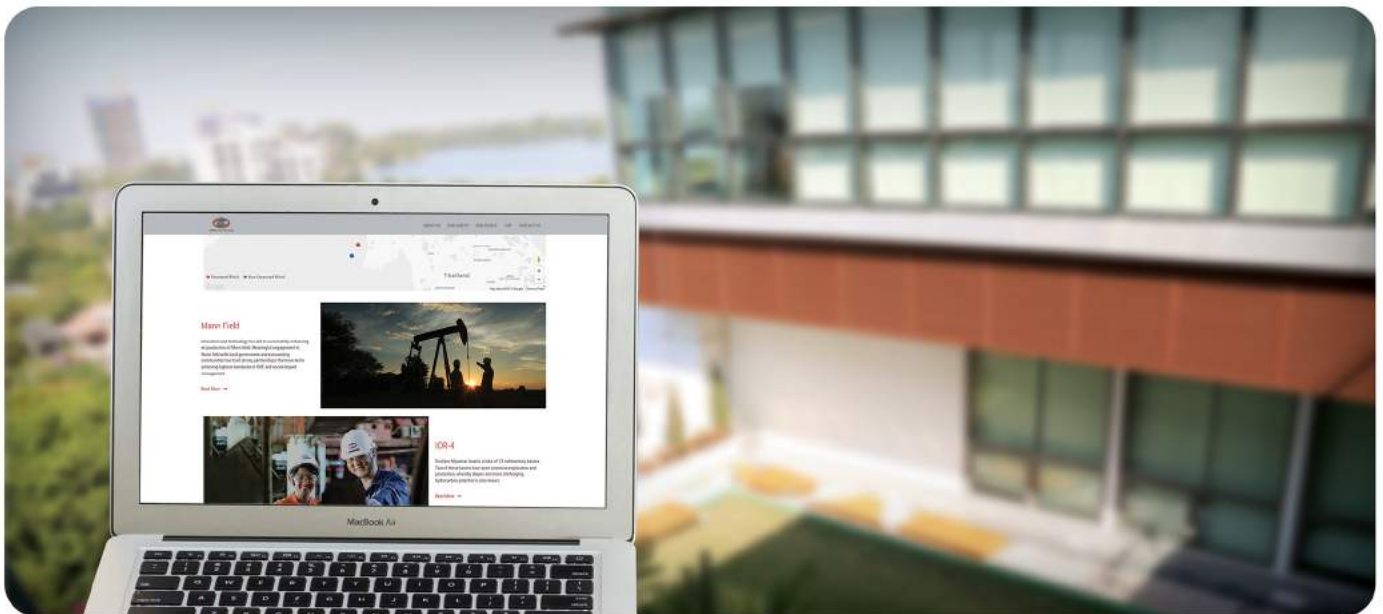


Happy 2017!

& Best Wishes For

New Year New Look : MPRL E&P Launches New Website



“

We welcome 2017 with a new image that is being showcased through the launch of our new website.

”

Anastacia Howe

The company's new website has been designed to provide the ultimate user friendly experience with improved navigation and functionality throughout allowing stakeholders to access detailed information and videos with the option to share information across all major social networking sites.

Created with user experience firmly in mind, the website has been designed in conjunction with COAL, a marketing and communication specialist.

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Your Opinion : How can people achieve career advancement and success?

U Khin Maung Htay

Field Manager (MYO)

Technical Department



Everything is changing in our world and we are always in search for a better job, a better status and a better life. For career advancement and success, there are many ways for many people. For example, some people change jobs every year or so in order to create career advancement while some others settle in a single employment as long as they can, advancing their career along the way into their retirement.

Both have to figure out a lot in their own ways if they are to be successful. For example, frequent job changers need to consider if they are changing jobs because it becomes their habit or because they find the job no longer suitable for them. On the other hand, those who do not change jobs have to make themselves learn new things so as to remain productive and motivated. However, a win-win situation can be created if both employer and employee engage in dialogue and support each other in a regular and transparent manner.

Daw Nilar Han

Senior Technician

Technical Department



In this age of competitiveness and fast changes, people are always searching for employment to make a better living on the one hand and on the other, they are trying to catch up with the latest developments in their specialized fields in order not to be left behind. In my opinion, it will not be enough to study about technologies and business knowledge alone all the time because it is experience that matters when it comes to career advancement and success. New experience can be leveraged as steps are taken towards success.

Therefore, people should be able to combine their specialized knowledge and working knowledge to bring productivity and other deliverables to their current jobs. At the same time, they should not stop learning new things and making new connections. One day they will be able to set foot in a playing field, which values their experience and skills while providing security for themselves and their family. In this way one can always make the best happen to their career and the companies they work for. This is what I would like to share as my thoughts based on my 25 years of working life.

Insight!

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“

Did you know that the following are characteristics that could represent the best practices in economic development?

1. Long-term Perspective

Requires a long-term commitment to build an organization the right way, consistent goals and objectives, consistent funding, and a long-term commitment towards staff.

2. Focus on Product Development / Successful Communities

Focuses on what industries or prospects are best suited to them, they are prepared for these prospects, know their strengths and weaknesses, and have a plan to create the product needed.

3. Focus on Quality and Service

Focus on closing the deals they already have rather than always searching for more, pay particular attention to active prospects, help provide a risk reduced relocation transition (service, not cash), and have a customer service approach.

”

Introduction to New Employees



Daw Htoo Suzan Lin

HR Administrator
Human Resources Department

My name is Htoo Suzan Lin and I joined the HR Department as an HR intern in June 2016. Now I have become an HR Administrator in the Department as a permanent staff. My main responsibilities are supporting the HR team and their functional services are effectively implemented in the Company.

I was able to join the Company as a HR intern because I noticed MPRL E&P provided internship opportunities for fresh graduates with a potential to grow. I myself was studying a postgraduate diploma specializing in Human Resources and I applied for the internship as I wanted to gain practical experience in the field.

When I was working as an intern, I was given many opportunities to study and now better understand what HR functions are from my senior colleagues. This helped me not only study my diploma more fruitfully but also acquire a job opportunity at the same time. As a result, MPRL E&P plays a very supportive role for freshly graduates who are looking for a job.

Although the internship was my very first work experience, I was able to spend the period effortlessly and efficiently as the whole company welcomed me and supported me like a family did. I am happy and proud as all senior colleagues taught me kindly so as to learn my subject of interest both theoretically and practically while working in such a leading oil and gas company led solely by Myanmar nationals. Our MPRL E&P's HR team warmly welcomes young people looking for work experience.

Myint & Associates Co., Ltd.

27th Anniversary



The 27th Anniversary of Myint & Associates Company Limited fell on 10th November 2016, Thursday. Like previous anniversary days held, on 5th November, a group of Buddhist monks were invited to the office at Vantage Tower and sermons were heard. Then, lunch and donations were provided to the monks. The employees who participated in the event were also provided with lunch.

At noon on 11th November, at Vantage Tower, a special buffet lunch was arranged for all the employees of MPRL E&P Group of Companies. At 3 p.m., at the Function Hall, the 27th anniversary event was held where Chief Executive Office U Moe Myint delivered an opening speech, presenting awards to outstanding employees, and light food was served. Management personnel and employees from all the Group of Companies joined the event.

The 27th Anniversary Event was held in order to uphold the traditions of continuing success until today as a Myanmar national led company, encouraging development of employees with exceptional performance, recognizing and rewarding dutiful, loyal and long-serving employees, and inspiring to serve own interests, company's interests as well as national interests.

This year's Anniversary Event was memorable in that it was organized at the premium office building, Vantage Tower, which was opened by the former President H.E. U Thein Sein, and the Function Hall which can accommodate up to 200 guests was first used according to its purpose.



Myint & Associates Welcomes New Tenants and Secures Full Occupancy of Vantage Tower

15 December 2016, YANGON – Myint & Associates Construction Company Ltd. (Myint & Associates) welcomes two new tenants to Vantage Tower, its flagship commercial office property overlooking the western edge of Inya Lake. PTTEP International (PTTEP), a Thailand based public listed oil and gas company, and Roche Myanmar Company Ltd. (Roche), the local branch of the Swiss pharmaceutical company, Roche Pharma, have signed leasing agreements with Myint & Associates to call Vantage Tower their new home. With the addition of PTTEP and Roche, the occupancy rate of the building is now 100%.

Having won three awards at the first inaugural Myanmar Property Awards in 2015 for Best Office Development, Best Commercial Development and Best Office Architectural Design, the market widely regards Vantage Tower as the premium property in the market. "The property has definitely set the standards for earthquake resistance, wind velocity resistance, fire safety, emergency evacuation, access control/security systems, and information, communication and technology (ICT) infrastructure," said Nathanat Meesuk, General Manager of Vantage Tower. Meesuk also mentioned that "our health and safety standards are what attracted world-class multinational conglomerates and diplomatic missions because they have stringent



PTTEP will occupy Levels 3, 4, and 7 while Roche will take up Level 5 of the premier office complex, which boasts 236,144 sq-ft (21,938 sq-m) of GFA housing office space and supporting food and beverage retail. "We are delighted to welcome PTTEP and Roche as tenants and are very pleased to have secured full occupancy in the building. We experienced a surge in demand for prime office space in the second half of this year as international businesses operating in Myanmar looked to expand and relocate to more reliable and prestigious offices," said U Soe Khine, General Manager of Myint & Associates. The new tenants will be joining the Australian Embassy and the Yangon headquarters of the MPRL E&P Group of Companies.

Vantage Tower, an 18-storey mixed use building strategically located on Pyay Road, opened its doors on 18 February 2016.

safety and security requirements that no other property in the market can offer. I am very proud to handover top-of-the-line office space to our new tenants and provide a high-tech, but personalized, building management experience to all of our tenants."

Vantage Tower offers quality supporting infrastructure including car parking, 100% redundant back-up power, and high-speed fiber-optic internet connectivity. The property also houses Myint & Associates Data Center, the first and only Uptime Institute (USA) certified Tier III Data Center in Myanmar. Vantage Tower has established best practices for building design and construction in Yangon, drawing site visits from students and professors from the Yangon Institute of Technology as well as from members of the Committee for Quality Control of High Rise Building Construction Projects (CQHP) during the property development phase.

MPRL E&P GoC Annual Kahtain Ceremony

Thal Sandy Tun



Myanmar's 8th month, Tazaungmon is well-known as the month of Kahtain Pwe Taw when Kahtain robe donations are made at monasteries all around the country. Many tree-shaped stands with various items of offerings hanging like fruits, can be sighted beside roads and in front of houses. Within the whole month, people participate in the auspicious festival, carrying the Padaythar-trees, some by cars and some on shoulders, in a teeming crowd towards monasteries.

MPRL E&P Group of Companies organized a Kahtain Pwe Taw by donating MMK 6,915,430 worth 17 Padaythar-trees to Mogok Monastery in Kamaryut Township on 6 November 2016. A total of 120 employees took part in this ceremony.



Trash Hero - An Initiative Sparking Interest Among Communities in Myanmar

Thal Sandy Tun

Trash Hero World is a global initiative based in Switzerland, with over ten thousand volunteers worldwide, collecting over 150 metric tons of trash in South East Asian beaches.

Its mission is to create sustainable, community-based projects removing existing waste and reducing future waste through inspiration for long-term behavior change. The movement does this through action and awareness raising which involves picking up trash and cleaning public places, education which involves educating the impact of trash on the environment, sustainable projects which involves bringing communities together to remove and better manage their trash, and inspiration which is motivating individuals to become a trash hero who wastes as little as possible and reuse as much as possible.



Trash Hero Myanmar initiated its first chapter in Yangon on 6th August 2016 with the spearheading of the Myanmar Yachting Federation where a total of 135 heroes including employees from MPRL E&P picked up 375 kilos of trash at the Inya Lake and its shorelines. Up to now, Trash Hero events have taken place three times in Yangon, two times in Ngwe Saung and one time in Dawei. Similar events in Mandalay, the second largest commercial city in Myanmar, and Bagan, the famous Buddhist religious city, are soon going to take place in the near future.

The Myanmar Yachting Federation and partners plan to increase the coverage and momentum of its trash hero events by continuing organizing to collect trash in public areas, supporting new chapters by organizations and individuals, cooperating with schools and universities, and motivating to reduce the use of plastics to keep our environment clean and beautiful.

Myittar-Yaung-Chi Saytanarshin Group Supporting School Children: Why Giving Back Matters

Interview with Daw Zin Mar Myint, CSR Field Coordinator

The name of our donation group in Mann field is Myittaryoungchi Saytanarshin group. Ko Aung Ko Min, one of the active members of our group, and party from the Operations team thought about a few possible names for the group and then we selected this one.

How did we start? Well, when the floods hit Mann Field last year, many Operation Team Members volunteered during the relief and donated funds to purchase food items. They said they themselves wanted to donate drinking water for the communities affected and asked us to help connect with the communities in need. Seeing their enthusiasm for volunteering and giving, I thought that this initiative should be constant. From that day we agreed to start our donation group. Our first initiative as a group was raising funds for school nutrition and building materials. Nutritional soup was provided for schools on a monthly basis. As a group we were happy to help but we felt that we could be doing more. We could be supporting an initiative that resulted in a greater impact. We brainstormed ideas and finally agreed that sponsoring education for school children would be a more suitable initiative. As a result, we started with Kyar Kan village where there was a child who was unable to go to school as his Father was bed-ridden and his Mother had to work as a laborer to



feed the family. The child had to take care of feeding and bathing his Father. However, we were told that he was good at studying and it was his dream to go back to school. The Headmaster of Kyar Kan School explained his plight to us and we went to his home to see the situation. At that time his Father already passed away and he was at home nursing his young sibling. We waited for his mother's return from work to discuss the possibility of her son returning to school. We asked the

child what he wanted to become. He replied he wanted to become a Doctor because of his Father. As a group we were touched by his situation and immediately decided to pay for his school fees and buy the materials needed. We often receive updates from his teachers and we are pleased to hear that he is making good progress.

From this success, we are pleased to announce we have 20 members and between us have raised as much as

MMK 400,000. Over the year, we donated our funds to primary students living within Mann Field. As we gained more interest from others we managed to provide support to five eleventh graders and one university student.

We encourage anyone interested in what we do to support our initiatives. Supporting our nutritious food program generally costs between MMK 27,000 – 40,000 depending on the number of children and the type of nutrition provided. For example, it can be chicken and rice soup or milk and rice soup. Some schools have around 80-100 students and others have 200-300 students.

To maintain our group's credibility, we keep a regular record of contributions received and donations made. Daw Lai Lai Khaing and myself have opened a joint account at a bank to keep the money and another member helps to keep the books. In the future we want to extend our donations to the university students that are in need too. To find out more information on what we do please visit our Facebook page. We need active support from other people in order to keep our drive going. I would like to invite all the employees to make a contribution who can make a difference to our beneficiaries' life. ■



**THINKING
ALoud** with

U Zayar Htet
Senior Engineer - Field Drilling



I am Zayar Htet, a Senior Engineer. I have worked at MPRL E&P for about nine years since 2007.

I graduated in 2004 and received a job with MPRL E&P. At first, I had many difficulties because my university studies were limited to learning only theories and concepts. Whereas, here it is all about hands on experience and learning about the operations. It was quite a challenge, but the senior engineers mentored me. As a result, I have almost little to no difficulty be-

I do not have to solve the problems alone and we work as a team and solve challenges together. If and when the challenges are beyond our experience, the Field Operations Managers and senior engineers work together to find solutions.

What I want to tell the young aspiring engineers is that there will be many opportunities for engineers in the near future. When these opportunities do become available, it will be important for young engineers to prioritize skill development. They should prepare to be skillful to grab these opportunities for themselves. I would like to encourage these fresh graduates to observe and study. At Mann Field we highlight the importance of both theory and practice. We have these operations going on which you can study to gain skills. We make

sure both theory and practical skills are available here so we encourage everyone to be mindful of this and study hard.

Although we are a Myanmar led company, we can work together with foreign partners and I am proud of this. Now, the company has progressed and started initiating new activities such as town hall meetings with the intent of developing direct communications with senior management. We have also participated in the Myanmar Center of Responsible Business Pwint Thit Sa Project ranking our company and our practices as 5th most transparent in Myanmar. We are proud of this too. ■



Employee Out-Reach “EDU GREEN”

Volunteering and helping to protect the environment are fundamental to MPRL E&P's corporate culture.

Around the neighborhoods, our employees support local communities by organizing donation activities for school children and elderly, participating in global initiatives like collecting trash in public areas, and providing environmental education opportunities for young people.

We had a chance to sit down with one of our employees who recently began an environmental awareness campaign for school children in Yangon Region through the Young Southeast Asian Leaders Initiative (YSEALI), a U.S. government signature program for leadership development and networking in Southeast Asia.



Please introduce your name and designation at MPRL E&P?

My name is May Zaw Htet. It has been a year since I have been working as an Internal Engagement Officer in the CSR & Communications Department.

Please tell us about your recent initiative through YSEALI. How long have you been involved in the program?

The project “EduGreen”, along with its motto of “Cool kids help clean the world!”, was developed by the 3 cohorts, including myself, of the 2015 YSEALI Summer program at the University of Montana through which we studied an academic program on environmental education. We planned to put the project into operation since last year once we were back from the program but it took a time as we needed to get approval from the Ministry of Education to be able to get the ball rolling at the No. (4) Basic Education High School in Kamaryut. Our project targeted around 250 children, who are future leaders, at primary education level at the school to receive basic knowledge on environmental education and waste management.

How has been your experience about participating in this program?

My two cohorts and I had a series of get-togethers before implementing the project. The most exciting day was the very first day when we practiced the environmental storytelling. Of course, I have been in touch with children but the storytelling experience was way beyond the normal chitchat.

We had to transfer a definite message to them with clear and precise performances through the stories taken from the Third Story Project. We believed the stories could improve or even change the behaviors and attitudes of the children to become better people for the world.

In addition, there are a lot of activities we planned to do during the project, including teaching children how to segregate recyclable and non-recyclable waste, how to reuse waste by changing it into hand-made items, playing educational games, organizing educational talks, holding small competitions and rewarding the children's efforts.

Dealing with people is not easy but children are even harder. It has been almost the end of my project but still I am learning to keep track with their



interests along with my project.

What are you aiming to achieve through this initiative in the long run? What are your long-term plans and goals?

“EduGreen” is initiated to raise awareness about waste segregation and environmental-led educational sharing. We focus on sharing environmental knowledge specifically waste segregation and recycling, the value of planting trees and water, basic environmental health practices, and we intend, in the long term, that these valuable environmental awareness practices will spread from children to their parents, friends, neighbors and eventually the whole community.

We have also received additional funding for the ‘Play 360’ project, another project we intend to execute in another school where old tires will be used to create a small playground for children. We are planning to implement the playground project by May 2017.

As for the long run, we have a lot of ideas in our mind but it is hard to adjust while you are also working full-time. We do organize small events when we have a chance such as Earth Hour 2016 campaign and one-day awareness raising campaign. We do this by leveraging a very effective tool that is social media. So you'd better stay tune! We have a Facebook page for EduGreen too. So please don't forget to visit the page to keep in touch with our regular updates.

How do you allocate your time to become a champion for the environment as you are a full-time employee? What specifically drives you to take such efforts?

I have to admit that it is difficult to allocate time for voluntary work. Although the program offered us funding, it is still considered voluntary work. The two cohorts and I just made a daring decision, though two of us were working and one was living in another state. We had a series of discussions right after work and during weekends. It was time-consuming but we knew that it would be a well-earned result in the end.

What messages would you like to deliver to other employees and the world at large following your involvement in such environmental education leads?

The one thing that three of us brought back from the project was that we would like to alert youths that either a big or small project is not hard as long as it is impactful and you believe in your capability. The global environmental issues are huge and I would be grateful enough if I could hear the children who were taught in my project convince their parents to practice waste segregating and recycling.



Who's Who At MPRL E&P?

Internal Audit Department

The Audit activities internally help an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of the company's risk management, governance and internal control process, and covers all the financial and non-financial areas of the entity.

The internal auditors are responsible for overall internal control to safeguard resources and comply with laid down internal policies and procedures of the company, provide support to other departments to achieve the highest effectiveness and efficiency of their business operations with integrity, as well as performing audits in a timely manner and reporting to the Company's Management.

Internal auditors deal with issues that are primarily important to the survival and prosperity of the Company. Unlike external auditors, we look beyond financial risks and statements to consider broader issues such as the company's reputation and growth, including its impact on the environment, and the way it treats its employees.

In sum, internal auditors help the business to succeed. We do this through a combination of assurances and consulting. The assurance part of our work involves telling managers and highest level of management how well the systems and processes are designed to keep the organization on track are working. Then, we offer consulting help to improve those systems and processes where necessary.

Team members of Internal Audit Department are:

1. Daw Myint Myint Swe (Head of Internal Audit)
2. Daw Khine Swe Thin (Asst. Head of Internal Audit)
3. Daw Ei Ei Khine (Asst. Auditor)
4. Daw Su Myint Myat (Asst. Auditor)

If you would like to know more about the Department, including policies or procedures, please contact us at:

Office Phone : (95-1) 2307733,
E-mail : myint.m.swe@mprlexp.com



Daw Myint Myint Swe
Head of Department

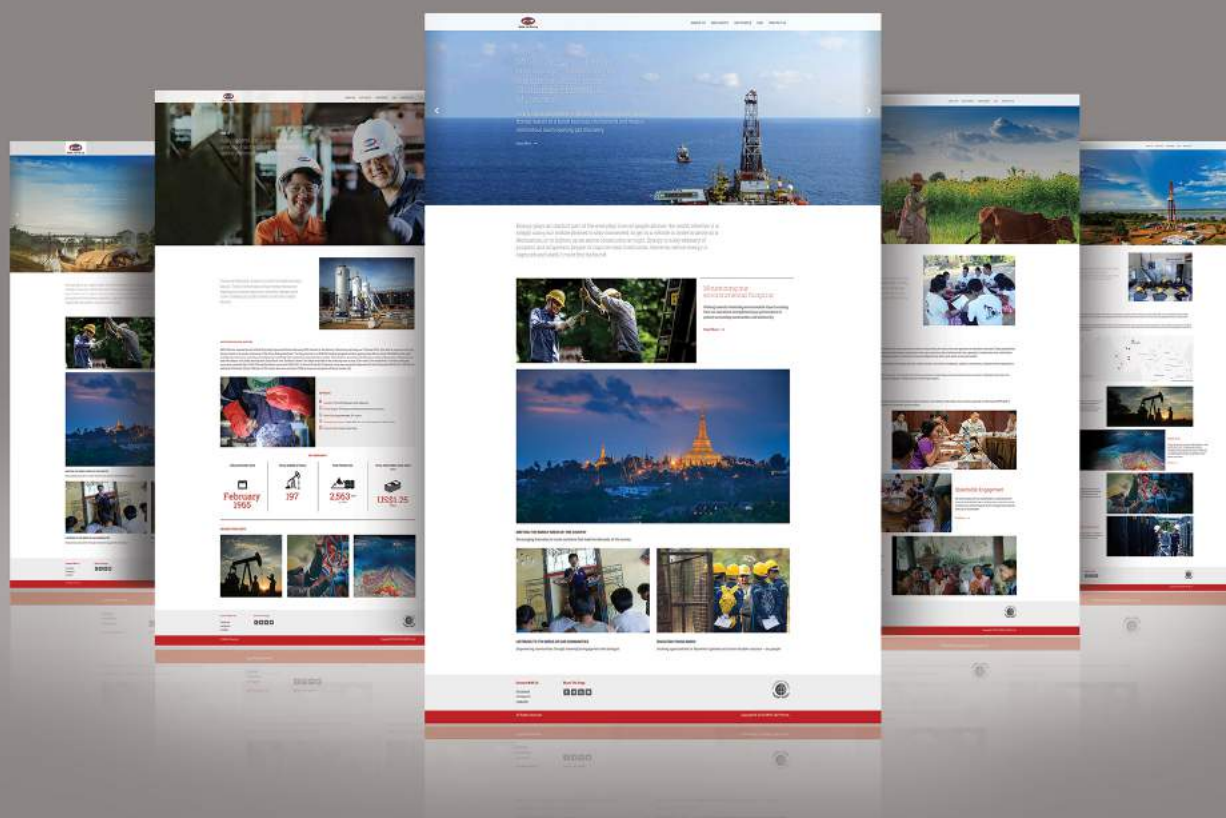
Daw Myint Myint Swe graduated with B.Com from Yangon Institute of Economics in 1992 and received a Certificate of Certified Public Accountant (CPA) from the Auditor General Office in 1995. She has over 20 years of experience working for the MPRL E&P Group of Companies. In 1995, she joined Myint & Associates Co., Ltd. (M&A), one of the Group of Companies and her first position was an Accountant in the Finance Department (M&A), followed by Finance Manager in 2004 and later becoming Head of the Internal Audit Department for the Group of Companies in 2007.

From Front Page

The new website has a clean uncluttered design, improved functionality and enhanced rich content focused on the company's mission to improve livelihoods by being at the forefront of providing energy to drive progress in the nation.

We are excited about our new website launch and the robust information it provides for potential investors, partners, media, and community to better understand MPRL E&P's work ethic and values. Dedicated pages to internships, community, and philanthropy have been incorporated to outline significant achievement and milestones made by employees. We believe that this new site will allow our visitors to have a very informative experience as we continue to grow and increase our presence in Myanmar.

MPRL E&P's new website will be updated on a regular basis with news of business activity, corporate milestones, and events. Key tools to look out for include mobile applicability, video diaries from employees, as well as the addition of Instagram.



We hope you love the website as much as we do. Don't forget to let us know what you think.

Connect with Us:



mprllep



mprllep



myanmar_mprlexp



New Year Wis

*New dreams, new hopes, new spirits and new joys.
Have a promising and fulfilling **New Year!***



***Happy New Year Everyone!**
Wish you all a wonderful, happy, healthy and
prosperous New Year. Cheers!*



*We send our greetings and best wishes to all
for a good beginning of the Coming New Year. We cordially greet
all employees, hoping that next year may have many successes and
achievements. We sincerely wish you all to have
a Very Happy New Year.*

*Wishing every day of the **New Year** is filled with success,
happiness and prosperity for you.*



Wishes For 2017



*With each New Year we get a fresh, clean page to start over.
Here's hoping that life writes a beautiful new chapter for you this year.*

Happy New Year!



*In this New Year ...
May good luck and good fortune always
be with you!*



*May success chase you as you move forward ambitiously towards
achieving your goals in 2017. Wish your tomorrow is more prosperous,
happy and successful than yesterday and today*



*May this New Year bring new light & new hope
May you reap all the fruits of your hard work
this year.*



*Let's celebrate this blissful, cheerful, colorful
New Year with A Smile!*



Hello 2017 !
*You are No. 1 (2 + 0 + 1 + 7 = 10 = 1 + 0 = 1)
Welcome to No. 1*

Consultation in Nga Yoke Kaung Bay – An Effort to be a Good Neighbour



Anastacia Howe

Effective consultation prior to the implementation of projects enables companies to establish a foundation for building strong, constructive, and responsive relationships that are essential for the successful management of a project's environmental and social impact.

Sometimes good, friendly neighbors are hard to come by and a good neighbor goes along way. A good neighbor is considerate, notices who and what is around you, takes the time to talk and reach out to connect. Most importantly, good neighbors are respectful and help each other.

Based on the values of what define a good neighbor, MPRL E&P and its CSR Department along with community based volunteers from Mann field, traveled to Nga Yoke Kaung Bay, along the west coast of Myanmar, to introduce themselves as 'new neighbors' to the area.

A group of 8 CSR Department members and 2 Mann field community based volunteers traveled to Nga Yoke Kaung Town for duration of 5 days.

4th October 2016

Consultation with Nga Yoke Kaung Township Administrator and Local Authorities

Meeting with CSO (Kann-Chay-Arhman) Fisheries Network

5th October 2016

Key Informant Interviews with Nant Thar Pu Village Administrator, Elders and Village Clerk

Public Consultation with Nant Thar Pu Communities containing 6 hamlets

Focus Group Discussions with Nant Thar Pu Communities containing 6 hamlets



U Win Ko
Community Volunteer
Mann Kyoe Village, Minbu

“

In my opinion, our first step was a whole lot more successful than we initially intended, we were able to understand the concerns of the fishing community in the area and we needed to prepare more about the detailed designs of the proposed project so that the community could better understand what to expect. ”



Daw San San Maw
Community Volunteer
Auk Kyaung Village, Minbu

“

Unlike our dry region, the seaside area and its greenery were very stunning that we could not help but feast our eyes on them. I feel happy and satisfied about the trip as I was able to gain knowledge about a different way of life and I began to develop ideas concerning how things can be done differently. ”

Facts about Nant Thar Pu Village in Nga Yoke Kaung Town, Irrawaddy Region

Constituents

6 hamlets
Seik Kan, Zin Yaw Chaung,
Kyauk Phyar, A Lal Kone, Nant Thar Pu
and Ching Ka Lay

Total population

2,361

Location

18 miles away
from Nga Yoke Kaung Town
by road

Livelihoods

Fishing, farming,
gardening, SMEs
and motorcycle taxis



Key Findings

Men	Women
Concerns	Concerns
<ul style="list-style-type: none"> Project activities should not have an impact on livelihoods such as farming and fishing. Expert advice from a third party is required to ascertain further clarification. Negative impacts affecting health. Impacts of land acquisition on livelihood and road infrastructure. Land has previously been provided for road construction. Company should adopt a do no harm approach. 	<ul style="list-style-type: none"> Restrictions on fishing activities due to project requirements will not be accepted. Negative impacts affecting the marine environment and local tourism.
Expectations	Expectations
<ul style="list-style-type: none"> Improve job opportunities, road access, education, health, vocational skill development, and electricity. 	<ul style="list-style-type: none"> Improve the standard of living of local people including but not limited to transportation, education (high school level), employment, electricity, and health facilities. Negative impacts and risks should be mitigated.
Comments/Suggestions	Comments/Suggestions
<ul style="list-style-type: none"> Travel and tourism projects are preferred. Community members are aware of the ESIA process and steps and are looking forward to understanding the impacts associated with the OSB project. Environmental laws and Free Prior Informed Consent specific to ethnic and indigenous people should be explained to community members. 	<ul style="list-style-type: none"> Fresh water is available in most places on the island. Road access is difficult during the rainy season. The company should integrate a human rights impact assessment within the ESIA. Additional information on the OSB project should be provided during the next engagement.

“

A good neighbor is considerate, notices who and what is around you, takes the time to talk and reach out to connect. Most importantly, good neighbors are respectful and help each other.”

There are not many companies that are comfortable or confident to conduct consultation on their own let alone before the commencement of an ESIA. The consultation with Nga Yoke Kaung was challenging yet rewarding primarily because two community based volunteers traveled from Magwe to the coast for the first time.

These volunteers were able to stand up in front of strangers in a territory they were unfamiliar with and provided their opinions on MPRL E&P including the many challenges and successes they've had working alongside the company as representatives of their community.

Focusing on similarities showed that we intend to be good neighbors because we were considerate, took the time to connect, and respected the community's opinions and environment. ■

Representatives Attended the Myanmar National Consultation on Regional Guidelines on EIA

Wit Hmone Tin Latt

The Myanmar National Consultation on the draft Regional Guidelines on Public Participation in Environmental Impact Assessment (EIA) was held at the Rose Garden Hotel, Yangon, Myanmar on 14 October 2016. From MPRL E&P, Ms. Anastacia Howe, Head of CSR and Communications and Daw Wit Hmone Tin Latt, Senior Communications Officer participated at this public consultation event which was jointly organized by Pact and the USAID-Mekong Partnership for the Environment (MPE), in the role as Secretariat for the Regional Technical Working Group (RTWG) on EIA, and in collaboration with the Environmental Conservation Department of MONREC.

The purpose of this consultation was to receive feedback from stake-



holders who are involved in the process of EIA in Myanmar and also to look for opinions on how these national guidelines should be written, how they are likely to be useful in Myanmar, and most importantly how they should be improved.

Formed in August 2015, the RTWG on EIA provides a model multi-

stakeholder platform for regional collaboration to strengthen the policy and practice of EIA and to enhance cooperation for inclusive and sustainable development of the region. The RTWG on EIA is comprised of a diverse group of 25 non-government/civil society and government representatives from 10 Ministries representing Cambo-

dia, Lao PDR, Myanmar, Thailand, and Vietnam, supported by national technical advisors and other international technical experts.

These regional EIA guidelines have been collaboratively developed in response to the shared concern for how to increase meaningful public participation in development planning, in the context of increasing investment projects across the Mekong region. Their purpose is to provide practical guidance for implementing meaningful public participation as part of the EIA process. The guidelines are intended to provide a regional "good practice" approach to public participation and are meant to complement national laws and policies where they already exist with additional "how to" detail. ■

What Is A Mature Oil Field? How Mature Is The Mann Field?

Dr. Elói Dolivo

Introduction

An oil field is somewhat like a living animal. An animal is born; an oil field is discovered by exploration. An animal learns about the tricks and traps of life, an oil field is appraised to assess its limits. An animal builds up to maturity; an oil field produces from its own energy. An animal matures; an oil field runs out of natural pressure and needs pumps to survive. An animal becomes old and frail; an oil field becomes damaged. Surely alas, we can't reproduce oil fields the same way animals ensure their offspring. But we do care for oil fields like we care for animals: we measure their pressure, we take samples of the reservoirs rocks to study how oil and water flow through these reservoirs, we find ways to slow down their decline, and extract the best of their potential.

Most companies define an oil field as being mature once it has produced more than half of its producible oil. Before we consider the maturity of an oil field, let's remember its main elements.

What is an oil field made of?

An oil field is an accumulation of oil filling the pores of a reservoir rock, in many cases consolidated sands, which we call sandstones. You can see the same kind of rocks, loose at the Chaung Thar beach for instance.

Because gas and oil are lighter than water, they migrate upwards until they are trapped below an impermeable cap rock. When trapped, the gas will occupy the top of the trap forming a gas cap, overlying the oil leg. The oil leg rests over a water aquifer. Let's take our hand lens to have a closer look at the reservoir rock. You may notice two phenomena:

- connected holes between the sand grains, the pores, which contain oil and water and
- water coating the sand grains.

Pores: Between the sand grains are holes, the pores, that are filled with fluids, gas in the gas cap, oil in the oil leg and water in the water aquifer. We measure the volume of these pores by comparing them to the whole rock as a percentage, which is called the porosity. The greater the porosity, the more oil the reservoir rock will contain. However this is not enough to make an oil field, this oil needs to be able to flow, and the pores must be connected: the rock must be permeable. This property of the reservoir rock to let fluid flow is the permeability. Now that we are familiar with the various elements of an oil field, how do they interact?

Water coating of the sand grains: The sand grains are coated with water, we call this kind of reservoir "water-wet". Some reservoirs can be "oil-wet", whereby the oil is adhering to the sand grains rather than the water. This coating of grains might even change from water-wet to oil-wet and back depending on changes in the chemistries of the water and/or the oil. An example of this kind of change occurs when you remove the grease of your frying pan with detergent to clean it. The coating fluid cannot be produced, as it is glued to grains by capillary forces. You can see capillary forces in action if you have a look at the water in your cup of tea as the liquid "climbs" along the cup, or if you leave white flowers over a day or two in a glass of tainted water.



Fig 2: Capillary forces in action

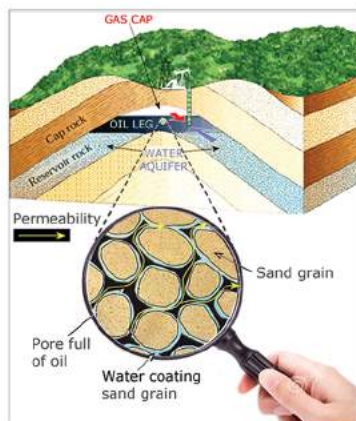


Fig 1: The main elements of a simplified oil field

How does the life of an oil field evolve?

An oil field can be compared to a can of your favourite fizzy drink. When you buy your can and open it, you have to control the opening so that the gas does not expel all the liquids out of the can: the gas is exerting pressure. You may start drinking your can without sucking, just by letting the gas push the fluid in your mouth. Pretty much the same happens in the early life of an oil field: when a well is opened for production, the gas cap will expand downwards, as an acting force, (the red arrow of fig. 1) and push the oil up the well. The water aquifer is also usually pressurized and will push the oil upwards, as a reacting force, (the blue arrow of fig. 1)

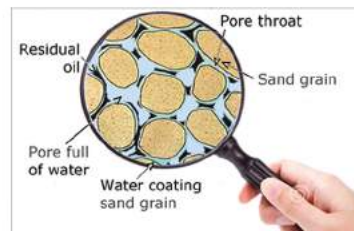


Fig. 3: A simplified microscopic view of an oil depleted reservoir rock

As time passes and the gas fizzes away in your can, you have to suck it with a straw, the pressure has gone down. We do just the same and install pumps for sucking the oil. Ultimately the pressure will decrease to the point whereby pumping the field will result in no production: the field is depleted.

If you take your hand lens again to look at this depleted oil field, this is what you might see as Mother Nature hates emptiness. Water from the aquifer has replaced some of the oil, but indeed there remains oil, and often quite a lot of oil. In fact, we usually manage to produce by natural depletion, i.e. by just pumping until no pressure is left, about 1/3 of the oil, the rest remains in the reservoir, especially in the corridors between the pores, which we call pore throats. This is because oil is more viscous than water. The viscosity is the force which prevents a liquid from flowing: think of water and honey for instance, it will take much less time to fill your jug with water than with honey, the honey is more viscous than the water, and so is the oil, especially if it is waxy: oil is more viscous with water.

Producing oil inevitably damages the reservoir rock. Examples of reservoir damage including:

- pumping too hard may encourage the water to cone up and leave oil behind, the oil becomes by-passed; this also happens if the pressure of the aquifer is strong and the producer well perforated too close to the water, the water will hurry up and also by-pass the more viscous oil;
- the flow of oil may drag along particles of clays that plug the pore throats, especially near the well bore where the liquid flows faster towards the well;
- as the oil field matures, the pressure of the reservoir drops, inducing physical reactions that may change naturally water-wet reservoirs to become oil-wet, as well as chemical reactions that plug the pore throats, such as crystallisation of salts like scale in your tap water, such as wax (that we call paraffin or asphaltenes) deposition, all of which plug the pore throats;
- in some cases, the sand of the reservoir rock becomes somewhat loose, and does not resist the flow of oil: sand is produced along with the oil and damages the pumps, ending up plugging the well.

How do we extend the life of an oil field?

The previous section now gives you some clues on how we could produce more oil:

1. we can slow down the pressure decline,
2. we can decrease the viscosity of the oil so that it flows better,
3. we can also change the chemistry of the oil and water if the reservoir becomes oil-wet to detach more oil from the sand grains and change the capillary forces,
4. we can open new roads between the pores to enlarge the pore throats towards the producing well bore.

(1) Slow down pressure decline: to slow down the pressure is simply a matter of replacing the oil we produce by another fluid, in most cases, reinjecting the produced water in the water aquifer, after having filtered it so that it does not plug the pore throats and prevent the flow of liquids. In rarer cases, the gas is reinjected in the gas cap so that it can push down the oil at the same time as the water pushes it up. But gas is nowadays a valuable resource, and it all comes to the wisest use of resources and money. Most operators plan such reinjections very early in the production of the field.

(2) Decrease viscosity: oil is actually a complex mixture of chemicals, which include waxes, the main chemical that prevents the oil from flowing, i.e. renders the oil viscous. There are several ways to decrease the viscosity of the oil, such as by heating it, your honey flows much faster when warmed, however this consumes energy. We prefer to use paraffin-dispersants that break up the heavy wax molecules, and mix up with the oil.

(3) Change the chemistry of the oil and water in oil-wet reservoir: another way to strip more oil is to change the chemistry of the water in the reservoir so that oil-wet reservoir becomes water-wet: oil detaches from the grains, to literally wash the oil from the sand grains, just like some washing powders using enzymes to remove greasy stains on clothes (see fig. 4).

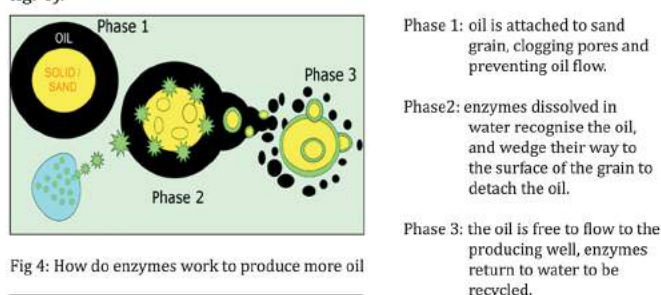


Fig 4: How do enzymes work to produce more oil

(4) Open new roads: just like creating new roads may ease traffic congestion, we can create new roads for the oil to flow; this is done by fracturing the reservoir rocks with explosives creating fissures that reach beyond the damaged reservoir rock around the producing well bore.

Phase 1: A truck injects water into target zone until fractures open;

Phase 2: a second truck inject beads of glass or special sand in the fractures so that they remain open to produce oil or gas

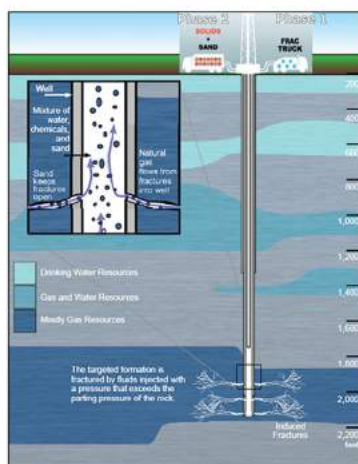


Fig 5: A schematic view of fracturing

All above may be separately or simultaneously applied. As always, money and business environment call the shots. Engineers, economists and accountants have to make difficult decisions to make together to check how much each of the above solutions costs, and compare with how much each of those solutions brings in terms of more oil, therefore more money. All of these decisions are to be taken in an economic world where the price of oil halves or doubles in a matter of a couple of months, while each of the solutions may take more than one or two years to show benefits. Isn't it a bit like as if you plan to buy a car or a house, but your salary halves or doubles hap-hazardously within a couple of months? Quite a bit dicey, huh!

Do oil fields have second lives?

Surely quite a few fields have potential second lives, usually under the form of deeper reservoirs, which contain lighter oil and/or gas, as the deeper you drill, the hotter the underground becomes. The challenge is that the reservoir being buried under a greater thickness of rocks becomes also tighter, and may need fracturing for instance.

Some old oil fields may become source of hot water for geothermal projects, an increasingly popular source of energy that use the same techniques as the petroleum industry. Some other oil fields become disposal facilities for industrial waste waters.

And what about Mann now?

At its present stage, Mann has produced about more than 90% of its estimated potential. It is an over-mature oilfield, producing more water than oil, and flowing only about 5% of what it was producing in its heydays in the late 1970's.

The Mann oil field is rather more complex than the above simple oil field; simply because of instead having just one oil reservoir, Mann has up to 22 stacked reservoirs on top of each other, depending on where you stand in the field. Each of these reservoirs has their own characteristics, more or less thick sands, with more or less water having encroached in the oil leg and various pressure regimes. It is somewhat the same challenge as eating a 22-storey hamburger, and all at once in one bite please, rather than the standard manageable single meat sandwich.

MPRL E&P is applying or has applied all above-mentioned strategies to optimize the production depending on money at hands from wildly varying oil prices depending on the times, and while production slowly but inexorably declines.

(1) Slow down pressure decline: this method is the most expensive and sophisticated, and provides the best results when applied early and when the geometry of the field is well understood. MOGE applied local injections of water from the mid-1980's to the mid-1990's, most of the time inconclusively. It appears that the injected water very often escaped through faults to unintended sands, rather than pushing the oil up the target.



Fig 6: Filtration of formation water in Mann field before dumping into thirsty wells

More recently, MPRL E&P has engaged in a program to dump filtered produced water as well as industrial waters from cleaning its storage installations into "thirsty" wells; these wells do not produce any more oil, and pressure is so low, that they naturally "drink" this waste water in their under-pressured reservoirs, a bit like a dried sponge. This is killing two birds with one stone as these slightly salty and dirty waters do not pollute the environment anymore, as well as may contribute to recharge some of these reservoirs. This latter effect may take a few years to show up though.

The unfiltered water arrives from the left to the two filtration units in the foreground. A device is placed between the two filtration units to check for the transparency of the water, a good measure of the efficiency of filtration. The filtered water is then stored in the tank in the background before piping to the thirsty wells.

(2) Altering oil-wet sandstone reservoirs and decrease viscosity: Some time in 2009, the idea came to try enzymes to "digest" the wax that is one of the main components of the oil of the Mann field. The result doubled the production of some of the wells of the pilot project. But one failure, later proven to be of mechanical nature, temporarily suspended the project until it was resumed some six months ago with the remaining chemicals before they reach end-of-shelf life.



Fig 7: The first Greenzyme treatment administered to the M-395 in December 2009

Some wells are also equipped with drips of chemical products to break up the paraffin deposits forming within the borehole and increase oil flow, while decreasing the need for maintenance of the wells.

(3) Open new roads: In June 2014, MPRL E&P building on previous experiences by MOGE in the mid-1990's embarked on mini-fracturing jobs on selected twenty wells. Most of these wells saw their production increase significantly, and even more interesting have hardly declined in production ever since. The present price of oil however means that these rather expensive operations are not economical for now.

(4) A second life for Mann field?

In June 2011, MPRL E&P engaged in its most challenging onshore well ever; a deep exploration wildcat below the Mann field to look for deep light oil or gas. This strategic move was prompted by a well completed in October 2009, Mann-665, which flowed – and still flows at the same rate – a very light oil poor in wax, that could not come from the known reservoirs of Mann. MPRL E&P was also encouraged by the Minbu mud volcanoes South of the Mann field, which continuously vent gas, which is theorized to come from deep underneath the known oil.

Asia Drilling's brand new AD-2 rig spudded wildcat Mann Deep East-1 in August 2011, and encountered unexpectedly high overpressures while nearing its target. The drilling mud needed to be raised to a density of 2.5, probably a record in SE Asia. Engineers managed to keep this extremely heavy fluid – two and a half times the density of water – flowing and functional, but even such high mud weight was not enough to prevent the drill string to become stuck by exceedingly strong tectonic forces in four occasions.

Nevertheless, MPRL E&P proved that a deep petroleum system does exist at depth, and could even be drilled more to the North, where tectonic forces appear more lenient. Side-tracking the deepest well in the field, Mann-636, which was stopped just a thousand feet above the same wet-gas bearing formation in Mann Deep East-1, may promise to be the rebirth of Mann. The price of oil and level of production are however not enough for now to warrant the economics of the project. ■



Fig. 8: Mini-fracturation on Mann field (June 2014)

If this paper has not quenched your thirst of knowing what is a mature oil field, why not try visiting Production and Planning Manager Sayar U Thu Nyo, surely the most competent person in the company to tell you more stories and give you more information on the adventure of squeezing more out of Mann oil field?

May the fun go on, folks, and congratulations for having reached the end of this paper!



Fig. 9: AD-2 rig at work on Mann Deep East-1

A Year of Turmoil – But Optimism Should Rule for 2017

CSR Asia

Rikke Netterstrom from CSR Asia shares her thoughts for 2017. We think her insights are relevant for what we should expect this year and how we should address the challenges ahead.

There is no doubt that 2016 will be remembered as a year of disruption and change. Many sad and disturbing events have dominated the news, and it can be difficult to look forward to the new year with rose-tinted glasses. But we sustainability people are eternal optimists. Without our fundamental belief that we can make a difference, we would have never chosen to spend our days tackling some of the biggest challenges of our time. We would not believe that human rights abuses in factories and fields could be prevented and remedied; we would shake our heads at the idea that deforestation is not an unstoppable force; and we would not travel the world seeking to convince board rooms that corruption is not the only way to do business.

Thankfully, 2016 was indeed a year of much accomplishment. Where much of the political sphere seemed dire, partnerships between civil society and business once again proved that change can be made through dialogue, commitment and a bit of bravery.

A hot year – but cooling down?

While no one believes we have halted climate change, 2016 brought some good news: Even as climatologists announced that 2016 was projected to be among the warmest in history, research from the Global Carbon Project showed almost no increase in annual emissions of carbon

dioxide between 2014 and 2016. Around same time, the secretariat of the United Nations Framework Convention on Climate Change confirmed that enough countries had ratified the Paris Agreement to satisfy the criteria required to trigger it coming into force on 4 November, far earlier than expected. Corporate players also contributed to the good news when the International Civil Aviation Organisation announced new measures to limit carbon dioxide emissions from international flights, which are not covered by the Paris Agreement. This set the scene for a successful COP22 in Marrakech, where drama was notably absent, but results were much stronger than many previous summits.

Will 2017 be a year of further strides towards concerted global action? There certainly seem to be momentum, with China backing international action and investing heavily in renewables. On the other hand, the incoming US President has caused concerns that climate change scepticism will be given centre stage.

A first step to save our forests?

The battle to save our forests also made headway: 2016 brought about a historical no-deforestation consensus amongst major green groups and a number of much-derided industries historically involved in land clearing. In November, the biggest players in the palm oil industry and pulp and paper signed on to a new version of the High Carbon Stock Approach, which now forms a blueprint for preventing deforestation. The Approach tackles the difficulties of defining forests, and takes into account the customary and indigenous rights often associated with forested areas. While still mainly applicable for moist tropical forest it is still a massive step towards a paradigm where civil society and business can work together to save some of the world's most valuable ecosystems and wildlife.

Much left to do, but transparency will help

Having spent 20+ years in the sustainability sphere, I do occasionally succumb to doubt. Can we really make a difference? There really are many mountains to climb, and each week we uncover new tragedies affecting communities, nature and workers around the world. In the human rights space, the news were less positive: As the year was ending, Amnesty International released a report pointing to widespread use of child labour and bonded labour in the palm oil industry, including in operations certified by the Roundtable on Sustainable Palm Oil. But while it is disappointing to unearth such practices within an industry that is deeply

engaged in the sustainability agenda, the response from the industry has been proactive and constructive. One of the largest player, Singapore-listed Wilmar International said that they 'welcome this report, as it helps highlight labour issues within the wider palm oil industry and in Indonesia specifically'. I am hopeful that bringing these cases to light will indeed mark the first step of change.

2017 is likely to bring more harrowing revelations, and there are going to be setbacks and scandals. But to the sustainability optimist, scandals and exposures is a first step to prevention and remedy. The big challenges of climate change, deforestation and human rights abuses will not disappear, but 2016 showed that despite political turmoil globally, businesses and civil society can still take steps to move forward. ■

“
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Maung Thaw Zin Win
(MPRL E&P Pte Ltd.)

Ma Khaing Thazin
(The University of East Yangon)

Congratulations!

Life is full of new beginnings
and as you make one
together,
we wish you have
all the happiness and
luck that you can
dream of.



Maung Thet Ko Ko Htwe
(Myint & Associates Co., Ltd.)

Ma Kyi Kyi Soe
(SHS-6, Hlaingthaya)

Congratulations!

Wishing you a lifetime
of happiness together
and a love that
grows stronger with
each passing day.



Visiting Mann Field for the Very First Time

Ye Linn Naing



One's destination is never a place,
but always a new way of seeing things.

Henry Miller



in the backdrop captured my attention. It made me feel excited to visit a new place and see new faces. This was my first field trip during my three-year-tenure at MPRL E&P. As excited as I was I couldn't stop thinking about what we would do in the field.

The first morning at work was filled with excitement for me. The quiet dawn, the local people going to their plantations, the lively Mann Kyo Bridge were all pleasant sights. With the commencement of usual daily activities of local communities, our documentary filming started.

We were able to film a range of daily life in the field, including the CSR team, community volunteers, senior field engineers and technicians, and HSE. We were also able to take many pictures of Mann field teams and operations activities.

Actually Minbu in Magwe Region was my imaginary town with plenty of toddy palm trees in central Myanmar. I visited there often – in my imagination of course, but I never had a chance to go there physically. Mann field which is inseparable with Minbu is an oil field with which I was familiar through books and images. But things happened in such a way that it became possible for me to visit!

During November and December last year, I visited Mann field along with the CSR team to document field activities for about ten days. On the way to Minbu the rare views of green trees, golden fields and cloudy mountains



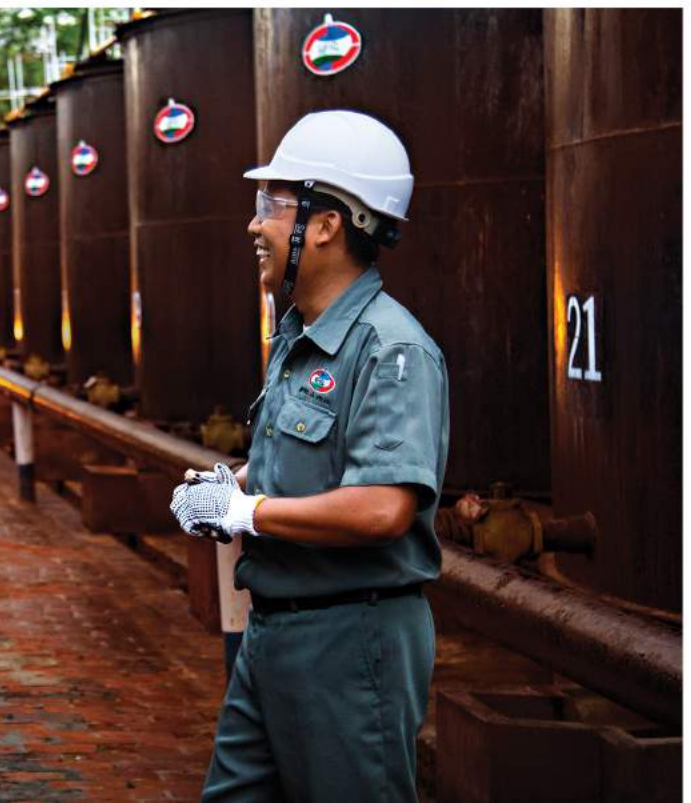


Green fields, natural scenery, friendly smiles of the locals, pagodas and religious buildings which provided shelter from the heat were all symbolic spectacles of the town. In addition, the sight of a herder and his herd would remain in my mind for a while. During my stay in the field, I was able to learn some of the oil exploration and production activities taking place in Mann field as well as the community investment activities being carried out for the local community. I have understood how the tripartite relation between MPRL E&P, MOGE and local community helped shape successful investments for community health, education and socio-economic development.

My main responsibility is producing necessary designs for the Group of Companies. As I studied a video editing course in 2014 following my own interest, I was glad I was able to apply it in my work finally. I felt thankful to all the people who believed in me to perform this task, who helped me in completing the process. I would also never forget all the vistas, people and the bustle of the town.



Unlike coming to the office before 8:30, my mornings in the field started differently. I woke up at 5 and had to have breakfast at 5:30, which was first a strange routine for me but I got used to it quickly as it helped me capture the fresh and active faces of Mann field team members ready for another day at work. They also talked to me in a friendly way and provided advice related to finding good locations for filming.





**2016
Myanmar
Inter-School
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