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INDONESIA JAVA SECTION

JANUARY - MARCH 2017



**An Exclusive Interview with
Arcandra Tahar
Energy and Mineral Resources Deputy Minister**

ADVERTISEMENT

Dear SPE Members;

SPE Java Section Newsletter is issued quarterly; they are printed 1,500 copies per issue, circulated among members, industry leaders, stakeholders (staff and manager), and students.

In order to improve the content of our Newsletter, we urge you to send us an article worth sharing to update and enrich our reader (at no cost to you), with application of certain technology, and/or CSR activity which made an impact on our industry.

We would also like to invite your Company to place an Advertorial, which serves as a showcase, at the same time to cover the cost of printing the Newsletter accordingly to the following fee structure with effect July 2012:

Printing Charges in USD		
Old Rate	No. of Issue	New Rate
385 Full page	1	400/issue
	2	375/issue = 750
	3	350/issue = 1,050
	4	325/issue = 1,300
	5	300/issue = 1,500
	6	275/issue = 1,650

Printing Charges in USD		
Old Rate	No. of Issue	New Rate
220 Half-a-page	1	250/issue
	2	235/issue = 470
	3	210/issue = 630
	4	200/issue = 800
	5	190/issue = 950
	6	180/issue = 1,080

Note:

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A WORD FROM THE CHAIRMAN

Dear Members and Readers,

First of all I would like to use this opportunity to thank Mr. Hasbi Lubis, previous chairman of the SPE Java Section, for his excellent leadership, enthusiasm, energy and all the time he invested to drive our section over the last one and half years. Also the overall team and the student chapters did a great job. Thanks to all of you!

The industry downturn that we are facing today has created a new equilibrium that is often being discussed by students and young professionals more frequently than by their more senior colleagues, who probably are betting for a quick turnaround soon to close their careers. Students and recent graduates need to be reassured about their study and career choice for the next 30-40 years. They can no longer "trust" this once lucrative industry with the same approach as earlier generations. In many of our articles and interviews with industry leaders, we encourage students and young professionals to broaden their skills and knowledge base, from petroleum to the wider scope of energy. We believe that an up cycle will come to our industry, and so the future is still bright.

In this edition, we interview Pak Arcandra Tahar (Deputy Minister for Energy and Mineral Resources) who lists the government's top priorities for the industry, and shares the story behind Gross-Split. We also interview five other prominent leaders who shared their stories, experiences and

ideas that might help our readers to develop their knowledge of the oil and gas industry.

We also feature our 2016-2017 SPE President, Mrs. Janeen Judah, who paid a courtesy visit to SKKMigas and Pertamina Corporate during her trip to Indonesia. She always conveyed her thanks and gratitude's to all parties in Indonesia, including the universities for their continuing support. She updated the SPE International mission and information on the next APOGCE event in October 2017. She also visited the UI Campus in Depok and ITB Campus in Bandung.

“We encourage students and young professionals to broaden their skills and knowledge base”

In April, we held our ever-popular and always-full SPE Golf Tournament. Thanks to Brad Sincock, Bob Shearer and their team for their flawless planning and execution of this valuable event to raise funds for our SPE student activities and

Scholarship Program. A full report will follow in a future edition of our magazine.

I would like to extend our appreciations to all dedicated volunteers and members for giving their valuable time and thoughts to make the Java Section bigger and better.

Warmest Regards,
Amin Hartoni
Chairman 2016-2017





SPE JAVA MEMBERSHIP INFORMATION FOR FIRST QUARTER 2017



Dear SPE Java Members,

Please see on the next page showing the SPE Java Membership Database information as per end of First Quarter 2017. Our year to date figures show our Professionals Members at 409 and Student Members at 2,752.

As part of SPE Java Indonesia you are a vital part of an active, global network, with 164,936 total members in 143 countries. In Asia Pacific Professional Membership comprises 15% and Student Membership 28%. Your SPE membership offers a growing list of professional development resources, from technical publications, training courses, and workshops, to conferences, forums and online communities – all available at www.spe.org

We still have a large portion of our members who are lapsed, i.e. not renewed their SPE membership to date. We know that times are hard in the Oil and Gas Industry. We look forward to business improving. As an incentive to renew, please be advised that SPE has an option of e-MEMBERSHIP (only available for Country in

Category 2 which INDONESIA is). This is USD10 per year and includes everything exactly the same for your SPE membership, except only ONLINE JPT, instead of the usual HARDCOPY JPT by mail. This offer is limited globally. If you haven't renewed your membership as yet, please consider this option when renewing. If you still want the usual SPE membership it is USD 50 per year in INDONESIA and includes hardcopy of JPT in the mail.

Renewal is easy and can be done from the main SPE site, [spe.org](http://www.spe.org). You can pay by your credit card.

Please follow the link as below for renewal,
<http://www.spe.org/join/renew>

Best regards,

Steven Broadmeadow

Cessy Bellafania

“
e-MEMBERSHIP
USD 10 per year
includes everything the same
except only ONLINE JPT
”



Java Indonesia Section

Section # 073

Regional Director:

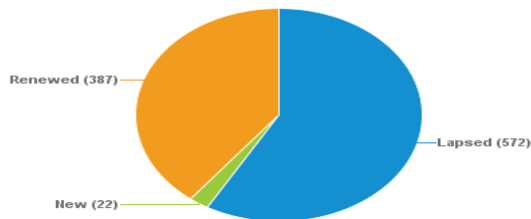
Report as of 29 March 2017

Charts do not include affiliate members.

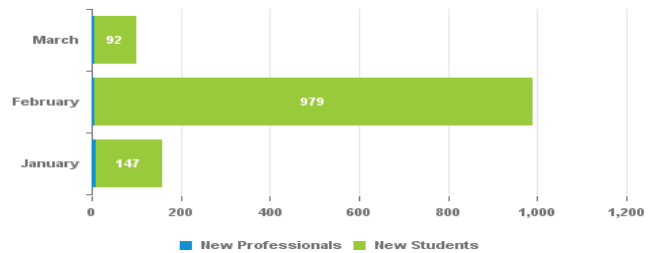
Year to Date: Members: 409 Affiliate Members: 10 Retention: 54.40% Growth: -40.20%
Previous Year End: Members: 684 Affiliate Members: 21 Retention: 71.60% Growth: -5.00%

185 Professional Members needed to reach 81% retention goal
 296 Professional Members needed to reach 3% retention goal

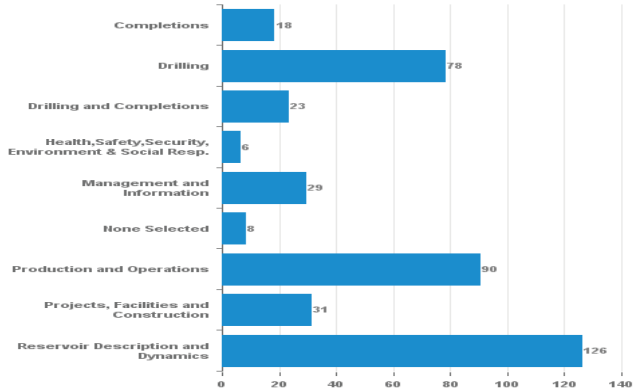
Professional Membership



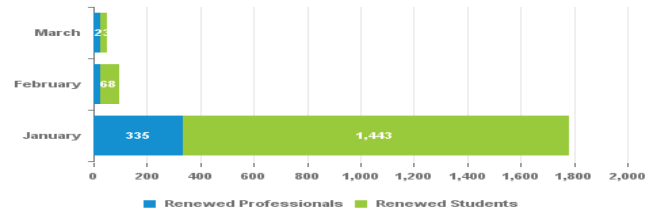
New Members by Month



Current Professional Members by Technical Discipline

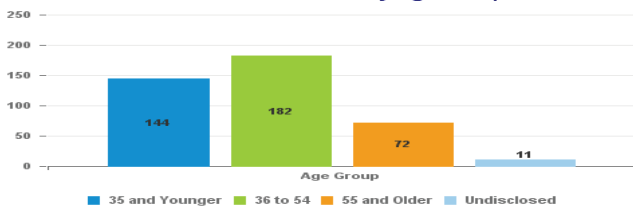


Renewed Members by Month



Membership by Employer (Only 12 Shown)	Members	Percent of Total
Undisclosed	101	24.69 %
Schlumberger	14	3.42 %
PT Pertamina Hulu Energi ONWJ	11	2.69 %
Bandung Inst. of Tech.	11	2.69 %
PT Pertamina EP	9	2.20 %
PT Pipa Mas Putih	7	1.71 %
SKK Migas	6	1.47 %
VICO Indonesia	6	1.47 %
PERTAMINA	6	1.47 %
Pertamina Hulu Energi WMO	6	1.47 %
Chevron Indonesia Co	6	1.47 %
ConocoPhillips Indonesia Inc.	5	1.22 %

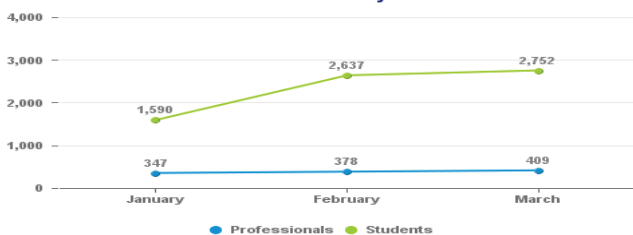
Professional Members by Age Group



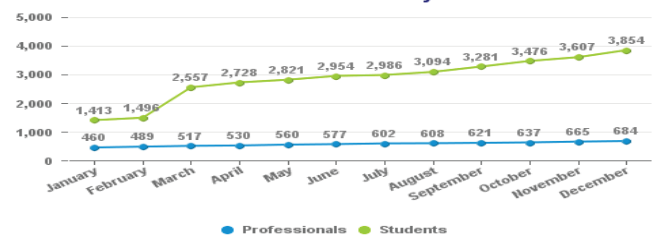
Recent Graduates*	
Membership Status	Count
Current	37
Lapsed	255

*Recent Graduates are professional members who graduated within the last year.

Current Members by Month

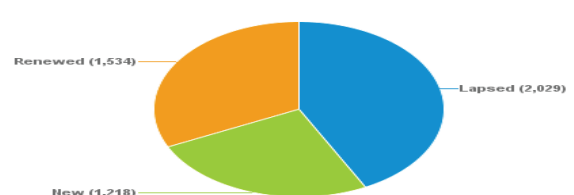


Previous Year Members by Month

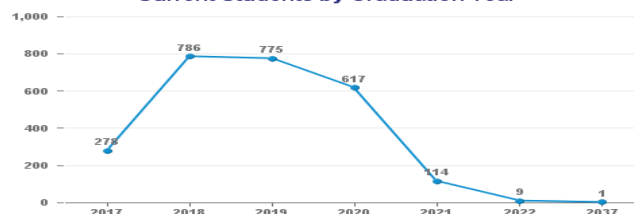


Student Chapters	Total Current Members	New	Renewed	Lapsed
Bandung Institute of Technology	732	178	554	395
Gadjah Mada University	108	9	99	32
Institut Teknologi Sepuluh Nopember (ITS)	41	0	41	58
Padjadjaran University	76	1	75	107
Trisakti University	205	3	202	204
Universitas Diponegoro	194	82	112	65
Universitas Indonesia	628	429	199	233
UPN "Veteran" Yogyakarta	598	488	110	842
*Students Without a Student Chapter	170	28	142	93
TOTAL	2752	1218	1534	2029

Student Membership



Current Students by Graduation Year

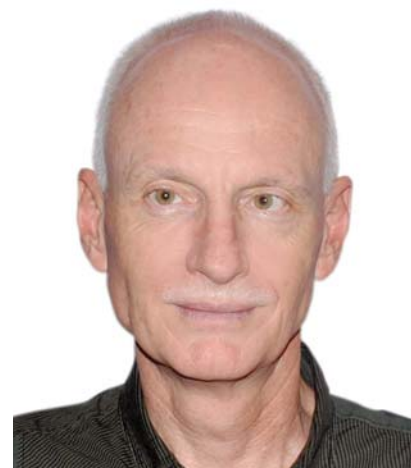


Total count may be less than total number of students if a student has not provided an expected graduation date.

ACCOUNTABILITY IN THE AGE OF THE DIGITAL OILFIELD

– ROBERT MATHES –

PARTNER AND SENIOR CONSULTANT – RM & EC CONSULTING, C. A.



In recent days, I came across a discussion in the Online HSE Forum in the SPE, where the Human Factors surrounding Decision Making and the Organizational Structure in modern day Oilfield Operations was the main topic.

The discussion centered on the seemingly unsurmountable divide between Front Line Operations – aka “The Field” – and the “Office” or like the author called it, “The Support Back Office”.

Historically, in the Oilfield there has always existed a certain level of disdain on the side of the “Field Personnel”

towards the office Folks, essentially because the office people are perceived to rarely if ever show up to do real work at the Field Site and are generally regarded to be living in an “Imaginary World” devoid of contact with reality or the “Real World” of the Field sites.

Immediately the issue

of Accountability comes up, as whenever there is trouble in the Field, the Office blames the Field and the Field Blames the Office, in essence, nothing to be surprised about, people will always push Blame away from themselves and on to some other individual.

What I find surprising is that these old prejudices from the times when I started out working in the oilfield, some almost 40 years ago still persist well into the 21st Century, in the middle of the Digital Age.

“

**... was no difference
between
Field Personnel and
Office Based Personnel
because
they all worked
side by side,
sharing the load,
the responsibility
and all having a shared
sense of Accountability**

”

This is a complex problem that has a lot to do with the quality and the culture of the Executive Leadership within the companies. This is not just a problem in Oil & Gas Companies, big and small, but also prevalent in Service Companies as well as Drilling Contractors; not to mention many other industries.

We all have been told that the Digital Age, with its Fast Connectivity, Internet, and Mobile Communications would

help alleviate the pains of effective communication and sharing of critical information. Yes, we all enjoy the benefits of all these wonderful technological tools, but somehow, the deep divide between the Office and the Field survives today.

So we can't argue that our ability to communicate and work seamlessly as Teams is not dependent on the quality of our technological tools (or toys, depending on whose perspective we may embrace) but is a direct consequence of the Organizational Cultural Bias that companies are subject to.

40 years ago it was accepted as conventional wisdom that engineers were worthless working in the field, and I had to work really hard to demonstrate that in spite of being a lowly engineer, I was capable of doing the same work as any seasoned hand in the field. This meant not being afraid of doing hard and heavy manual tasks, getting really dirty, working long hours and keeping even longer duty shifts, only to gain some respect from field people and later being able to show there are better and smarter ways to get the job done.

Today, the general perception is that the industry can't afford to send green engineers to do the manual and physical tasks required of the Field Work (yes, in spite of all that automation, there is still a considerable amount of physical work to be done in our Industry), because of the fear of the consequences resulting from a possible injury sustained by any of these youngsters while they do get that experience. So, today, the industry avoids at all costs having young professionals get the experience and flavor of the profession that can only be obtained by sharing in these heavy and hard manual tasks.

The other outcome is, that the young Engineers and other graduates from oilfield related professions are robbed of the invaluable opportunity to learn from their Field Peers and to forge relationships and develop empathy so necessary for the time when they become Leaders and Managers.

What the industry does is perpetuating over and over these prejudices and contributing to the lack of understanding of each other's roles. When this is combined with the traditional Silo Organization, where the organization is compartmentalized with each discipline just doing their part and not collaborating

and understanding what the other does, this is where Accountability falls through the gaps.

The prevailing organizational culture has "The Support Back Office" taking all the decisions that the field then has to live with and try to translate into practical reality, but the ultimate accountability being split almost equally between the Field Supervisor and the Drilling Operations manager in town, with all the rest of the links in the chain having little if any responsibility and even less accountability for the outcomes of their work and decisions.

The people discussing this dilemma in the HSE Forum, rightly so classified this problem as one of Behavior or a so called Human Factor and they pointed out the need of fixing it. Now, the issue of how to go about fixing this problem has many elements, but it boils down to what kind of Management Style an organization will embrace.

Let me cite an example of what I witnessed during my formative years:

Some 2 decades ago, I was working as part of a team doing well construction work in Germany, here the Field guys and the Office folks worked as a seamless TEAM, everyone respecting and valuing each other's work. So how did this happen? It was really simple: every critical task that had to be carried out in the Field was first meticulously studied and planned in the office, where the Drilling Superintendent was an engineer who had spent some 10 years in the field before moving to the office and who never forgot how to translate brilliant engineering ideas into practical reality.

The other thing that happened was that the Office Folks would go out to the Field site, before the critical task was to be carried out, so that both Office and Field personnel worked side by side at the Field Location to prepare and execute that particular task until it was completed with a satisfactory outcome.

The fundamental fact was that there was no difference between Field Personnel and Office Based Personnel because they all worked side by side, sharing the load, the responsibility and all having a shared sense of Accountability.

So it can be done, the animosity can be overcome. All that is needed is that level of extra commitment by management to

foster such level of cooperation.

Now, people will say that Germany has a strong culture of discipline and hard work, and that conditions in the field are ideal as are the levels of comfort available to all, thus rendering the effort so much easier.

Then there are others who will argue the eternal battle of limitations to the number of people that can be accommodated in an Offshore Field Site plus the Safety Requirements imposed on visitors as being almost unsurmountable limitations to achieve such Team Work.

But in my little tale, we were only four Office folk going to the work sites in Germany, not entire platoons of engineers and supervisors from town. The key was that the person in town that was accountable for the project would always be part of that delegation of four people.

We had e-mail and internet in those days already, as well as mobile phone communications, so information exchanges were just as easy then as they are today.

What we need to overcome is our reluctance to taking that one extra step in commitment, to make sure the Field people are not left high and dry by Office based colleagues who would rather spend the night in their comfortable bed at home instead of out at the Field site where they may have to spend a sleepless night in the rain or in the cold, or sweating while doing what is an essential component of their jobs: helping the people in the field put into practice their plans and solve the problems arising from the design facing the limitations of reality.

This can only happen when all parties are held accountable to the outcome of their decisions, as well as benefiting from the positive outcome of a job well done.

A portrait of Arcandra Tahar, a man with a receding hairline, wearing a white button-down shirt. He is looking slightly to the left of the camera with a neutral expression. The background is a plain, light-colored wall.

COVER STORY

AN EXCLUSIVE INTERVIEW WITH

ARCANDRA TAHAR

ENERGY AND MINERAL RESOURCES DEPUTY MINISTER

Arcandra Tahar was born in 1970. He completed his undergraduate degree of Mechanical Engineering at Institut Teknologi Bandung. After a short stint at Andersen Consulting, he continued his Master, and then Doctoral degree on Ocean Engineering, at Texas A&M University. He has a very interesting career, mostly in US, as both researcher/advisor and entrepreneur, from Technical Advisor of Noble Denton, Technip and Hydrodynamics Lead FloaTec, to Principal and President at AGR Deepwater Development System, Horton Wison Deepwater, and the latest as President of Petroneering before summoned back to Indonesia.

Together with Ignasius Jonan, he runs the office of Ministry of ESDM as an open public office, spending his available time hearing and meeting with various stakeholders in the industry. SPE Java is truly honoured to have this interesting session with him.

Pak Arcandra, Pak President tapped you on your shoulder. It's not an accident that he chose you. Why?

Honestly, I don't know. I feel grateful that I'm alive and have been given this mandate. I never dreamt to become what I am right now. Even seconds from now, I don't know what's going to happen. That is time: a series of events that lead us to a destination. But you never know what event leads to what destination. Even for the inauguration, I came straight from the hotel by taxi with no Rupiah in my pocket to pay my taxi. Anyhow, I'm grateful that my destiny right now is here.

On a personal level, as Muslim, there are values that we have to honour. I stick to my principles of justice and fairness. No matter what and where we are, what goodness can we contribute once a day? We have to exercise this every day, or else we will get numb. Where that will lead us? It is not your problem. Just commit with what you believe in.

Your background is an entrepreneur. Now you are a bureaucrat. How do you see Indonesian oil and gas issues from the other side?

Culture is the biggest difference. In industry, our key performance indicator is how much you deliver in one day, week, month or year.

In the bureaucracy, we focus on now - what is available and what are our needs. We have a plan, we organize it, and then we execute it.

Sounds simple, but it is not, because this plan relies on many parties over which we have no control. Take Government Regulation 79 (GR79). ESDM wanted GR79 to excite exploration and exploitation activities. But taxation took over, with their

key performance indicator to maximize tax revenue. Such a key performance indicator is logical for tax people. Whereas for us, to attract investors, we must lighten taxes in the beginning, which means less tax revenue. What should we do, then?

The private sector does not face this situation. The aim of all is to increase production. Many parties are involved in the process, and generally they are all aligned with our aim.

“
My jargon is
Justice and Fairness
for Everybody
”

The second difference relates to a dream in my past. I thought our bureaucracy was very slow, and business processes took too long. I criticized the government. Now I am inside and I have to face it and fix it. The question is how?

We know the way. Bureaucracy is a big machine, and driving this machine takes lots of energy. Our role is to reduce the energy required by cutting out nonsense (as long as it is within our control).

I want a “makes-sense” economy, so I cut out the “nonsense”.

Now we debate what makes sense. In almost every meeting, I encounter debate between 2 to 3 different interests that never find a common solution. Some of these debates have gone on for years. Yet, the solution is simple; see the process and make a decision based on a make-sense economy.

My jargon is “Justice and Fairness for Everybody”, be they SKKMIGAS or PSC contractors. I don't care. I must not take sides. Why? If I don't practice honesty

and fairness every day, then one day I will become numb to what they mean. That's why I try to be fair every day, even for the easiest cases.

One day, I said that only God knows exactly what's down there, and Bu Sri Mulyani protested. What I meant is that humans have science to pursue our interest down there. However, science is limited - we know only so much. I received a text message accusing me of harassing the professions of geophysics, petrophysics, reservoir engineering and petroleum engineering because I said we didn't know exactly what's down there. Well, I hold my remark. What is the concept to calculate reserves? P10, P50, P90. What does the P mean? My challenge to the industry is don't get numb from deserting our sense of honesty and integrity. If we are not honest now, we will be numb later.

What is your preferred approach - cut-down the number of processes or make the existing processes more efficient?

Both. For the first approach, say to drill a well we need 20 permits. I ask to make it 10 permits “Yes, we can make it 10.” Next question “Do we have 10 permits because you cut-out unnecessary processes or because you combined the processes?” If you combine permits, the business processes remain the same, and this doesn't help at all.

For the second approach, my philosophy is to minimize human interaction. In oil and gas and Minerba (mineral and coal), the moral hazard lies in licensing processes that include human interaction. I visited Minerba to see how many business processes were required. I saw the counters and chairs with waiting permit applicants. They said they would refine it. I said no, we must eliminate all the chairs and counters and go online.

Someday, we will bring all processes online. I have experience in the US with the online process to get a patent. It takes 3 to 5 years to prove that my idea is original, but at any time I know the progress of my application, what additional documents are needed, what proof I need. That's my dream for Indonesia. You submit the document and fee online with zero human interaction. Later, you know exactly what step your document has reached with just one click.

What is your priority for the next 5 years?

Until now, our priority has been writing ministerial regulations that will hopefully be useful for the future. We signed 12-15 ministerial decrees in one month. What are our key problems? Permits, overlapping land-use and unnecessary local regulations that burden investors. We are not talking about difficult issues in technology, engineering or commercial - only administration.

So, what's the solution?

We will give to local government a Participating Interest (PI) of 10%. They ask "Do we need to pay something?" No. "Do we need to pay interest?" No. They wonder why the central government is so kind. I say "If you want to be useful, you have to participate, but initially not as operator because oil and gas has tight rules. So to start, your role is to remove unnecessary local permits. If you don't, production will be delayed as will your payments.

As background, why do local governments publish unnecessary local regulations? To generate revenue because they feel that their natural wealth has been taken with no benefit for them. But now they get 10% of the project.

Second, regulations that you do need must not be onerous. Please ensure that the DPRD does not pass local regulations that burden investors. Fix things that make investors feel uncomfortable. That's the key.

A carried PI of 10% means the local government does not have to find money to buy the interest. This is an important improvement, because previously, they would pawn the interest to a third party, which is against the spirit of the PI and doesn't help anybody.

Maybe in the short term, investors will be angry to lose 10% of their projects. But in the longer term we expect to see a win-win solution. Will it work? Time will tell, but at least there's hope.

Speaking of the future, our student members often ask is there a future for them in the petroleum industry in Indonesia?

Only time can answer that. Competence is divided into 3 things, namely knowledge, skill, and experience. If you have no job, that means you lack skill and experience. However, if you are still young, you have time to increase your knowledge. Further your study by taking a S2 (magister) and S3 (doctorate). This is the time to go back to school. Second is skill. Just because Indonesia is declining in terms of exploration, it doesn't mean you have to give up. No! There's an old saying that "Dunia tidak seluas daun kelor" (The world is not as big as a moringa leaf). Go beyond Indonesia; compete with others. It is competition that makes us adult. Don't expect your job to necessarily be in Indonesia. You don't have to get the skill in Indonesia. We can get skills and knowledge from anywhere. Google is a source of all kinds of knowledge, both bad and good. But, is that enough? No. That's why (until now) we only know 1/3 of the knowledge. Go see the world. Go find skills everywhere. And work to build your experience.

Everybody knows the bicycle. If you never rode a bike before, you will fall. If you don't have skills, don't get stuck in Indonesia, go to other places in the world. There are many of them. If you are already good at riding a bike, go join the Tour de France; that's what experience is. But then, why you cannot compete with others? It means you cannot race. Should you blame the coach? Not quite. Or should you blame the Ketua RT for not giving the racing arena?

The message is go back to school. There is light at the end of the tunnel. If we continue our study abroad, there's an opportunity to interact with people that probably will lead the way to get the job. After you get enough skill and experience abroad, come back to Indonesia.

Indonesia oil and gas industry is like a restaurant now left by its customers. Those that stay are also asked to move by giving back expired PC to Pertamina. Then, there is a new menu in the restaurant called the Gross Split. How will you do to retain old customers and bring new ones?

It would be wrong to give everything back to Pertamina. Fairness and justice for everybody, remember?

For PSC's with first time continuation (10 years + 20 years), to be fair, we usually continue their contracts. For exploration you have only 10 years. Then from discovery to first oil takes on average more than 15 years. So you only have 5 years left to produce. Recovering depreciation takes 5 years and for some 10 years. I was on the business side before so I know the meaning of rate-of-return and NPV. So if their capital has not fully returned, then the government cannot (without reason) take the PSC and give it to Pertamina. This would be a nonsense economy. To make sense, we continue the contract.

It is different for PSC's that are already 50 years old (10 years + 20 years + 20 years). Mahakam is one example. You have stayed there for 50 years and depreciation of your major development capex has long been returned. Yes, later capex for maintenance and small projects is left behind, and we are considering that. Look at ONWJ, after 50 years we terminated the PSC and took it back. Fortunately, it was easy as the Operator went from Pertamina to Pertamina. Now we have termination of the Mahakam PSC. We asked Pertamina whether or not they can manage this block and guarantee increased production. If Pertamina cannot manage it, we'll give it to another company.

Second, even though we give it to Pertamina, we encourage them to cooperate with the existing partner. We wrote in the letter please cooperate with the existing partner.

Are Indonesian contracts too short? How about contract periods in other countries? Are they like us? Yes. Some, like Norway have shorter contracts than us if I'm not mistaken.

Eight more companies will soon have their contracts terminated. They harvest because there is not enough time to recover depreciation. How can we encourage investment until the last day?

We want contractors to keep investing until the second the contract expires. When there is a contractor replacement, there will be costs that have not been returned. These are legitimate costs, because they increase production or at least hold the decline rate. But we will not restore these costs by accelerated depreciation. They will



From far left: Hasbi Lubis, Bambang Istadi, Arcandra Tahar, Amin Hartoni and Peter Adam

be replaced through normal depreciation to the contractor that will take over the block. The new contractor benefits from production resulting from these costs, so to be fair, they have to reimburse these costs to the previous contractor. We are still discussing how to do it.

Everyone is talking about Gross Split. What was the rationale for Gross Split?

With Cost Recovery, the oil split is 85/15. Where does the number come from? Why is it not 86/14. Why is gas 70/30?

With Gross Split, you know exactly the answer. You have CO2? You are in a remote area? You can see yourself what split you are going to get. There is a rationale. That is the uniqueness of our Gross Split. Other countries have systems called Gross Split, but they are different - same menu, but different taste.

During our Gross Split deliberations, we invited many parties. I told the industry stakeholders and organizations as well as others, "anyone who comes here, you are the decision maker. I don't want you to go back." They said "Let's wait. I'm going to talk to my boss about whether the terms are okay or not". I said "No, I'm not going to entertain any second thoughts" I don't care if the participant is a manager, a vice president, a president or just an engineer. I am not a Deputy Minister in this meeting; when we talk technical, I am an engineer

just like you. So, let's talk. If you have a concern afterward, you missed the bus."

We debated what is a healthy rate-of-return: 15% or 30%? In oil and gas, 30% is not healthy for the government or the Contractor. Contractors who are too strong or too comfortable are not good because one virus attack and you collapse. You are not tough enough. You need toughness in this business. Sometimes you will get only 8% or 10%, and sometimes 30%. That's our business, it is all about portfolios and risk management.

Everybody was welcome to challenge the proposed Gross Split scheme before signing by the minister. That was clear. But challenge it after signing and you are late. Even the World Bank asked me what was the idea, how about the economic modeling, and how is the behavior at different scales? We invited their expert from Singapore. "When do you need to publish the Gross Split?". "Mid-January". "Oh we cannot, our economic model is not in Indonesia yet". By the third week of January they were finally here "We missed the train, didn't we?". "Yes, and that is your fault. I gave you the chance."

Now, the government has finished talking and is implementing Gross Split. Try it first. We are open for discussion if Gross Split doesn't work, but give it time.

We have registered all issues raised by

the involved parties. For issues relating to taxes, we invited the tax people, and so on. I can show you a register of questions and answers for all issues on Gross Split.

I say "if you didn't get involved, and don't know the process of how we came up with the Gross Split, please keep silent". If you want to know, then come and talk to me night or day; I know exactly what's going on.

Will all terminations and continuations be Gross Split?

For terminations and new contracts, you don't have any choice but Gross Split. However, for continuations, you can pick either Gross Split or Cost Recovery. That makes sense, because you know the data, right?

People say that Gross Split seems less attractive for exploration...

Please write this properly. What differentiates exploration in a conventional PSC and a Gross Split? There is no difference, their tax systems and incentives from fiscal terms are similar.

What can Indonesia do to attract new oil and gas investors?

New investors are continually looking at us. Like restaurant customers, they come in and ask for a menu. They are hungry.

But the menu took too long to come. So, we changed the Chef to make a quick and delicious menu.

Is it really delicious? Only time will tell. When we created Gross Split, we didn't know whether it will work or not. But we used our common sense; the United States is mainly Gross Split. Why? Because the easiest thing in oil and gas is looking at the sales meter. With Gross Split, the government looks at the meter. The contractor is free to do anything as long as it does not break the reservoir - the work program is still under SKK Migas.

And of course, our loyal customers want to stay, yet their contracts will soon be terminated. They need positive guidance.

We are thinking about this right now. We hear of the reality in the field from our contractor's complaints. How to make a revised oil and gas law close the gap? At the beginning the gap may not be 100% closed, but at least we can narrow down the gap. For revision of the law, the initiative has to be from the DPR. So we wait for that.

I believe time will prove that Gross Split, with its independent procurement system, will overcome our administrative problems, such as slow contract and permits. Why do we give procurement to the contractors? Look at the current situation. What is the fee to apply to SKK Migas? How long does it take? 6 months? 1 year? How much does it cost to go back and forth to SKK Migas, to retain an office with 20 people? Add all that into your cashflow. You want A, but SKK Migas says you need B. How can this be efficient?

Who knows the contractor's needs is the contractor himself. With Gross Split, the contractor can source any equipment, and all equipment from abroad, say from China because they are cheaper. So we added a 4% incentive for local content. Say revenue over 20 years is \$30 billion, you receive extra cash of \$1.2 billion. That is a huge number. If the price gap is \$1.2 billion, go ahead; but I'm not sure it is. This will drive local companies will give the best with the least cost.

Let's get back to to 1970's when field developments took less than 5 years.

So, this is what we call a new menu. However, the customer must have the desire. In the United States, there is a restaurant where you cook your own food. Be careful though, because your food may taste awful if you add the wrong spices. There is a freedom, but remember if you mix it wrong it may taste awful.

If SKK Migas is the old Chef, what will become of this old Chef?

We will still use SKK Migas for the Work Program. Why? Today, we have the ability to extract at most 50% of the oil down there. So we must protect the reservoir. We must not be reckless, because perhaps one day our children and grandchildren will have the technology to take the other 50%. We will maintain our reservoirs through the Work Program. That is the role of SKK; their debate is a technological debate.

For exploration, can we remove disincentives such as poor infrastructure and local permits?

Good, we are on the same page. Now, how to solve it? We have local autonomy. Can the central government control local regulations? No, we cannot. That's why we push the PI of 10%. Hopefully PI becomes a cure, a hope.

Otherwise, we need to change our constitutional system and control all regulations centrally. This is barking up the wrong tree. I'm open for all ideas, but they have to be practical.

Are people not exploring because of taxes?

Not anymore. Such things are gone now. An oil company has to start with exploration. What else can we give? What kind of incentive? Is it access to information or data? Exploration means you have to create your own data.

What about funding exploration via a petroleum fund?

No way. What will be the source of money for the petroleum fund? It cannot come from the APBN (state budget). Will somebody sincerely say "I am going to provide \$1 billion. Please spend it on exploration?" Should we take it from

the World Bank, and collect later from Pertamina and EMP? Will they want such levies? Or we will take it from the government take? It doesn't make sense.

Gas prices are coming down. What is the background?

I was surprised to learn that pipeline gas prices increase linearly. What is the logic? It means the energy price always goes up for the customer and that is a problem right now. If the pipeline price always goes up but the LNG price swings up and down, when they cross, buyers of pipeline gas scream "why is pipeline gas so expensive compared to LNG?".

You worked in the USA, where production data is available online. I can see the performance of my neighbor's wells, so I can avoid trial and error and become more efficient. Is there any thought in Indonesia to centralize data bases and make them available online?

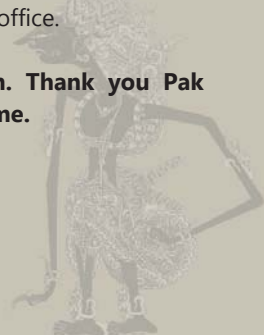
The answer is yes, we are working on that as part of a holistic approach to facilitate development. This is a technology/technical issue that when solved will avoid us spending our time on administrative issues. It doesn't cost much. It's doable.

Back to permits. In Texas, a permit for drilling takes two weeks, so out there, people are thinking about how to get more production from existing wells, and how to develop fields more efficiently by looking the data from your neighbor. Here, how long does permitting take? We talk about how to get a permit from the governor. Believe me; it doesn't help to increase the production.

There's a lot of support for you out there, Pak Arcandra. From the outside, you and Pak Jonan are like the good cop and bad cop.

No, that is not true. We are on the same team. We discuss a lot and exchange ideas about how to improve our bureaucracy. I always say that this is not my office, this is the people's' office. I am a temporary resident. So, please, everybody is welcome. This is your office.

We will come again. Thank you Pak Arcandra for your time.



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INTERVIEW WITH

NURMAN DJUMIRIL

FORMER VP GENERAL COUNSEL AND EXTERNAL RELATIONS AT TOTAL



Pak Nurman, thank you for spending time with us. Maybe you can start by telling our members about yourself.

Okay, thank you. It's an honor for me to be covered by this prestigious magazine. By way of introduction, I am a father of three boys from my wife of 35 years; my eldest son passed away almost three years ago due to congenital anomalies that prevented him from growing up as a normal boy. We were blessed to be able to be with him for 31 years. My wife discontinued a professional career to attend to our son due to his handicap. Our second son is a graduate from the school of Economy at University of Indonesia with a post graduate degree in finance from the University of Amsterdam; he is now with Ernst & Young. My third and youngest is a civil engineer from the Technical Faculty of the University of Indonesia and recently graduated his master's program in oil & gas management from the University of Aberdeen; he is now with Itochu. I am proud to say that my wife and I and two sons all are UI graduates. I'm a seasoned professional with 35 years' experience in the extraction industry, most of which over 30 years was spent in the oil & gas sector; three of which was spent as Board member of Jakarta listed company, PT INCO tbk. I retired from Total E&P Indonesia in January 2016 as VP General Counsel and External Relations. By training, I'm a lawyer but never practiced law or appeared before the court. Why I didn't pursue that profession is another story.

My career began fortuitously. When I was completing my final thesis, my dean called and told me that there was a company scouting for talent and if I was interested I could meet with them. They turned out to be Unocal (Union Oil back then) that eventually led me to be accepted as a fresh graduate.

Unocal is an independent that had concessions in oil and gas blocks in Indonesia; in 1982 which was about my second year, Unocal ventured into geothermal at Gunung Salak. This introduced the first Joint Operation Contract (JOC) after Unocal responded favorably to the government's invitation

to develop geothermal resource in Indonesia as it did in the Philippines.

A legal framework had to be set before Unocal signed the JOC. As a greenhorn, I was tasked to run back and forth between Pertamina, ministry of Energy and the Secretary of State on this framework. At that time, Pak Habibie as an expert staff in research and technology for President Soeharto was instrumental in laying the foundation along with pa Wiyarso one time Director General of Migas. The framework was PD22 and PD 23 of 1981, each document comprised of no more than 5 pages. They were concise, clear and consistent. The three "C"s is what investors need. The Joint Operation Contract (JOC), had a different structure than PSC, albeit the resource in the hands of Pertamina just like under a PSC. The JOC assigned Unocal as the Operator with Pertamina as holder of the authority to undertake exploration and exploitation of geothermal energy resources. Under the

“**When the government introduced the Mining Law No.4/2009, respect of contract sanctity became questionable**”

Energy Sales Contract (ESC) Pertamina Pertamina was as authority to dispose of the energy to PLN with Unocal acting as Supplier of energy to Pertamina. PLN's obligation to the energy supplier was guaranteed by the Government accompanied by a decision by the Monetary Board chaired by the Minister of Finance to allow repatriation of funds by the Energy supplier; this structure gave clear certainty that led to the foundation of geothermal undertaking.

Supporting this structure were only three legal instruments namely, Presidential Decree No.22/1981 describing the undertaking of geothermal undertaking, Presidential Decree No.23/1981 describing the fiscal terms and a Decree from the Monetary Board allowing expatriation of funds without interference. The principal foundation was the Pertamina Law # 8 of

1971. Each decree comprised no more than 5 pages. They were concise and clear, and undisputed. That's all what investors need, right? Clarity, consistency and conformity; the “three C's”.

As demand for energy grew, due to PLN's limited funding capability, Unocal was asked if it was interested to generate electricity as well from the energy produced from the geothermal resource, but funding for construction (of the power plant) would be at Unocal's risk.

Unlike multinationals such as Exxon, BP, Shell or Total, Unocal required external financing to support such a project. Having had experience in LNG project financing for several trains in Bontang, I was able to contribute a role for this purpose. Unocal's original proposed structure for geothermal financing was unlike conventional financing. As one with a simple mind my ability for a complex structure is limited. So, I asked Corporate in Los Angeles “why do we have to re-invent the wheel?” If an entirely new structure is introduced, the first reaction is usually resistance. However, if we approach with something that the government is already familiar with, there would be less resistance. So, I said, “Why don't we propose the LNG project financing structure, which was a Trustee Borrowing Scheme, a mechanism that mitigates the operator's risk and generate the expected return?”

Eventually this trustee borrowing scheme was accepted by all parties that laid to the foundation of the first private geothermal development project financing. During that time I was assigned in California, so I shuttled back and forth to Jakarta to meet with Pertamina, the Department of Finance and related parties. Project finance was finally arranged in 1996 with Dayabumi Salak Pratama, Ltd established as the Trustee Borrower and fiscal terms governed under PD 49 of 1995.

Indonesia has huge potential for geothermal. Why are few companies interested to participate?

There is only one buyer of electricity generated (from geothermal steam), namely PLN. As a state utility, PLN is

constrained in determining the price of electricity based on market price. This inability is overcome by the determination of the sales price by the government eventually leading to PLN's obligation (to the energy/electricity supplier) guaranteed by the government. When the IMF bailed Indonesia out of the monetary crisis of 1997, a letter of intent was negotiated between IMF and Indonesia. The letter among others included certain changes to be made to commitments in the energy sector that the government already undertook. The letter distinguished these conditions under three categories; first, existing viable contracts would be continued. Second, contracts that were less feasible under the circumstances would be allowed to be continued at a later date after subsequent consideration. And third, contracts that need to be terminated as it would be burdensome for the State's economy.

A single Presidential Decree underwent revision three times within a week as the IMF team negotiating the letter of intent were not fully exposed to the progress of those projects under review. Actually, it was not the content of the Decree that raised concerns, but the attachment that listed those contracts in the three categories. Chevron (Amoseas back then) and Unocal's contracts in Gunung Darajat and Gunung Salak were among those that were allowed to be continued because activities had been running. Caithness' Karaha Bodas Contract was among the contracts that were to be postponed. Unocal's new contract for electricity generation was originally to be postponed, however since commitments have already been secured for the project financing and construction, the construction for Salak's three units were allowed to continue. This was not the case for Caithness' Karaha Bodas as it had not had its proposed POD approved. Since their contract was delayed, Karaha Bodas sued the government for unilateral cancellation of the contract, in spite of having committed its exploration expenditure. Arguing as a unilateral appropriation, they brought their case to International Arbitration and eventually secured an award in their favor.



Nurman Djumiril and Bambang Istadi

This shocked Indonesia. You see, in those days Pertamina held the authority to undertake exploration and exploitation, for oil, gas and geothermal based on law # 8/1971. All funds from sales of LNG went into Pertamina's account in New York. Caithness Power eventually managed to garnish Pertamina's account in New York based on the arbitral award in their favor; Indonesia had no option but to honor the award.

Those unfamiliar with the contract blamed the contract structure arguing that it gave Indonesia a weak position against foreign

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**....once you drink water
 from the Mahakam, you will
 one day return
 to the Mahakam river**
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investors. This actually is not the cause. The government's failure to honor its guarantee was due to the constraints laid out in the Letter of Intent signed with the IMF. In my opinion as a lawyer, Indonesia should have had a chance to argue that its ability to honor the guarantee was restrained by the terms of the Letter of Intent it signed with the IMF.

Later, the Government enacted a Geothermal Law, which ruled that the authority for geothermal activities was no longer under purview of the Central Government, but under the local authority (Pemerintah daerah or Pemda). Based on this law, investors had to secure

the license from the Pemda, which led to new problems. In the light of questions and uncertainties, Investors were insecure of the investment that resulted in no investors securing a geothermal license from a Pemda. The then Presidential Decree # 37 regarding Independent Power Producers (IPP) eventually was also revoked, which increased the risk for investment. Hence the lack of interest in geothermal undertaking.

Around three years ago, the Geothermal Law was revised and returned authority to the central government. But geothermal undertaking remains torpid. Despite the new law, no investor has shown interest. Chevron has disposed of their assets in Darajat and Gunung Salak. It is unclear if this is because of the regulatory environment or the state of the investor's confidence in the investment climate or the state of the world's economy. Unocal's asset in Sarulla, taken over by Supreme, has not progressed significantly, although it has been running for more than 20 years. However, to date Supreme appear to be the only company that ventures in geothermal undertaking post the Salak and Daradajat developments.

Speaking of investment risk, decisions are taken based on the balance of regulatory risk and geological risk. In terms of geological risk, investors apply technology based on continued research and development for continued improvement to mitigate the challenge. But, in terms of regulatory risk, investors cannot intervene with the State's sovereign authority. Displeasure or constructive feedback can be expressed, but investors cannot insist. Once these two risks are in balance; then

an opportunity to make a deal is open.

When the government introduced the Mining Law No.4/2009, respect of contract sanctity became questionable. The 2001 Oil and Gas Law contained a transitional regulation that stated that "existing contracts are grandfathered", which means that they remain valid until they expire. Yet, in the Mining Law, the transitional regulation had three paragraphs that undermines the contract sanctity. The first paragraph of the transitionary article said that existing contracts would be honored. The second article said that the contracts signed prior to the published law would be adjusted to the new law. The third article said that if the contractor is unwilling to adjust then it would lose its license. The aim of the Minerba Law was to empower the downstream industry (hilirisasi) like building smelters and discontinue the export of raw material. The intention was good but the timing was less fortunate due to the fall in commodity prices; LME (London Metal Exchange) dropped significantly and did not recover to its original level. So, how could you expect your shareholders to invest billions in the face of falling commodity prices? This controversy continues to date on the question whether or not Contract of Work holders may continue to export raw material. As is in any agreement, a mutual consent by the parties be best sought rather than imposing a unilateral obligation.

Back to your career, Pak Nurman. What happened next?

Unocal was an independent company so I was very fortunate to be able to advance my career with increased responsibility under a less bureaucratic environment. I followed the company's evolution from oil and gas into geothermal undertakings and marketing. I spent four years in marketing alongside PSC contractors and Pertamina colleagues. I participated in Unocal's marketing of LNG from Bontang to Japan, Korea and Taiwan. During that period I spent more time in hotels than with my family, because negotiations were often long and intense (the motto was "no weekends for gas peddlers"). Now, when I look at my family photo

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**....they don't understand
that they do not
understand**
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albums, I don't recall many happenings, when it was, where it was. When I ask my wife, she said, "of course you don't recall because you weren't home at that time." Marketing gas was a different world. However, it was fun since we were the largest producer so we received respect and recognition. During the course of this period I served as Chairman of Regulatory Affairs Committee at the Indonesia Petroleum Association (IPA). Several accomplishments that I was proud of was a co-writer of a white paper regarding removal of facilities that eventually led to the inclusion of funding for abandonment and restoration under new PSC generation and secondly, with

my appointment by then Minister of Energy as government task force team member in drafting the implementing regulation for the then newly enacted oil & gas law.

Eventually when Chevron acquired Unocal I moved on and landed in ExxonMobil to help develop the Banyu Urip field in Cepu. After serving over two years with ExxonMobil I ventured in the mining sector having been hi-jacked by PT INCO tbk. to join as member of the Board of Directors. I served two terms in Inco's Board until it was acquired by Vale of Brazil. Total E&P Indonesia eventually brought me back to a PSC in East Kalimantan, namely Mahakam. You've heard of the expression, once you drink water from the Mahakam, you will one day return to the Mahakam river.

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**How is the evolution of gas from
export to domestic usage?**
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Post reformation, our nationalism increased concurrent with more demand for domestic gas utilization. Domestic gas utilization was heavily promoted in lieu of disposing to LNG exports.

This resulted in heavy involvement by regulators before LNG can be exported. Certain procedure and regulation raised concerns to Indonesia's conventional buyers. The longer than usual approval process raised certain questions. At one occasion, I said to (the late) Pak Baharuddin, one time General Affairs Director of Pertamina "Pak, you are the Guru of the LNG industry and Indonesia used to be the Mecca of LNG; Indonesia was the price leader - everyone referred to the Indonesian LNG Price. Even nowadays, many people from the Middle East expressed interest to learn from PT Badak. So Badak and Arun are recognized as a center of excellence for LNG". Now we have heavy red tape before we can export LNG (not that in the past there was no approval process). Why don't you share your expertise and experience to the government?" He responded by saying, "Nurman, they don't understand that they do not understand." Having heard this, I rested my case.

The evolution involved procedures and



Hasbi Lubis and Nurman Djumiril

regulations that resulted in more lengthy approval process. The spirit to promote domestic gas utilization is regrettably not supported by the ability to absorb implying a saturated market. The production sharing contract prohibits the flaring of gas and curtailing production is not an option.

Did you face conflicts between your duty with Unocal and your duty as a Indonesian?

Even though I pursued a career in a multinational company, I am still an Indonesian. My flesh and blood are Indonesian. Yet, since I never work in a national company and am not a civil servant, I am often asked, when are you going to serve your country?

I regret such a question, because I always put our national interest in front and remain not in conflict.

Here are several examples; when the monetary crisis broke, the government unilaterally declared that PLN's payment obligation to Unocal under the ESC was unilaterally locked at the exchange rate at that time, which was 2,250 Rupiah per US dollar. With the exchange rate deteriorating to 15,000-20,000 Rupiah per US dollar, this resulted in Unocal's accumulated receivable swelling to 500 million dollars within the years. It looked like an unpaid debt, and our mother-ship kept asking for the status of the payment. We had two alternatives, keep silent or take recourse by suing the government. The mechanism for recourse was written very clearly in the contract; and Karaha Bodas exercised it. My geothermal local management insist to pursue the recourse. But my nationalism arose. I advised Unocal management that suing is not an option as it will impact Unocal's oil & gas operations. Sue the government now and face the risk of unpleasantness by the government. So, a renegotiation of the contract was opted. That was not a win by either side, but managed to prevent a law suit against Indonesia.

Another example. In a class action brought by an anonymous plaintiff against a PSC contractor accusing it of using the military to suppress the people

in its area of operations. This case, if allowed to proceed, has a potential to taint the image of Indonesia's military. If the courts allow the case to proceed, this could impact the relationship between Indonesia and the origin of this particular PSC contractor. With this potential exposure, I sought for a helping hand from Indonesia's Foreign Affairs Department. I explained the Director General for International Cooperation about the lawsuit that has the potential to expose some member of the Indonesia armed forces to be tried in a foreign court and that we need to prevent this lawsuit. Indonesia's Foreign Affairs Ministry then issued a letter of expression of concern to the State Department of that country about this lawsuit then being deliberated by the courts.

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I explained the content of the letter to the State Department of that PSC contractor's country expressing concern of an Indonesian.

The above are some of the examples I displayed in serving the interest of our country which explains my objection to claims that I do not serve my country.

How about Pertamina taking over so many contracts?

The nationalism spirit of our people is sometimes overwhelming. Some cite Chavez as the role model to follow, but follow him and we could be bankrupt like Venezuela. While nationalism is important, but we have to express this with caution so as not to backfire. An example of an inappropriate nationalism is regarding the cabotage principle introduced in the Shipping Law. While there no objection to restrict foreign vessels for the transport of passengers and goods/freight, regrettably it expands

the restriction to foreign flagged drilling vessels. The availability of Indonesian flag drilling vessel is limited and to impose the principle could potentially force some PSC operators to release these foreign flag vessels thus forced to cease production. Eventually this overly strict limitation was softened to allow continued operation of foreign flagged drilling vessel. As to Pertamina yes, we want to see Pertamina succeed as a world class player. Throughout my career, I have sat across, alongside and as partner with Pertamina. Pertamina is our state owned enterprise that we have to be proud of. Speaking of taking over expiring contracts is actually a default mechanism under the law since 1971 and the 2001 oil & gas law. Once expiring contracts are surrendered to the State (ESDM), they will eventually hand the license to Pertamina, if Pertamina expresses interest. However, the surrender of an expiring license cannot be done with a blind eye. Once your contract expires, it would be unfair to Pertamina if you just handover the key and leave.

Consider Mahakam, a mature asset and a very complex one. As with some other mature oil and gas fields that are still producing, many wells also produce sand. To maintain production, Total has done a lot of well interventions and workovers. Before I retired, Total was running 10-11 rigs, supported by close to five hundred ships, a massive operation from small boats to sophisticated work boats. I once said to the naval local command (DANLANAL) in Kaltim "I'm sorry if Total's fleet is bigger than yours". But we need them to manage and maintain the wells so they can perform safely at their optimum. That's an operator's responsibility.

Some nationalists consider "Foreign companies loot our resources and leave crumbs for us.", and herald the government to take over blocks from these foreign companies. So when a license of a producing asset is to expire, it would be best to allow a transition period with the new operator. Let me use Studebaker as an example. Few people can drive a Studebaker car. Give a Studebaker to a young guy and he will utter "I can't even drive with a stick shift, let alone a Studebaker." Someone

needs to teach him "This is how you drive a Studebaker." There are certain ways to handle the car. Total promoted this approach for a seamless transition in the interest of the resource. Much is at stake in taking over the Mahakam asset that requires billions of dollars for its annual work program and a strong mothership to support its operations. Not that I do not want Total to surrender the asset to Pertamina, but surrendering such a mature asset would be best done through a transition period as Total once offered the government. We now must respect the government's decision that handing over the keys (license) to Pertamina will occur at midnight of December 31, 2017.

A reservoir is like a woman; no intent to be chauvinistic. Treat her badly and she will break. If you have a good reservoir but you don't know how to treat it right, it will not produce to its optimum. So let's transition, so that you will know how to drive the Studebaker properly. Look at the facilities in Mahakam; they are over 40 years old but look brand new, just like the condition at PT Badak.

Again, we trust Pertamina to handle Mahakam, but does it have a mother-ship ready to support Mahakam and all of its assets? When an operator needs help, we call the mothership for resources or capital. In Unocal, although smaller than Exxon, BP or Total, we still call our mother-ship for help. Pertamina has many assets and, confronted with its many shortcomings this may lead to it biting off more than it can chew. We highlight these things for the sake of the reservoir to be well managed when the block (the Studebaker) returns to Pertamina. Total has success stories in other countries with transitions on assets with expiring license.

Did Total consider to re-enter as a partner?

Yes, of course. Total calculated advantages and disadvantages. But if you have mature fields and can only have a 15% interest, is it worth to take the interest?

What about investment close to PSC expiry?

Ten years before expiry, Mahakam still

held many potential developments. But following the depreciation schedule in the PSC, projects will not pay off. So, to develop this potential, Total needs a PSC extension or depreciation acceleration schedule. Fortunately, the proposed accelerated depreciation option was considered. Disgruntled government staff felt that the government was being robbed from its original take. Indeed it impacts the take, but the Government gained increased production that without the amendment the projects would not be developed.

The PSC provides for additional investment credit that can be used for development of fields that would otherwise not be economical to develop. Unocal successfully secured project financing for the first deep-water



Few people can drive a Studebaker car



development in Indonesia, namely West Seno. Unfortunately, subsequent approvals for development of the other fields in the strait of Makassar (currently known as Chevron's IDD) was not secured back then. Unfortunately some view investment credit as not using equity funding as required in the PSC. Had this been secured during that period, IDD would already be producing today.

What happened to the spirit of cooperation?

The PSC is an agreement that provide consensus of the parties; any differences are to be resolved amicably among the parties. This is the soul of mutual cooperation and the spirit of the agreement. Nothing is executed without the consent of both sides. Post enactment of law # 22/2001, the environment became heavily regulated that accumulated with the promulgation of GR 79 that moved away from the spirit of cooperation. This is one of the reasons why the IPA sought to seek judicial review against GR 79 before the Supreme Court.

Before IPA filed for a judicial review against GR 79, the IPA strived to approach stakeholders within the government, in a spirit of mutual cooperation, to consider rescinding GR 79. These efforts failed as the Supreme Court denied the IPA's claim. Several years later Total met with newly appointed Minister of Finance who took over his predecessor that moved to the IMF in DC. The topic of the audience was "GR 79" so, as we entered his office, he immediately said; "You should not be worried about GR 79, because your cost recovery is already in the state budget." As visitors we looked at each other in dismay and were lost for words.

Does Total have a plans to take another PSC or explore in Indonesia?

Before I retired, Total made significant exploratory efforts in two blocks: one in the Bird's Head of Papua and another one in Mentawai. Total spent close to 115 million dollars for a well in Papua. The well was not completely dry. There were signs of hydrocarbons, but further



Studebaker Car

exploratory efforts are required.

Total also drilled one high-risk well in Mentawai; also with no result. So, yes, Total has proven its interest in exploration. Total had several exploration blocks before I retired, however under today's environment exploration is not a priority.

Is the Government motivated to increase the attractiveness of investment in Indonesia?

Absolutely, we see today's headline about the gross split recently introduced by ESDM; this is part of the government's effort to keep the investment climate competitive. Of course every decision, right or wrong, has an impact. We see in the media that this newly introduced construction is heavily debated; pros & cons. Unfortunately Indonesia is in double trouble today: At the time when the IMF forced to replace law # 8/71 to unbundle Pertamina, Indonesia had no choice and eventually enacted law #22/2010; but today with low oil prices coupled with increasing uncertainties since the disbanding of BPMIGAS by the Constitutional Court and the status of GR 79 (rescinded or replaced?) still being deliberated, we see MNCs leaving Indonesia.

The regulatory side does have significant impact; when new regulations are introduced, the environment will be in a wait and see mode. This is how we see the IPA's position on the gross split introduction as it is too early to comment without knowing how the implementing regulation will look like. We see a potential repeat of post enactment of law # 22/2001 when the Oil and Gas Law was enacted, but the supporting government regulations (GR 35, GR 37, and GR 42) were released three years later, namely in 2004. So from 1997 until promulgation of the GRs and time to digest this new frame work, we lost almost 15 years where there was neither new field development nor exploration activity. We cannot afford another wait and see mode as the demand for energy continue to grow with the various infrastructure projects launched by the government as well as growth in GDP. So, 15 years

with no new oil and gas discoveries and no replacement of reserves is costly. We were eating our capital not our profit, and increasingly cannot meet local demand. The days of giant fields such as Arun, Rumbai, and Mahakam are behind us. However I am a believer that continued advanced technology and efficiency will open opportunities in exploration and development. As I said, this must be balanced with a conducive investment climate and in competition with other countries that have similar resources.

Do you see the light at the end of the tunnel?

Yes of course, I am an optimist, especially with a vested interest since my youngest son recently graduated his masters from the University of Aberdeen in Oil & Gas Management, who has great passion in pursuing a career in this industry I would like to see a future for his career. We see



**Oil and gas exploration
is like bringing money
into a casino**



a positive atmosphere with the ESDM ministry working hard with the Finance ministry on GR 79. I understand that the revised GR 79 will be applied to new contracts, whilst existing contracts will be honored.

Unfortunately, Lapangan Banteng (Finance Ministry HQ), is still obsessed about keeping cost recovery low and look for every opportunity to challenge recovery of operational costs. The Head of SKK has responded correctly by saying that cost recovery is part of investment.

How can we manage better with Pertamina and SKK Migas?

Our Oil and gas history went through various episodes after independence; (1) 1960-1971 under the Mining Law 44 of 1960, (2) 1971-2001 the Pertamina law 8 of 197, and (3) 2001-today in the reformation era. I do not judge which one is better, but all were promulgated under

the environment and circumstances of the days each were deliberated. Should we return to the Pertamina era or, should we embrace the State-Owned Enterprise (SOE) model?

We cannot turn back the clock. You will recall that the 1971 Pertamina law was administered under an absolute and undisputed Administration. Post reformasi this is no longer the case; in today's environment almost everything is disputed, including the 2001 Oil & Gas law itself was challenged for judicial review several times, lastly resulting in the disbandment of BPMIGAS. The role of regulator is to enforce the law & regulation so that there is certainty in its implementation. Ideally Pertamina is to focus its role as the State's entity in the oil & gas undertaking free from external influence. To make a regulatory framework succeed require it to be clear, consistent and not contradict with higher hierarchy of law. A balance between a firm government with stakeholders at the House and provincial governments to show respect of the law. This includes removal of any conflict of interest within SKK, Pertamina and the government.

How can a SOE make a profit?

As mentioned before, board members of an SOE should be free from external intervention. As we see in today's news about the shake in Pertamina's Board appear to be effected by conflicting intervention. Second is of course to see to it that good corporate governance is implemented. What mechanism are you looking for? As shareholder of the SOE, when selecting candidates to serve as Board member, the Government should see to it that the candidate is professionally capable in the related field given clear chain of command. How the SOE profit will depend on how the Board runs the SOE with proper supervision by its shareholder. Pertamina is under the purview and oversight of the Minister for SOE but at the same time supervised under the ESDM (the Ministry of Energy) on technical matter (instansi teknis). Which office takes precedence?

Should we monopolize the oil & gas industry like Venezuela?

I understand that there are some (over nationalistic views) that insist the government to take over all concessions and have Pertamina run them. Look what has happened to Venezuela today. So, no to nationalization. The spirit of the (now obsolete) 1971 Pertamina law provide that foreign investors are invited until the state owned company is capable to assume full charge in exploiting the resource. This concept has worked well through the creation of JOB and TACs with the PSC as foundation for the MNC to operate in Indonesia. We need strong international operators here so that we can learn and share the risk of this high tech and intense capital industry before running it on our own. Look at PEMEX today, they have now open Mexico to MNCs to explore oil & gas. To explain why, here is an analogy in the medical side. Go visit a hospital in Singapore, and you will see that probably close to 75% of patients visiting those hospitals are either Indonesian or expatriates living in Indonesia. Why? I share my view with an Indonesian doctor friend, "The profession is arrogant because you disallow non Indonesians to practice medicine in the country. Yes, we have good and capable doctors, but doctors also need support of professional technicians with high expertise, equipment, R&D and finance. One way to develop is to learn how to be professionally capable and competitive. Once you have the trust of the people, there would be no need for Indonesians to go offshore for medical treatment. We have to reverse this. We have the market, so bring the expertise here. Once we have an expertise center here, they can share their experience and we can benefit from that. We can develop and, therefore, we will be able to prevent this market from going outside.

We need to change our mindset. Don't over-nationalize. Open ourselves to learn from others' mistakes to avoid repeating their mistakes.

Now, the government realizes the industry is comatose, and discusses intensely among ESDM and the Ministers. Meanwhile, while we make this correction, the gap widens between consumption and production. We will soon be a gas importer, so we need to look at energy

alternatives, including nuclear power. It is supposed to be the cleanest and cheapest energy as long as we know how to manage the risks. But before our eyes is the potential of geothermal resource where I have experience when developing Gunung Salak.

You are active in Kadin's Oil & Gas Committee. How do you see these sources?

Kadin is the association of Indonesian entrepreneurs, with a vision to promote Indonesian entrepreneurs.

In the oil & gas industry, the national private companies struggle to compete under the same terms and conditions as major foreign companies in their PSC. We will need to have a framework for national private companies that is more lenient compared to the conventional PSC terms currently applied to PSC contractors. For example national private companies should be exempt from restriction for tax consolidation and exempt from remittance of non-tax State revenue (PNBP). If these can be removed for private national companies, it would allow this private sector to grow? Subsequently private national companies should also be given opportunity to acquire expiring licenses. One major challenge for national private companies is access to local financing with competitive interest rates. Current high interest charged by both state owned banks and private national banks is too expensive to venture in this

high risk and capital intensive industry.

Oil and gas exploration is like bringing money into a casino. You put the money on the table, spin the roulette where the ball can hit either red or black. If you hit a number with the right color, that's when you hit the jackpot. If it hit neither color nor number, you lose. So imagine going to a bank to borrow 100 million dollars with a purpose to play in Sentosa or Genting Casino.

As KADIN I have interfaced with the European Chamber Commerce. European investors question the policy on mandatory use of domestic resource (TKDN). There is concern that when the negative list for foreign investors grow, there will be less room for foreign investors to invest in Indonesia. Regulators will have to carefully balance the need to promote local national companies and the need for foreign investment. In a global society we live in today we cannot afford to close the doors to foreign investment. This will be judged by investors' confidence in doing business in Indonesia. We need to have an open mind, then discuss options how to execute. If you stick to persistency of "must" and ignore the balance of mutual cooperation, we are at risk of losing trade partners.

Thank you Pak Nurman for your time.



INTERVIEW WITH

TUTUKA ARIADJI

IATMI CHAIRMAN



Thank you Prof Tutuka for your time. First of all, what is your background?

On graduation from Petroleum Engineering of ITB (Bandung Institute of Technology) in 1988, I immediately became a lecturer. In 1991, I luckily got a scholarship from the Texaco Foundation, which funded my Masters and Doctoral Degrees in Texas A&M, both in Petroleum Engineering. That changed my life because of the education and culture.

In 1997, I returned to Indonesia and resumed my career as a lecturer in ITB. From 2011 until 2015, I had been the Vice Dean for Academic Affairs in the Faculty of Mining and Petroleum Engineering of ITB. Currently, I am a Professor in Petroleum Engineering of ITB, and the 2016-2019 Chairman of IATMI.

Why do I love petroleum engineering? When I was in senior high school, oil and gas sector contributed 60-70% to the national budget. So I thought "this is the area that I can most contribute to the country".

You and Pak Arcandra graduated from the same university in the US. Do you have special connection with him?

I respect him and I think he respects me. I left from College Station to Houston to work for Texaco after finishing from the Texas A&M University when he just came in 1996, so we did not meet each other at that time. But, we know now each other now.

What do you want to do for Indonesia?

My personal broad view, this country is not going in the right direction. We need people to stand up. It's the culture, we need to change the character, morals and behaviour of our people. You can imagine how hard it is. In my opinion, developed countries start from a belief in education, from elementary school right through to high school. This builds strong character in the people and that makes the whole thing can be achieved.

It should start from the House of Representatives, where members come from different political parties. The right people in the House will then can make

necessary and right rules and laws, and this will guide everything to the right direction. How can we achieve that condition? It starts with education. A charismatic leader can change that, it will not easy.

What's your speciality and passion in Petroleum engineering?

My speciality is the Plan of Development (POD), integrating the basic disciplines in petroleum engineering: rock properties, fluid properties, production engineering, reservoir engineering, surface facilities and economics.

The weakness I see in implementation of the POD is a lack of multidisciplinary teamwork. We know the concept of a multidisciplinary approach, but often oil companies do not properly implement

“When I was in senior high school, oil and gas contributed 60-70% to the national budget. So I thought “this is the area that I can most contribute to the country”

this concept. If we take a look inside, they perform tasks sequentially instead of simultaneously. Let me give you an example; let's say we are making a reservoir model. We start with geology and geophysics, and when they are finished, they submit their work to petroleum engineering. That's not right. That's not multidisciplinary. They have to sit together and start from the beginning. Discuss first the objectives then define the contribution of each discipline. In practice this rarely happened. That's why at the end of the day, when drilling new wells using the results of a study, they get frustrated with dry holes drilling. People blame each other whereas we should blame the whole team. We need to correct this.

I teach on this topic and have also written a book for undergraduate students.

In the last few years, only 2 or 3 PSC's have converted from exploration into exploration with a POD. How can we speed up the process?

By moving the POD process online.

Data transfer, discussion and questions between SKKMigas and oil companies would be conducted online or through their website. Every discussion and MoM would be recorded by the system. The government would need to release a SOP to the contractors for this process and to ensure that online documents are recognized as legal documents.

This online approach would drive openness of each party, saving time and cost and accelerate approval of POD's. I believe that the key is trust built by mutual openness.

At the end of the day, companies and the government both seek increased oil and gas production - It can be done, management through openness and fairness.

From 2016 to 2017, the number of PSC's reduced from 300 to 284. Of these, only 67 PSC's are producing and 18 are under development. No new PSC's have been awarded in the past two years. How can the government boost interest?

The government has to work on that, because our challenges now are much bigger than in the past.

Now, when the government offers new blocks, they only provide raw data. This is not sufficient information. The result is that oil companies could develop the wrong geological concept of their area, and after drilling 3 or 5 dry holes, then run away from Indonesia. Oil and gas is different from other industries, uncertainty is the biggest problem which increases the risk of failure.

The government should minimize this uncertainty, by offering something half-cooked, by processing and interpreting the data.

Also, we are moving to the eastern part of Indonesia. The geological concept of eastern Indonesia is different from the western part of Indonesia. So experts from around the world should be invited to develop this concept.

Will Gross Split attract investors?

I personally don't mind between Gross

Split and Cost Recovery. If the split is interesting then it will open the door, because this is business. However, a good thing is that Gross Split eliminates a lot of bureaucracy.

I fear the implementation of Gross Split will cause problems, especially implementation of the appendix of the Ministerial Decree, which lists incentives relating to various properties of rocks and fluids. For example, a CO₂ content of above 10% will get an extra incentive of 1%. But, this will need a validation from the SKKMigas as the GoI representative involving equipment type, measurement procedure and sampling method. I think this will cause a lot of problems.

Recently you gave a presentation on Gross Split in Pertamina. Can you elaborate on your findings?

Yes I gave that presentation to take an immediate big concern from the government about the consequences of implementing the Gross Split.

Gross Split is an opportunity but it needs fine-tuning to work for all fields. A good thing is that procurement and administration will depend on the company, and the government will focus on technical matters.

However, it is clear to me that Gross Split regulation lack of simulations before issuing the decree. It should have tried with oil companies using real field data for a sufficient enough time. In petroleum engineering, it is a standard to do a lot of simulation before making decision.

I see the Gross Split is preferable for new and offshore fields. For gas in the Natuna Sea that has very high CO₂, we figured that the split will be 85% for the oil companies. On the other hand, I figure out that the Gross Split will not work for mature fields that are designated for EOR methods because the incentive is too low (5%).

Furthermore, in the Gross Split regulation, the first split is a fixed base split. I think that this should be flexible and negotiable block-by-block to reflect the risks in the area, especially for exploration blocks. So, the government might need to revisit the Gross Split decree in order to make it work, perhaps after several concession

areas implementation

Don't leave the government alone - if something non-technical is not going to the right direction, we have to alert them and work closely to solve the handicap.

You mentioned that EOR will not work with Gross Split. So how can we increase activity in EOR?

Again, we don't care about Gross Split or PSC. The criteria to judge the success of Gross Split will be production. Gross Split is designed to drive oil companies to operate efficiently but it should not to reduce the production.

There are only two ways to increase production - EOR and exploration. For EOR, we recently completed a study together with SKKMIGAS of about 490 reservoir zones, and we found that

“ **I promote to SKK Migas to move the POD process online** ”

Indonesia EOR potential is estimated to be able to double the current national oil reserves. How to do it?

The first concern is solving our technical problems, for instance, aging equipment and facilities, tight reservoirs and infrastructure in remote locations. The second concern is regulations to support EOR. For example, it is not easy to free the land for EOR, so we need to ask help other ministers for help. Third is the fiscal scheme. With Gross Split incentive for EOR of 5% is not enough. I think the base split should be flexible or the incentives should be increased. And the fourth and last one is the supply chain. For instance, if we need surfactant for EOR, then there should be prepared in a cheap way. Or, if we need CO₂, then there is a need to provide facilities of piping from the source to the well. If that is the responsibility of oil companies, then this will not make attractive for the oil companies. The government should come and solve problems of infrastructure. These four concerns are the big problem areas. Every related institution should work together

on these.

If the 5% incentive for EOR were negotiable, would that be enough to increase the production?

Yes, if the incentive were high enough. For now, the Gross Split decree is set and cannot change. So perhaps later on. Oil companies should do their simulations and propose to the Minister the split and incentive that can make EOR work.

Actually, that brings me to another point. Before talking about what is the right split, we first need to fix the criteria for the incentives. The current criteria relate split to elementary properties like API and CO₂. To my knowledge, this relationship is too far to be connected. For example, in a block that consists of several fields, and each field contains of many layers having some different oil gravity (API) values, which API gravity that will be used for the incentives? Averaging the API values arithmetically violates the academic law. I think that the criteria for split and incentives should relate to production and reserves. For instance, increasing the reserves status from P3 to P2, or from resources to P3, is eligible to get an increased split.

What is the minimum remaining oil-in-place to justify an EOR project?

Right now, we use 10 mmstb. Indonesia has about 46 billion barrels of remaining oil-in-place, and we target 10% for EOR. That is reasonable. In order to make the EOR Projects works, a massive EOR projects - not one by one, is probably the solution. That's what we call it by a low-cost EOR. Oil companies need to manage sharing production facilities and chemicals manufacturing.

Let's talk about energy. Recently the government released decrees on renewable energy, which actually discourage renewable energy. Companies think the business is gone now. What is your opinion?

The government needs consistency in implementing its national energy policy. In 2025, renewable energy should contribute 23% of all energy. But in my opinion that's impossible on our current track.

Take as an example geothermal. Indonesia



Bambang Istadi, Tutuka Ariadji, Amin Hartoni and Andrew Law

has a huge potential for geothermal, but only 5% is utilized. Why is that? Because the cost of production is higher than the selling electricity price, so it doesn't work. This is the government's responsibility to fix the regulations.

Meanwhile, we continue to promote coal for electricity. There is no big real implementation of renewable energy. It should start from the government. Currently we don't really see big step yet.

Indonesia is not like Africa - the sun is hot throughout the day, but here we have more clouds, and fast changing weather. So it is not really a great potential for solar energy. For wind energy, the best place is Kupang in West Nusa Tenggara, not in many areas. A small energy for villages could be provided by biomass. Thus, in short, there is not much that we can hope from those renewable energy.

In my opinion, if we want to be a developed country, we have to use nuclear energy, and we have to start now. Actually the first President of Indonesia built the institute for nuclear energy in 1965, but so far it does not come to electricity for the people. Indonesia need to look for an international help.

What is your message for our SPE student members who are finding it

difficult to find a job?

Yes it's tough. A few years ago, when the oil price was still high, fresh graduates could easily find a job. Even before graduation, some had two or more offers. But now, after 6 months or 1 year, many of the fresh graduates still cannot find jobs. Some of them then go abroad to study for Masters degrees.



Study programs and departments based on products, like petroleum engineering may not be sustainable



The surplus of fresh graduates is partly the university's responsibility. We have thought about it, and we are now working to provide more elective courses like in energy, so students can work for energy companies in the near future.

Study programs or departments based on non-renewable products like petroleum engineering may be unsustainable. At some time, the product will disappear or be replaced - that is natural. For example, in Indonesia, our petroleum might finish in 25-50 years. So we have to switch to energy study program as we will forever

need energy.

How can SPE contribute more to the industry?

The best way is to support EOR planning and multi-company Integrated Development Schemes. Invite SPE experts to Indonesia to explain "this is how to do EOR". We are now at the stage of knowing the potential and screening. We don't really have experts on EOR, so we have to ask the experienced people how to do it.

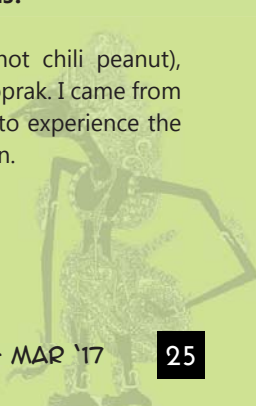
Oil companies as well as government bodies need a proper organization to conduct EOR to manage and develop capability.

EOR can also build national capacity, for example producing chemicals such as surfactant at low cost using local resources. At today's oil price, importing surfactants is too expensive, it harms the EOR economics.

And to finish, a serious question: what are your favourite foods?

Pecel (vegetables and hot chili peanut), sate, es campur and ketoprak. I came from Solo, it's the best place to experience the national culinary tradition.

Thank you Pak Tutuka.



INTERVIEW WITH

IWAN CHANDRA

PRESIDENT DIRECTOR OF GE OIL & GAS INDONESIA



Iwan Chandra is the Country Leader and President Director of GE Oil and Gas Indonesia. He has more than 30 years experience in oil and gas industry, and has been active in many associations, including SPE, IATMI and IPA. He received SPE team in the middle of his busy schedule, sharing his experience and wisdom.



Pak Iwan, we would like to know about your career journey. How did you come to join the oil and gas industry?

When I was a kid, people would ask “what you want to be when you grow up?”. My friends mostly answered “I want to be a doctor.” But, I had another dream, to become an engineer. I didn’t know why I wanted to be an engineer, I just did.

At university, I took Electrical engineering as my major at Satyawacana in Salatiga. My undergraduate thesis talked about the digital command language of VAX/VMS. At the time, there were only two VAX/VMS computers in Indonesia; one was owned by Schlumberger where I did my internship, processing data from oil wells, and the other belonged to the Navy. The computer was as big as this room and I was very impressed by its processing ability. Meanwhile, the Navy used their computer to monitor ships and radar in Indonesian waters, because this computer could do multitasking.

After graduation in 1983, I applied for a job at there, in the department that processed digital data like well logs. I said to myself, “Okay, it suits me. I can still be an engineer, working with computers, at an oilfield services company with a high salary.” I started working there on January 25, 1984. That was 33 years ago.

Before long, I was assigned to Australia as a field engineer, dealing with foreign companies, and working with high-tech computers. I was very proud; although I was a fresh graduate, my company had already assigned me to work overseas. My operators were foreigners. There were good times and bad times, like being assigned to the desert. I learned fast that this industry is challenging and demanding. Everything has to be now,

there has to be no delay. And it asks for perfection.

As a field engineer, before each job, I prepared the equipment. Then, during the job, I worked non-stop until the collection of well log data was complete. In extreme cases, the well-logging took three to four days. Immediately on finishing, we had to write the invoice that needed to be signed by the company man. I still remember that the invoice had to be precise until two decimal places. Can you imagine yourself working hard for three days and nights with severe lack of sleep, and then having to hand-write an invoice with such precision? Before the invoice was signed, we were not allowed



We need to work on “FastWorks” concept, where we get the big idea, do it in a small scale, and improve



to go home. The oil and gas industry demands us to be perfectionists. These early experiences educated and shaped me to survive in this industry until today.

The Oil and gas industry is cyclical, and we are in the worst down-turn in living memory. Some of us can’t see light at the end of the tunnel yet. What is your view about why we are here right now with all the problems we have?

I have worked in a service company, and our clients are oil companies; from national oil companies like Pertamina, to major oil companies like Chevron and ExxonMobil. So when oil companies rise and fall, we follow. Since I joined them

in 1984, there have been 6 cycles of ups and downs in the oil and gas industry. In 1986, there was a recession and oil prices dropped down to US\$ 30. Later, in 1997, when I was in Aberdeen, the oil price crashed to US\$11. It fluctuated wildly: up to \$30, down to \$20, down again to \$10, up again to \$30. Then came good times, and oil reached its highest price in early 2014 of around \$140. And then it dropped again to \$45. So we have experienced and survived oil down to US\$11. Some were “V” shaped crashes, where the low price only lasted for a year and then it went up again. One was “U” shaped, where the low price lasted two or three years, before it went up again. This current crash I call a “bathtub” cycle, because the oil price has stayed low for longer. But I am sure the oil price will go up again.

That is why I stay in the oil and gas industry, not moving to another industry like banking or digital. Also, Indonesia is highly dependent on oil imports. Even if this year’s production target of 0.86 million barrels per day can be accomplished, we need 1.3 million barrels per day. So, Indonesia needs every barrel of oil that it can produce, so I want to help.

I once plotted oil price against rig count. When the oil price goes down, the rig count also goes down. When oil prices go up, the rig count also goes up. But there is a delay. In international markets (outside of US and Europe), when the oil price crashes, the rig count crashes 3 months later. But when oil price picks up, the rig count takes 6 months to pick up.

Indonesia is different. 3 months after the oil price went down, the rig count still had not decreased; although the rig count in the US and Europe had. Then, when the oil price went up and the rig count in US and Europe followed, the rig count in Indonesia did not increase. Why is that so? Because when the oil price goes up, rigs are first hired by US, and then they go to Europe and the Middle East before they reach Indonesia. Thus, the activity level in Indonesia has a one-year delay from the US and Europe.

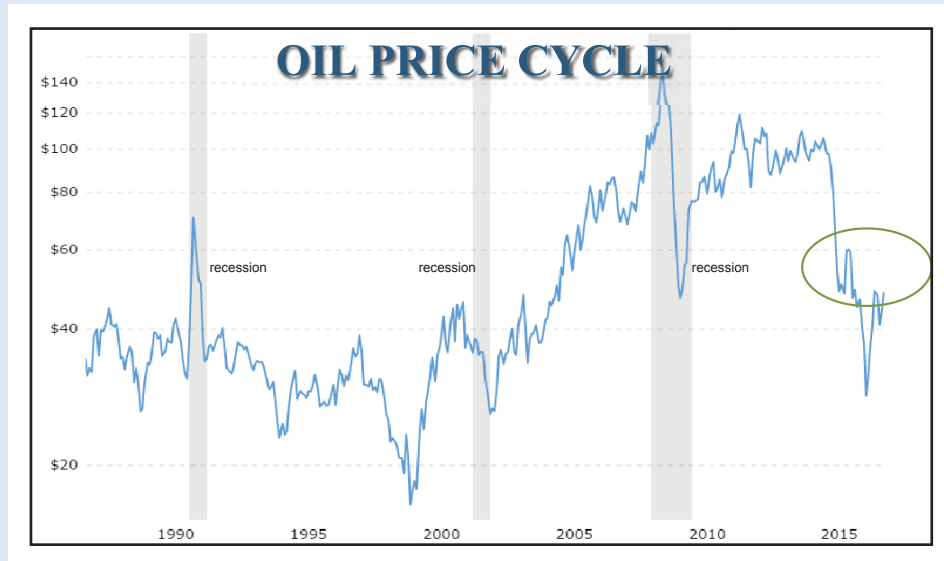
The benefit of being a global company

working in in 130 countries is that we have indications (from other countries) that we can use to plan in Indonesia. All multinational companies have that benefit, although I don't how far each of them use it. The point is, I think in Indonesia the business is here to stay. It is impossible that the government closes all oil companies and decides to buy all the oil needed from abroad. In fact, I think we will continue to increase exploration and increase the production of existing wells. Those are things that we must do, it's not an option. I think that amongst oil producing countries, Indonesia is unique, because oil production activities will never stop here. Moreover, based on recent research, our oil reserves are still huge, aside from the shale oil, shale gas, CBM and geothermal energy.

I give lectures to students at Trisakti, Gajah Mada, and other universities, and the students ask, "Should I stay in oil and gas?". I answer, "Yes!", and they are convinced, because they see that I've been 34 years in this industry and I've seen a lot of ups and downs from an imbalance between supply and demand. Two or three previous downturns were caused by recession: the global situation declined and so demand for oil decreased. This downturn is different. Oil demand is higher each year, but supply is even higher, because of technology, and this has created a lasting oil surplus. This is why this down cycle is longer this time.

In the US, technology has dramatically increased oil and gas production. Can we do this in Indonesia?

Of course, we can import the equipment and technology. The major technology is multi-stage fracture-stimulation (fracking) of shale oil and gas. It is easy to set up in the US because the land is flat and they have infrastructure. Fracking requires horsepower. In Indonesia, we could gather all cementing units from the big-four service companies and we would not have enough horsepower to frack one well. So sure, we could import the equipment and frack, but we have not seen an economic argument. Sumatra and Kalimantan have the best potential for shale, but it is located deep inside the hilly forest.



Back in the US, the next well is only a few hundred meters away in open country. Shale is unpredictable compared to regular sandstone reservoirs. How long will the well produce? How far will fractures extend? To find out, we drill, frack and produce. Over and over. So the logistics, infrastructure and land access need to be available. In Indonesia, they are not.

Besides shale gas, what are other resources can Indonesia exploit?

Oil needs more exploration, especially in East Indonesia. We have found oil there, but it is not a big success.

Gas, on the other hand, looks more promising because improving LNG technology has overcome the difficulty of getting gas to market in a country with lots of islands.

Geothermal has the biggest potential: 21 gigawatts of which only a few gigawatts is developed.

We should remember that the biggest usage of those oil, gas, and steam from geothermal is to produce electricity. GE has all the technology: steam turbines, gas turbines, and regular diesel fuel engines. Our turbines can run on diesel or gas, but we concentrate on gas. Gas produced in Indonesia can contain high levels of CO₂, so GE developed a turbine that can run with gas containing up to 60% of CO₂. So the operator avoids the

cost for expensive equipment to reduce the CO₂. We also have a technology called Combined Cycle, where the hot exhaust gases from the turbine is used to creates steam which runs through another turbine, which increases power output by 20%.

So GE's main activity in Indonesia is power generation?

We are also in digital. GE has a cloud-based operating system for industry called Predix. It is open source from the GE store, so anybody can create their own apps. In Indonesia, PLN use GE Power, KAI use GE Transportation, Garuda use GE Aviation. Hospitals use GE Healthcare, because we are strong in MRI technology.

We also use the GE Store to speed up Research and Development. In the past, product development from concept, to experiment, to field test, and finally prototype took at least 5 years. Now it takes less than one year. Through the GE store, we can take 3D pictures and print them into a prototype machine.

The GE Store is a hub that allows exchange, utilization, synergy and support amongst teams. That is GE's strength and that is why we are a US\$ 250 billion company. GE Oil and Gas is, of course, supported by other divisions, but we are growing.

Since you're talking about growing, can you comment a little about the near future of GE Oil and Gas?

GE has always been strong in turbomachinery. We added subsea when we bought VetcoGray, ESP's with the Wood Group, rod-lift systems with Lufkin, cased-hole and open-hole logging with Sondex. Downstream, we have control measurement in refineries with Bently Nevada.

Our business models are changing. For example, customers can rent rather than buy.

GE machines are in LNG plants: Arun, Badak, Tangguh and Donggi-Senoro. These projects are long cycle and so the machines are bought. On the other hand, drilling wells is short cycle, and so we move from selling equipment into services. The service cycle is "I need it tomorrow, can you come tomorrow? Wait, can you come today?"

Headquarters realized that to grow organically in oil and gas would take too long. So GE sees in the market what's available to buy. For example, with Baker we have a merger where GE owns 62.5% and Baker Hughes owns 37.5%. There is little overlap in technologies. GE and Baker companies will be connected by digital.

The new company will become a 'full-stream' company. Upstream covers well construction to the wellhead. Mid-stream covers from the gathering station to loading (so LNG is mid-stream). Beyond that is down-stream. GE has upstream, mid-stream, and downstream technologies, so we are a 'full-stream' company.

By next July I hope the deal will be finalized. I'm happy because we are creating something that does not exist today.

What is your strategy to catch the 35,000 megawatts of new power generation in Indonesia?

We are already there. The first 500 megawatts is GE mobile power because they needed it in six months in Lombok and Gorontalo, Sulawesi. The gas engines sit in a container and plug- and-play. GE had the basic equipment and we tailored

it to fit the job.

In this down cycle, we're actually building up. And hopefully when the business goes up again, we'll continue going up..

GE not only does mega projects. GE support the government program of "Indonesia terang", lighting up 42 villages in Papua. GE has wind and solar - the answer for remote places off the grid. The program is not really about lights. It is about sustainability. For example, villages are often near beaches or rivers because the main activity is fishing. The fishermen are limited because they don't have cold storage to preserve the fish. So we provide electricity to power cold storage.

How does GE develop technology?

GE believe that technology brings the future to now, such as US shale oil

One GE program is 'FastWorks' which is "get the big idea, find the small scale, and let's do it."

Say you come up with an idea of how to monitor LNG plant performance with digital, and how to connect them all. But if we wait for all the LNG plants to be built, then when will we develop this

idea? With 'FastWorks', we'll give you an existing refinery to trial the same concept: complete with rotating equipment, fabrication monitoring.

We apply digital so that we can predict. Scheduled maintenance becomes predictive maintenance - if a machine will fail in two months, we can act now, like ordering spare parts that we don't hold in stock. When the spare part arrives, we can schedule maintenance to replace the part before the equipment fails. We did this in Donggi-Senoro LNG.

For non-oil and gas, that may work very well. However, for oil and gas, the PTK 007 is probably a hindrance?

In Indonesia, to participate in a bid, we need to have a proven technology to be technically qualified. A typical two envelope system requires participation from three vendors with comparable technology, and then the lowest bidder will be selected. Although the intent is positive, such system may prevent new technologies to participate, especially when it is proprietary by a single vendor or very few vendors.

We hope this will change. Local content is fine for us. GE technology can be bought by companies and used in their





Andika Mahardika, Amin Hartoni, Iwan Chandra, Hasbi Lubis and William Ongseputra

products. We have partnerships with PDSI, Elnusa and EJP. We have close to 40 channel partners for GE Digital products. Since GE is a manufacturer, the products reach market and are promoted by our partners. In Indonesia, our factories are in Batam and Surabaya, and for power generation in Bandung.

We live with the country. GE has survived for 76 years Indonesia and developed big customers in state-owned enterprises like Garuda, Pertamina and State hospitals. We support the infrastructure needs of the country and we follow the regulations.

Jeff Immelt – Chairman and CEO of GE, John Rice – Vice Chair and head of Global Operations outside US, and Lorenzo Simonelli – President & CEO of GE Oil & Gas have all been Indonesia within the last 3 months. It shows that Indonesia is important for GE.

Pak Iwan, you worked in Australia. What is it in Australia that you think maybe we should try.

In Australia, like in Indonesia, oil companies need to find oil and gas which requires a huge investment. So their team will think about the best way to success and decide which technology to use. They will analyze the field condition as well as learn from their branches operating in other countries. They may decide to use a technology based on their successful experiences in other countries.

In Indonesia, procurement regulations may prevent them from using their chosen technology. This needs to be considered by the regulators since companies make huge investments and take big risks. In other countries, the oil companies can decide what is best for them based on their experience.

Second, from my personal experience, Indonesian engineers are good and smart, but lack confidence. We choose to stay quiet rather than speak up. Appreciation towards Indonesians will be high if we can prove our capability. However, how can we prove our capability if we stay quiet, so they give the task to another person. It is a missed opportunity to prove ourselves. We lose before we fight. We need to learn to take the opportunity to prove ourselves.

Pak Iwan, you were a leader in a service company once, and now you are leading a company which originally starts as an OEM and trying to reinvent itself to become a service company through acquisitions. As the leader who is leading the transformation, what are your directives and expectations?

GE is different with Service Companies that do not sell equipment but only provide services and sell data. In GE, first we sell the equipment, and then we also provide the maintenance and long term services.

Our legacy products are critical equipment with a long life-cycle, so our service is either centralized or regionalized. We have 120 full service engineers pooled in Malaysia for the Asia Pacific region, and they provide after sales service and maintenance for equipment we sell. For example, in LNG we have service agreement of 5-10 years.

Similarly, for Bently Nevada products, we have Condition Monitoring System engineers to monitoring the system.

With Lufkin and Wood Group products, customers can buy or rent our equipment. With rental, we provide the installation, maintenance, and running of the equipment. So we are partly a service company. In the US, we even have logging services. In the Middle East and Thailand, we provide ESP's.

Nowadays, with the down cycle in oil, drilling and well construction is decreasing, but there are still tens of thousands existing wells. GE sees these existing wells as an opportunity to build a sustained business for our services.

Previously in GE, requests had to be submitted to headquarters. With long-cycle services, there were not many requests, so, everything was okay.

However, for short-cycle services like ESP's, it has to be different. Over the past three years, GE has transformed and now every decision is made in the region, except for critical matters that still need to be linked to headquarters. So now our operations manager is based in Singapore.

With the ongoing merger with Baker, GE Indonesia with me leading automatically knows what to do, what to change and what to keep. It is not complex because the merger is among two companies serving different parts of the value chain with minimal overlap, so this merger is more 'how to join' not 'how to reduce'.

Hopefully, the service company culture and the OEM culture will be complimentary and support each other.

Thank you Pak Iwan.





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"Accelerating Reform to Re-Attract Investment to Meet the Economic Growth Target"

PLENARY SESSION

Plenary Session 1:

"Re-Attracting Upstream Oil and Gas Investment amidst the Global Capital Efficiency Drive"

Invited Keynote Speaker:

- Ignasius Jonan, Minister of Energy and Mineral Resources RI

Invited Panelists:

- Thomas Trikasih Lembong, Head of BKPM
- Ministry of Energy of Mexico
- Azam Muhammad, Partner and Managing Partner General Energy and Mining Practice for Southeast Asia of McKinsey
- Herman Huang, Wood Mackenzie
- Christina Verchere, President of the IPA Board

Moderator: Vincent Lingga

Plenary Session 3:

"Priority Reforms to Re-Attract Investment"

Invited Keynote Speaker:

- Arcandra Tahar, Vice Minister of Energy and Mineral Resources RI

Invited Panelists:

- I Gusti Nyoman Wiratmaja Puja, Director General of Oil and Gas, Ministry of Energy and Mineral Resources RI
- Amien Sunaryadi, Head of SKK Migas
- Satya Widya Yudha, Member of the House of Representatives Commission VII
- Elia Massa Manik, President Director of PT. Pertamina (Persero)
- Rajiv Biswas, Senior Director and Asia Pacific Chief of Economist of IHS
- Ronald Gunawan, IPA Director

Moderator: Alex Ginting

Plenary Session 2:

"Beyond Revenues: The Indispensable Contribution of the Upstream Industry to Local Industry and Economic Growth"

Invited Keynote Speaker:

- Sri Mulyani Indrawati, Minister of Finance RI

Invited Panelists:

- Hariyadi B. Sukamdani, Chairman of APINDO
- Eddy Tamboto, Senior Partner and Managing Director, Boston Consulting Group
- Edi Damansyah, Vice Regent of Kutai Kartanegara Regency
- Dan L. Wiczynski, IPA Director

Moderator: Desi Anwar

SPECIAL SESSION

"Investing in Indonesians: Impact of the Current Landscape"

Invited Panelists:

1. Chairperson of IATMI
2. Chairperson of IAGI
3. Chairperson of HAGI
4. Chairperson of IAFMI
5. Chairperson of SPE
6. I. Tenny Wibowo, IPA Director

Moderator: Andang Bachtiar

CONVENTION REGISTRATION

REGISTRATION**	EARLY BIRDS RATES BEFORE 15 MARCH 2017	NORMAL RATES AFTER 15 MARCH 2017
Professionals / Delegates (Domestic, KITAS, KIMS holders)	IDR 5.000.000	IDR 5.750.000
Professionals / Delegates (Overseas)	IDR 8.400.000	IDR 9.400.000
Student (Domestic)*		IDR 400.000
Student (Overseas)*		IDR 1.740.000

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INTERVIEW WITH

SACHA WINZENRIED

PRICEWATERHOUSECOOPERS



Andre Law, Sacha Winzenried and Amin Hartoni

Hi Sacha. Thanks for joining us. First of all, could you please tell us of your background?

I grew up in Perth and joined PwC in Australia. I first came to Indonesia after the financial crisis in 1999, to assist the local PwC team with a special audit of Pertamina, required by the IMF as part of their post-crisis funding to Indonesia. This was a short-term project, but given the expected development of the energy sector in Indonesia, I decided to stay longer.

In the early to mid-2000's, there was a lot of new investment in oil and gas and mining, so it was quite an active period.

For the last six years, I have lead PwC's Energy, Utilities and Mining practice here in Indonesia.

What does PwC do within the oil and gas industry?

We have a full service firm here in Indonesia of close to two thousand people spread across the audit, taxation services, financial advisory services, and management consultancy practices. We have about three hundred people and eight partners fully dedicated to serving energy, utilities and mining companies, where our major activities have included audit, taxation services, advice on mergers and acquisitions and IPOs, and strategy consulting. Our consulting practice offers strategy advice on organisational structure, changes in business and some operational matters, drawing on our deep knowledge from both Indonesia and other major energy and mining hubs, such as the US and Australia. We are proud to be part of one of the largest global professional services networks. This also allows us to bring in specialists as and when we need them.

Do you advise financing companies?

Absolutely. We are very active in providing M&A advice, including financial and tax due diligence, and deal structuring advice, to both multi-national and local investors. We have been involved in most of the large transactions in the energy and mining sectors since the early 2000s, when there was a lot of turnover in ownership of oil and gas properties. For instance, we supported the CNOOC acquisition of Repsol assets. We also supported PetroChina when they first entered Indonesia; as well as many other direct foreign investors, with financial and tax due diligence and financial structuring support. We have assisted several members of the Tangguh LNG Joint Venture since it was set up, and have also advised Pertamina on several of their domestic and international acquisitions. So, we have enjoyed many good moments over the last fifteen years supporting the growth of the energy sector in Indonesia. Of all the professional service providers here,

we're probably the one that focuses most on energy and mining. We have always had a large client base in this sector and have therefore invested time in thought leadership publications and other activities in the industry.

We write a well-known Indonesian Oil & Gas investment and taxation guide, which is now in its seventh edition. We also regularly publish a survey of investor perceptions of the Indonesian oil & gas sector. We work closely with the Indonesian Petroleum Association (IPA). I presented the results of our latest survey at the 2016 IPA conference, in a panel session with the Minister of ESDM and the Head of SKK Migas.

So, PwC remains active in the Indonesian oil and gas industry, providing advice for clients and also highlighting to the government and industry where they could improve things to see more investment in the sector.

PwC is well-known for its survey. Does it influence the way people in the industry react?

It's very hard to quantify the impact of our survey. Obviously we're in business, so we like to keep our name known, and make sure our brand continues to be associated with the industry. And because we have invested many years in this industry, we've collected a lot of knowledge, on regulations and what's changing both locally and globally. We have also managed to maintain contact with the regulator, so we feel that we can act as a conduit between the industry, which sometimes has its own agenda, and the government, who may sometimes be suspicious of that agenda. We are seen as an independent party (clearly our brand is based on our independence), so we feel that we are a good proxy to raise issues based on facts without criticizing either side.

Does Indonesia need to be self sufficient in oil and gas?

Indonesia is already a net oil importer. Soon it will be a net gas importer, and by 2030 it may become a net energy importer. So now is the time to decide

"does the country need to invest in the production of oil and gas and other energy sources, or is it going to be content being an importer and not maximizing its resources?"

People are confident that resources exist and that it is still geologically attractive to explore Indonesia. But the environment does not encourage exploration, and so production continues to decline. So, I think the question is not so much about self-sufficiency, but maximising the benefit of Indonesia's hydrocarbon resources.

So, what are the key things that need to be resolved in Indonesia so that we can have a successful oil and gas industry?



Investment will accelerate once people are comfortable with the regulatory side



Well, that conversation can last for several days. It's a complicated discussion.

The number one issue is bureaucratic reform, and better coordination between the different arms of government, both the central government and the regions. I think the government understands this very well. It's been quite clear from the way Jokowi has started his first term, talking about bureaucratic reform, and improving the investment climate.

The second point is contract sanctity.

Unfortunately, over the last few years, we've seen attempts to erode terms of existing PSC's such as the introduction of GR-79 and excessive monitoring of work programmes and budgets, etc. These cause investors to delay projects and cause additional cost. When a company commits to a PSC, it is under a certain set of economic terms. It can calculate the return, and decide whether to invest, accepting the risks around exploration, oil prices, etc, but not changes in regulations. So, if the

government wants to change the rules; fine. But it has to be for new PSC's. And the government has to stand as one. From our survey, we see concern over the lack of consistency between government departments and between central regional authorities; there is not always one voice from government. If we look back in history, Indonesia pioneered the Production Sharing Contract. It was a good scheme for a country in an early stage of development and with minimal infrastructure; meaning high investment costs for somebody to come in. In addition, there was not a lot of local expertise at that time, so you needed to bring in lots of people and money to build the industry. The PSC worked very well for twenty or thirty years. It may need adjustment, but this should be done in consultation with industry, and without impacting existing PSCs.

Another question is "does the capital exist in Indonesia to finance the kind of investment needed?"

A fourth point of concern is whether "outside the pure oil and gas regime, are investors comfortable with the rule of law, the courts and the process for resolution of corporate disputes?"

All of these issues, and many others, play into the investment attractiveness of the oil and gas sector in Indonesia.

What will be the impact of Gross Split?

I understand that gross split is essentially a royalty scheme, and will no longer follow the cost recovery mechanism. This will supposedly end bureaucracy around tendering and contracts, PTK 007 and related regulations.

For mature blocks with small exploration risk and investment, that might be a sensible way to go. My concern is that it may not attract investment in new blocks. The beauty of the cost recovery scheme is early recovery of investment costs once you enter production. This is a necessary incentive for developing countries short of capital for huge oil and gas developments. But will companies still want to come and risk all this capital on high risk exploration plays, with a

delayed timeline for capital return under the gross split mechanism? This may have a significant impact on the overall rate of return for the PSC, and may not meet the investment hurdle rates for some multi-national energy companies.

Will SKK Migas disappear?

No, they're not going to disappear. Actually, people often raise this issue in our survey when we talk to them. SKK Migas has grown into a large bureaucratic machine, much larger than the old BPPKA division in Pertamina responsible for monitoring PSCs, at a time of much higher production and a bigger industry. Adding people to the organisation definitely adds bureaucracy, cost and time. These people have to justify their jobs.

The role of SKK Migas will remain important. Under the gross split mechanism, they may not be required to monitor cost in the same level of detail, but will still need to approve the technical side of work programs and plans of development, environmental permits, drilling permits and safety permits. Each is an area for potential delays in projects – remembering also that there are often other ministries or departments outside SKK Migas involved in issuing some of these permits.

How about geothermal?

A lot of our work recently has been in the power sector, following the big push from the government under the 35 gigawatt fast-track program. Coal will be the main fuel source in the near term. Natural gas is also going to play a significant role – tenders are ongoing for natural gas power plants. But geothermal is taking a long time to come to fruition – the main operators today are the same who had those old contracts, like Chevron. People are looking at new licenses, but most of them are still in early stages and haven't got to construction.

Regulations have been the main issue, since the government got its fingers burnt in the pre-crisis contracts. So the idea of a contract has disappeared.

Geothermal has massive potential in this country. Unfortunately, the investment cost is higher than coal, so it loses out. If Indonesia wants to meet a renewable target within the overall energy mix, it needs to support geothermal. Maybe not via subsidies, as they don't work well. But via some sort of economic benefit to make geothermal competitive with coal. Unfortunately that didn't happen over the last ten to fifteen years, the incentive wasn't there. The rules and regulations weren't clear enough on how and where you can operate, and how the off-take would be negotiated. It should be clear now with the new geothermal law. The unfortunate thing is because of the lack of investment over the last ten years, the power program will have to be coal because nothing else is ready. So we're going to be primarily coal for the next twenty or thirty years, but energy demand in Indonesia will continue to increase so the market is there. And the more we can convert to geothermal, the more coal can be exported. This will benefit the country economically, as well as environmentally.

CBM also has no movement on development. What are the obstacles?

Initially, interest in CBM was high and some big players acquired licenses. I understand that initial drilling indicated that Indonesia's CBM and shale gas are more difficult to extract and not as plentiful as in other countries. Along with this, development costs are high, meanwhile oil and gas prices are falling. So for now, conventional exploration and production are cheaper than CBM. Investment is likely to accelerate once people are comfortable with the regulatory side – if they invest their dollar, they know they can get a capital return. At the moment, we have to wait for the regulatory side to catch up with the idea.

How about gas to LNG?

LNG is an interesting topic, given the limited pipeline infrastructure in Indonesia. It seems likely there's going to be transportation of LNG between islands and regasification and potentially

the import of cheap LNG. So LNG is highly likely to be part of the energy mix for power going forward. I think the investment climate around infrastructure for LNG, as well as shipping and logistics is very prospective. For many years, Indonesia should have been investing in its pipeline network, but the will was not there. There are a few in the national energy plan, but there doesn't seem to be a lot of progress. So, I think that LNG as well as mini LNG are prospective.

Our lack of infrastructure makes developments high-cost.

Yes, this applies to oil and gas and mining. It sounds great to refine oil and process minerals in-country; adding value to the product. But, if you mine in the middle of Kalimantan or Sulawesi, there is no transportation infrastructure, port or power plant. If you are expected to invest in all of this as well as your mine, the whole economic proposition doesn't work anymore. Some oil and gas projects face similar hurdles.

PSC extension is another concern?

Yes, a big issue is that most large PSCs will expire in the next five years, such as CPI. The fact that the government is not prepared to discuss, negotiate, and conclude on those, years in advance, means that we haven't seen any significant investment over the last few years. Aside from everything else, like the downturn of oil prices, the fact that you don't know whether you have an operating license beyond five or six years means you cannot invest billions of dollars in any kind of development. We haven't had much investment over the last few years and we will not have any until we get this right. The same in mining – a lot of big contracts are expiring.

The government preference is for Indonesian operators, particularly Pertamina, to take over large blocks. The question is whether they have the technical and financial capability to operate and finance such a large number and range of operations. Hopefully the Ministry of Energy takes this into account



in making decisions on extensions. Otherwise, we're going to see falls in production.

If Pertamina is going to take over, it's better to know years in advance. Many blocks have long term operations, so they need investment just to maintain operations and to maintain safety and environmental standards. How can you spend that money if you don't know whether you get it back?

Is there parts of Indonesia still not explored?

From a geological perspective, clearly Indonesia has a lot of opportunities. And there are investment dollars available, so when the oil price ticks up and the exploration starts again, the majors will go to places that will give them the best return. And Indonesia may not be at the top of that list, that's the concern. But, the good thing about Indonesian engineers is that they are highly respected globally. This is one industry where Indonesia has a good reputation from operating for fifty years.

SPE Java has three thousand student and young professional members.

What is your advice for these young members?

I think that oil and gas and energy are still prospective industries, both in Indonesia and globally. Our need for energy is not going to diminish, it's only going to increase. Despite the talk of depletion of reserves, technology improves, allowing us to develop new methods to find and extract; so I don't think it's a dying industry by any means. We talk about replacing oil and gas for our electricity and motor vehicles, but we use oil in almost every product and that is not changing any time soon. So, the industry will continue to evolve, the skills that people need to learn and the study that they'll do is going to change. They may not be talking about a career sitting on a rig somewhere. It could be a completely different career, but I say that the oil industry itself will remain strong.

How can SPE help?

Industry associations like SPE and IPA and independent parties like us at PwC, and need to keep hammering the message that there are very prospective industries here that could greatly benefit Indonesia in terms of jobs, GDP growth

and export revenues. But investors need certainty and they need capital return. It's a matter of getting the fiscal regime right.

Our messages and suggestions as reflected in our industry surveys, have remained substantially unchanged for many years. People acknowledge the situation, including some in government. But implementation always seems to be the issue.

Okay. Serious question, what's your favorite Indonesian food?

I like almost all. My favorites are anything with soup, like sop buntut, soto betawi: any kind of soto.

I have spent a lot of time in Jogja. There is a small place there, which has a very good Soto Kudus. I don't know the name, because it's on the street somewhere. I'm a big believer in eating local food because food from home never tastes quite right. Hahaha..



INTERVIEW WITH VIJAY KRISHNAN

MANAGING DIRECTOR
RYSTAD ENERGY ASIA PACIFIC



Thanks for coming Vijay. To start, could you tell us about yourself?

Thanks for having me and for the opportunity to participate. I am an economist by training. I fell into the oil and gas industry almost 20 years ago. My career started in oil markets: as an analyst covering the crude oil price market as well the refined product markets. Over the years, I have been in a variety of roles, mostly in business development for research and consulting companies.

What I enjoy the most is the client-facing environment. So although I am an analyst at heart, and I enjoy looking at facts and numbers, ultimately, I think what drives me is to provide solutions to clients that work in the real world based on sound data and good evidence, because at the end of the day you want to make informed decisions.

It's interesting that you started off in the industry working numbers, especially the oil price. Why does the oil price go up and down?

I wish I could tell you the oil price tomorrow - if I could then I wouldn't be sitting here. No-one has been able to reliably forecast the oil price, key is getting the trend right.

The crude oil market is complex with many players and many derivative products. There is no single price-maker. OPEC tries to play that role and they have a significant impact. But ultimately, my view and Rystad's view, is that the long term oil price is driven by demand and supply. It's a homogeneous product with many parties transacting both at the physical level as well as on the paper side. In the short term, geopolitics dictates where the price goes. Forex also plays a role, as oil

price has a negative correlation to the US dollar. And I've learnt that oil prices, just like for other commodities, overreact in both the upward and downward directions.

I would encourage readers to understand that the oil industry is a cyclical industry but an industry that's here to stay. When I joined in 1997-1998, everyone asked why I joined the oil and gas industry, as it is a sunset industry. I think we have all proven that is wrong. I can safely say to students in a petroleum or engineering program, don't lose heart and carry on because this is an industry where you can learn & grow.

“**Your future is based on continuously improving yourself to pick up new skills, language, computer programs, and think long-term**”

My key thing is we need to be innovative. We need to learn as an industry to thrive on \$50 oil. Our house view in Rystad Energy is that oil will trade in the high 50's this year because of the demand and supply.

You said the market overreacts when the oil price goes up or goes down. Can you elaborate a little bit more?

On the way down, caution takes over as people cover their positions. On the way up, caution goes to the wind. Remember that the crude market is largely driven by paper trades. From 2006-2007 right up to the 2009 financial crisis, the oil price contained a 25-30% premium, driven by paper trades and not by the long term fundamentals. Those same players

sometimes can drive prices down, as they can profit from hedging their trades. The end result is a price accelerator in both directions. But we need this to enable liquidity in this industry.

What were highlights in 2016 and what's coming up?

It's hard to find a highlight in 2016, only low-lights with very low oil prices in Q1 and Q2. Happily, I think that the worst is over. Companies that survived have emerged stronger so that's a good thing. We have plenty to look forward to in 2017, due to increased prices, and also because many companies have consolidated and become more focused in what they need to do, so they can benefit from higher oil prices.

In 2016, the number of discoveries was the lowest in 50 years, and projects were delayed or scrapped. Do you think the current \$50 oil price is enough for companies to start picking up their projects?

Yes, 2016 was the low point. We are currently analysing where projects are being sanctioned and the number of projects in Asia Pacific. We are confident to see more projects being sanctioned this year compared to last year, because of the recovery in oil prices, and also because E&P companies that survived have restructured and recapitalized themselves. They are now in a position to take advantage of lower costs of materials and services, and can assume a higher oil price outlook. It may not be an easy sell to shareholders, that's the role of the management teams to focus on delivering those new projects.

The pickup in activity should be stronger in Australia Indonesia and Vietnam in the Asia Pacific region.

Is South East Asia still interesting?

SE Asia is still a very prospective and popular destination for many companies looking to invest in that space. From a hydrocarbon perspective, Vietnam, Malaysia, Myanmar and Indonesia are all looking good.

But cheap oil and gas has been found and produced. SE Asia is entering into a mature state, like where the North Sea was 15-20 years ago. What happened there is happening here. Majors refocus from mature assets to new big projects where they can add value by applying their deep knowledge and new technologies. So this creates opportunities for regional and smaller companies to pick up mature PSC's and extend their life cycle through lower overheads and increased oil recovery through EOR. Most importantly, they bring focus-which can produce great results.

Which countries are doing it right?

In 2014-2015, Malaysia excelled in terms of exploration and discoveries, a reward for their encouragement of local companies to pick up assets too small for Petronas. Petronas refocused on complex projects that required large capex investment.

Vietnam, on the whole, is investor-friendly and not entirely mature - some basins are developed while others still offer a lot to find. Vietnam is growing rapidly. GDP growth has been high single-digit last year and expected for this year. Given the strong correlation between GDP growth and energy demand, they will need all the energy they can get. So they encourage investment, and the government along with PetroVietnam are open to discussion with investors as they recognize that one size does not fit all - onshore vs. offshore and shallow water vs. deep water. Different things are needed to attract different types of player. People who want to extend the life of mature assets are not the same people who want to explore in deep-water. So it's about being able to

provide different terms and clarity around those terms and incentives. Get this right and more people will participate.

Indonesia is always on the global list and will always be attractive to investors, but I wouldn't say that Indonesia is above Vietnam or Malaysia. I think it depends on what you are aiming to do, what kind of company you are, whether you are focusing on mature assets, deep-water and so on.

I think where Vietnam and Malaysia is doing very well right now is deep-water as they offer slightly more attractive terms. As an investor, you always want better terms. At the end of the day, every government has to balance how they maintain their attractiveness and yet get a good return on assets that need to be explored and developed.

More important than fiscal terms, Indonesia needs certainty and clarity. Oil and gas involves high capex and repayment is long-term, so certainty over that time frame is important.

What do you hear from investors about contract expiry?

Investors know that expired licences will return to the government, and they have no issue with that. They have always known that since they signed their contract 30 years ago. Actually, Indonesia has maintained contract sanctity for the longest time.

More important is how do you turn around exploration? Indonesia still has a large undiscovered resource potential, especially in deep-water. For me, that's where large companies should play a critical role to find and develop resources. They would bring in resources and capability and employ Indonesians to grow the economy at the regional level. The government needs to be more encouraging to facilitate big discoveries that could turn around the declining production in Indonesia.

I am happy to hear you are bullish about Indonesia. This is particularly important for students who are graduating or have graduated and still looking for jobs. Do you have any suggestions perhaps what they should do, or do you think there is still hope in the oil and gas industry?

Of course there is hope! Oil and gas are fundamental drivers of growth around the world. Slow-down in the oil and gas industry is the reason why economies around the world have not performed as well as they should have despite low interest rates. When the oil price increases, we will see the rest of the economy moving again as investment picks up.

So to students in oil and gas, I would encourage my personal mantra of continuous improvement in all you do and keep on working on your skills. Your future is based on the skills you have and these come through working on things and continuously improving yourself to pick up new skills, language, computer programs, and think long-term. The oil and gas industry is here to stay. Low oil prices mean we need to continuously innovate and improve, so we will be able to enjoy the fruit of our labour even at \$50-\$55 oil. That I think is the key.

Everybody is of course very hopeful that oil price will bounce back. What happens if it goes down? What would be your take and suggestion to companies or professionals?

Oil prices will continue to fluctuate up and down, and the market will always find a balance. But if you believe our approach which is driven by the fundamentals and break-evens, then the market has found its balance point above \$50.

TECHNICAL DISCUSSION GROUP

WHY GOVERNMENT OFFER THE GROSS SPLIT SCHEME FOR NEW BLOCK CONTRACT FOR OIL & GAS

BY JOKO SISWANTO

A full room of over 50 SPE members attended our first TDG session of 2017 on 16 Feb 2017 in Bakrie tower in Kuningan.

Gross Split, a hot topic, kept the audience's full attention on the presentation and Q&A.

Our speaker, Pak Joko, shared his knowledge and insights as an inside member of the Gross Split team that worked long hours in the month preceding release in mid-January of the PerMen. This shone through in his talk, which was deep and practical, not just theory and thoughts.

He started with his perception of why Investors have stayed away from block bidding rounds in the last two years, even though the government has lowered the signature bonus, firm commitments and government split. Then he moved onto why it takes on average 15 years from discovery to first oil or gas. And then he explained that exploration activity has

moved from West Indonesia to the riskier and costlier East Indonesia, especially in deep-water areas.

Then Pak Joko moved onto the evolution of the Gross Split. He explained that the fixed and variable percentages in Gross Split (see tables on the next page) arose from thousands of Monte Carlo simulation of cashflows from ten different fields, a mix of mature and new development, oil and gas, onshore and offshore, intended to cover all combinations of operating environments and maturity. The aim was to achieve an IRR of 15%, which was considered attractive for investors.

Interestingly, as variable gross splits are cumulative, a theoretical deep-water unconventional project could have the highest gross split.

In the next few years, probably only Pertamina will adopt Gross Split, on receipt of all terminated PSC's (50-year-old PSC's). New PSC's will also automatically be Gross Split. For



Peter Adam & Joko Siswanto

PSC renewal (30-year-old PSC's), the Contractor can choose either Gross split or Cost Recovery.

Pak Joko's hot topic and interactive presentation inspired the full room to respond with deep questions on the philosophy and mechanics of Gross Split, energized by delicious Nasi Ulam chosen by Ibu Mega.



Base Split

	Government	Contractor
Oil	57	43
Gas	52	48

Type of Incentive

Variable Split

Type of Incentive	Additional Contractor Split
6 CO2 (%)	<5%
	5%=<x<10%
	10%=<x<20%
	20=<x<40%
	40%=<x<60%
	x>=60%
7 H2S (ppm)	<100
	100=<x<300
	300=<x<500
	x>=500
8 Oil Specific Gravity (API)	API<25
	API>25

Type of Incentive

Variable Split

Type of Incentive	Additional Contractor Split
1 Block Status	POD I
	POD II dst
	POFD
	No POD
2 Field Location	Onshore
	Offshore (0<h<=20m)
	Offshore (20<h<=50m)
	Offshore (50<h<=150m)
	Offshore (150<h<=1000m)
	Offshore (>=1000m)

Type of Incentive

Variable Split

Type of Incentive	Additional Contractor Split
9 Local Content	<30%
	30%=<x<50%
	50%=<x<70%
	70%=<x<100%
10 Production Phase	Primary
	Secondary
	Tertiary

Type of Incentive

Variable Split

Type of Incentive	Additional Contractor Split
3 Reservoir Depth	<= 2500 m
	> 2500 m
4 Supported Infrastructure	Well develop
	New Frontier
5 Reservoir Condition	Conventional
	Non Conventional

Type of Incentive

Progressive Split

Type of Incentive	Additional Contractor Split
11 Oil Price	<40
	40=<x<55
	55=<x<70
	70=<x<85
	85=<x<100
	100=<x<115
	>=115
12 Cumulative Production	<1 mmboe
	1=<x<10 mmboe
	10=<x<20 mmboe
	20=<x<50 mmboe
	50=<x<150 mmboe
	>=150 mmboe

DISTINGUISHED LECTURER

CREATING VALUE FROM UNCERTAINTY AND FLEXIBILITY

BY REIDAR B. BRATVOLD - UNIVERSITY OF STAVANGER

An eclectic group of 19 SPE members from 16 companies travelled to the EMP office in Bakrie Tower on 16 March 2017 for a delicious Padang lunch and to catch up with colleagues and friends.

But what really attracted us to gather was our distinguished lecturer, Professor Reidar B. Bratvold from the University of Stavanger in Norway.

Professor Bratvold is a towering light in the SPE community and a world authority on assessment of risk and uncertainty.

He shocked us with his first slide, showing that the NPV of projects decreases by an average 35% when reassessed two years after project sanction. That is, they suffer from value destruction from a combination of missed schedule, cost blowouts and poor early production.

And then he floored us with actual cases where 45% of projects suffer costs above the "base-case plus 20%" high-side commonly used.

And it gets worse, 45% of projects suffer production below the "base-case less 20%" low-side commonly used.

So facilities engineers are no good, and reservoir engineers are no better.

He then listed the causes, with are reluctance to embrace uncertainty, failure to track estimates, and sweeping bad news under the carpet with excuses like "bad weather".

He explained how to generate a range of unbiased oil price forecasts using history and futures.

And also how to add value by designing

projects for flexibility such as adding a massive 2500 m² of empty deck space on a Norwegian offshore platform development to allow extra equipment to be installed in case of early water breakthrough.

Professor Bratvold's key message is that reducing uncertainty is good, but more important is to allow for uncertainty in your design and operation and therefore economics. This aids decision making.

The energetic audience machine-gunned Prof Bratvold with a barrage of questions for 40 minutes, particularly about the human element, such as aversion to risk, protecting your project, performance ratings and unknown unknowns.

Professor Bratvold's presentation is available for download on the SPE Java website.



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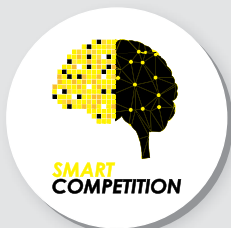
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#RiseTogether



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2017**

"Create the Innovative Engineers
to Face the Oil & Gas Future Industry"

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2017 PRESIDENT SPE INTERNATIONAL JANEEN JUDAH VISITS JAKARTA & DEPOK

One historical moment has come again to our home, Universitas Indonesia. SPE UI SC collaborated with SPE Trisakti SC were honored to host and welcome President International SPE 2017, Janeen Judah on 28th February 2017, at K301 building, Faculty of Engineering Universitas Indonesia. It was part of her visit to Indonesia including Sumatra and Kalimantan Section.

For around 20 minutes, this event opened beautifully with traditional dance from Aceh, Saman Dance or has become well-known abroad with the name "Thousand Hands". This performance symbolizes as warm greeting to celebrate Judah's visit to Indonesia and to bring entertainment to all participants.

This event was also attended by Mr. Salis S. Aprilian (President Director at PT. Badak LNG and Director of SPE's South Asia and the Pacific Region), Mr. Andrew Law (General Manager Weatherford Indonesia and Java Section's Vice Chairman), Mr. Muhammad Titis Redjoso (Student Chapter & YP Chairman for SPE Java



Janeen with all UI & Trisakti students

Section), Prof. Ir. Sutrasno Kartohardjono, M.Sc, Ph.D (Head of Department Chemical Engineering UI) and Ms Mega (SPE Java Section's Section Officer).

In her speech, Mrs. Judah shared about how SPE International contributes in oil and gas industry and facing the up and down oil pricing, she also mentioned about her career pathway until present and engaged students to keep learning because in her point of view, she claimed that the industry still has a bright future for students to pursue careers in the Oil

& Gas sector.

Zaki Zahirsyah, as President of SPE UI SC 2017 said the President International visits show a shift in the relationship of student chapters as an important part of SPE International. One serious note, he believes this occasion is a culmination for SPE UI SC and SPE Trisakti SC to strive excellence between student chapters, as last year both student chapters were awarded the prestigious 2016 Outstanding Student Chapter Award. (Glory Lamria)



Mrs. Janeen Judah



Titis, Alexandro, Salis Aprilian, Janeen Judah, Zaki Zahirsyah and Mega



Janeen visits SKKMigas



Janeen visits PERTAMINA



B&C meeting and dinner with Java Section Board





2017 SPE INTERNATIONAL PRESIDENT VISITS BANDUNG

Mrs. Janeen Judah, the 2017 President of Society of Petroleum Engineers (SPE) International visited Bandung to share about her experiences to the members of SPE ITB Student Chapters. This event was conducted on Wednesday, 1st of March 2017 in Hall of Energy Building, ITB. The participants came not only from ITB, but also from Padjadjaran University and Diponegoro University.

Janeen gave a lot of lessons and advices for us, the young generations who are pursuing a degree especially in petroleum world. She talked about the current condition of the oil and gas industry. The downturn that we are facing currently didn't happen only once, but this is a cyclical business. Back in 1980s there was a dip in oil price where there was a big freeze in hiring, but we should not get disappointed since the industry will come up back. The frenzies year came on 2003- mid 2014 where oil was booming again and there was an increase of hiring and demand of petroleum engineering students.

One of the main lessons that we got from Janeen was about her general advice for career, which is the 3E: Excellence,

Endurance, and Empowering. Excellence is that we should be outstanding at the job that we handle, differentiate ourselves in the competency aspect, increase our presentation (one of the main important skills that we should have) and technical skills. The main thing that should be highlighted is confidence. She shared about how confidence will affect many aspects of life. The second one is endurance. Endurance is what we need to have a good leadership, team building, and decision making. Last but not least is to empower ourselves and others such as building our own network, and also to nominate & to advocate.

She gave us her opinion what should we do in this kind of oil price era.

She also told us that we should not get embarrassed if we get a job which is not our dream job, since it also will enhance our skills and experience no matter what.

After she shared her experiences and stories, the question and answer session began. Many of the participants asked her about SPE such as vision of SPE for campus, oil and gas industries condition like how is the condition of open recruitment, when will the oil and gas prices go up, and about her personal experiences.

In the end, through this message we would like to cordially express our gratitude to Mrs. Janeen Judah for her visit to Institut Teknologi Bandung and for everything that she has given us to motivate us for our future in oil and gas industry.



Medika, Salis Aprilian, Janeen Judah, Andrew Law, Felany Wijaya and Teguh

OVERVIEW COMPETITION



The very first Conference Overview was held on February 23rd 2017. The rehearsal invited Ms. Putri Fakhayatul Ulya as the only main speaker. The event was started at 7 pm by moderator, Elsa. After a short opening, Mr. Deo Reynaldo Alwi gave a very warm speech as President of SPE UNDIP SC 2017. This event was facilitated by SPE UNDIP SC to embark all members on a life-changing journey that would help them to develop confidence in leading others, a stronger awareness

of global issues, and the chance to make new friends and relations. The speaker, Ms. Putri Fakhayatul Ulya was introduced afterwards then started her presentation. She explained the basic introduction of MUN Conference such as what Model UN was and how we might sign up. Most of all participants were excited since they were doing MUN for the first time. Then, she played a video, "Model United Nations: How It Goes" as a comedy sketch of what usually went on in an assembly

of MUN. She presented the mechanism of MUN conference based on the video to all participants during about 40 minutes followed by Question and Answer section. Then, MUN Simulation was applied during about one hour where all participants played the role of delegates from different country and attempted to solve world issues with kind of policies and perspective then represented their working paper. It was clearly seen that all participants dived right by participating well as diplomat. As conclusion, Ms Putri Fakhayatul Ulya urged those who might have interest to prepare and improve the performance in order to be better delegate since it depended on certain fundamental skills. Subsequently, the event was closed by Mr. Deo Reynaldo Alwi to give award plaque to the speaker.



PUBLIC SPEAKING CLASS

The first ever SPE UNDIP SC public speaking class was successfully held on 4th of March 2017 inviting Mr. Indra Setiawan, former delegates of London Model United Nations 2014 and Mr Hara Paradisa, the local committee president of AIESEC UNDIP 16/17 as the main or guest speaker of this event. The event was started around 8:00 am by Tri Hanly Maurice as the master of ceremony of the event, delivering the detail rundown of this event. Afterwards, the safety induction or famously known as the HSE procedure was conducted by Mrs Nadia Dwi Ayu to ensure the safety of the participant inside the room in case of an unlikely emergency event by telling some secure spot to evacuate around the building.

Then a warm greeting speech was spectacularly delivered by the vice president of SPE UNDIP SC Mrs. Medika Sihombing, as a representatives due to the absence of our President Mr. Deo Reynalwi Aldo on this event, then followed by a speech delivered from the Project Manager of this public Speaking Event, Hanif Noer Fachrie.

After all of the opening speech, the master of ceremony introduced and invited Mr Indra Setiawan to go on stage to deliver the public speaking class material. The material was tremendously delivered by Mr Indra Setiawan, making the audience more engaged to the topic. As one of the infamously representatives of London Model United Nations with huge



experiences, he stated the importance of public speaking, why we should be equipped with these kind of ability and how will it effect on our communicating skill making us easier to apply jobs for our better future. When the question and answer session was opened, it's not really surprising that a lot of participant raise their hand to fulfill their curiosity inside their head regarding the topics they just heard although the master of ceremony only give 3 question to be asked. The material was well delivered in about an hour.

After Mr Indra's session, the master of ceremony introduced another speaker

which is Mr Hara Paradisa to perform on stage. The local committee president of AIESEC UNDIP 16/17 gives an opening about his past experiences dealing with an uncomfortable situation when he was not that confident to speak up in front of large audiences. He strongly believed that it doesn't matter if we didn't really have a proper English grammar when we have to deliver a topic in English in front of people. What he really believed is that we have to get rid of our fear and just speak it up in front of the audiences so that it will significantly increase our public speaking skill. After the question and answer sessions, the master of the ceremony closed this event formally.





CMR Dept



HRD dept



Event Dept



PR dept



EXPAND THE ABSOLUTE AND POSITIVE IMPACT AS REPUTABLE STUDENT CHAPTER #RISETOGETHER

As the one of the biggest SPE Student Chapter in Java Section, UPN SPE SC has massive mission to expand and share the good impact for all students and professionals that concern in oil and gas industry. Introducing our new period, UPN SPE SC 2017/2018, we want to bring our SPE Student Chapter to the next level. By this period, we make some breakthrough program to reach the higher goals. We'll approach our member directly, and make sure they can take their benefits as our member. We realize that our roles as student chapter are to connect member to the real industry, educate them with resources that provided by SPE, and always spread the positive energy to the society. With more than 990 student members in 2016, that comes from multi-major not only from Petroleum Engineering, we believe that we have responsibility to serve them all equally. The real evident that we could give to our member is to serve and deliver the benefits directly. We always innovate to improve the way we serve our member and meet the level of excellent.

As student chapter, UPN SPE SC has 3 main

principles, there are Quality, Creativity, and Respect, all of that represent the values of Professionalism. With quality, we always keep an eye on every events that we held. Every department in UPN SPE SC have Standard Operating Procedure as the guidance for all boards. The way we empower our member, the way we propose and execute the programs, and the output of every SPE programs are the main factors to develop. Creativity, We don't stop to create new things. In UPN SPE SC, be innovative is a must. Without innovation, we are same like the others. But we are different, we are prominent. 2017/2018 is the period that has many breakthrough programs to be held. This is the evidence of our commitment to create new innovation and develop our value as SPE Student Chapter. Respect, We realize that respect is significant factor in organization that can give positive integration between the people involved there. In UPN SPE SC, as a team we always respect and appreciate our partners. This makes our working experience in UPN SPE SC become a great opportunity to implement every single idea from our board. Because here, we put the value

of respect and appreciation as main principle.

Our slogan for 2017/2018 period is Rise Together, it means that we want to share our experience in SPE to the member, even more, to the society. SPE Class, SPE Meet the Member, Benefaction Month, and SPEEDFEST 2017 are our strategic media to achieve that goals. In 2017, we started to introduce our student chapter to the other major outside Petroleum Engineering. This is the first step of UPN SPE SC to expand the impact and educate the people about energy issues and explain about what we can do as undergraduate student to deal with that.

Finally, as a student chapter, UPN SPE SC always committed to become the best resource for member in every stages of their careers. We have massive mission to support, educate, and elaborate member with the facilities that provided by SPE International. At last, we believe that to chase our goals and to fulfill our responsibilities we have to RiseTogether!

PAPER TRAINING

- Enhancing Quality of Students to Express Their Ideas -



Photo session of Paper Course

What are the important things that students needed to compete in the modern energy sectors? Students who are concerned especially in Petroleum Engineering need to thrive a culture of writing scientific papers. So, to provide the necessary in increasing the proficiency of writing the paper, UPN SPE SC held an event called Competition Course "Brace Yourself as The Brightest Generation in Oil and Gas Industries" was managed by Mr. Adnan Garry as a project officer. This event has been run on March 5, 2017, at Petroleum Engineering Department Building, UPN "Veteran" Yogyakarta.

Competition course is a training in which we gain knowledge of the steps and manner of making a scientific paper to warm up our boards and staffs to compete in national or international paper competition. The lecturer of this course, Dr. Suranto. ST. MT was a well-known active paper writer in the International Journal Publication such as Onepetro.

The goal of this event is to guide all boards of UPN SPE SC to write a paper that later will be selected into "Top Five Best Abstract" in which that all boards and staffs are very competitive to show their best. The first class is the beginning of writing paper, then the second class

will be the screening of the abstract, and the last class is the continuous guidance for selected persons, and they will be prepared to become delegates of our University particularly as International Paper Presenter.

"As the future of our nation oil and gas engineers, we are not only creative but also need to know how to pour out our ideas at a very best level," said Mr. Suranto while delivering the lesson of the competition course. He also added that in writing paper, there is a lot of things must be considered. Moreover, the writer should attach some novelty in their paper. "Novelty" is the element of something that just updated. So, the paper writer that has a novelty will be more attractive.

This internal event creates a lot of enthusiasm from the boards of UPN SPE SC. It was showed by the total of the participants and the questions were thrown by the audience. For example, the question that has asked by Mr. Haidir, "Could a novelty be a comparison of some method that has a similar problem?". This question was answered steadily by Mr. Suranto who said, "it is a valid way, as long as the writer develops new ideas to solve the same problem". such a very professional way to answer the question.

After the event, there were so many

participants who feel the excitement of writing the paper. This is a good sign that shows UPN SPE SC's goal for running this event.

So, this is one of many ways from UPN SPE SC to educate their boards and staffs, to face the challenges at the paper competitions or conventions in the future. UPN SPE SC wants all of their boards to have the capability in writing paper as professional by adding some novelty at their creation. It will be a very important thing to write paper which we learned with high-quality method.

*We as the future of our nation
oil and gas engineers,
we are not only creative,
but also need to know
how to pour out our ideas
at a very best level
(Dr. Suranto. ST. MT)*



THE OVERVIEW ABOUT MDT SAMPLING AND LIVE FLUID ANALYSIS FROM SCHLUMBERGER FIELD ENGINEER

Boards & Staff UPN VY SPE SC 2017/2018 Period have so many breakthrough events. SPE Class is one of the breakthrough event. We believe that as a student chapter, UPN VY SPE SC has responsibility to educate our member and always give absolute and positive impacts to the society. We have to serve our member directly and let them know exactly, what are the benefits that they can get as a member of SPE.

The concept of SPE Class is an open class which means that everyone is free to come. With SPE Class, we want to meet our member directly and share benefits as SPE member at that time. This program will invite everyone who want to share their knowledges and experiences with our member. Undergraduate and Post-Graduate Student, Former of SPE, and also Professional can be our speaker in SPE Class.

The first edition of SPE Class was held in December 28, 2016. This first edition concerned about technical presentation with professional Field Engineer from Schlumberger Mr. Aditya Ekabudi Pancasakti as a speaker. He give the presentation about "MDT Sampling and Live Fluid Analysis". This theme is the hot topics in formation evaluation because this is the latest technology that applied by Schlumberger to analyze the characteristic of the formation efficiently.

MDT which stands for Modular-formation Dynamic Tester is Wireline formation testing for high-quality fluid samples and real-time reservoir pressure measurements. With this tool, the engineer can meet the exact needs and goals of the data acquisition program with the readily customized MDT modular formation dynamics tester system. In one trip, you get the representative data you need for timely decisions:



Photo Session of SPE Class

- Accurate real-time pressure measurements and permeability measurements from high-resolution gauges and precise flowline control to ensure monophasic flow.
- High-purity and -quality reservoir fluid samples for downhole fluid analysis (DFA) or further PVT laboratory analysis.

The MDT wireline formation tester makes real-time flowline resistivity measurements at the probe module to discriminate between formation fluids and filtrate from water- and oil-base muds. Formation fluid is excluded from the sample chamber until a sample with an acceptably low level of contamination can be recovered.

The modular design of the MDT formation dynamics tester makes it easy to meet the exact needs and goals of your data acquisition program. Flexibility is designed in for compatibility with almost all Schlumberger measurement technologies. Modularity also enables evolving the MDT tester as new measurement techniques, technologies, and options are developed.

The LFA live fluid analyzer analyzes fluids as they flow through the MDT modular

formation dynamics tester. In addition to differentiating hydrocarbon types, the LFA analyzer detects and measures the dissolved methane in the live reservoir fluids, which have remained in a single phase under pressure.

First edition of SPE Class was attended by 25 members and also former boards of UPN SPE SC. They are so interested with SPE Class because they can learn the latest technology that applied in the real field directly with the expert like Mr. Sakti. We hope this program could bring more advantages to our member, not only in technical knowledges but also softskill and non-technical skill.

*Communication
– the human connection –
is the key to
personal and career success
(Paul J Meyer)*



BE EXTRAORDINARY THROUGH SPE



Photo Session of SPE Class

SPE provides its members with a variety of facilities that can help them to broaden their knowledge and relation. In many cases, we find these facilities very beneficial but there is also a good number of our students who are still lacking of clues on how to optimally use these features. UPN VY SPE SC see this as something that should be carefully handled. After all, one of our focuses is to serve our members. And so we created SPE Class #2 in order to educate our members and to carefully guide them into greatness.

On February 24th 2017, we held the SPE Class #2 "Advantage Enhancements of Joining SPE Membership". SPE Class #2 event was managed by Mr. Nathanael Romy as the Project Officer. Although it was a rainy day, the enthusiastic atmosphere

that came from the participants made them still wanted to come to the SPE Class. The participants were mostly from the Petroleum Engineering UPN VY especially from batch 2016, the first year student. One of the participants, Bintang, said "I want to come to this event because I want to know more on how to maximize the benefits SPE membership. Although all students of petroleum engineering are already registered by the SPE Boards, some of the students still didn't know how to maximize their SPE membership". The event started at 7 p.m. with the opening speech from Mr. Irfan Maulana as the president of UPN VY SPE SC. He announced that SPE Class will be conducted once every month due to the high-enthusiasm of the participants to join the SPE Class.

The first speaker was Mr. Gentur Wikan Wijayanto, a student from Petroleum Engineering UPN VY batch 2013 who is also a former board of UPN VY SPE SC. He gave tips on how to optimize SPE membership to the participants. He insisted that members of SPE should look into SPE International Star Scholarship, E-Mentoring, Webinar, Online Courses, SPE Volunteer and other SPE facilitation. Mr. Gentur showed the participants his achievements such as being an awardee of SPE International Star Scholarship 2015, participating in IPTC in Bangkok, and being 1st Runner Up in Petrobowl APOGCE 2015 in Bali. He stated "if I didn't try to submit SPE International Star Scholarship, maybe I would be an ordinary student without anything to be proud of", "This scholarship triggered me to get more achievements and made me a person I am today". The keys to be successful according to Mr.

Gentur are to take all opportunities and to not hesitate to join competitions.

The second speaker was Mr. R. Aburizal Valdi, a student from Petroleum Engineering UPN VY batch 2013 and also was a former board of UPN VY SPE SC. He showed up with his presentation's tagline "Grow a Champion on You". He wanted to encourage the participants to be more active as a student in the campus, including in SPE membership. He said that when he was a freshman, Mr. Gentur and he had the same thought. They stated that he didn't want to be an ordinary student. He wanted to be a student with a lot of achievements. So in order to achieve what he declared as his goal, he started his effort by joining oil and gas poster competition. Unfortunately, he didn't win. Then in his second year, Mr. Aburizal Valdi joined smart competition with Mr. Gentur. He took 3 losses in 3 different competitions before getting his first win in smart competition. Then he won paper competition alongside his senior. After that, he asked his senior for the permission to redevelop his senior's paper and he wanted to present the paper himself. After developing the paper, he submitted it to a paper competition and he won. It does not stop there, he also got a chance to present his paper in IPA. He said "if you want to be an extraordinary student, you have to be more active in both academic and organization. You should have a good time management, don't hesitate to join any competitions, and don't give up so easily".

SPE Class #2 ended at 9 p.m. and was closed by a photo session. The participants were satisfied with our event. They learned a lot about how to maximize the SPE Membership from Mr. Gentur and learned to be an extraordinary student like Mr. R. Aburizal. It was such an inspiring event, especially for the first year students who still have a very long journey ahead.



Presentation from Mr. Aburizal Valdi

*I can accept failure,
everyone fails at something.
But I can't accept not trying.
(Michael Jordan)*

NEW PERIOD, NEW CREW, AND NEW SPIRIT



Boards and Former Boards of UPN SPE SC

UPN "Veteran" Yogyakarta SPE SC starts a new face period. In the beginning of 2016/2017 period, from January 23rd 2017 until January 24th 2017, we held a Leadership Training in Villa Kepodang, Kaliurang, Yogyakarta. This event is an annual event programmed by UPN "Veteran" Yogyakarta SPE Student Chapter to introduce and remind our identity, how do we work, how we solve a problem in our best ways to our boards. The special thing in this period, UPN Veteran SPE SC not only recruited the new boards, but also staffs. We widened the opportunity for the students to work and get great experiences with us. The main goals from this event that the new boards can adapt quickly, getting know each other more between new boards & staffs and old boards, and the most important is to make the all boards and staffs feel comfortable and knows the goals for make UPN "Veteran" SPE SC always get a better performance.

This event started at 4 o'clock in the evening, opened by our newly elected president Mr. Muhammad Irfan Maulana. He explained about his annual programs

from January 2017 until December 2017. With bringing our spirit RISE TOGETHER, all the boards must have same vision and mission with the president, so that when we do the programs, we have the same passion. Next, the presentation about "Our Game Rules in SPE" by Mr. Haidir Fajar Harsono as the new minister of HRD Department. The presentation continued, there was presentation from each officers and departments. Each officers and ministers explained about the main job desks, what should we do, and also what breakthrough idea we can bring in this period. The treasurer tasks presented by Ms. Aulia Nur Annisah, and then followed the secretary tasks presented by Mr. Alfiza Danistya Suseno, HRD Department presented by Mr. Haidir Fajar Harsono, Public Relation Department tasks presented by Mr. Adiasa Dewa Pradipta, Event Department tasks presented by Ms. Antonietha March, and CMR Department presented by Mr. Muhammad Fidi.

When the time was at 7 p.m., we started to announce the position of each new boards. This session was the most-waiting session. Some of them trusted to be a deputy in a department. Our new boards felt excited with their new position. After the announcement, we had a time to discuss within each department in order to build the work-synergy in SPE. In this



UPN SPE SC Leadership Training

event, we also got special guests which was our formers. There was Mr. Lervino, Mr. Ferdi, Ms. Afi, Mr. Gentur, etc. In this session, they shared their experiences when they became a board and also kept motivate us to enhance the passion in SPE. Meet with formers is a consistently existing event, so we can keep a good relation with our formers.

In the morning, we had outbound activities. With a chilly atmosphere, we did much fun games. This activity made our bond and teamwork between new boards and old boards stronger. Last, at 11 o'clock, we went to our home. This Leadership Training was a new experience for the new board and a reminder for old boards to keep the spirit on. The experiences from our former make our hope grow and believe that we can learn everything to prepare our future. Of course, it will not easy. Making adjustment, forcing ourselves to do more, trying something we never did before is the examples of a hard road we may find. But we do believe, this leadership training, this organization, this community is a gate for to make ourselves better, prepared, and ready.



Outbound's Session#2

GREETINGS FROM ENVIRONMENTAL AND INFORMATICS ENGINEERING



Meet the Member UPN SPE SC

Meet The Member was one of many interesting events held by UPN SPE SC. This event was one of various breakthroughs in this period and had never been held before. Through this event we also had the opportunity to socialize SPE membership benefit.

Being held on the 7th of March 2017, we had the privilege to visit all 63 participants at UPN Environmental Engineering building and Informatics Engineering Building at separate times. The first meeting took place in Environmental Engineering Building, room D.3.1-3.2. The master of ceremony, Mr. Adnan Gary officially opened the event right at noon. Then Mr. Muhamad Ikmaal, proceeded with his presentation which was about the benefit of becoming SPE member. He is one of the recipients of YES (Youth Exchange and Study) student exchange program to U.S. During this event, the participants looked so serious yet excited.

It could be easily observed through the many questions thrown during the question session despite the fact that we previously had it limited to 3 questions only. Their enthusiasm did not stop there, as soon as the meeting was officially ended the participants immediately approached us to ask questions they had been meaning to ask during the meeting but were not delivered due to time limitation. This event ended at 1 p.m. but the enthusiasm shown by the participants were way beyond our expectation. One of the participants even requested the committee to share more knowledge concerning the application of Environmental science in oil and gas industry. "I am pleased to hear that and we can definitely talk about it later on at the end of this event. But what needs to be remembered is Environmental Engineering plays an important role in oil and gas industry especially in HSE field" said the president of SPE UPN SC, Mr.

and bonding formed among them.

The next meeting was held at UPN Informatics Engineering Building. It started at 4.30 P.M. and we delivered the same information to the participants but the atmosphere that we had seemed so different with the previous meeting with Environmental Engineering students. This time the participants along with the committee had a lot of laughter. It was an enjoyable moment but they were still into the material. As it turned out the participants were very interested in Oil and Gas industry, a participant innocently asked "What will be our main role in the future as Informatics Engineers in oil and gas industry?" The atmosphere started to change at the end when we opened the question session. These Informatics Engineering students started to ask a lot of questions with excitement and curiosity.

Irfan Maulana. After the photo session was done, the participants continued to deliver questions after questions to the committee, which also marked the new relation

"I get new relation, new experience and learn a lot from this event and from now on I believe I will gain more knowledge in order to build a better Oil and Gas Industry in the future, it is just a matter of time" confessed one of the participants. All of them quickly registered themselves to become member of SPE after the event ended.



Participants from Informatical Engineering



TOGETHER WE RISE UP



UPN SPE SC Gathering

SPE SC Gathering was held on February 2nd from 09.00 am to 01.00 pm. Project Officer of this event is Mr. Fidi Abganis Hermawan. This year, SPE SC Gathering was held in Quinn Colombo hotel. Different from previous year, the concept of this gathering is more focus in sharing and encouraging each other. SPE SC Gathering is an annual event programmed by UPN "Veteran" Yogyakarta SPE SC to increase solidarity between SPE SC which exists in Asia Pacific section.

Over 50 people attended this event. They're from ITB SPE SC, ITS SPE SC, UCSI SPE SC, UGM SPE SC, UI SPE SC, UNDIP SPE SC, UNPAD SPE SC, TRISAKTI SPE SC and UPN VYK SPE SC. The most participant were come from ITS SPE SC.

In this event, each of SPE SC had opportunity to present about their student chapter such as about their

annual event, previous and upcoming events, vision and mission, organization structure and etc. After presentation session, we continued to sharing session which moderated by Mr. Fidi Abganis Hermawan and Miss Dayanara Surya. We were discussing many kind of topic especially about our student chapter and oil and gas condition nowadays. Suchlike the challenges in our student chapter and how we deal with that, quality or quantity member, how we increasing the enthusiasm of our member about our event and etc.

One of SPE SC Gathering participant, Miss Sasyi Niskala Sumaatmadja from ITS SPE SC said "For me, it's always quality, because in my opinion one person with high quality can help to change the world, quantity without quality is useless. Quality is far more important than quantity, because qualified people always do their job with all of their heart."



Presentation from UGM SPE SC



Presentation from Representative of Another SPE SC

After sharing session, we took photo session together then next to fun activity and closing. This event was closed by melodious music performance from Miss Dinar Kaesti, Miss Sekar Ayu Septianis and Mr. Epafras.

There were so many benefits of this event, like building and widening more networking, sharing and discussing about the kind of problem which every student chapter face, to getting closer with another SPE SC and etc.



Bonding among participants

*By giving your time and expertise
and sharing them freely,
the pie gets bigger for everyone.
(Keith Ferrazzi)*

TRAINING DAY



UPN SPE SC Training Day

On Sunday, February 26th, 2017, UPN SPE SC held a program named UPN SPE SC Training Day, with theme "Enhancing Skills for a Better SPE". This event is held annually in every new period in UPN SPE SC. In this event, every department, such as Event, Human Resources and Development, Creative, Multimedia and Research, Public Relation, Secretary, and also Treasurer presented their own Standard Operating Procedure or SOP in doing works.

As we know, in every organization, institution, or company, SOP is the most essential thing which can be a guidance about knowing the standard of performance in doing works. As a professional organization, UPN SPE SC has certain qualifications which must be implemented in every board and staff that we can reduce the errors when working and also get a "succeed" predicate in running every program in it. Furthermore, SOP can underline all the job descriptions and its responsibilities for every board and staff such as, what we need to prepare, what we need to do, and also what we need to finish in every event that was held by UPN SPE SC that make all the boards and staffs are consistent about the role and task in conducting an event professionally.

Besides that, there was also 'Person in

Charge Training', such as how to be good MC, how to be a good safety announcer, and also how to be a good membership announcer. By learning to be a good MC and a safety announcer, we could increase our public speaking skills. Not only that, but also by learning to be a good membership announcer, we tried to attract the audiences so that they can be interested in joining the SPE membership. By this 'Person in Charge Training', all boards and staffs learned to encourage themselves to have good public speaking skills.

In this event, there was also a software training from CMR Department for all boards and staffs to learn how to design a simple poster and also photography training by Mr. Harisma Bagus. So, in this UPN SPE SC Training Day, all boards and staffs in UPN SPE SC learned many things about the job descriptions when running every event according to our standard in SOP.

All boards and staffs were really enthusiast to have many kinds of training in this Training Day. Hopefully, the things that we learned on this event could be beneficial for all boards and staffs. Besides that, with this event, we hope our UPN SPE SC can increase the professionalism in working and serve all the people with knowledge maximally.



Explanation of Event SOP



Membership training



Photography Training

*The swiftest way to triple your success
is to double your investment
in personal development
(Robin Sharma)*

SPE JAVA INDONESIA BOARD OF DIRECTORS 2016-2017							
No.	Position	Name	Company	Address	Tel	E-mail	Member#
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17	YP Coordinator	Andri Mustari	Weatherford	Talavera Office Park 5th Floor Jl. TB Simatupang Kav 22-26 Jakarta Selatan	08119104802	andri.hidayat@ap.weatherford.com	
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31	Fish Fry	Rob Jagodzinski	Turbochem International	Menara Batavia 21st Floor, Jl. KH Mas Mansyur Kav 126, Jakarta	08111631739	turbobigrob@yahoo.com	
32	Golf	Bob Shearer	Oilfield Advisor	Jl. Darul Ma'arif 45G, Jakarta Selatan 12410	0816864315	shearer@dnet.net.id	926006
33	Golf	Brad Sincok	Geological Consulting		0811947920	bsincok53@gmail.com	3437981

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