PETROLEUM EXPERTS DISCUSS SECTOR’S FUTURE AT EOG 2ND UPSTREAM OPERATIONAL EXCELLENCE CONVENTION

Egypt Oil & Gas (EOG) and the EOG Technical Committee held the 2nd Upstream Operational Excellence Convention from December 2-4 at the Sky Executive Resort in Cairo. The event was held under the High Patronage of H.E. Eng. Tarek El Molla, Egypt’s Minister of Petroleum and Mineral Resources.

The annual convention comes in line with the ministry’s Modernization Project and paves the way for professionals from public and private entities to meet together and share best practices for optimizing operations and increasing oil and gas production.

In his opening speech, El Molla thanked EOG for promoting such event and bringing together a diverse group of oil and gas experts. “I would like to assure [attendees] that during this three-day convention you will gain more insights and be exposed to discussions around a number of important strategic issues that hold key priorities in our sector,” said the minister.

El Molla expressed his excitement for the inaugural Young Professionals Day – a full day dedicated to discussing the development of young professionals in the sector, which took place in the last day of the convention – and stressed that building highly-skilled human capital remains a cornerstone for the sector’s success.

“The future of any industry is highly dependable on its youth; and to guarantee a sustainable, fruitful future, the development of our sector’s youth is crucial. I am personally interested in the development of our youth and in providing specialized development programs to build a pool of qualified calibers capable of leading the future of our sector,” he added.

Mohamed Fouad, EOG CEO and Technical Committee Co-chairman, also noted that, although the industry has witnessed many achievements throughout 2018, there are many other challenges in the process of making a change.

“That is why EOG takes the responsibility of promoting this yearly event, aiming to provide national and international partners with the opportunity to discuss relevant topics and enhance the efficiency of the sector,” he said.

On behalf of the EOG Technical Committee, Thomas Maher, the committee’s Chairman, and President and COO of Apex Egypt, welcomed attendees and congratulated the committee members for their great effort in organizing the event.
“Our committee’s objective in designing this convention, in cooperation with the technical office of the Ministry of Petroleum, is to advance the realization and how important the Modernization Program, and particularly the upstream and people development pillars, is to our industry,” said Maher.

The convention’s panels were designed in a way that allowed industry leaders to review topics that shape the oil and gas sector and to answer crucial questions in the process. Topics discussed included the upstream investment climate, the modernization of joint ventures (JVs), and service agreements for mature fields.

The technical workshops were run by respected players in the industry and brought important updates on unconventional production enhancement; field best practices; new technologies; asset integrity; and health, safety, security, environmental and social awareness (HSSES).

The third day was dedicated to empowering young professionals and fostering the talent needed to secure the industry’s future. The Young Professionals Day, as it was named, held a live coaching session and a panel discussion about retaining talent.

Platinum sponsors included Apache, Apex, Cheiron, Shell, and Transglobe Energy. DEA was the Gold sponsor, while Maridive, Shawcor, and Subsea 7 were Silver sponsors. Bronze sponsors included Sapesco and Schumberger. The Technical Workshops sponsor was Kuwait Energy, and the Delegate Bag & Name Tag sponsor was Baker Hughes, a GE company (BHGE). Wood Mackenzie was also present at the event as EOG official research partner.

Before initiating the event’s agenda, Fouad and Maher presented minister Tarek El Molla with an appreciation award for his efforts in the Modernization Project and in encouraging and guiding the youth in the sector.

EOG has also offered the Operational Excellence Awards for nominees of very insightful projects developed by joint venture companies in the Egyptian fields. The awards had one winner in the Individual category, and two winners in the Project category.

Ahmed Sultan, Petrophysics Department Manager at Tharwa Petroleum Company, received the Operation Excellence Award on the Individual Category. On the Projects category, winners were Petrodara and Petrobel.
The opening panel discussion of the convention saw six industry experts engage in an insightful discussion about one of the most important issues facing the Egyptian oil and gas sector today: attracting sustainable levels of outside investment.

The panel featured some of the most prominent figures in the industry giving their views on the topic. Representatives from four of the largest international oil companies (IOCs) operating in Egypt were in attendance to give their views: Fabio Cavanna, General Manager of Eni subsidiary IEOC; Gasser Hanter, Country Manager and Managing Director of Shell Egypt; Stuart Shaw, Vice President of Operations at BP Egypt; and Karim Badawi, Managing Director for Egypt and the Mediterranean at Schlumberger.

Representing the ministry was Mohammed Moanes, First Undersecretary for Production at the Ministry of Petroleum, while independent expertise was provided by Martijn Murphy, Upstream Research Manager at Wood Mackenzie. Moderating the discussion was Thomas Maher, President and COO of Apex Energy and Chairman of the EOG Technical Committee.

Before the discussion began, Murphy delivered a presentation focusing on the levels of private and public capital investment in Egypt over the past five years. Noting that the government had put around $9 billion of public investment into the sector, he praised the high levels of private sector involvement.

“This is something that puts Egypt in pretty good stead with investors. It is an open market, it is not dominated by national oil companies (NOCs), and there is a real diverse corporate landscape,” he said. “The barriers to entry, compared to elsewhere in Africa and the Middle East, are fairly low.”

However, despite the promising levels of private investment, Murphy insisted that the government must go further if it is to maximize returns from brownfield sites – in the Gulf of Suez in particular. Using a Gulf of Suez Petroleum Company (GUPCO) contract as a case study, he estimated that an additional $425 million could be gained if the Egyptian General Petroleum Company (EGPC) reduced its stake, resulting in increased takes for the government in absolute terms.

Murphy then highlighted the government’s “great progress” in paying down arrears to IOCs, and predicted that all arrears will be paid by the end of 2019. “I think that this has really given confidence to smaller IOCs,” he said. He finished the presentation by discussing Egypt’s high rate of mergers and acquisitions (M&A), describing the country as “one of the most active M&A markets” in the Middle East and North Africa (MENA) region.

Gasser Hanter identified Egypt’s wealth of human capital and developed infrastructure as key foundations for nurturing the country’s investment climate. He told the audience that, going forward, Shell will be looking to increase its involvement in Egypt. “We believe that collaborating with the government and actually investing is the best way forward for making the industry more attractive,” he said. “We are here to stay, we are here to grow, and we look forward to working very closely with the government to turn our growth aspirations into reality.”

Karim Badawi, Managing Director for Egypt and the Mediterranean at Schlumberger, said that Schlumberger was very proud of the collaboration in the key activities bringing in more investments into Egypt, such as the multiclient for the Red Sea. This is going to be a key enabler to attract investment in Egypt.

Mohammed Moanes, First Undersecretary for Production at the Ministry of Petroleum, said that initiatives like Schlumberger’s upstream gateway project are important in order to improve the data that is available in our hand, and to bring more companies to work in Egypt.

We believe that collaborating with the government and actually investing is the best way forward for making the industry more attractive.

Gasser Hanter, VP and Managing Director of Shell Egypt

[Schlumberger] is very proud of the collaboration in the key activities bringing in more investments into Egypt, such as the multiclient for the Red Sea. This is going to be a key enabler to attract investment in Egypt.

Karim Badawi, Managing Director for Egypt and the Mediterranean at Schlumberger
COUNTRIES NEED A STABLE FRAMEWORK THAT ENABLES COMPANIES TO INVEST AND FORM PARTNERSHIPS.

STUART SHAW
Vice President of Operations at BP Egypt

IT IS IMPERATIVE THAT EGYPT CONTINUES TO HOST ANNUAL BID ROUNDS. THIS IS GOING TO BE IMPORTANT IN ENSURING THAT THERE IS AN INVENTORY OF PROSPECTS AVAILABLE TO IOCs.

MARTIJN MURPHY
Upstream Research Manager at Wood Mackenzie

[ENI] WILL CONTINUE INVESTING IN EGYPT; WE STRONGLY BELIEVE IN THE RESOURCES OF THE NATION. THIS IS BECAUSE WE HAVE AN APPROPRIATE AND STABLE CLIMATE FOR CONTRACTS.

FABIO CAVANNA
General Manager of IEOC

GOVERNMENTAL INITIATIVES

Moanes turned the conversation towards what the government is hoping to do to transform Egypt into a more attractive investment destination. He told the audience that the government will continue to move forward with the digitalization of the sector, and increasing the data available to potential investors. Initiatives like Schlumberger’s Upstream Gateway Project are important “in order to improve the data that is available in our hand, and to bring more companies to work in Egypt,” Moanes said.

Maher then asked Shaw about how the private sector views the role of the state in generating a sustainable investment climate. “If there was one word I would use, it would be stability,” he said. “Countries need a stable framework that enables companies to invest and form partnerships,” he continued. Shaw then praised the government’s perseverance with its economic reforms; a program that is hoped to stimulate investment in the country’s energy sector. “They show courage and vision, and they are creating the right momentum for energy investment in the future,” he said.

Closing out the discussion, Murphy sounded a note of optimism by predicting Egypt’s natural gas production to exceed 8 billion cubic feet per day by the start of the next decade. However, he cautioned that the country’s high domestic demand for hydrocarbons will necessitate new discoveries by the middle of the decade if the Egypt is going to build on current successes.

“IT is imperative that Egypt continues to host annual bid rounds,” Murphy said. “This is going to be important in ensuring that there is an inventory of prospects available to IOCs.”
THE MODERNIZATION OF JVs

The second day of the convention took off on December 3 with a strategic discussion on the implementation of the Ministry of Petroleum’s Modernization Program in all Egypt’s joint venture (JV) companies.

The panel, entitled “JV Company Modernization”, was moderated by Layla El-Hares, GM Development Egypt and East Mediterranean at Shell.

Panelists included Abed Ezz El Regal, Head of EGPC; Osama Mobarez, Undersecretary for Technical Office at the Ministry of Petroleum; Mark Konecki, Region Operations Director at Apache; Alaa El Batal, Vice Chairman for Exploration at EGPC; and Dina Fouda, Transformation and Value Capture GM at Shell.

Ezz El Regal opened the section, remarking that developing JVs is the first step to achieving modernization across the entire sector. “The first target to achieve such modernization is focusing on people, so we will build the capacity required for such revolution in all aspects of the value chain, starting from the upstream. Second, the excellence of performance and operation,” he said.

“Bapetco is a good model to start with, as it took the lead on this issue,” Eng. Ezz El Regal added.

BAPETCO AS A ROLE MODEL

Bapetco, a JV between EGPC and Shell, was chosen by the government to be the pilot for the modernization of JVs in Egypt. According to the head of EGPC, this choice was made considering a number of factors.

“Number one, it is a mature company with a huge number of employees, and the capability of the staff in Bapetco and the willingness to accept such change makes it an easier process. In addition to Shell’s willingness to collaborate even apart from the Modernization Program,” he said.

Mobarez explained that the idea of having Bapetco as a role model for the modernization of JVs came from the necessity to implement the Modernization Program simultaneously in holding companies and their affiliates.

“In the overall Modernization Program, we are trying to improve the organizational structure of the sector, including EGPC and holding companies, and also improve the governance of the sector in the upper tier; but we do not have the luxury to wait until we have improved the upper tier and then move down to the affiliates,” he explained.

“How to Reach Modernization?”

According to Mobarez, the Modernization Program was created from the willingness to make pre-2016 achievements sustainable.

In order to achieve this goal, Konecki stated that JVs should heavily invest in their human resources. “The industry here must develop leaders for the future,” he said.

“Bapetco is a good model to start with, as it took the lead on this issue,” Eng. Ezz El Regal added.

Panelists included Abed Ezz El Regal, Head of EGPC; Osama Mobarez, Undersecretary for Technical Office at the Ministry of Petroleum; Mark Konecki, Region Operations Director at Apache; Alaa ElBatal, Vice Chairman for Exploration at EGPC; and Dina Fouda, Transformation and Value Capture GM at Shell.

Ezz El Regal opened the section, remarking that developing JVs is the first step to achieving modernization across the entire sector. “The first target to achieve such modernization is focusing on people, so we will build the capacity required for such revolution in all aspects of the value chain, starting from the upstream. Second, the excellence of performance and operation,” he said.

“Bapetco is a good model to start with, as it took the lead on this issue,” Eng. Ezz El Regal added.

BAPETCO AS A ROLE MODEL

Bapetco, a JV between EGPC and Shell, was chosen by the government to be the pilot for the modernization of JVs in Egypt. According to the head of EGPC, this choice was made considering a number of factors.

“Number one, it is a mature company with a huge number of employees, and the capability of the staff in Bapetco and the willingness to accept such change makes it an easier process. In addition to Shell’s willingness to collaborate even apart from the Modernization Program,” he said.

Mobarez explained that the idea of having Bapetco as a role model for the modernization of JVs came from the necessity to implement the Modernization Program simultaneously in holding companies and their affiliates.

“In the overall Modernization Program, we are trying to improve the organizational structure of the sector, including EGPC and holding companies, and also improve the governance of the sector in the upper tier; but we do not have the luxury to wait until we have improved the upper tier and then move down to the affiliates,” he explained.

“How to Reach Modernization?”

According to Mobarez, the Modernization Program was created from the willingness to make pre-2016 achievements sustainable.

In order to achieve this goal, Konecki stated that JVs should heavily invest in their human resources. “The industry here must develop leaders for the future,” he said.

Commenting on Bapetco’s experience, ElBatal said the company has already implemented many of the steps recommended by the ministry’s program. According to him, the pillars for the modernization of JVs are three: governance, human capital development, and key processes like procurement and tendering. “If we are going to improve our working environment, we have to stress on these points,” he said.

“I advise all JVs to follow this model, as it is very important for the future,” ElBatal added.

“When [Apache] advances people through our organization, we advance them because of their competencies and because of their performance, and not just because of how long they have been in a particular job,” he mentioned.

Konecki also stressed that Egypt must work on retaining its skilled employees, who often go to other countries in order to have better opportunities. “We have many talented individuals here in Egypt and we need to nurture those talented people,” he added.
Building on this, Mobarez emphasized that personnel are at the core of any reforms made to the sector. “We are talking about a transformation that is going to have a long journey, so we need the collaboration of all stakeholders,” he added. In order to exemplify the importance of investing in human resources, Fouda mentioned how the motivation of employees has impacted the Modernization Program itself. 

“We have a team of over 30 people from Bapetco who are working on implementing this change within the company and we are getting great value from the passion and the willingness of the team working on the program,” she said.

For Fouda, “the ministry’s vision is all about unlocking the sector’s value.”

This value, however, cannot be unlocked without serious health, safety, and environmental (HSE) management, ElBatal argued. “I want to ensure that Bapetco is giving a lot of attention to HSE, and we are willing to stop any business if we are not achieving our HSE requirements. We are not celebrating any success without HSE,” he said.

Konecki also disclosed that he expects the modernization of JVs to open the way for other positive changes. “Once these pilots are finished, I hope it will be feasible to perhaps have some different business models, because one size does not fit all. The way JVs were organized 30 to 40 years ago does not fit the model of business here in Egypt today,” he said.

Ezz El Regal closed the discussion, stressing his positive expectations for the future of JVs in Egypt, having companies fully digitalized, with everyone in the company having a clear vision both for the modernization process and their individual career paths.

“WE HAVE MANY TALENTED INDIVIDUALS HERE IN EGYPT AND WE NEED TO NURTURE THOSE TALENTED PEOPLE.”

MARK KONECKI
Region Operations Director at Apache

“I WANT TO ENSURE THAT BAPETCO IS GIVING A LOT OF ATTENTION TO HSE, AND WE ARE WILLING TO STOP ANY BUSINESS IF WE ARE NOT ACHIEVING OUR HSE REQUIREMENTS. WE ARE NOT CELEBRATING ANY SUCCESS WITHOUT HSE.”

ALAA ELBATAL
Vice Chairman for Exploration at EGPC

“WE HAVE A TEAM OF OVER 30 PEOPLE FROM BAPETCO WHO ARE WORKING ON IMPLEMENTING THIS CHANGE WITHIN THE COMPANY AND WE ARE GETTING GREAT VALUE FROM THE PASSION AND THE WILLINGNESS OF THE TEAM WORKING ON THE PROGRAM.”

DINA FOUUDA
Transformation and Value Capture GM at Shell
The third strategic panel witnessed five industry experts discuss the pros and cons of service agreements for mature fields in Egypt.

Panelists included Kamel El Sawi, President of Kuwait Energy Egypt; Memet Kont, President and CEO of Mediterra; Hussam Abuseif, Director and General Manager of Egypt, Sudan and South Sudan at BHGE; Thomas Maher, President and COO of Apex Energy, and EOG Technical Committee Chairman; and Colby Fuser, Vice President Egypt and Libya at Halliburton.

The session was moderated by Mohamed Fouad, Managing Director of Egypt Oil & Gas and Technical Committee Co-Chairman.

**MEDITERRA’S EXPERIENCE**

Kont introduced the session with a presentation explaining Mediterra’s experience working under a service contract in Egypt. The company entered into a service agreement in 2017 covering the Sudr Matarma and Asl mature fields in the Gulf of Suez. Under the terms of the contract, Mediterra was required to pay a signing bonus and make a work commitment for the first three years. The company managed to achieve this within just 9-10 months after signing the contract.

Kont then explained that the EGPC agreed to pay the company a small fee after the fields reach baseline production. Any amount above the baseline is then shared between EGPC and the company according to the terms agreed to in the contract.

Since it took over the fields, the company has drilled 11 appraisal and development wells, one exploration well and completed 38 workover, recompletion and testing projects. Production has increased rapidly from around 1,750 barrels of oil per day (b/d) in August 2018 to more than 4,500 b/d at the end of November.

"It’s a great model, it works for us," Kont said, before cautioning that service contracts still require work to make them truly effective. This is to be expected, he said, because the model is still relatively new.

**BENEFITS AND CHALLENGES**

Tom Maher kicked off the discussion stating that, although the production sharing agreement (PSA) model has been beneficial for the country, it is not best suited to brownfield sites. For him, service contracts provide a way of getting around the problem of high recovery costs associated with mature fields. This is especially important, he said, because of the growing number of mature fields that have drifted back into government ownership only to be kept in stasis.

"It is no secret that the next big challenge is stabilizing oil production, and I feel very strongly that service agreements are one avenue to do that," he said, emphasizing their potential to introduce new technology to restore production from late-stage fields.

El Sawi emphasized the necessity of maximizing production from mature fields, highlighting the fact that two-thirds of global oil and gas production come from such assets. "One of the issues with the PSA is to recover the cost at the last period for the concession agreement, which will place a burden on the contractor and even the government to inject more cash," he said, agreeing with Maher.

Kuwait Energy Egypt has operated in Egypt under a service agreement with considerable success. Over the past 10 years, the company has produced 27 million barrels of oil from its concession in the Gulf of Suez, and drilled 15 wells — five of which were producible.

"With the application of practical and focused engineering, tied with geology and enabling technologies, you can do something," he said. "It became very important to introduce this model to the market. It gives the contractors the freedom to do it their own way to control the overheads, to introduce whatever technology the company needs."

Following on from this, Fuser suggested that service contracts may provide the sort of incentives necessary to persuade companies to operate late-stage sites. "In a lot of cases there are no incentives for companies to go back [to bypassed wells]," he said. "If a company..."
IT IS NO SECRET THAT THE NEXT BIG CHALLENGE IS STABILIZING OIL PRODUCTION, AND I FEEL VERY STRONGLY THAT SERVICE AGREEMENTS ARE ONE AVENUE TO DO THAT.

THOMAS MAHER
President and COO of Apex Energy, and EOG Technical Committee Chairman

IT BECAME VERY IMPORTANT TO INTRODUCE [THE SERVICE AGREEMENT] MODEL TO THE MARKET. IT GIVES THE CONTRACTORS THE FREEDOM TO DO IT THEIR OWN WAY TO CONTROL THE OVERHEADS, TO INTRODUCE WHATEVER TECHNOLOGY THE COMPANY NEEDS.

KAMEL EL SAWI
President of Kuwait Energy Egypt

YOU NEED TO ELIMINATE THE UNCERTAINTY IN THE CONTRACT. THE LANGUAGE OF THE CONTRACT IS OFTEN VERY VAGUE... IT DEFEATS THE PURPOSE OF THE CONTRACT ITSELF.

MEMET KONT
President and CEO of Mediterra

THE MINISTRY IS VERY OPEN TO NEW IDEAS ABOUT HOW YOU CAN DO CONTRACTING... BUT YOU NEED TO HAVE THE MANEUVERABILITY IN THE CONTRACT LANGUAGE

COLBY FUSER
Vice President Egypt and Libya at Halliburton

SERVICE CONTRACTS ARE A GOOD TOOL TO APPLY TECHNOLOGY.

HUSSAM ABUSEIF
Director and General Manager of Egypt, Sudan and South Sudan at BHGE

wants to re-look at bypassed production zones, there should be some incentive from the government to provide the benefits to do that. That only gives more barrels back to the country.”

Kont, however, highlighted the ambiguity of some service contracts, and said there was still work to be done to make their implementation easier. “You need to eliminate the uncertainty in the contract,” he said. “The language of the contract is often very vague... it defeats the purpose of the contract itself.”

Abuseif then emphasized the success of service contracts in bringing new technologies into the sector. “Service contracts are a good tool to apply technology,” he said, adding that he would like to see their usage increased in Egypt but acknowledging an important barrier to achieving this. “I think we need to make a lot of effort to change the mindset of approaching mature fields,” he concluded.

The panel concluded with a short question and answer session that allowed audience members to put their thoughts to the panelists. Ashraf Menawi, from Apex International Energy, asked about the prospects for service agreements in Egypt, and whether the sector can expect to see them become more widespread in the future. Maher pointed out that the upcoming Red Sea bid round will have attached a new form of contract – the details of which are still to be announced by the ministry – and that new “fit-for-purpose” agreements are on the horizon with regard to mineral wealth.

Another audience member asked how the sector can enable service agreements to become commonplace with mature fields. “The ministry is very open to new ideas about how you can do contracting... but you need to have the maneuverability in the contract language,” Fuser said. “If the government adds the ability to have a contract change, you are still guaranteeing the ability to produce more barrels. You need to go in together in order to achieve that.”
YOUNG PROFESSIONALS DEVELOPMENT: THE KEY FOR FUTURE LEADERS

The EOG Upstream Operational Excellence Convention reached its third and final day on December 4. Dedicated to the youth in the oil and gas sector, the Young Professionals’ Day started with an open panel discussion on the importance of career visioning to sustain business and retain talent.

Panelists included Maha Fouad Attia, Vice Head of the Technical Office at the Ministry of Petroleum; Ahmed Osama, Enppi’s Project Manager; Tarek Sami, Enppi’s Senior IT External Projects Coordinator; Layla El-Hares, GM Development Egypt and East Mediterranean at Shell; Mirna Arif, Regional Sales Director O&G Digital Egypt, Turkey and Tunisia at BHGE; and Sameh Sabry, Country Manager at DEA Egypt.

The panel was moderated by Kelly Bone, Co-founder of Wolfpack Holdings.

YOUTH IN MODERNIZATION

Attia opened the discussion commenting on the approaches of the Ministry of Petroleum’s Modernization Program to human resources (HR) and youth empowerment. “Modernization is a transformation that goes through all the value chain. It aims to unlock the full potential of the sector and increase its contribution to the Egyptian economy,” said the ministry’s representative, who is also the leader of the Modernization Program’s Realization Office. “One of the major and most important pillars in the modernization is the HR pillar, as we believe our HR are the most valuable asset we have,” she continued.

The Modernization Program tackles HR in three different ways: first, through the institutionalization of human capital; second, through HR development; and third, through improving HR systems. For the HR institutionalization, the program has started developing a data bank that includes all employees and will enable us to have the right people in the right place,” she said.

Attia also explained that in order to build a sustainable growth for the sector, HR development must focus on youth. “The Modernization Program itself is already an example of this; about 60% of the teams in modernization are youth,” she disclosed.

The second approach includes the Middle-Management Program, which looks at identifying, developing, and retaining talents, further preparing them for taking higher responsibilities in the future. “This program offers big chances for young professionals who have passion and commitment to the sector, and capability to lead the sector in the coming years,” said Attia, adding that this program will continue to be implemented after its first round.

As for improving the HR systems, the modernization of joint ventures serves as example. According to Attia, this modernization includes both HR and governance components. “These components aim to have an effective system that enables effective performance management and early identification of talents,” she explained.

Sami, who is a member of the ERP and the Middle-Management projects within the Modernization Program, stated that the ministry’s objectives are strategically aligned with the Egypt’s Vision 2030 strategy. Commenting on his participation in the Middle-Management Program as a young professional, he praised the organization and transparency of the selection process. “I am confident that within the nominated candidates there will be the future leaders of our sector,” he said.

Osama, who has been a member of the Process Management unit of the Realization Office since 2016, shared Sami’s sentiments and added that his participation in the ministry’s program “was a chance to learn more about the activities across the whole value chain”.

DEVELOPING AND RETAINING TALENTS

Panelists subsequently discussed new strategies to develop young professionals’ skills and career paths, as well as ways of retaining talent. On this matter, Sabry pointed out that in order to achieve a successful career path in the sector, young professionals should have more than just technical skills. One of the most important soft skills in his opinion is communication. “You need to make sure that you are expressing yourself in a structured and convincing way,” he said.

Being himself a young professional in a management position, Sabry’s personal advice to the new generation of petroleum employees was to go out of the comfort zone. “You have always to challenge and believe in yourselves. I have witnessed many colleagues who were capable of doing much more than what they are doing now, but the main limitation that restricted them was actually themselves,” he added.

Young Professionals Day

“DO NOT BE AFRAID OF BEING CREATIVE, BECAUSE THIS IS HOW CHANGE COMES ALONG. TRY TO BE EXPERIENCED AND KNOWLEDGEABLE IN YOUR WORK. YOU HAVE TO LEAVE YOUR OWN PRINT.”

MAHA FOUAD ATTIA
Vice Head of the Technical Office at the Ministry of Petroleum

“I AM CONFIDENT THAT WITHIN THE NOMINATED CANDIDATES [OF THE MINISTRY’S MIDDLE-MANAGEMENT PROJECT] THERE WILL BE THE FUTURE LEADERS OF OUR SECTOR.”

TAREK SAMI
Enppi’s Senior IT External Projects Coordinator

“DIGITALIZATION IS A GAME-CHANGING ELEMENT FOR THE INDUSTRY, IT IS THE KEY FOR OIL AND GAS PLAYERS TO ATTRACT TALENT. THE YOUNGER GENERATIONS WANT MORE AGILITY, THEY WANT MORE FLEXIBILITY. DIGITALIZATION GIVES THEM ALL OF THAT.”

MIRNA ARIF
Regional Sales Director O&G Digital Egypt, Turkey and Tunisia at BHGE
A number of panelists emphasized the need for the sector to adapt and become more flexible in its approach to young professionals. “We need to think about the young talent; they are motivated by different things,” El-Hares said, suggesting that companies should move to a more flexible working model that accommodates modern lifestyles and working schedules. “We talk about changing working hours, but we neither believe in it nor promote it, and we are actually very critical when someone adopts it. We need to start looking at it differently. Someone who is really into snowboarding, for example, and is working long hours during winter. What is wrong with having him working these hours during summer instead? We really need to promote that more,” she explained.

Building on her comments, Sabry spoke of the importance of developing careers on an individual basis in order to increase employee retention. “The key thing to retain talent is to provide them with opportunities to continuously learn and grow,” he said.

For El-Hares, promoting the culture of safety and care within oil and gas companies is a key step to retain young professionals and encourage them to improve. “If people feel they are cared for, they will not think of quitting. What we really need to do is being close to our people and lead by example,” she added.

Arif, an expert on digitalization, told the audience that new technologies are key to attracting and retaining talent within the industry. “Digitalization is a game-changing element for the industry, it is the key for oil and gas players to attract talent,” she said. “The younger generations want more agility, they want more flexibility. Digitalization gives them all of that,” she said. “We are perceived as an old industry, but surprisingly we are the first industry that was actually digital. It is all about data. The first step in the oil and gas exploration phase is acquiring huge tons of terabytes of seismic data. All the data that the industry has, now it is time to look at that from a bigger perspective,” Arif continued.

Attia closed the discussion with advice for the new generation of professionals: “Do not be afraid of being creative, because this is how change comes along. Try to be experienced and knowledgeable in your work. You have to leave your own print.”

On the sidelines of the convention, Moataz Darwish, External and Government Relations Manager and Deputy Chairman at Shell Egypt, told Egypt Oil & Gas that, in addition to all the points mentioned during the panel discussion, the industry should also teach the young professionals to understand themselves. “They must be self-aware, set their own goals, and understand their own mindset. That can help them a lot in paving their own way through their career,” said Darwish, who is also member of the EOG Technical Committee.
The Young Professionals Day was concluded with a live coaching session delivered by Kelly Bone, Co-founder of Wolfpack Holdings. The dynamic session featured a mix of coaching, audience participation, motivational videos, and interviews, looking at empowering attendees to seize the energy in their days and change mindsets.

“There are three things people control in their lives: the thoughts they think, the images they visualize and the actions they take,” she said.

During the session, Bone encouraged attendees to take responsibility of their own lives and actions. “Remember, responsibility is not given, it is taken. Do not wait for responsibility to be given to you; take control of your life,” she added.

The coach took the audience through the daily habits needed to get the most out of each day and fast-track their professional and personal development. These include: win your morning to win your day; time-blocking; delivering more than expected; self-reflection, and making time for 60 minutes of learning each day.

According to Bone, people’s first actions and thoughts in the morning affect their energy during the rest of the day. Instead of checking mobile phones, for instance, it would be more positive to take a moment to put thoughts together and visualize the day’s task. When discussing time-blocking, she invited the audience to schedule their daily priorities by selecting the things they want to get done.

Another key for success is delivering more than expected, according to Bone. In order to become a leader, she encouraged young professionals to over-deliver; “go the extra mile”, and become indispensable. When over-delivering, however, youth should “focus on what matters more,” she noted.

Speaking of the 60 daily minutes of learning, Bone advised attendees to be self-reflective, having a quiet time in which they can reflect on their week, what they are doing and whether it has an impact. “First thing in the morning is the best time to do self-reflection, because it is the peak of creativity,” she noted.

The coach subsequently explained the six perspectives that need to be adopted to become a high achiever. The personal perspectives included: focusing on 20% purposeful aims to achieve 80% of the desired results; committing to self-mastery; moving from an engineering style to a purposeful style; being learning based; removing limiting beliefs; and being accountable.

“When you have a purpose, it does not feel like work, but like love and passion,” she said.

According to Bone, leaders should be learning-based and remove any limiting belief they have, holding themselves accountable instead of victimizing themselves.
LETTERS TO THE MINISTRY

After the session, young professionals in the audience were divided into seven teams. Each team, coached by a different industry leader, discussed certain challenges and needs within the oil and gas sector. After the discussion, each team wrote a letter to be sent to petroleum minister Eng. Tarek El Molla addressing the young professionals’ commitments and needs to become future leaders.

“The challenges that may be faced by companies include the resistance of change, fear of mistakes, defying rules and regulations, and lack of communications,” said the yellow team in their letter.

The red team focused on self-mastery, accountability, and creating more jobs in future. “We are committed to work hard and be effective through self-learning and keeping high performance,” the letter read.

The green team focused on opportunities, promotions, digitalization, and human capital investment. “Our current challenges are mainly economics, regulation, skills-matching gap that align with our companies’ needs, and the social impact we might have because of the digitalization of the oil and gas sector,” the letter read, suggesting psychometric testing to face these challenges.

The pink team addressed the leadership relation with employees, giving promotion based on who deserves it, and hiring employees; while the grey team suggested empowering middle leaders and university students.

The blue team focused on developments and proposed creating a suggestion box at each company to receive employees’ suggestions. The last group to read their letter was the orange team, which discussed what support young professionals need, as well as their commitment and dedications.

SHELL NXPLORER PROGRAM

Representing Shell, Nashwa Saleh, the company’s Investment Manager in Egypt, made a presentation about the company’s NXplorer program, which aims to unlock future leaders’ potential through introducing youth to the complex and creative thinking they will need in their future.

According to Saleh, Shell has an extensive portfolio of social investment programs that focus on youth, development, and capacity. “We have our programs on different themes. NXplorer is more focused on complexity,” she said.

In her presentation, Saleh discussed general issues that need solving, which include food, water, and energy nexus. “[Shell] wants to empower students to go beyond all the barriers, and wants to equip them with the tools to be able to face challenges,” she noted. The company aims to globally reach 1 million youth through NXplorer.

The program is developed in three phases. The first phase is Explore, which is based on system thinking methodologies. The second phase is Create, in which students start creating the solutions for the problems discussed. Following that, comes the third phase, Change, which is related to what can lead to a fruitful future.

The NXplorer program currently takes place in 16 countries, and the company is adopting a vision “to have Egypt as the hub for delivering NXplorer to the region,” Saleh pointed out.

In addition to NXplorer, Shell has also become a sponsor of Al Amal program in 2017. After Salah’s presentation, students at Al Amal Program, led by Dr. Samir Abdel Moaty, Chairman of EGS and Al Amal Founder, talked about their contributions at the program. “Our aim is to get [students] ready to compete for a job in a multinational company,” Dr. Abdel Moaty said.
UNCONVENTIONAL THINKING FOR PRODUCTION ENHANCEMENT

In addition to the panels, the convention showcased several technical workshops during its first and second days. The workshops were presented by representatives of national, international, service, and joint venture companies. The first technical session introduced case studies from Egyptian fields and insights on unconventional production workflow.

ACID GAS TREATMENT

Irene Frino, Zohr Process Engineering Specialist at the Belayim Petroleum Company (Petrobel), made a presentation on the usage of Thiopaq and claus technologies in gas treatment, as well as their application in the Zohr natural gas deep-water field.

The field operator, Eni, used both technologies to treat Zohr’s sour gas, which contains 450 parts per million (ppm) of hydrogen sulfide (H2S). Frino explained that the gas is processed through early production facilities (EPF) consisting of three main parts: an acid gas removal unit; a sour liquid processing unit; and a sulfur treatment unit, which includes the Claus and Thiopaq technologies.

The Thiopaq technology is used to treat sulfur from gas. According to Frino, the difference between Thiopaq units and sulfur recovery units (SRUs), which are based on applying the Claus process, is that the Thiopaq is smaller than the Claus and does not have any reactors.

Frino also disclosed that the Thiopaq technology is available in 60 units and can perform 3,800 analyses per year. Meanwhile, SRUs, which work in high temperatures and pressures, are available in 200 units and perform 8,500 analyses per year.

"SRU is more unavailable considering the steam operations that are required to run the facility," Frino concluded.

Thiopaq is not just used in gas treatment, but also in oil. After the presentation, Dr. Ahmed Ali, Operation General Manager at Alexandria Mineral Oils Company (AMOC), told Egypt Oil & Gas that Egypt already has Thiopaq units in AMOC, adding that AMOC’s Thiopaq unit "was established in 2004".

INTEGRATED MODELING APPROACH

Following Frino’s presentation, Mostafa Mamdouh, Senior Reservoir Engineer at the Gulf of Suez Petroleum Company (GUPCO), presented a case study showcasing the Saqqara field, in the Southern Gulf of Suez, and the methods used to unlock potential in the multilayered heterogeneous reservoirs in the field – which were found in poor seismic regions via applying an integrated modeling approach.

The presentation discussed the risks and uncertainties the operators faced during unlocking the multilayered heterogeneous reservoirs, which include facies distribution, STOIP calculations and aquifer strength; lateral and vertical communication, rock quality and permeability distribution, as well as the impact on offset producers.

"The rock quality was a big issue in all of Nezzazat [area in the Gulf of Suez], because Nezzazat, in some areas, has a very good sand quality and permeability, and in other areas has low permeability," Mamdouh said.

He further explained that the key risk faced in the new well deliverables was net sand thickness, which can be mitigated through the well penetrations control model.

As Mamdouh highlighted, the vitality of collecting periodic surveillance data for a better understanding of the multilayered heterogeneous reservoir enables better development decisions. According to him, a company can maximize oil recovery through using integrated approaches to overcome data uncertainty and subsurface risks even in mature fields.

INTEGRATED WORKFLOW

Mohamed Salah, Senior Production Engineer at Khallad Petroleum Company, made a presentation on the importance of having an integrated workflow for unconventional reservoir evaluation in order to improve characterizations and reduce uncertainties.

"We need to address these challenges [faced in unconventional reservoirs] to better understand the reservoir characterization and performance, reduce uncertainties, and identify key technologies to reduce the risk and the operation’s cost," Salah explained.

According to Salah, boosting unconventional production is possible through introducing a series of tax, financial, and knowledge transfer; technology support; pipeline network; resource management; and international cooperation policies.

He also explained that unconventional resources are important due to the decline in global conventional resources. "Developing the unconventional resources [goes through] four major phases. Each phase has its own objective, scope and target," he added.

The first two phases are exploration and appraising phases, which are related to finding the sweet spot in the natural gas play, and the last two are the pilot production and project development phases, which are based on drilling and completing the sustainable-rates-wells.

According to Salah, companies could create an experimental zone through testing several wells and understanding suitable strategies to develop a play. He explained that even the immature expertise could help through bringing international cooperation to the unconventional field.

NOVEL FRACTURING TECHNIQUE

The last person to make a presentation on unconventional production was Taner Batmaz, Stimulation Domain Manager at Schlumberger, who discussed new fracturing techniques to triple gas production through addressing possible water blockage and halving the amount of proppant in Egypt’s Western Desert.

Batmaz discussed the reservoir stimulation and production challenges at the Obaiyed field and the
Lower Safa formation, highlighting two water-based wells and two methanol-based wells.

The challenges faced in the reservoir included rapid pressure decline caused by reservoir compartmentalization, varying condensate gas ratios, unpredictable relative permeability, and varying thickness and reservoir properties. Challenges also included tight reservoir properties that require high-pressure hydraulic fracturing, in addition to water and fluid blockage caused by the poor petrophysical properties, and the multiple contact rather than single gas water contact (GWC).

Water blockage is one of the main challenges faced when operating in this formation. "Water blockage plays a very important role in gas reservoirs, especially in tight gas reservoirs," Batmaz said.

Having water close to the wellbore or the fracture face could lead to a lower relative permeability of oil and gas. Excess water in the formation could be affected by the fluid used in drilling and fracturing treatments. To face these challenges, Batmaz suggested methanol fracturing as the best option for water sensitive formations. Methanol could decrease the surface tension, maximize the fracturing fluids recovery, accelerate the clean-up period, and improve gel stability.

EGYPT’S FIELD BEST PRACTICES

Continuing the first day’s presentations, attendees were provided with a second technical workshop on field best practices.

SCALE INHIBITION SQUEEZE

Mohamed Askar, Petroleum Engineer at GUPCO, introduced the scale management system adopted by GUPCO. He defined scale as a hard deposit of inorganic mineral compounds deposited from aqueous solutions. It has different causes such as pressure drop, temperature change, mixing of incompatible waters, pH increase, and agitation operations.

“All of these causes will form microcrystals and make these crystals grow in size until having an out-of-solution issue," Askar commented. Because of this, he argues scale in wells and facilities "needs to be faced and solved before happening".

Askar stated that in order to evaluate the problem of scale and build an equipment responsible for scale inhibition, GUPCO’s team firstly looked closely to the effects to scale to production. The main tools adopted by the team included a prediction step through complete water analysis and commercial software.

After the prediction step, Askar stressed the team’s conclusion. “Prediction is not enough, we need actual scale samples from the wells.” This led to the detection phase, which was subsequently followed by the squeeze inhibition phase to properly prevent scale.

According to him, the following well modelling phase was carried by “using commercial software to build a well and optimize the well design.” Askar argues that for companies that do not have software or cannot collect samples from wells, there are some other indicators for detecting scale in the wells, including a decrease in the well productivity, water chemistry change, and injection water breakthrough.

DOWNHOLE INJECTION AND BACKWASH PROGRAM WITH BIOCIDE

Ibrahim Hassan, Chemical Treatment Department Head at Qarun Petroleum Company (QPC), made a presentation on the usage of biocide to protect QPC’s assets from souring, and improve the well’s run life and cost-saving for work over.

QPC’s production wells are running by two main types of pumps, which are the electrical submersible pump (ESP) and the sucker rod pump (SRP). High water percentage can cause corrosion and scale on these wells.

“QPC and most of the sister companies in the Western Desert are facing problems due to sulfate reducing bacteria (SRB) that may cause corrosion (MIC), producing sour gas (H2S), high cost due to failure of the wells, and hence production loss,” Hassan said.

Due to ESP’s constant failures, which led to high operating cost and lower production rates, QPC began a Dismantle, Inspections and Failure Analysis (DIFA) for the ESP equipment. The company found that iron sulfide built up downhole causes many problems, including partial plugging for ESP/SRP, emulsion problem, effect on the running time of the wells, decrease on production rate, and increase on the cost impact by work over.

QPC arranged a survey about the downhole problem to get the most prominent way to solve the iron sulfide issue. The company found that the biocide THPS was compatible with their target. Because of that, "QPC took the decision to use THPS for the downhole problem," Hassan stated.

THPS has many advantages such as killing bacteria and dissolving agent for iron sulfide. It is also water-soluble, non-foaming, reservoir compatible, and has a good system throughput. “[QPC] applied the THPS method at a field called YOMNA and it enhanced the running time to 520 days,” he said.

"Now, we are using another technique for downhole treatment which is used in emergencies, the chemical backwash.” The most important procedure in applying the backwash program is the recycling step, “because we must keep downhole for some hours then begin applying it.”

"THPS showed good dissolving results for iron sulfide scale by using continuous injection and chemical backwash treatment. Chemical backwash succeed as a proactive action for improving the production and increasing the run life for the wells that suffer from scale problems leading to plugging and semi-plugging of artificial lifting pumps, work over cost saving, and decrease in the well down time,” he concluded.

GEMPETCO OPERATIONAL EXCELLENCE PROGRAM

Emad Hamdy, Gemsa Petroleum Company’s (Gempetco) Surface Facilities Department Head, led a presentation that focused on the company’s operational excellence program.

“Operational excellence is a professional path to put any company in the track to be best in class performance. Therefore, Gempetco decided to take this approach to be a pioneer in the oil and gas sector,” he said.

The operational excellence program consists of five pillars, which are: reserves and recovery, production, deliver new asset integrity, add or modify asset integrity, and deliver component and effective people. The program’s methodology starts with identifying gaps, opportunities, and priorities; determining resources; developing an implementation plan; delivering projects; and finally monitoring and controlling.

According to Hamdy, Gempetco has defined a four-year timeline to reach a sustainable result. It passes through three phases. First, the creation phase, which lasted from April 2018 to May 2018. Second, the planning phase, which lasted from May 2018 to September 2018. Third, the implementation phase, which is planned to be developed from September 2018 until August 2022.

Nowadays, the company is working on the implementation of platform inspection, maintenance
and repair (IMR); firefighting upgrade; SCADA update and upgrade; hazardous material management; new pipeline installation; waste water effluent; materials management upgrade project; competency assurance; contractor management; and welfare improvement.

For Hamdy, the company’s leaders play a major role in implementing the program, and the whole company must be involved. “We have integrated the organization to ensure that operational excellence is a daily agenda item at all levels.”

**NEW TECHNOLOGIES FOR OPERATIONAL ENHANCEMENT**

The upstream convention’s first day provided the attendees with one more workshop about new technologies.

**GAS EARLY PRODUCTION FACILITY: J-T PLANT**

Mohamed Kamal Gaber, Piping & Pipeline Design Engineer at Petrojet, discussed natural gas and early gas production facilities using the JT-Plant technology. “Capital Economics estimated that the increase in gas production in Egypt will translate into a 2.8% increase in the real gross domestic product (GDP) over the next three years” Gaber said. “The increase in gas production could reach up to 9 billion cubic feet of gas per day by 2020, up from an average of 5.1 billion cubic feet of gas per day in 2017.”

Gaber explained to the audience that natural gas processing is a complex industrial process that consists of many steps, but it can also be simple, as it simply consists of cleaning raw natural gas by separating impurities and various non-methane hydrocarbons and fluids. “Gas is processed to produce what is known as pipeline-quality dry natural gas, the sales gas,” he added.

Petrojet’s case study showed that, for this process, the company’s main challenge was to keep the methane with its high rate taking into consideration all other surrounding conditions. Using JT-Plant, the company could “remove the heavy components, water and dehydration formation to produce the sales gas.”

**SUCCESSFUL LANDING AND GEOSTEERING**

Aly Morad, Petrophysics and Well Placement Team Lead, Sis at Schlumberger, made a presentation about new technologies in geosteering.

Geosteering consists of a “planned interactive positioning of the well-bore using geological criteria with varying formation dip and throw,” he added. “We need to have offset data to form the right idea about what we are drilling,” Morad said.

“Mapping-while-drilling and multi-layer bed boundary detection services allowed us to successfully drill the land well after crossing several challenging faults with varying formation dip and throw,” he added. “Formation mapping allowed for better reservoir understanding and modelling for future wells drilled in the region and we were able to map fine laminations and features inside the reservoir for better delineation of formation dip.”

**IMPLEMENTATION OF REINFORCED THERMOPLASTIC PIPE (RTP)**

Otto Comin, Senior Applications Engineer at Shawcor, introduced the company’s reinforced thermoplastic pipe (RTP) during his presentation.

RTP is a plastic inner liner for corrosion resistance with a reinforcement layer made of high-strength materials such as fiberglass and aramid fiber. It has also an external jacket made of similar material to the inner liner to protect and contain the reinforcement layer. The RTP is a corrosion-resistant and cost-effective alternative to steel and it can be supplied on reels, in coils or stick lengths.

The RTP started in North America but it is now spread all over the world. The pipe has some standards to be based on including API 15S for product testing and design standard, and ASME B31 for complies with requirements. International regulations include local codes. Moreover, “national oil companies (NOCs) have
developed internal standards, including Saudi Aramco, KOC, and YPF Argentina,” Comin said.

The RTP has many applications, including crude oil and emulsion, enhanced oil recovery (EOR) injection line, gas distribution, fuel and lift gas lines, zero flaring, H2S and CO2 applications, source water, disposal lines, rehabilitation liner pulls, and temporary surface lines.

Using the RTP has many benefits as it is a corrosion free pipe with simple and rapid installation, infrequent joints, and reduced installation costs.

Subsea Wireless Communication Technology Control System

Mohamed Abdou, I&C GM Assistant, and Mohamed ElWakil, Systems and Controls Lead at Enppi, made a presentation discussing the subsea wireless technology that led to increasing the focus on the subsea umbilical cables, which become crucial for all subsea system delivery.

The subsea wireless technology is available on three domains, which are: radio-frequency (RF) communication, which has high data throughput, short range, and suffers from mild doppler effect; optical transmission, which is preferably in blue-green wavelength and requires line-of-sight positioning; acoustic communication, which is the longest range of communication, with low throughput.

Recently, the technology has been used to transfer data and control remote subsea assets. Users employ the technology for different purposes, ranging from long-term measurement of oceanographic phenomena to the real-time monitoring of positions and movement of subsea structures.

The technology has many applications, including positioning systems, mobile unit tracking, pipe-lay support, spool metrology, structure installation, BOP controls, cathodic protection monitoring, and Subsea X-tree control.

ADDRESSING ASSET INTEGRITY

The second day of the convention included a workshop with four presentations on asset integrity.

SIM FOR OFFSHORE ASSETS

Structural Integrity Management (SIM) is defined as “a continuous process used for demonstrating the fit-for-purpose of an offshore structure from installation to decommissioning,” Mohamed ElHabbal, Principal Offshore Engineer at Enppi, introduced.

According to him, SIM is one of the Asset Integrity Management (AIM) system’s main pillars and is divided into four main phases. The first one, named data phase, is where “we need to gather characteristic and condition data of the operating assets and build a data management system, which is a very crucial activity in order to have a successful structural integrity,” he said.

The second phase, named the evaluation phase, identifies, evaluates, and characterizes the risks and the structural assessment according to these risks. After that, the third phase, named strategic, “uses planning for repairs, inspections, and maintenance, and sets the roles and responsibilities in each part that the operator signed,” ElHabbal stated. The last phase is the program phase, “where we do activities after planning them,” he added.

ElHabbal pointed out that offshore assets in the Egyptian waters are aged and their operational expenditure is getting higher, which has been leading some operators to consider selling their assets.

He illustrated the application of SIM in those assets mentioning a case study carried out by Enppi. “In our case, our client has about 120 platforms in the Egyptian waters [from which] 13 are out of service. These assets have been installed between 1966 and 1987,” he said.

According to him, most of these platforms were subjected to modifications where the impact of these modifications was underestimated, in addition to the environmental changes in the areas surrounding the platforms. All of these activities needed to be assessed to ensure that the life of the asset could be extended successfully.

“Our scope was to bring fleet data,” he said. After that, the “engineering team’s main responsibility was to transform the data gathered into knowledge in order to have deep understanding of the fleet,” he continued. Once this diagnosis phase was concluded, “the platform with highest risk score in each group was selected for structural assessment.” As ElHabbal explained, the company then moved to a non-linear structural analyses to calculate the Reserve Strength Ratio (RSR), which indicates the ultimate load carrying capacity of a platform.

The engineer clarified that setting a SIM system is an efficient way to optimize OPEX. He continued setting some recommendations to upgrade SIM processes, which included two other phases: philosophy at the beginning of the process, and monitoring at the end.

During the roundtable discussion after his presentation, ElHabbal was asked about why Enppi only focusing on the qualitative approach instead of the quantitative, to what he answered that the approach actually depends on the number of platforms: if they are 10 or 12, it will be better to use the qualitative approach.

When asked about decommissioning, ElHabbal stated that, unfortunately, this is not part of the regulations in Egypt. He finally suggested that the country goes through its legalization and includes this process in the ministry’s Modernization Program.

ASSET PERFORMANCE MANAGEMENT (APM)

Daniel Costa Rodas, Solution Architect Director at Baker Hughes, a GE company (BHGE), made a presentation about reliability and how it affects the business health. Rodas also mentioned what the best in class companies do, and the effects of Asset Performance Management (APM) when addressing reliability.

For Rodas, reliability engineering and APM represent the base for successful function. “Reliability, in many ways, is compared to safety. Some failures came by safety incidents and, in some cases, some safety incidents in the history took place by equipment failure,” he said.

He continued explaining that maintenance and reliability are in continuous improvement. “The best in class companies have been continuously assessing the multiple potential opportunities from a perspective of cost, mismanagement, and time availability,” he stated. “These things are directly and indirectly related to the health of the assets and the equipment that operates these assets.”
In fact, reliability can affect everything done in the industry, generally and inside the company. “There is a relation between injury rate and equipment effectiveness; when equipment effectiveness increases, the injury rate decreases,” Rodas pointed out.

He also explained that, sometimes, there is not enough time to do things right, which requires some procedures to be redone. Often, they are not redone in time to prevent failures. “In some occasions, we fail to identify the issues before they transform into function failure,” he added.

The ideal case would be having the ability to dedicate the needed time and resources to implement the job right, as well as to enhance it. According to Rodas, this happens when “we understand deeply not only how the equipment works, but also how they fail and how we can predict that failure.”

In order to reach this level of understanding, Rodas argues companies should utilize risk assessments, digital technologies, and workforce in an ideal way to collect data and analyze them. “The best in class companies spend annually over 1% of their investments in maintenance,” he added.

Commenting on work process, Rodas stated that having proper work process starts not from technologies, but from assessing the risks that are in place. Accordingly, he suggests companies anticipate risks before starting operations.

“Reliability is strategic to any asset intensive business. APM and reliability are sustained by a solid culture like safety,” he said, concluding his presentation.

**PRODUCTION FACILITIES INTEGRITY AND CORROSION MANAGEMENT**

Mohammad Mahrous, Inspection Section Head at the Oil & Gas Skills (OGS) company, discussed the effects of corrosion in asset integrity. In order to properly manage corrosion, he mentioned three elements of the asset integrity management system (AIMS): facility and process integrity; failure analysis and incident investigation; and corrosion management system (CMS).

“The role of facility integrity is to maximize the availability of the facility and provide integrity assurance for the facility,” he said. As he explained, availability is a measure of how often facility equipment and systems are alive and function as they were designed to.

“(There is a) road which the management should follow to have a free-of-failure environment: if you have a reactive approach to facility integrity, you are in a bad position. You need to show commitment towards facility integrity by providing enough resources and training employees,” he noted, explaining the importance of caring for asset integrity as a precaution instead of a remedy to problems when they have already happened.

Mahrous introduced the example of a re-boiler whose function was to evaporate the light elements and water from condensates. According to him, this re-boiler lost its availability. Although the structure was still there, the availability loss also consisted of a failure. “Losing integrity, from my point of view, does not necessarily mean losing the equipment physically. Losing its function is a failure too,” he said.

“My conclusion here is that we should consider a reasonable budget for asset integrity and consider corrosion as a hazard not only for the equipment physically, but also for its function,” he concluded.

**TUBING-CASING INTEGRITY (TCI)**

The asset integrity workshop was closed with a presentation about tubing-casing integrity (TCI) delivered by Ashraf Said Mohamed, Production Department Head at Qarun Petroleum Company (QPC).

QPC had many problems related to injection well tubing-casing communication caused by advanced tubing corrosion, which led to increased risk of casing leaks, work over costs, and the possibility of complete loss of several wells.

“Initially, QPC staff instituted a company-wide TCI program,” Mohamed said. Under the program, the company conducted a survey that was based on a regular schedule according to the TCI classification of the previous survey. After entering the data in the database, the data is automatically classified into good integrity, unconfirmed communication, probable communication, or confirmed communication.

Commenting on the TCI survey techniques, Mohamed mentioned casing valve risers were installed on all injector wells to facilitate the surveillance procedure. A portable testing manifold was connected to the casing riser during the survey process. If the result was, for instance, unconfirmed TCI, “[that would mean] a small leak that does not lead to increase in tubing flow but pressure builds back up in the annulus slowly over time,” he said.

On database management, Mohamed stressed the importance of collecting data to be entered as historical database, which can determine the well TCI classification and schedule future surveys. Besides, this database can be used to identify corrosions by area and to determine the most suitable chemical treatment to decrease the corrosion rate. The database also extends tubing life, reduces work over frequency, and avoids high operating costs.

According to Mohamed, TCI survey has many advantages. It has no costs, can be applied to all injection wells, and the process is easy to be performed with only one engineer in a short time. TCI database also allows reviewing historical surveys to identify high corrosion areas that need chemical corrosion program.
**HSSES AS A CORE VALUE**

The second day closed with another technical workshop focusing on health, safety, security, and environment (HSSES) guidelines, which play a crucial role in the oil and gas industry.

**RISK-BASED INSPECTION: HOW MATURE FIELDS CAN BENEFIT**

Mohamed Elsebay, Projects Section Head at Gempetco, made a presentation focusing on how the company integrated in-service inspection, risk-based inspection (RBI) and asset integrity management (AIM) procedures.

In-service inspection strategies and techniques are deployed “for the inspection and monitoring of the deterioration that affects different pieces of equipment”, Elsebay said. He explained that companies could plan inspection intervals based on time period, the condition of the asset or the level of risk associated with its failure.

RBI is used to identify and assess the risks posed to processes and equipment. According to Elsebay, there are four main phases companies must undertake to establish a working RBI system. The first stage includes hazard identification and risk assessment using the company’s standard risk matrix. In the second stage, the company plans for and implements the inspection regime, while in the third stage it carries out mitigation actions and updates its risk assessment protocol. The fourth and final stage includes establishing an integrated RBI program, and an RBI study re-assessment plan.

Gempetco faced different challenges, Elsebay explained. “We have to enhance the understanding of such important topics on a managerial level to get the desired results,” he said, suggesting that there was not adequate awareness of the program at the higher echelons of the company. He also reported that the inspection program was not comprehensive enough, and that the company had faced challenges extending the lives of assets beyond their design lives.

After conducting a risk assessment, Elsebay said that uncertainty gave the majority of Gempetco’s equipment a high risk rating, while all equipment assessed had a high impact rating. After completing the RBI program, the company was successful in reducing the risk of a number of assets. Although several still lingered in the high-risk range, the RBI program was able to markedly improve the majority of assets subjected to inspection.

**SUSTAINABILITY: "A CORE VALUE, NOT JUST A TARGET"**

James Garvie, Managing Director at Amal Petroleum Company (Amapetco), and HSE Advisor at Cheiron.

The made a presentation focused on sustainable asset management techniques and how they can provide organizational benefits.

Garvie opened his presentation defining sustainable development as “meeting the needs of the present without compromising the ability of future generations to meet their own needs”. He argued that sustainability shares the same goals as asset integrity and operational excellence. All three aspect involve members of the organization working together to achieve a common objective which delivers long-term value. “We very much see sustainability as a core part of operational excellence program,” Garvie said.

Sustainable practice applies to every aspect of the business: from infrastructure and transportation, to public relations and contractor management. “We have achieved a number of major advances in a way that we could manage health, safety, environment, and social aspects,” Garvie said. Operations at Zaafarana, for instance, saw sustainable development projects that helped “overcoming waste management and enhancing the way of managing public contractors”.

Another crucial aspect is engagement; not only among staff but also “engaging the workers to their families and people surrounding them”, he said. This enables the company to better communicate the benefits of sustainability to a larger audience.

Garvie concluded the presentation by clearly articulating the guiding principles of sustainable corporate development: a clearly-defined roadmap, efficient team collaboration and effective communication of the project’s goals and benefits.

**START-UPS: A POSITIVE HSE CULTURE FROM THE OUTSET**

Continuing the workshop, Emad Elewa, HSE Manager at Apex International Energy, delivered a presentation about how to foster a positive HSE culture specifically within E&P start-up companies.

The newly-established E&P companies in Egypt need to focus on the dynamic practices for building up HSE culture and a good management system, Elewa told the audience. The dynamic system is maintained through team collaboration, resulting in an environment in which “everyone will achieve more and efficiency will be more with team work”.

The presentation focused on four projects undertaken by Apex to improve HSE culture, guided by a set of 12 principles put into practice across the company. Elewa started by explain how the company developed its HSE policies. Rather than taking the traditional routes of handing all the responsibility to managers, the company was keen to involve all employees in the process and encourage their participation.

Elewa then described how Apex designed HSE observation card, explaining that it was created to “encourage a positive attitude”.

“We made a draft card and asked an employee to fill it to report the safe and the unsafe behaviors,” he said, adding that employees are able to stop working if they feel unsafe.

He then moved to key performance indicators (KPIs), and explained how the company approached their development. Apex monitors KPIs each month, which ensures that they are regularly assessed and continuously updated. It allows the company to meaningfully engage with feedback provided by employees and act on it quickly.

Finally, Elewa explained Apex’s approach to managing HSE practices of their contractors. Contractors are in many ways the foundations of the E&P industry, accounting for 85% of all working hours. It is important then to ensure contracting companies work to the same HSE standards as the operator. To achieve this, Apex implements a four-phase process: inserting HSE clauses into the contract, establishing that the contractors understand their HSE obligations; monitoring their activities during the project’s implementation; and collecting feedback for future improvements after the project has been completed.

**IMPROVING PERFORMANCE: SAFETY CULTURE AND HSE MANAGEMENT SYSTEMS**

Martin Wheeler, HSE and Asset Integrity Director at Atticus Energy made a presentation about safety culture, its importance, and how it should be implemented.

“Safety culture is based on a common goal,” Wheeler said, highlighting the importance of company-wide participation. Everybody inside the organization needs to accept the culture if it is to be reinforced. In order to make this happen, each and every employee must feel appreciated. “People must feel that they are respected in the organization…everyone in the organization must benefit from the system,” he pointed out.

Normalizing an effective safety culture can be – to some extent – self-sustaining. “When someone joins an organization, they are affected by the performance of people around. So, if you join a high performing team you up your game to match them,” Wheeler explained. The opposite is also true however. Employees entering a workplace indifferent to poor safety practices may also reproduce the same low standards.

Effective leadership was a focal point of the presentation, as Wheeler emphasized the importance of having leaders across all parts of the organization. “People cannot work without knowing where they are going,” he said, highlighting the fact that some individuals must be able to set a good example for other employees to follow.

Wheeler closed the workshop with a positive assessment of Egypt’s HSE development: “Egypt is currently improving especially with the important role of the senior members in the industry.”