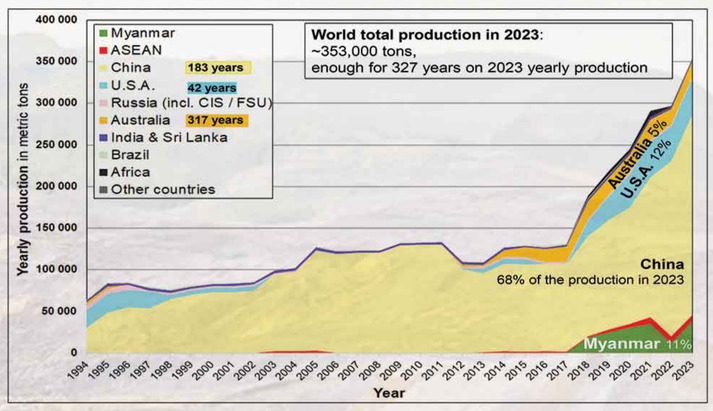


Figure 7: More detailed world production since 1994; *drawn from reference tables in Rare Earths Statistics and Information | U.S. Geological Survey (usgs.gov) ; the years describe the number of years of remaining reserves at 2023 estimated production; the percentages are the ratio of world production by the top four producers*

Reserves

Figure 8 shows the history of USGS' estimate of world reserves of rare earths between 1995 and 2023, with China still holding nearly 38% of this amount as well as being the largest consumer. China's rare earths treasure is enough for more than 183 years at present consumption, while the U.S. only holds enough reserves to satisfy local users for 42 years. Accounting for vast estimated underexploited reserves in Brazil, Russia, and Vietnam, the latter two conveniently in the backyard of China, mankind is not to suffer from a shortage of rare earth elements in the foreseeable future, and discoveries appear to more than compensate production so far.

The hike in price in 2011 prompted a worldwide exploration campaign. New reserves have been discovered since 2013, such as in ASEAN, mostly in Vietnam and a little in Thailand, and most notably in Brazil. The U.S.'s reserves have drastically reduced, probably not physically, but more likely as a

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Collaborative Environmental Management: The Role of Government, Company, and Community

Thal Sandy Tun

In the quest for environmentally and socially sustainable development in our post-pandemic society, stakeholder collaboration is essential. Proactive engagement between governments, businesses, and local communities can lead to impactful and lasting solutions, recognizing that sustainability is not just a compliance issue but a shared goal requiring concerted efforts from all stakeholders.

Maintaining a collaborative relationship with environmental regulators and local communities is a key pillar of a company's commitment to environmental stewardship. This cooperation strengthens the company's social license to operate—gaining the trust and acceptance of local communities and the general public. This approach is particularly crucial as environmental regulations become more dynamic, changing in response to new scientific findings, political shifts, or public pressure. Ongoing cooperation allows companies to stay informed about potential regulatory changes and adapt their practices accordingly.

The Power of Collaboration: Leveraging Collective Strengths

Collaborative partnerships bring together diverse perspectives, expertise, and resources to tackle complex environmental challenges such as waste, biodiversity and carbon emissions, which no single entity can solve alone. Businesses, government agencies, and local communities each bring unique strengths to the table:

Businesses:

- **Innovation and Resources:** Businesses drive sustainable practices and technologies across industries. They can implement sustainability measures within their operations, supply chains, and products/services, driving positive environmental and social impacts while realizing long-term business benefits.

Government:

- **Regulatory Frameworks and Support:** Governments enact policies, regulations, and incentives that shape sustainable practices. They establish frameworks for environmental protection, set emissions targets, and provide funding and support for sustainability initiatives. Government involvement is crucial for creating an enabling environment for sustainable development and ensuring that collective efforts align with broader societal goals.

Communities:

- **Local Knowledge and Participation:** Communities contribute to the effectiveness and sustainability of environmental efforts through local knowledge, fostering participation, and building partnerships. They engage in educational activities to build capacity and knowledge about environmental issues, fostering a culture of sustainability.







Case Study: MPRL E&P's Environmental Collaborative Partnerships in Action

MPRL E&P exemplifies this collaborative approach by working closely with the Environmental Conservation Department (Magway Region) under the Ministry of Natural Resources and Environmental Conservation. The company integrates environmental considerations into its core strategies and operations, shifting from minimal environmental efforts to comprehensive, strategic practices.

In this process, MPRL E&P has intensified its cooperation with the ECD by:

Ensuring Ongoing Compliance

An Environmental Compliance Certificate (ECC) ensures regulatory adherence, environmental protection, and sustainable operations while enhancing corporate reputation and stakeholder trust. They require companies to implement measures that minimize their environmental footprint, including pollution control, waste management, and resource conservation.

MPRL E&P submitted an official request to extend the ECC for the Mann Field Enhanced Oil Recovery Project ahead of the official expiry date. By seeking a timely extension of the ECC, MPRL E&P demonstrates its commitment to meeting environmental standards and ensuring sustainable operations in Mann Field.



Transparent Oversight

Facilitating inspection tours and providing comprehensive environmental monitoring reports to the ECD ensures transparent oversight and continuous improvement in environmental management. Inspection tours by ECD officials in Mann Field included both environmental management sites and CSR projects implemented within the surrounding communities, as well as meetings with village leaders in an open manner. These tours help ensure that environmental and social management practices are effectively implemented and maintained.

Furthermore, MPRL E&P's bi-annual Environmental Monitoring Reports, which track progress, identify areas for improvement, and demonstrate accountability, are publicly available on the company's website, ensuring transparent communication of the company's environmental performance and outcomes.







Engaging the Community

Engaging the community is a cornerstone of effective and sustainable environmental management. By involving local communities in environmental initiatives, both government and corporate entities can enhance the reach, impact, and sustainability of their efforts.

To mark the World Environment Day on 05 June 2024, MPRL E&P, in collaboration with the Environmental Conservation Department (ECD) and local community, undertook a series of activities aimed at promoting environmental awareness and education. The highlight of this initiative was the erection of signposts in Mann Field, which serve as reminders and educational tools for environmental protection. Additionally, an essay competition titled "Land Restoration, Desertification, and Drought Resilience" was organized, targeting the local community, especially students. The essay competition aims to educate participants about environmental issues

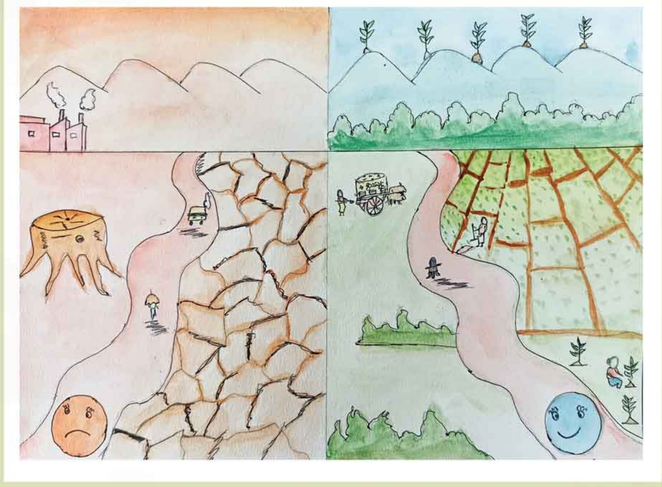














and encourage them to come up with innovative ideas and solutions.

Through these initiatives, MPRL E&P not only complies with regulatory requirements but also fosters a culture of sustainability and proactive environmental management. This comprehensive approach demonstrates the company's dedication to environmental stewardship and its role as a responsible corporate citizen.

Challenges and Opportunities

While collaborative partnerships offer immense potential for driving sustainability outcomes, they also present challenges in terms of resource constraints and the complexity of environmental challenges that need addressing. By strategically engaging all stakeholders and leveraging their collective strengths, collaborative environmental management can effectively address the complex challenges of sustainability through robust governance structures, clear communications, and adaptive management approaches, leading to more resilient and sustainable development for both businesses and society. ■















From Page 9

can expect another 20 to 30 years of production from the existing reservoir.

What do we do with marginal wells (stripper wells)? How do you maintain them or extend their life?

It is both challenging and exciting for MPRL E&P's Technical Team. The key approach is to adhere to the reservoir management plan. First, we need to determine the optimal number of wells to cover the production needs of the specific/ targeted reservoir pool. If we determine that certain wells are not necessary, we can consider shutting them in. Another strategy involves monitoring the oil inflow rate into the wellbore using a Well Analyzer. This involves conducting fluid level measurements with respect to time, even real-time measurement can be achievable if needed. Based on this data, we can determine the most effective pumping cycle of a day for each well. MPRL E&P's engineers are skilled in configuring programmable control panels to operate the well's prime mover according to the programmed time cycle. This approach not only saves energy but also reduces wear and tear on the equipment over time, leading to cost savings. The other alternative option is switching from a marginal well to the casing swabbing producing well. That is, we assigned a pulling unit as a casing swabbing unit. The unit is operated around the field with the planned schedule to retrieve crude oil daily. These strategies are all part of our production optimization efforts.

How many of them do we currently have in Myanmar?

It is difficult to express the exact number of marginal fields in Myanmar. However, there are currently 23 producing fields scattered around the country from the north to the south. All these fields, located onshore, are considered, and classified as mature.

I never knew about this until now! That's so interesting, Sayar Nyo. So, what exactly are recoverable reserves?

Recoverable reserves can be defined as the quantities of petroleum anticipated to be commercially recoverable through the application of development projects to known accumulations from a given date forward under defined conditions. Determining the recoverable reserve involves complex calculations and considerations, including the reservoir's characteristics, production history, recovery methods, development strategies and economic factors. It is a critical factor in assessing and evaluating the value and potential of a field.

After we produced hydrocarbon by the primary and secondary depletion methods, it enters the tertiary depletion stage. In simpler terms, when we first pass sugar cane between rollers, we get the juice, we can call the primary recovery. The second pass gives us more juice, known as secondary recovery. A third pass, called tertiary recovery, gets even more juice. However, there's still juice left in the sugar cane. When extracting juice from sugar cane, we can crush the cane multiple times to extract more juice. However, this is not the case with reservoir rock when extracting oil. Unlike sugar cane, we cannot crush reservoir rock repeatedly to extract more oil. This is where Enhanced Oil Recovery (EOR) methods come into play, altering the properties of the rock or fluid to extract more oil. EOR involves changing the rock or fluid properties to extract more oil. Imagine dipping a filter tip in water and oil. The filter tip represents the reservoir rock. Water soaks in easily, but oil doesn't because it's thicker. The reservoir rock is complex, unlike the filter tip. If we can make the sand grains hydrophilic (water-attracting), they pull in water, changing the oil to be more flowable, or, if we alter oil from thicker to thinner in viscosity by chemical or thermal means, which helps extract more oil. This is the basic idea behind EOR. Hence, it is vital to understand the properties of reservoir rock and fluid. This involves collecting data, studying, researching, trial and error, conducting laboratory-scale tests, analyzing the results and ensuring the availability of competent service providers.

You really helped me better understand all this, especially the EOR methods. My last question is, how do you maximize the recoverable reserves?

We must employ all available processes to maximize recoverable reserves, a key objective for our Technical Team. Addressing how we can maximize recoverable reserves is challenging, complex and encompasses a broad range of perspectives. Maximizing the recoverable reserves of an oil field involves several strategies and techniques aimed at increasing the amount of oil and gas that can be extracted from the reservoir. Technically we can approach improved recovery techniques, reservoir management, advanced technologies that we applied, well stimulation methodologies, enhance oil recovery methods and field development plan that we implement. Considering all this, there are only two perspectives to consider briefly: the first is technical, and the second is commercial. Under the technical perspective, there are numerous subcategories, just as there are under the commercial perspective. As technologies advance, costs tend to rise. Therefore, in order to be economically viable, the terms and conditions for investor should also be attractive enough to justify the risk. Political perspectives need to be considered, as the energy security of the country must be taken into account.

Thank you so much for all your detailed explanation and your time, Sayar Nyo. I feel my knowledge base has expanded so much already! Anything else you would like to share?

Here at MPRL E&P, we are operating as the sole contractor, and leading the Production Enhancement Project at Mann Field, boasting a remarkable production record of nearly 16 Million Barrels of Oil Equivalent (MMBOE) as of 2024. While Mann Field is a mature oil field experiencing a natural decline in production rates, it remains a promising asset. Globally, mature fields contribute approximately 70 percent of total hydrocarbon production, indicating Mann Field's significant production potential.

Despite its maturity, Mann Field's current recovery factor stands at only about 25 percent of the original oil in place, highlighting the substantial room for improvement. Recognizing the critical role of technological advancements in enhancing hydrocarbon reserves, MPRL E&P focuses on reservoir engineering and production management. Our strategic approach includes Comprehensive Field Management Programs aimed at optimizing recovery efficiency. These programs encompass large-scale Waterflood Programs and other cutting-edge Enhanced Oil Recovery (EOR) methodologies.

Additionally, we carefully consider the regulatory landscape and economic viability of each project, ensuring alignment with government contracts and economic factors. Looking ahead, our exploration efforts remain active, particularly in exploring deeper prospects within Mann Field to potentially discover new reservoirs. Despite the challenges posed by mature fields, MPRL E&P remains committed to extending the field's lifespan and maximizing oil production. Through strategic planning and innovative approaches, we continue to navigate the complexities of managing depleted fields, ensuring sustainable hydrocarbon resource management. ■



Summer Art Class: An Oasis for Children amid Myanmar's Scorching Heat

Pyae Pyae Phyo



The summer of 2024 in Myanmar has been exceptionally hot due to El Niño, with Magway Region recording the highest-ever temperature. This extreme heat poses risks to vulnerable groups, making it crucial to take precautions and avoid prolonged sun exposure. In this context, indoor activities like the Summer Art Class in Mann Field, Magway Region, offer a safe and enriching alternative for children from the scorching heat.

To provide a constructive outlet during the summer holidays, MPRL E&P's CSR Program organized a four-week Summer Art Class Program for children in the Mann Field Communities from 29 April 2024 to 24 May 2024. The classes were held at Mann Kyoe, Aye Mya, and Nan U Community Centers. These classes, part of the Community Capacity Building Program, aimed to foster a love for art and nurture creativity among local youth.



A total of 66 children participated in three basic art classes for ages 6-12 and one advanced art class for last year's trainees. The program's success from the previous year, which helped children elevate their hobby to an advanced level, encouraged its continuation into the Fiscal Year 2024-2025.

While the basic class focused on drawing with pencils and colored pencils, the advanced class introduced watercolor techniques. The advanced watercolor painting course, designed for students who completed last year's basic class, highlighted the program's progression. Senior CSR Officer Saw Eh Hsar Blute Htoo emphasized the program's goal to develop children's imagination, creativity, fine motor skills, and appreciation of nature.

Trainer U Myint Hlaing Min reflected, "Teaching art to young children involves fostering a love for creativity. Initially, they need guidance, but with the right support and instruction, all children can learn art easily. Each child's unique imagination and creativity influence their progress." The trainers were pleased with the children's dedication and progress throughout the program.

Pann Ei Thwin, an advanced art class student, shared her journey, "Drawing, using a brush, and coloring bring me so much joy. I particularly enjoy creating serene artwork. Reflecting on my progress, I am proud of mastering watercolor painting and colored pencil drawing. In this training completion ceremony, I am very pleased to win the first prize. Thank you MPRL E&P for this art class opportunity!"



Daw Sein Wai Lwin, the mother of Han Ni Soe Oo from advanced art class, noted the remarkable improvement in her child's painting skills. She expressed pride in her daughter winning the second prize in the advanced art class and the People's Choice Award. She remarked, "This year's creations are livelier and more beautiful. The art class provided a valuable and enriching summer activity."

Shwe Wai Phyo from the basic art class reflected, "Learning various techniques in the class was invaluable. I particularly enjoy drawing with pencils and using rulers for precision. I am very pleased to win the People's Choice Award in the basic art class. I am eager to enroll in advanced art classes again and would also appreciate opportunities to participate in English language and computer courses."

Trainer U Aung Maung commented, "We are very pleased that MPRL E&P's CSR Program has launched the second Summer Art Class for children in the Mann Field Communities. This year, the summer was extremely hot, and these art classes were perfect for the children to stay indoors and learn something fun and creative instead of playing outside in the heat or on their mobile phones. Also, this year's program was more organized and received increased interest and support from local parents. Throughout the Summer Art Class, there was strong collaboration among the company, the community, and the Community Education Facilitators (CEFs)."





On 24 May 2024, the closing ceremony for the Summer Art Class Program was held at Nan U Village Community Center. The event was attended by 236 participants, including trainees, trainers, parents, relatives, Village Administrators, community members, the MPRL E&P Field Operations Team, and the CSR Team. Eight prizes were awarded in the basic and advanced art classes, recognizing first, second, and third place, as well as the People's Choice Award.

Additionally, in collaboration with MPRL E&P and the Environmental Conservation Department (ECD-Magway), essay and art competitions were held to celebrate World Environment Day 2024. Advanced art class trainees participated in this competition. Through the painting competition commemorating World Environment Day, participants gained a deeper understanding of the importance of knowing climate change, preserving the environment, and minimizing harm.

Looking ahead, Saw Eh Hsar Blute Htoo concluded, "MPRL E&P's CSR Program will continue to support trainees in advanced studies and offer art classes next summer. We hope our community children enjoy happy learning experiences and have wonderful summer holidays."■



Investing in the Future: The Transformative Power of Education Funding and Project-based Learning

Pyae Pyae Phyo



Education funding is crucial for the progress of society, directly affecting the quality of education and the opportunities available to students. Traditional education is evolving, with innovative methods like Project-based Learning (PBL) becoming more prominent. PBL focuses on real-world applications, critical thinking, and collaboration. It allows students to explore subjects deeply, engage in hands-on experiences, and develop essential skills through meaningful projects.

Recognizing this, MPRL E&P's CSR Program has taken a major step by supporting a groundbreaking PBL initiative at the State Agriculture and Livestock Institute (SALI - Pwint Phyu). In December 2023, the CSR Program funded a PBL initiative focused on "Study on Growth Performance of Different Feed Rations Effect on Poultry (Broiler)".

Naw May Pale Htoo, Junior CSR Officer at MPRL E&P's CSR Program, said, "SALI (Pwint Phyu) is one of four training schools partnered with our CSR Program. Currently, seven students from Mann Field are enrolled with our support. In 2023, we donated five laptops to enhance their learning experience and funded a PBL initiative focused on studying different feed rations for poultry growth. This funding allows students to conduct research without financial constraints and serves as a revolving fund for future projects. Such support greatly benefits the students, strengthening our educational partnership with SALI (Pwint Phyu)."

With the CSR Program's funding support, the institute embarked on a journey to monitor and analyze the growth performance of poultry through various feed rations. The project, which ran from 02 January to 15 February 2024, involved four student groups, each with 35 students and a total of 500 poultry. This project was not just an academic exercise; it was a collaborative effort to enrich educational resources and provide tangible learning and research opportunities for final-year students at SALI (Pwint Phyu).

Chit Hnin Phyu, one of the scholarship trainees, said, "In this PBL, male students monitored the chickens overnight, ensuring they were fed and the temperature was regulated, while female students took over during the day. We fed and gave water to the chickens, wrote daily reports, and weighed the chickens every Friday to track their growth. We were also responsible for the weekly progress report and the presentation data. After this project, we gained practical experience in evaluating the best feed rations for optimal growth and understanding the cost-benefit analysis of dietary choices. We learned valuable skills that go beyond theoretical knowledge."

Animal Husbandry Practices at the PBL

- **Breeding and Selection:** Students applied selective breeding techniques to optimize growth rates and feed efficiency.
- **Feeding Programs:** Various feed rations (CP, Dehus, Sunjin, and local) were tested to identify the most effective diet for broiler growth.
- **Housing and Healthcare Management:** Ensuring chickens have proper shelter and living conditions. Regular health checks and vaccinations were conducted to maintain poultry health.

Livestock Outcomes at the PBL

- **Poultry Production:** 500 broilers were raised, yielding 867.82 visses of 452 poultry.
- **Economic Impact:** The project generated MMK 5,987,958 in returns and a net profit of MMK 1,019,058 after expenses, demonstrating the financial viability of effective livestock management.

The project culminated in a presentation on 08 March 2024, attended by 350 participants, including teachers, students, and MPRL E&P's CSR Team. This event was a testament to the initiative's success in advancing research, education, and practical knowledge in agriculture and livestock management.





Ma Wai Wai Lin from Kyar Kan Village shared her PBL and presentation experience, "We were the first batch to conduct research on broiler breeding through Project-based Learning (PBL) at SALI (Pwint Phyu). It was also my first time presenting about the project in front of hundreds of people, including the principal, teachers, schoolmates, and MPRL E&P representatives, so I was very excited. Despite being tired due to the consecutive presentation session after the final exam, the presentation deepened my understanding of the project and was a valuable experience for my future career."

Since November 2022, MPRL E&P's CSR Program has provided scholarships to seven youths from Mann Field, supporting them through their three-year course at SALI (Pwint Phyu). The CSR Team closely monitors their academic and extracurricular progress. Zay Linn Aung from Mei Bayt Kone Village shared his thoughts on the scholarship



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result of a re-evaluation of economic vs. non-economic reserves at the prevailing prices. In other words, should the value of rare earths increase in the coming years due to strong demand creating tensions in supply chains, U.S. reserves will increase as presently non-economic closed locations would become worth reopening for extraction.

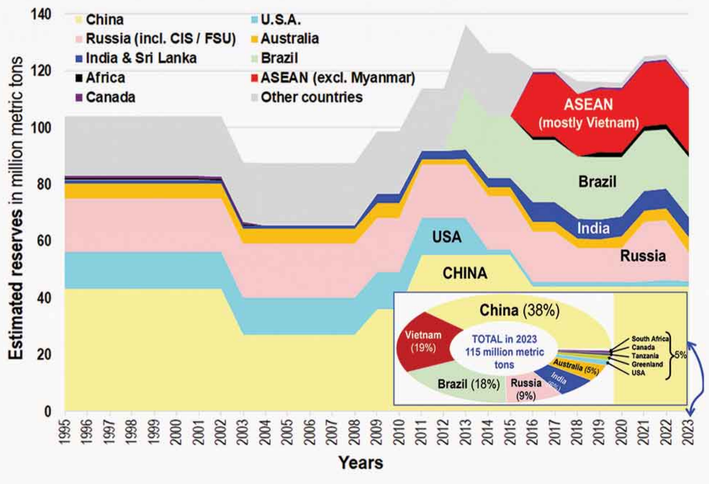


Figure 8: Evolution of reserves through time since 1995 and share status in 2022; *drawn from tabulated references in Rare Earths Statistics and Information | U.S. Geological Survey (usgs.gov)*

How much are rare earths worth?

The pricing of rare earths is even more complex than that of other substances. It depends on the grade, whether it is sold as pure metal or as a compound, and the variety of rare earths available.

Neodymium, selected here as an example for its pricing history (Figure 9), is notable due to the availability of consistent data and secondly, because about everybody carries some tiny pieces of neodymium in their pocket or bag. Neodymium is one of the components of the super-magnet s —the strongest discovered to date—used in activating the vibrators of our mobile phones. It is also widely used in microphones, loudspeakers, headphones, computer hard disks, electric motors, and generators. An estimated 85% of this rare earth is extracted in China. Consequently, fluctuations in China's rare earths 'industry sneezes, the neodymium customer coughs more money.



Dates	21 May 2021		12 March 2024	
Price in US$/kg	Metal	Oxide	Metal	Oxide
Lanthanum	4.27	1.27	3.62	0.57
Cerium	4.56	1.37	3.62	1.01
Praesodynium	102.70	77.76	73.06	52.36
Neodymium	94.80	78.41	64.02	52.07
Samarium	-	1.95	-	2.16
Europium	-	29.66	-	28.21
Gadolinium	20 010.00	27.85	20 010.00	23.44
Terbium	1 382.00	1 150.00	933.00	778.00
Dysprosium	470.10	368.90	325.50	264.70
Erbium	800.00	31.46	800.00	42.53
Yttrium	31.10	5.14	34.00	6.29
Scandium	520 260.00	56 610.00	520 260.00	566 610.00
Gold	66 340		76 256	
Silver	971.1		851.9	

Figure 9: Price history of neodymium and price of various rare earths on 21 May 2021 vs 12 March 2024; *Sources of the table for rare earths: Rare Earth Metals News | News, research, prices and quotes (mineralprices.com) and for precious metals: Precious Metals – MineralPrices.com ; Source for the chart is Neodymium - Price - Chart - Historical Data - News (tradingeconomics.com)*

Scrounging the internet to explain the hike in neodymium prices from 2021 to 2023 highlights a combination of rising foreign demand and domestic competition from China's electric vehicle indstury. Disrupted supply chains further complicate matters, such as the lockdown of the Shanghai port due to a resurgence of Covid-19, and the gearing up of Russian war against Ukraine. Concerns about tightening supply will remain as long as the number of sources for rare earths remains very limited.

Today's prices appear fairly stable because of the reopening of ancient mines (like Mountain Pass in California) and the discovery of new resources, such as in northern Sweden, Europe.

Rare earth prices also reflect the elements' scarcity. For instance, only 20 tons of scandium are produced annually in only three locations in the world, identified by the USGS as China, Russia, and the Philippines, mostly as a secondary product of processing other rare earths or as a side product of processing the ores such as nickel, tungsten, titanium, and bauxite (the primary ore of aluminium). Scandium finds use in specialized batteries like solid oxide fuel cells, which provide electricity in harsh and cold off-grid environments or space; very high-performance light alloys that strengthen aluminium; and special lighting systems, such as mercury vapor lamps that produce sunlight-like white light.

Goodbye for now

The graph in Figure 10 has been added as a concluding note, emphasizing the adage that 'a picture is worth a thousand words.' Besides steel, aluminium, and plastics, this graph shows that only 34 kilograms of three metals are necessary for conventional gasoline-powered car, whereas a typical electric vehicle demands over 200 kilograms of eight metals, including rare earths. The wide range of minerals needed for electric vehicles presents a host of new challenges, stemming from quite diverse geological sources, leading to very intricate supply chains, and complex processing, not to mention associated complex environmental concerns.

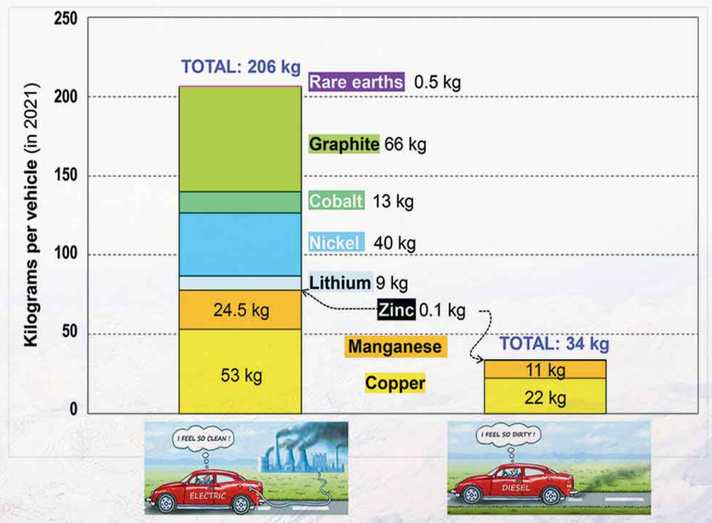


Figure 10: A comparison of minerals used in electric cars compared to conventional cars; *data sourced from Minerals used in electric cars compared to conventional cars – Charts – Data & Statistics - IEA; discrepancies in summing come from rounding figures*

And now back on our pushbikes, folks, that's the real future, and may the fun go on; meanwhile, may you remain in robust health and blissful serenity, and beware of these silent EV's!■

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support from MPRL E&P's CSR Program. He said, "Over the three years, MPRL E&P's CSR Program has supported us with essentials such as enrollment fees, monthly stipends, meal allowances, school supplies, etc. This support has enabled us to focus on our studies without financial burdens. At SALI, we learn both theory and practical skills, including social skills. The hands-on experience makes us more knowledgeable. We gain a deep understanding of farmers' real lives through practical learning. Therefore, we do appreciate the continuous support of MPRL E&P."

MPRL E&P's CSR Program allocates approximately MMK 7 million annually for seven students at SALI (Pwint Phyu). Including support for No. 5 Industrial Training Center (ITC - Magway), Government Technical High School (GTHS - Magway), and the University of Medicine (Magway), total annual scholarship funding amounts to around MMK 18 million.

Senior CSR Officer Saw Eh Hsar Blute Htoo said, "Our educational partnership with SALI (Pwint Phyu) remains robust, thanks to the strong working relationships we have developed with the principal, vice principal, and teachers. This Fiscal Year,



we plan to provide additional Grant-in-Aid support. We take great pride in our scholarship students, who excel in the research project presentation and consistently rank in the top 10 in their mid-term and end-term exams. Next October, our trainees are finishing their three-year diploma course at SALI (Pwint Phyu) and will get their Diploma in Agriculture. Our CSR Program will help them find jobs, especially those who want to work on improving agriculture in the Mann Field Communities. We will also keep supporting those who pass the SALI diploma exam with top grades and get accepted to pursue a bachelor's degree at Yezin Agricultural University."

MPRL E&P's CSR Program has invested in the future, fostering an environment where education involves real-world experiences and contributions. As students continue their journey, they carry forward the lessons learned and the knowledge that their education was supported by a commitment to funding and innovative learning approaches. The success of this PBL initiative at SALI (Pwint Phyu) signals a brighter future for education and society at large. ■



Creativity Unleashed: Basic Embroidery Training Empowers Women in Mann Field Communities

Moe Thu Zar Soe



In the heart of the Mann Field Communities, a transformative initiative is taking place, bringing creativity and empowerment to local women. In March 2024, MPRL E&P (CSR Program) launched a basic embroidery training course designed to equip women with fundamental embroidery skills, unlocking their creative potential and providing new opportunities for personal and economic growth.

"It was initiated primarily to enhance the capabilities of local women. Young women from Mann Field and those in the sewing industry can now earn additional income through their embroidery skills, helping to support their families. Current tailors can also integrate this new skill into their sewing businesses to boost their income. To improve product quality and attract buyers with innovative ideas, the company's CSR Program organized this basic embroidery course. Previously, we offered basic and advanced bag sewing courses for the women from the Mann Field Communities. As a result, some of the attendees of this course are members of the 'Nammadar' sewing group, which is supervised by MPRL E&P's CSR Program," stated Junior CSR Officer Naw May Pale Htoo.



The course, conducted by an instructor from Rosa Fashion Handmade Class in Mandalay, had a total of 21 local women from Mann Field in attendance. It took place from 23 to 27 March at the monastery in Auk Kyaung Village and was funded by MPRL E&P's CSR Program as part of Community Capacity Building initiatives, amounting to MMK 2,086,350.

"Currently, we have received basic embroidery training, which enables us to explore job opportunities within our community while taking breaks from our farming work. As a trainee, I have gained insight on how to enhance our artistic work to be more appealing and earn admiration from others," said Ma Kyu Kyu Win from Kyar Kan Village.

Over the past decade, MPRL E&P has launched Capacity Building initiatives for the women's communities of Mann Field through various training sessions. These sessions encompass a wide range of skills, including basic and advanced sewing, cotton bag making, value-added food making, tomato-based food making, basic and advanced bamboo-based handicrafts, soap making, and more. These initiatives are supplemented with necessary support tailored to their preferences and requirements. Currently, the women of Mann Field Communities produce shampoo, soap and cotton bags for the local market.■











Myint & Associates Company Limited

Journey through Culinary Logistics: An Interview with U Saw Khu Naw Htee

Hnin Wynt Zaw

We are excited to present an exclusive interview with U Saw Khu Naw Htee, the Catering & Beverages Manager at Myint & Associates Co., Ltd. As a seasoned expert in culinary logistics, U Htee has navigated some of the most challenging environments to ensure seamless catering operations. In this interview, he shares his experiences from the KNOC Project in Russia, detailing the logistical hurdles and innovative solutions his team employed to maintain safe and efficient operations. His insights offer a deep dive into the complexities of supply chain management in remote locations and highlight the critical role of strategic planning and resilience in overcoming obstacles.



During your involvement in the Korea National Oil Corporation (KNOC) Project in Russia as a Senior Camp Boss, you likely encountered various challenges and difficulties. Can you describe one or more specific difficulties you faced during this project and how you and your team managed to address or overcome them?

Of course! For me, the most physically and mentally challenging project is the KNOC Project in Russia, and enduring this proved to be a logistical feat. Crew changes and food supplies posed significant difficulties, often requiring a week for a single crew change and an additional week for the return trip. The complex transit routes involved multiple flights, sometimes spanning Yangon to Seoul, Vladivostok, and Sakhalin, or even more intricate paths through Yangon, Thailand, Vietnam, Korea, Vladivostok, and Sakhalin.

Upon arrival in Vladivostok, the journey continued with domestic flights to Sakhalin, followed by logistics arrangements and a one-day hotel stay. The subsequent five-hour bus ride to the port involved immigration checks and, at times, delays due to storms, leading to unexpected stays in Sakhalin hotels. During such situations, KNOC organized meals at Korean restaurants.

What were the specific challenges faced during the final leg of the journey to the oil rig?

The final leg of the journey to the oil rig included a perilous 24-hour sea voyage on a Russian crew boat. Imagine crossing the freezing Russian sea in winter! It was freezing cold. Our boat navigated rough waves, causing discomfort and seasickness among the crew. Upon reaching the oil station, crew members, exhausted from the journey, were loaded with a Personal Transfer Basket. Safety precautions included wearing red (or orange) immersion suits to guard against the cold sea. Upon arrival, the fatigued crew took necessary rest, with some requiring visits to the Site Doctor for medical attention.

The return journey mirrored the challenging arrival, navigating rough seas on the crew boat with the Personal Transfer Basket. Enduring waves and seasickness during the 24-hour voyage, we finally reached the shore, only to be greeted by immigration checks. A five-hour drive from the immigration office brought us to Sakhalin City, where the routine involved a one-night stay in a hotel. Upon arriving in the city, the logistics team coordinated my drop-off at the domestic airport. The return to Yangon followed, involving three transits in different countries. Despite a work schedule of four weeks on and four weeks off, the travel time extended to one week before and after the work period, making the entire journey a two-week endeavor. It was quite a journey!

That sounds intense! Tell me more, how did you handle the food supply issues during the project?

Engaging with Russian suppliers for food supply proved challenging as the delivered items often differed from the order, with some items missing entirely. Despite apologies and promises to rectify in subsequent shipments, the Russian supplier faced challenges. To resolve the issue, the boat captain sought assistance from nearby Russian oil tankers and ships. The logistics supervisor, proficient in Russian, approached these vessels, securing necessary supplies through radio communication. Their linguistic proficiency facilitated smooth interactions, with corrections provided when needed. Repayment to the borrowed sources awaited the arrival of food from the original Russian suppliers.

Were there any memorable interactions or lessions learned from this experience?

During this period, connections formed with a Russian drilling supervisor who, in nightly sessions, taught us not only Russian but also French. This camaraderie led to a lasting nickname, "Big Bear," in Russian. These experiences underscored the importance of language and communication in client interactions. While English is globally used, proficiency in the mother tongue of non-English-speaking countries enhances friendliness and smooth collaboration. This insight emphasized the significance of understanding and utilizing the local language when serving in a foreign country.

In remote or offshore locations, logistics and supply chain management can be complex. How do you ensure a consistent and timely supply of resources and ingredients to meet catering demands in these environments?

Maintaining HACCP (Hazard Analysis and Critical Control Point) knowledge is paramount in Catering Logistics and Supply Chain operations. Procuring food from reputable, legally compliant suppliers is crucial, with adherence to specified packaging standards. Separation of raw meat, raw fish, and vegetables mitigates infection risks, each clearly labeled with manufacture and expiration dates. Categorized as dry, chiller, or freezer, foods demand suitable containers or trucks based on packaging types. Shipping perishables in reefer containers requires meticulous adherence to cold chain procedures, with continuous temperature monitoring via data loggers throughout transit. This vigilance extends beyond loading, encompassing stoppages and delays. Upon delivery, the client side verifies the data logger, ensuring compliance with specified temperature ranges. For instance, transporting milk and dairy products in chillers necessitates maintaining temperatures between +5°C and

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Establishing Thuta Pinlel Mini-library at M&AOSB Site Office

Pyae Pyae Phyo

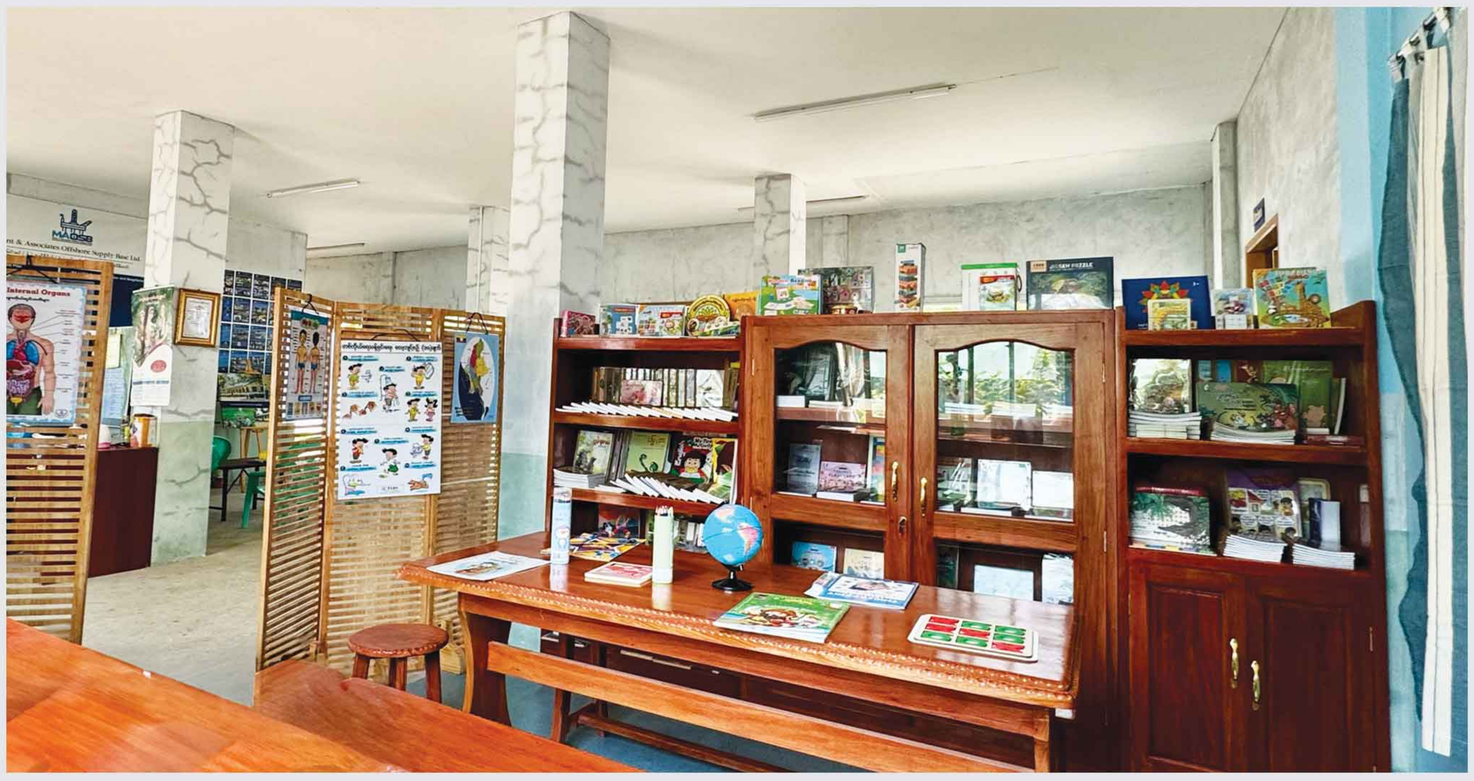
In March 2024, M&AOSB's CSR Program opened a new mini-library named Thuta Pinlel at the project site office. The CSR Program established the mini-library project initiative to encourage the locals, especially children, to read more and provide better learning opportunities in the area where the company operates. The library's grand opening ceremony took place on 20 March 2024, and was attended by 56 people, including local elders, young volunteers from Trash Hero Gaw Yan Gyi Chapter, and M&AOSB's CSR Team.

The CSR Program contributed 373 books and learning facilities to the library. The collection includes colorful comics, cartoons, classic stories, novels, magazines, dictionaries, newsletters, coloring books, and general knowledge books. Additionally, the CSR Program invested MMK 4,868,650 in the library project, covering the cost of books and furniture. The CSR Team also treated the attendees of the event with Shwe Yin Aye dessert.

Here are a few words from the attendees and participants at the event.

Ma May Thingyan Moe
Nanttharpu Village Tract

I really enjoy participating in the Trash Hero's cleanups and reading books. Now that M&AOSB has opened a mini-library at their office, we can read books right after our cleanups with Trash Hero Gaw Yan Gyi. It is very useful for us. Instead of wasting time playing around, we can grow our knowledge by reading here. There are lots of different books in this library, including those about general knowledge, novels, comics, recipes, sewing, and more. I have decided to put away my phone and spend more time reading here. This library is not just beneficial for me, but it is also great for kids like me in our community. We are really thankful to M&AOSB for opening the Thuta Pinlel mini-library here.





U Mann Thit Lwin
Nanttharpu Village Tract

In the past, we tried setting up a community library in our village, but it did not work out. Now, thanks to M&AOSB's CSR Program, they have started a mini-library project called Thuta Pinlel at their site office. This means our kids can get their hands on good books and learn valuable things. Having this library near our village makes our community happy and satisfied. It is great to have this kind of resource right here in our area.





U Myint Aung
Site Manager at M&AOSB

I am very pleased to see M&AOSB's CSR Program opening a mini-library at our site office. This initiative really shows the company's dedication to corporate social responsibility. With this library, we can provide local children with better learning opportunities. This initiative could help develop the community and benefit our entire nation. This program does not just help our project directly; it also has positive effects on the surrounding area. It is important to keep the library running smoothly to maximize its impact. I will also do my best to support the growth and success of this mini-library initiative at our site office. ■

From Page 22

+10°C, while frozen foods in freezers should be kept between -18°C and -20°C to inhibit bacterial growth.

My next question for you is, how do you manage timely food delivery and handle potential delays?

To ensure timely food delivery, awareness of the vessel plan or schedule a week in advance is crucial. Client companies request and receive this information, preparing Request Orders (RO) upon confirmation. After calculating weights and managing containers, the manifest and cargo list are shared with the client logistics team. The operation team handles customs or ED files, and logistics proceed accordingly. Purchase and packaging are executed systematically, including a test run of reefer containers with the required temperature. Validation of container certificates is essential, and data logger or temperature recorder functionality is confirmed for accurate temperature records throughout the journey. To account for potential errors, always include two backup data logger. This meticulous process ensures compliance with specified cold chain limits for shipped items.

My last question for you. What special considerations are there for air or chopper transportation of perishable items?

For air or chopper transportation, items must be packed in foam boxes, requiring precise measurements. Client logistics provide weight and space details. Easy-to-melt foods are delivered using ice cubes or dry ice to maintain the cold chain. Therefore, the aviation team monitors departure times for on-time cold chain delivery, promptly addressing delays. In the event of plane delays post-loading, swift action is taken to return items to cold room temperatures. Purchasers and loading crews, along with external drivers and personnel, undergo comprehensive training on these procedures. ■

MPRL E&P Hosts Basic Mud Logging and Drilling Fluid Engineering Workshop and Training in Mann Field

Moe Thu Zar Soe





In April 2024, as part of a capacity-building initiative and public-private partnership, Myanmar Oil and Gas Enterprise (MOGE) and MPRL E&P jointly organized a workshop training program for new and junior staff members of MOGE at Mann Field. The program focused on imparting essential knowledge and practical skills necessary for mud engineering and mud logging in drilling operations.

Course materials and topic articles were jointly compiled by MOGE and MPRL E&P. Experienced senior personnel from MOGE and technical professionals from MPRL E&P served as lecturers, conducting both lectures and practical training sessions. The five-day event, spanning from 03 April to 07 April, commenced with a welcoming address by U Myo San Oo, Director (Exploration and Development) at Myanma Oil and Gas Enterprise (MOGE).

The inaugural day featured a presentation by Geologist U Chan Myae Aung from the Field Operations Department, who explored the complexities of mud logging in the oil and gas industry. Topics included an introduction to Mann Field and mud logging, the role of a mud logger, lag time calculation, formation cutting analysis (including lithology interpretation and hydrocarbon evaluation), and the application of mud logging software (Log Plot7).





On 04 April, Senior Engineer U Aung Myo Nyunt from the Drilling Fluid Engineering Team at MPRL E&P explained the KCl polymer (water-based mud) system as part of the drilling fluid engineering training. Discussions included drilling fluid classification, the KCl polymer mud system, and the preparation of new mud (KCl polymer). Continuing the training on day three, Senior Engineer U Aung Ko Min from the Drilling Fluid Engineering Team provided insights into testing mud properties, solid control equipment (SCE), and contaminations.

Throughout the five-day program, 37 trainees actively participated in the training sessions and engaged in practical exercises. On the concluding day, a knowledge-sharing session was led by U Thet Tun, Deputy Managing Director of MOGE, and U Ye Naing, General Manager of Chauk Oil Field. The closing ceremony, held on 07 April, was attended by 11 officials, including senior representatives from MOGE, as well as oil field personnel from MOGE, Chauk, Mann, and MPRL E&P. During the ceremony, Deputy Managing Director U Thet Tun delivered the closing remarks, marking the successful conclusion of the workshop training. To symbolize the culmination of this fruitful and enriching training program, certifications were awarded to the trainees by representatives from MOGE and MPRL E&P.■





Achieving ECC Extension for the Next Five Years for MPRL E&P's Enhanced Oil Recovery Project

Han Myo Aung

We are proud to announce that MPRL E&P's Enhanced Oil Recovery (EOR) Project at Mann Field has successfully obtained a five-year extension for its Environmental Compliance Certificate (ECC) following rigorous assessments and collaboration with environmental entities.

The first ECC for Mann Field's EOR Project, obtained in 2019, validates the project's adherence to environmental standards and best practices. Through consistent monitoring, reporting, and cooperation with regulatory bodies, MPRL E&P ensured compliance and successfully secured the extension. The achievement underscores our commitment to environmental stewardship and regulatory compliance.

The certificate awarding ceremony took place on 30 May 2024, at Ministry of Natural Resources and Environmental Conservation (MoNREC), where the Head of the Health, Safety, and Environmental Department proudly received the ECC extension certificate for Mann Field.

We extend our heartfelt appreciation to all the personnel and departments involved in the Mann Field ECC extension process. With this extension granted, we remain committed to fulfilling our obligations and are determined to prioritize environmental conservation at all costs. ■

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Just over six months later, I was invited to join the Geophysics Team for Block A-6 exploration activities. I eagerly accepted, excited to explore new territories and broaden my expertise. It was an excellent opportunity to participate in Myanmar's first ultra-deepwater project (now Pyitharyar Integrated Project) at its early stage. My involvement in Woodside Energy Limited's farming in activities in 2013 and TotalEnergies in 2015, coupled with extensive exploration and appraisal drilling campaigns, provided me with significant exposure to exploration and subsurface operations.

Amidst the peak of exploration activities in Block A-6, I joined the Exploration Team as an Exploration Geologist in 2015. Concurrently, MPEP, a sister company of MPRL E&P Group of Companies (GoC), became a local partner in Block A-4, Block A-7, Block RSF-5 (Ondwe), and PSC-K (Yamaethin) alongside Woodside, Shell (later acquired by BG) and Eni. This afforded me the unique opportunity to work in parallel on these projects with world-class partners.

In exploration, I've taken on multiple roles, from seismic interpretation and mapping to prospect evaluation, resource volume, and risk assessments. My responsibilities included maturing the prospect portfolio of MPRL E&P's and MPEP's assets. During ultra-deepwater drilling campaigns in Blocks A-6 and A-7, as well as onshore drilling in Block RSF-5, I honed my skills by closely monitoring and reporting technical and operational progress. The collaborative spirit of our Technical Team enabled me to actively participate in technical meetings with partners and MOGE.

In a nutshell, these cumulative exposures and personal efforts paved the way for me to become an Assistant Exploration Manager in the Exploration and Joint Venture Department. I am actively enhancing my capacity to play an integral role in project management and team leadership in the future. My aim is to motivate, inspire, and spearhead efforts toward achieving common goals, such as discovering additional sources of gas.

How important is seismic prospecting and basic reservoir geophysics for a geologist?

Unlocking subsurface resources requires integrating fieldwork with seismic prospecting, which plays a crucial role. In oil and gas exploration, seismic data is fundamental, providing a broad spectrum of information.

Without seismic data in frontier areas, it would be challenging to answer basic questions like estimating the size and volume of resources (how large is it?) and determining their depth (how deep is it?). Additionally, 3D seismic technology is essential for evaluating petroleum system elements and exploring commercially viable oil and gas ventures.

Seismic data acquisition involves sending sound waves into the ground and recording the reflections to create images of subsurface features. Interpreting and evaluating this data can reveal reservoir characteristics and the presence of potential fluids like oil, gas, and water. This insight empowers geoscientists to make informed decisions about drilling locations including resource exploration and appraisal strategies.

Today, geology is part of a broader subsurface perspective that includes reservoir engineering, forming a fully integrated approach to exploring and producing from potential reservoirs.

Was there a time when you had a memorable event during a project? How did it happen, and what was the outcome?

The question instantly reminds me of a memorable event during drilling operations in Block A-6 ultra-deepwater exploration. Among subsurface tasks, drilling is the most exciting and challenging, especially for explorationists.

It was when we drilled well Shwe Yee Htun-2 (SYH-2) to appraise the gas discovery of Shwe Yee Htun-1 (SYH-1) in a deepwater turbidite channel in the Pyitharyar Integrated Project in August 2018. Throughout the night, our small team of exploring geoscientists monitored real-time data from the drill ship via the online Schlumberger platform. It wasn't unusual—based on experience, main reservoir targets were typically drilled through midnight.

Initially, we confirmed the extension of gas-bearing sands from SYH-1 to SYH-2, 10 km apart, our primary target, while shallow secondary targets yielded no gas. Our satisfaction was short-lived when ambiguous log characteristics and poor gas readings disappointed us. Exhausted from day-long monitoring, around 2 a.m., we took a brief nap to prepare for morning reports to Senior Management and to discuss with joint venture partners.

At 5 a.m., our CEO called, eager for an update. To our amazement, we saw gas-bearing sands deeper than expected on the log data screen. I rushed to confirm with my boss Dr. Eloi Dolivo, who was already examining it, equally elated. Subsequent pressure data confirmed a 50% higher gas volume than anticipated.

The success of the SYH-2 appraisal well paved the way for commercial project development, eliminating the need for additional drilling to increase volume.

How do you prioritize areas for exploration when resources are limited?

Prioritizing exploration areas with limited resources requires strategic planning and collaboration across teams. Effectively managing resources ensures project success and aligns with the company's vision and mission.

Each team member in the subsurface function plays a crucial role, leveraging their unique talents to integrate work seamlessly across departments. However, allocating dedicated software and hardware remains a challenge due to resource constraints.

As a small exploration team, proactive planning and preparation are key to timely project completion. We maintain close relationships with other departments, actively seeking their input while respecting their priorities. This collaborative approach maximizes efficiency and project outcomes.

Reflecting on all of the above, I take pride in being an essential part of the remarkable Pyitharyar Integrated Project, which is poised to fuel our nation's future. Despite current challenges, I eagerly anticipate a promising future for our country's energy sector. ■

"Today, geology is part of a broader subsurface perspective that includes reservoir engineering, forming a fully integrated approach to exploring and producing from potential reservoirs."

Myanmar National Open Sailing Championship 2024 Wraps Up with Grand Award Ceremony

Moe Thu Zar Soe



The Myanmar National Open Sailing Championship 2024 concluded with a grand award ceremony at the Yangon Sailing Club (YSC) on 18 May 2024. The event was attended by Myanmar Olympic Committee Member and Myanmar Yachting Federation (MYF) President U Moe Myint, along with the notable guests and officials from various governmental organizations, including executive members from MYF, committee members, and Myanmar sailing stars from the Yangon Sailing Club.

The competition, which ran from 16 March to 12 May 2024, was held at two locations: Inya Lake in Yangon and Ngwe Saung Beach in Ayeyawady Region. A total of 24 athletes competed in the Optimist Class, five in the ILCA-4 event, five in the ILCA-6 (Men), and four in the ILCA-6 (Women) at Ngwe Saung Yacht Club & Resort. Meanwhile, 14 athletes competed in each of the Sharpie A, Sharpie B, and Sharpie C events, totaling 42 athletes, plus an additional 16 athletes in the Rater event at Inya Lake in Yangon.

Organized by the Myanmar Yachting Federation (MYF), the Myanmar National Open Sailing Championship 2024 is the most advanced competition of the year. The event resumed in 2022 after challenges due to the COVID-19 pandemic.

The award ceremony opened with a speech from Myanmar Olympic Committee Member and MYF President U Moe Myint, an avid sailor. He shared the development of sailing in Myanmar and its growth since 1962. He also explained that sailing, a sport demanding quick decisions based on varying conditions such as waves, wind direction and velocity, currents, geometry, tides, and ever-changing weather, has a rich history and a promising future in Myanmar. Despite the high costs of maintenance and operations that challenge its development as a



mass sport, sailing has achieved significant success since the founding of the Yangon Sailing Club (YSC) in 1924.

The President of the MYF highlighted that the MYF was established separately in 1991 and has faced challenges in the beginning such as a lack of interest, financial support, and limited boats. However, the number of boats and athletes has significantly increased steadily. Notably, in 2001, Myanmar won three gold medals and one bronze at the 21st SEA Games in Malaysia, surpassing Thailand and Singapore. The 27th SEA Games in 2013, hosted by Myanmar at Ngwe Saung Yacht Club & Resort, further showcased national talent with impressive medal wins: two golds, one silver, and two bronzes.











The Myanmar National Open Sailing Championship 2024 Award Ceremony also marked the 100th anniversary of the Yangon Sailing Club. As Myanmar sailing celebrates its centennial, the future looks promising with the emergence of a new generation of athletes and continued support from the government, regional representatives, and local businesses for establishing local sailing clubs.

More information on the background history of YSC and sailing can be found in Insight! Newsletter, issue 38.■

Myanmar Thingyan New Year Celebration Held at Vantage Tower in April 2024







































Summer Sea Training Camp

11~30 March 2024
Ngwe Saung Yacht Club & Resort





Thailand National Sailing Championship 2024

18~25 April 2024
Yacht Racing Association of Thailand













Myanmar National Open Sailing Championship 2024

16 March to 12 May 2024
Yangon Sailing Club





Myanmar National Open Surfing Championship 2024

14~16 May 2024
Ngwe Saung Yacht Club & Resort

